NUS CORPORATION
A Halliburton Company

915068

FIELD INVESTIGATION TEAM ACTIVITIES AT UNCONTROLLED HAZARDOUS SUBSTANCES FACILITIES — ZONE I

5/91

NUS CORPORATION
SUPERFUND DIVISION

02-9007-18-SI
REV. NO. 0

FINAL DRAFT
SITE INSPECTION REPORT
LANCASTER SANITARY LANDFILL
LANCASTER, NEW YORK
VOLUME 2 OF 2

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO. 02-9007-18-SI
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MAY 6, 1991

NUS CORPORATION
SUPERFUND

REFERENCE NO. 5

NUS CORPORATION

II

0642

LANCASTER LF
02-9007-18
TDD MANAGER - B. KURKJIAN
LOGBOOK #0642
SEPTEMBER 7, 1990

Lancaster SLF 02-9007-18

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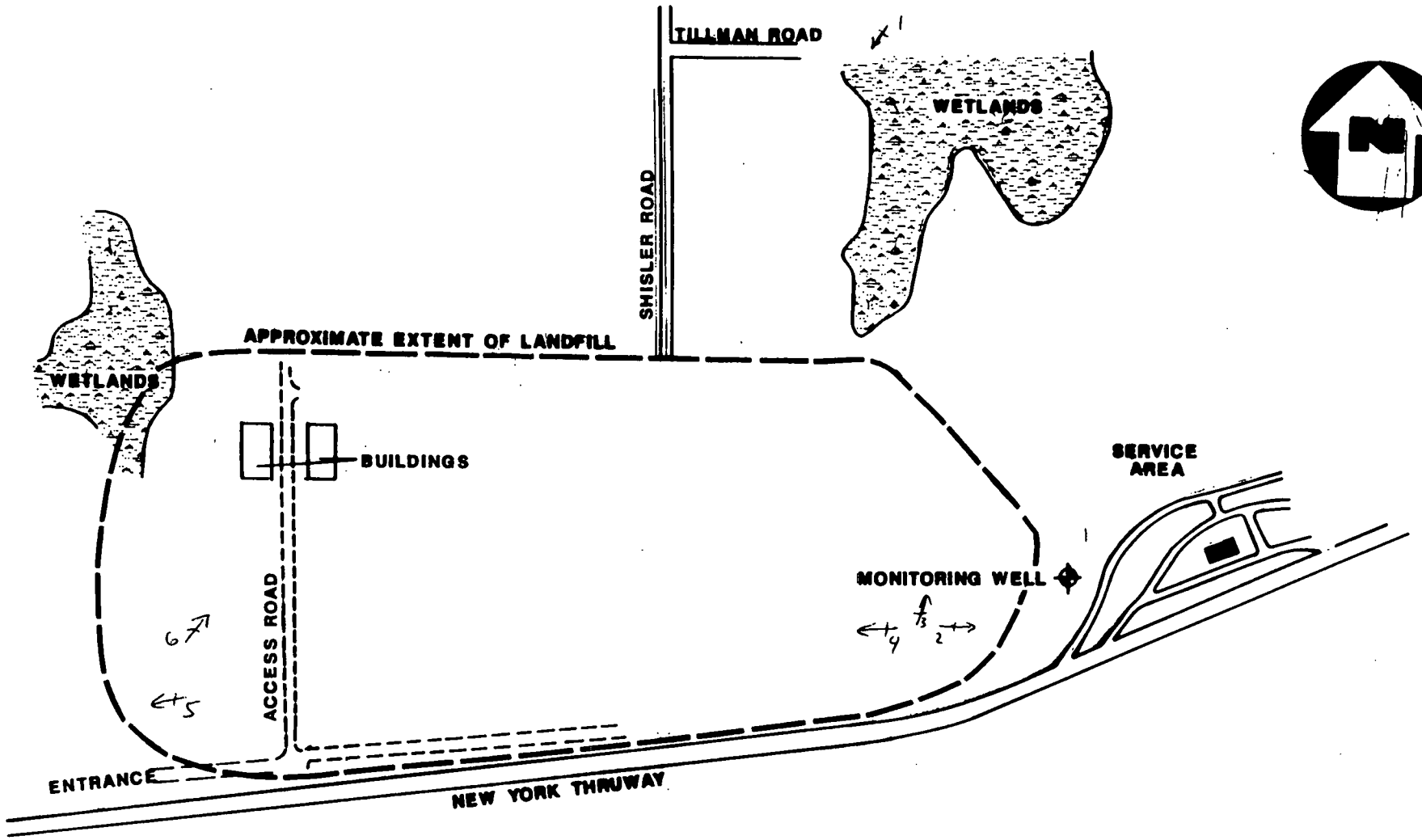
9/18/90 9-18-90



SITE MAP

LANCASTER SLF, LANCASTER, N.Y.

NOT TO SCALE

FIGURE 2

NUS CORPORATION

10-31-90

9-18-90 Lancaster SLF 02-9007-18

Gunnville Road
Lancaster, NY

NUS Personnel	Task	Initial
Bob Kurkjian	Site Manager	9/18/90
Jess Tecson	Health/Safety	9/18/90
Dave Benfer	Support	9/18/90
Anthony Culmone	Support	9/18/90

The above have read and understand the workplan, and attended the health & safety meeting.

Equipment:

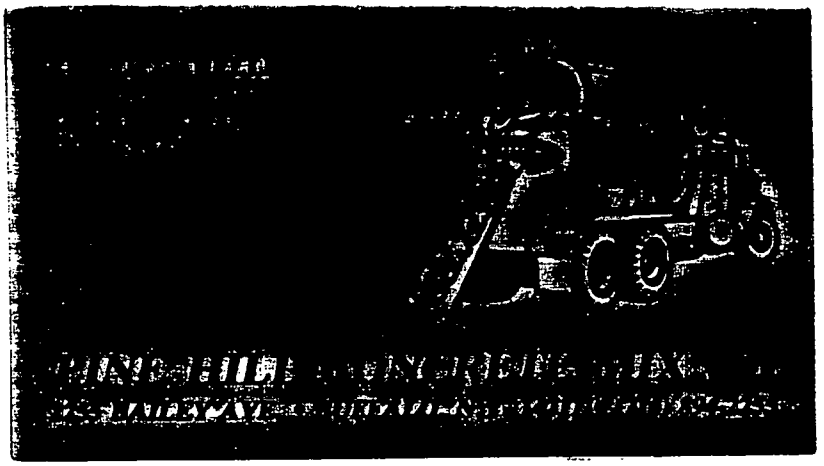
OVM (F)	307137	
HNU (L)	469748	11.7 probe 469754
MiniRad	429588	15 cpm background
Compass	D	
Chinon camera	469770	
Canon camera	307127	

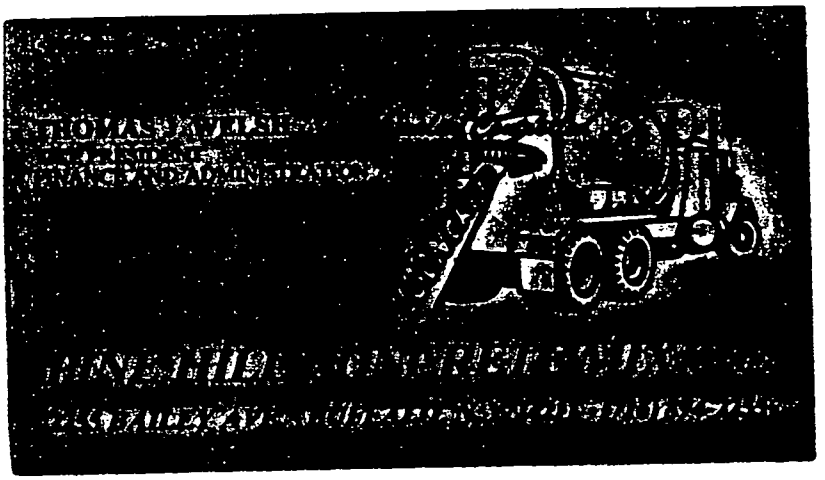
Arrival time: 0940
Site contact not at site - Drive on public roads around perimeter.
Weather conditions:

Clear and sunny, approx 55°-65°F

Winds calm and variable

Bob Kurkjian 9-18-90





9-18-90 Lancaster SLF 02-9007-18

1054 start to drive around s.c.b. following contours to the east

- ditch ~~around perimeter~~ adjacent to S. boundary of landfill with gravel. (BK 9-18-90)

- approx 75 feet to runway

1057 No readings on HNu or OVA above background

1103 stop at S. eastern most corner of landfill contours informed of large deer population

1105 no readings on HNu or OVA above background

1109 P2 S2 looking E towards Rest area

1110 P3 S3 looking N across landfill

1111 P4 S4 looking W across landfill

1113 arrive at N. eastern most corner

appears that surface drainage is towards the wetlands to the North.

Pipelines do not penetrate the clay layer

clay layer is ~2 Ft.

Continued

Bob Kuhlow 9-18-90

pipes are 4 + 6 inches in diameter

1116 2 ppm on HNU at ground surface
10 ppm on OVA at ground surface

no readings above background in breathing area on the HNU or OVA

1117 4 ppm on HNU above background at ground surface
40 ppm on OVA above background at ground surface → when soil is disturbed

1119 No readings next to methane well on the HNU or OVA above background.

1123 driving up slope rd to N.E.

1126 driving west across northern boundary

1132 turn around and drive south on access rd.

1134 driving N along ridge on western edge adjacent to speedway

Jon Lam station

Bob Lindgren 9-18-20

1136 No readings above background on HNu or OVA
drainage to the west along southern boundary

1138 2 ppm on HNu
No readings on OVA above background

1140 PS Looking west toward speedway
SS

1142 driving N on top of landfill

1145 PB Looking N. at pipline
SB

1146 No readings from soil on OVA or HNu above background

1148 Head back to decon area

1200 Dry decon was performed. All PPE ~~equipment~~ 9-18-90
was bagged for appropriate off-site disposal.
packed truck.

1215 Meeting - returned to office for final discussion.
Informed K. Ziccarelli and T. Welsh our (NUS/EPA)
position with respect to the site investigation
i.e., interested in areas containing haz. waste.

Jon Jeans 9/18/90

Bob Kunkel 9-18-90

1225 left site

1230 stopped at speedway. I was informed that they use Erie county water

1237 Mrs. Stepnick has been on public water supply for last 10 years. 4080 Gunnerville Rd.

1242 Mr. Mathes is on Public Water

I, Bob Kurkjian, am signing over log book No. ~~02-9007-18~~ 0642 to J. Tecson.

BK 10-29-90

Bob Kurkjian 10-29-90

Jan Tecson 9/8/90

Bob Kurkjian 9-18-90

0948 PI DEC sign - Wildlife Management area
SI from Tillman Road.

- off of Tillman Rd, north of landfill
- Walking path headed south, towards site.
- Shisler Rd blockaded at Tillman Rd with dirt mound.
- Signs posted read - no hunting private property
- no dumping

area north of landfill appears as if it is being developed.

Recent grading at areas north and adjacent to site.

Ransom creek - flows thru the Wetlands to the north

1008 Meet with Tom Welsh & Ken Ziccarelli both work for Pine Hill Concrete Mix Corp.

1014 meeting in office

Otto Kale Estate owns landfill, and is a sister company to Pine Hill Concrete.

Jon Fee 9/18/90

Bob Hunter 9-18-90

9-18-90 Lancaster SLF 02-9007-18

- Jan. of 1990 operation of Methane recovery began
- Lancaster SLF name was changed to Gunnville Energy Systems Inc. (360 permit for methane discharge)
- approx. 15-18 MWs
- wells are tested 9-18-90 quarterly and semi annually
- Wehran contact 9-18-90 are is Bob Henshaw
- no leachate collection system at landfill.
- no new MWs since ~1987 two replacement wells last year

1030 end meeting

1035 set up decon Area

Winds approx. 15 mph

- 2 Monitoring wells are located south of Runway

property is NOT fenced

Zeroed instruments at 1ppm OVA / HNU 15 Cpm on mini Rad (background)

Bob Lukas 9-18-90

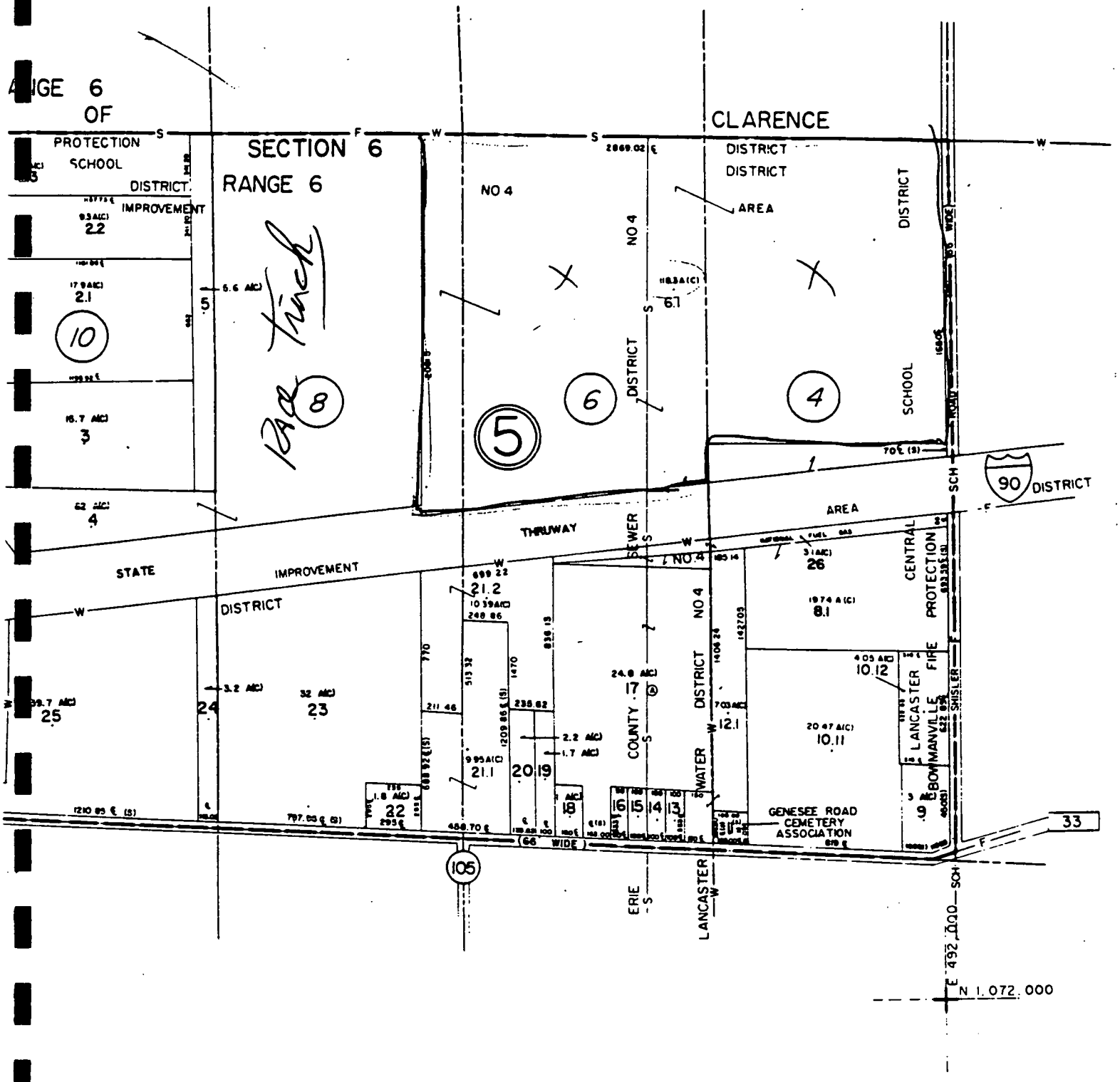
9-18-20 Lancaster SLF 02-9007-18

Photo Log

Photo #	description	time
P-1 S-1	NYSDEC sign: Wildlife Mangement Area	948
P-2 S-2	Looking east towards west Area	1109
P-3 S-3	Looking north across landfill	1110
P-4 S-4	looking west across landfill	1111
P-6 S-6	Looking north at pipeline for methane collection system	1145
P-5 S-5	Looking west toward speedway	1140

Jon Jeanson 9/18/20

Bob Kinsley 9-18-20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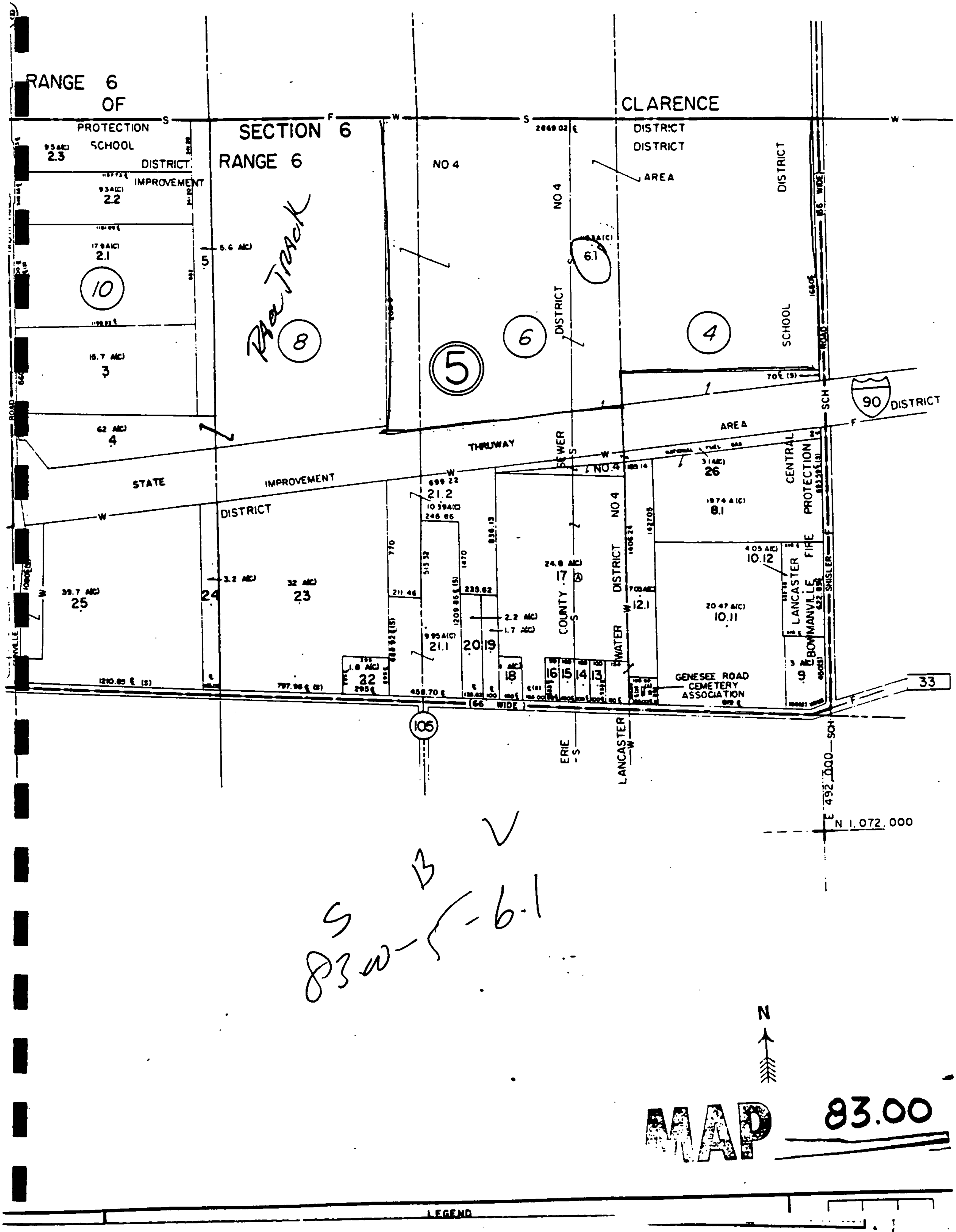
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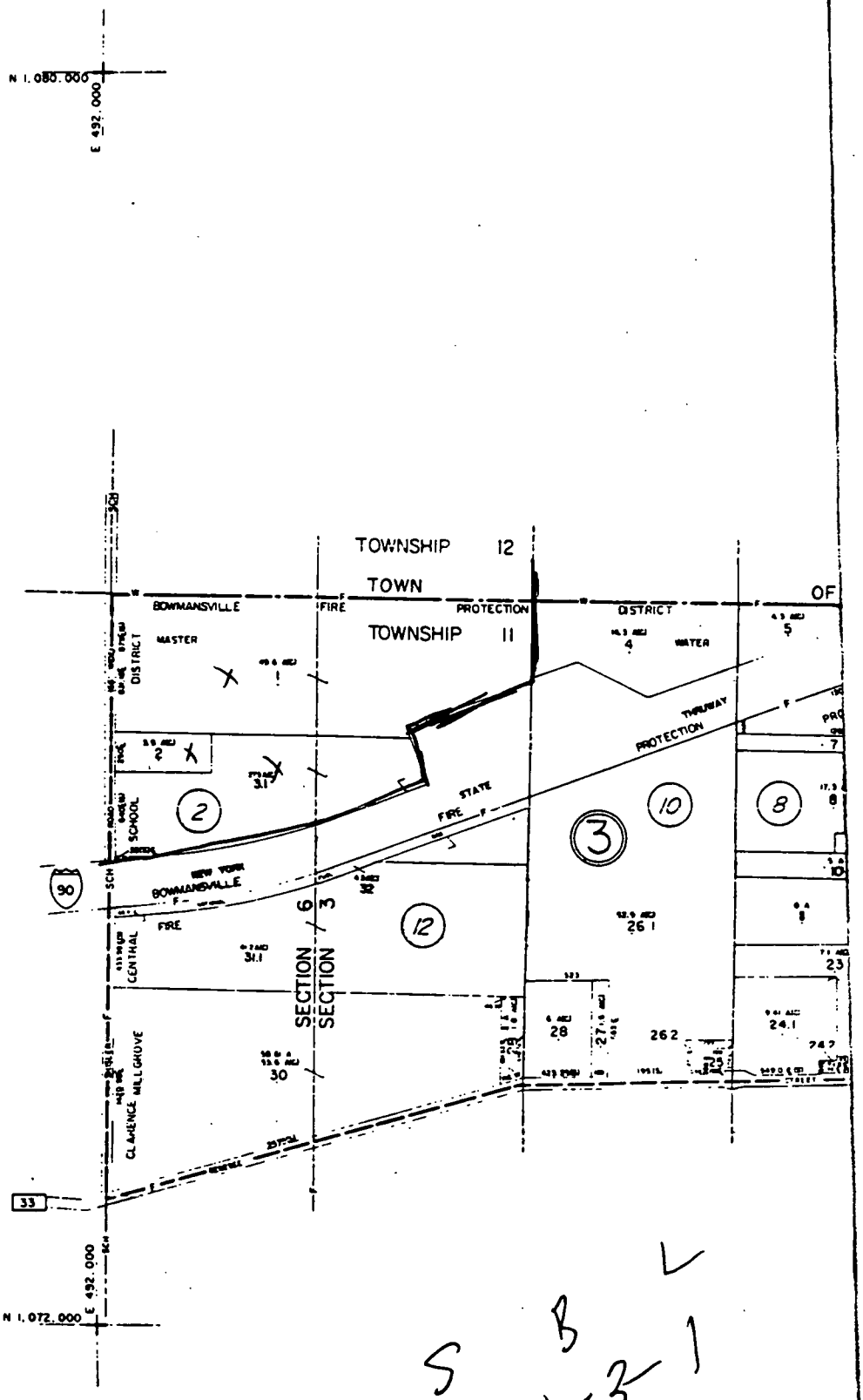
LEGEND

P-18



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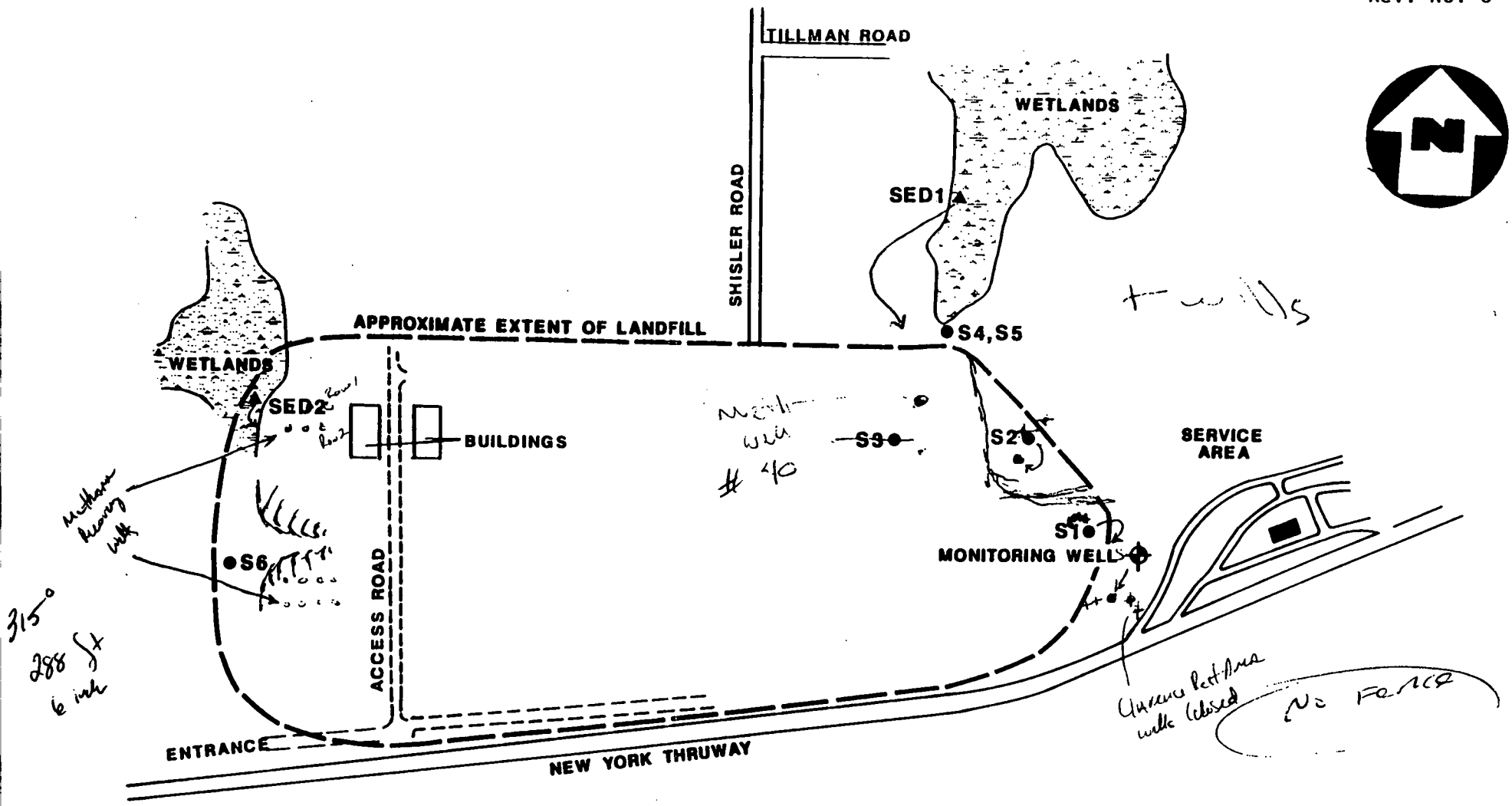
PREPARED BY
AERO SERVICE
PREPARED FOR
DIVISION OF REAL PROPERTY TAX SERVICES

REVISION TABLE			REVISION TABLE		
DATE	MADE BY	CHANGES OR ADDITIONS	DATE	MADE BY	CHANGES OR ADDITIONS
1-10-97					
4-28-97	TLB				
8-18-98					



LEGEND

- ● SOIL SAMPLE
- ▲ SEDIMENT SAMPLE

PROPOSED SAMPLE LOCATION MAP

LANCASTER SLF, LANCASTER, N.Y.

NOT TO SCALE

FIGURE 3

NUS CORPORATION

LANCASTER, ERIE COUNTY
NEW YORK

LANCASTER SLF
02-9007-18
1/10/91

SAMPLING SITE INSPECTION

0815 Arrive on-site

Met with Ken Zacierelli
Ken requested NAMES of TEAM
I provided Ken with Names &
position of TEAM MEMBERS

E Bond of NUS Corp. also on site

I also showed Ken locations of
where we will sample. (showed
proposed location map). for 1-10-91

0830 TEAM Resp. discussed.

NUS Personell

	TASK	
J. TECSON	SM	1-10-91
P. Ciccarello	SSO	1-10-91
R. Setting	SHO	1/10/91
S. Okulewicz	Sampler	1/10/91
B. Kurkjian	Sampler	1-10-91

Personell above have read and understand the workplan for the site.

1/10/91

1/10/91

LANCASTER SLF
02-9007-18
1-10-91

Weather Conditions:

~ 36°F SNOW & cloudy w/ wind from the NW. (approx. 10-15 mph)

Hi-Vol - (M) 469749 (A) 192120
OVA - (A) 469758
Mini-Alert - 442604 (14 cpm)
Compass - 684176
CAMERA (Print) - 731696

0900 Samplers begin decon (chemical) all sampling equipment.

1000 FINISH DECON

TAILGATE SAFETY Meeting conducted by P.C.

All TEAM Members in attendance.

1015 AT NE corner of LF

1014 S.O. collecting S4 & S5

Photos taken 1P-1, 1S-1

Sally Gallagher 1/21/91

1/10/91

LANCASTER SLF
02-9007-18
1/10/91

1034 (continued)
$4 and $5 were collected at 6° from the head of the methane most probable well of the landfill at approximately 150 ft and 2 inches (methane well #40)

1035 Finish collecting $4 and $5

1046 B.K. ~~1-10-91~~ in: collecting SED 1
Took photos 18-2, 18-2

SED 1 location is at 350° from the with of methane well #40 at approximately 182 feet 8 inches.

1100 Leave SED 1 Location.
Heading for S2 location

M J Gallagher 1/21/91

Jan Juan 1/10/91

LANCASTER SLF
02-9007-18
1/10/91

1103 at proposed #2 location. found 2 wells - one old well sticking up at approximately 2 1/2 feet above ground. 2nd well approximately NE of the old well sticking up approximately 1 foot off the ground. Ken Zacarelli said that wells are still sampled by Wehran.

Note: Ken Zacarelli & [illegible] accompanied the sampling team at three [illegible] the sampling locations. Ken [illegible] [illegible] took pictures.

There have been no air instrument readings at sample locations. [illegible] Readings were taken prior to and during sampling at 3 & 5J and SED1 and #2

[signature] 1/10/91

[signature] 1/21/9?

LANCASTER SLF
02-2007-18
11/10/94

1110 S.O. collecting $2. Sample collected at 189° from N of the well stating 2.5 feet above grade at 30 feet 6 inches. Photo taken 18-3, 18-3

1126 leave ~~area~~ for $1 location
~~#~~ 11/10/94

1131 at ~~$~~ 11/10/94 area northwest of Clearance Rent area well. Two monitoring wells can be seen when one is only west of the Clearance Rent area wells.

1139 at $1 location - BK collecting $1 Sample collected ~~$~~ 11/10/94 at 360° for the North of westernmost monitoring well West of Clearance Rent area wells. 116 feet at 2 inches. Photo taken 18-4, 18-4

11/10/94

LANCASTER SLF
02-9007-18
1/10/91

1201 at main decon pad.

NOTE: Decided to cancel #3. Ken Z. has indicated to me that there is a plastic sheeting around the methane recovery wells buried at approximately 6 inches below ground.

HNu #1 was found to be inoperable - battery low indicator.

SSO had indicated that there are no above background air instrument readings at #1 location. OVA showed methane test positive.

HNu A will be used instead.

Jan Jeu
1/10/91

Gil J. Gallagher
1/21/91

LANCASTER SLF
02-9007-18
1/10/91

1234 at #6 location

SO collecting sample

~~DUA F~~ 1/10/91

HNu A, DUA A used at this location

No reading in the vicinity [illegible] the

HNu or OVA Photo taken
18-5 19-5

Soil sample collected at 315° from the north of the northwestern-most methane well south of the gully on the west of the landfill. 288 feet 6 inches (approximated)

1251
at Sed 2 sample location

BK collecting Sed 2 sample

1/10/91

1/21/91

LANCASTER SLF
02-8007-18
1/10/91

1258 Sed 2 collected at 290° from the North of the west terminal wall of the 2nd row of methane recovery wells on the northwest portion of the landfill in approximately 390 feet.

Photos taken 18-16 19-16

1317 At decon pad. Will begin decon & start pad breakdown.

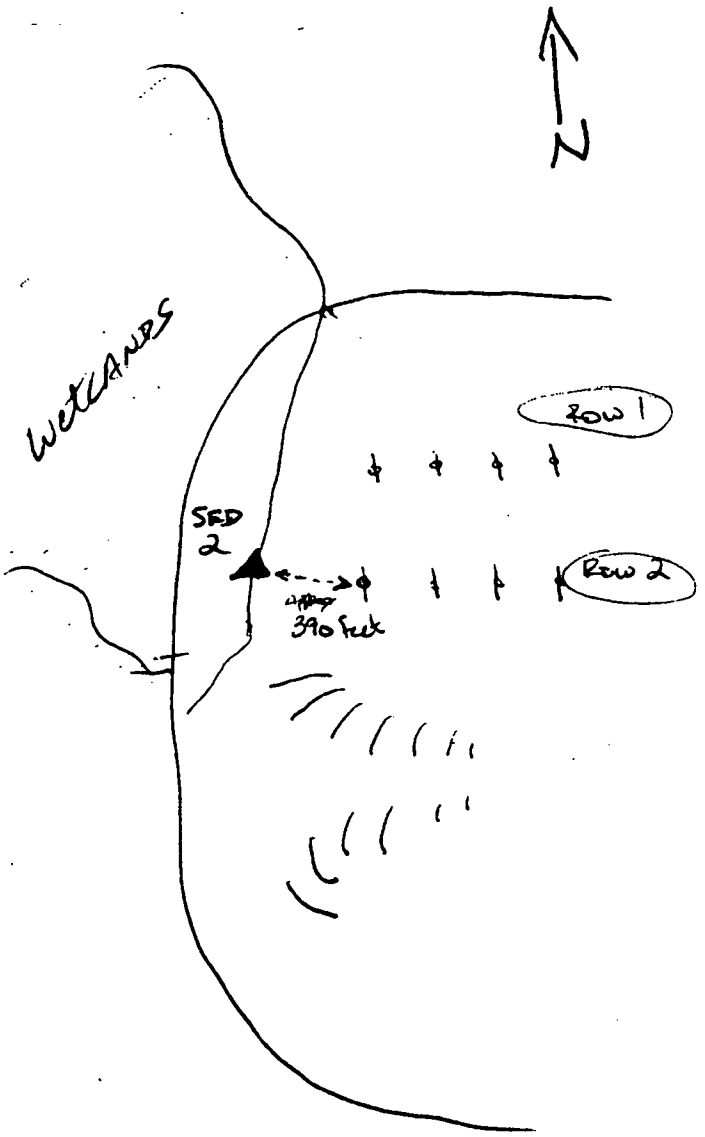
Note: At #4 and #2 locations only the outside of K. Zacarelli accompanied me to the locations.

1338 - Decon pad cleaned-up
- Decon water dumped on site as approved by K. Zacarelli

M J Sullaghan 1/21/91

1/10/91

LANCASTER SLF
02-9007-18
1/10/91



▲ SEDIMENT SAMPLE

⊕ Methane Recovery Wells

* Northwest portion of landfill

1/10/91

LANCASTER SLF
02-9007-B
1/10/91

1351 Left site - will hand for Federal Express next to Buffalo Airport.

~~#~~ 1/10/91
~~1458~~ 1423 Dropped ~~#~~ 4 samples (2 organics; 1 inorganics) at Fed-Ex.

~~#~~ 1/10/91
coolers

Jon Iwan
1/10/91

NOTES

- There is no fencing surrounding the landfill.
- Two monitoring wells were found west of the CLARENCE REST AREA WELLS (closed).
- Two other monitoring wells were observed further northwest of the rest area wells.
- Deers were seen on the mid-northern portion of the landfill.
- A non-sparking shovel was used at each location for clearing off snow and ice and/or breaking the frozen ground. Care was taken not to collect soil sample where it had made contact with the shovel.

sample #s 1/10/91

Ed Gallagher 1/10/91

Jon Iwan 1/10/91

LANCASTER SLE
02-8007-18
1/10/91

Notes (cont)

- Sampling equipment used were: stainless steel bowl, trowel and scoopula. All were chemical decorded using methanol, hexone and Deionized water.
- It must be noted that the sampling equipment were air dried even when wind chill factor at the time was 0°F.

1/10/91

M J Gallagher 1/24/91

LANCASTER, ERIE COUNTY, NEW YORK

LANCASTER SLF
02-9007-18

PHOTO LOG

PHOTO #	DESCRIPTION	TIME
1P-1 1$-1	Photo of Steve Okulewicz collecting composite soil (surface) sample NYLM-$4 AND $5.	1024
1P-2 1$-2	Photo of Bob Kurkjian collecting sediment sample NYLM-SED 1.	1046
1P-3 1$-3	Photo of Steve Okulewicz collecting composite surface soil sample NYLM-$2.	1110
1P-4 1$-4	Photo of Bob Kurkjian collecting composite soil (surface) sample NYLM-$1.	1139
1P-5 1$-5	Photo of Steve Okulewicz collecting composite surface soil sample NYLM-$6	1234
1P-6 1$-6	Photo of Bob Kurkjian collecting sediment sample NYLM-SED 2	1258

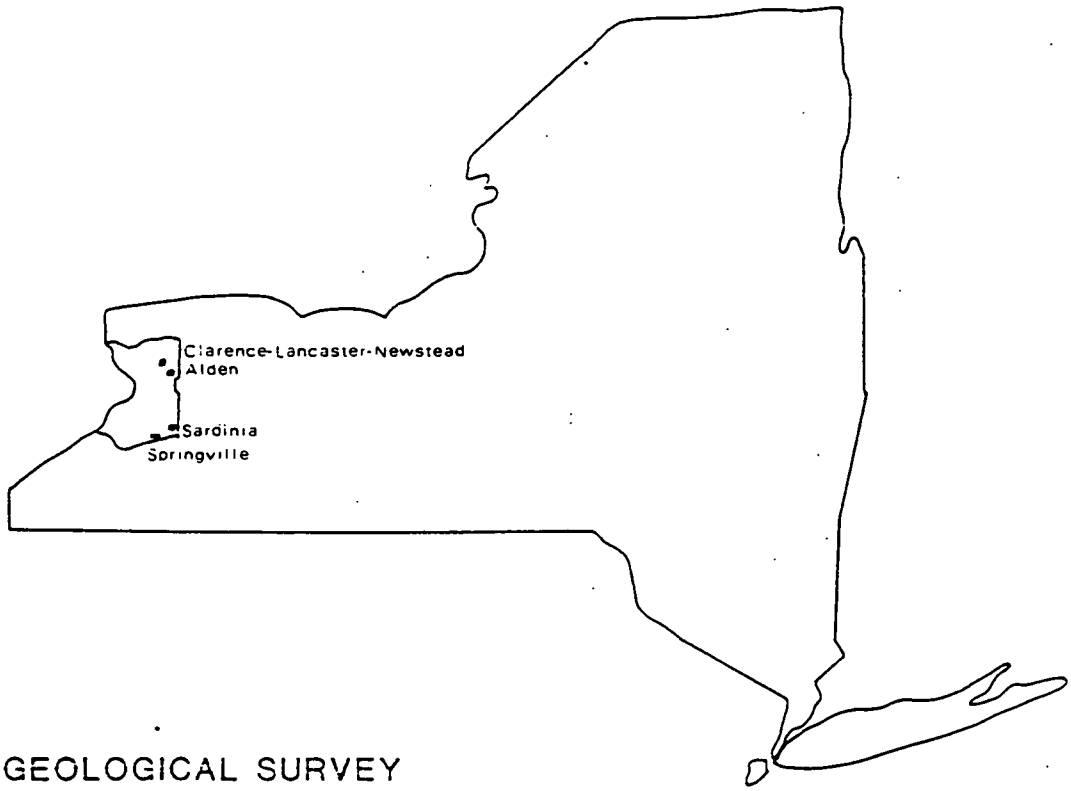
All photographs taken by J. TECSON on 1/10/91.

1/21/91

1/10/91

REFERENCE NO. 6

Hydrogeologic Appraisal of Five Selected Aquifers in Erie County, New York



U.S. GEOLOGICAL SURVEY
Water-Resources Investigations
Report 84-4334

Prepared in cooperation with

ERIE COUNTY DEPARTMENT OF
ENVIRONMENT AND PLANNING

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HYDROGEOLOGIC APPRAISAL OF FIVE SELECTED AQUIFERS IN ERIE COUNTY, NEW YORK

By Todd S. Miller and Ward W. Staubitz

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 84-4334

Prepared in cooperation with

ERIE COUNTY DEPARTMENT OF ENVIRONMENT AND PLANNING

Ithaca, New York

1985

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

U.S. Geological Survey
521 W. Seneca Street
Ithaca, New York 14850
(607) 272-8722

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Open-File Services Section
Western Distribution Branch
U.S. Geological Survey
Box 25425, Federal Center
Denver, Colo. 80225
(303) 234-5888

Chemical analyses included specific conductance, pH, common anions and cations, trace metals, several nutrients, alkalinity, hardness, and total organic carbon. These constituents were selected because studies have shown that increased levels of chloride, sodium, sulfate, total hardness, organic carbon, and specific conductance are effective indicators of contamination from municipal landfill leachate (Zanoni, 1972, and Loe, 1970). In the Sardinia and Springville areas, three sets of samples (summer, winter, and spring) were collected by the U.S. Geological Survey and Erie County Department of Environment and Planning and analyzed by the Erie County Health Department Laboratory. Five sets (fall, spring, summer, winter, and spring) were collected and analyzed in the Clarence-Lancaster-Newstead area. No samples were collected in the Alden area because data collected by the Erie County Health Department were sufficient for the purposes of this study.

Nested piezometers were installed at several locations within all aquifers to evaluate water quality in a vertical profile. Chemical analyses were conducted by the Erie County Laboratory, which participated in the U.S. Geological Survey water-quality-assurance program.

Samples were collected at the 2-in-diameter wells by pumping or bailing each well so that at least three volumes of water in the casing were removed to ensure that the water sampled from the aquifer and had not been standing in the casing for an extended period. A peristaltic or bladder pump with silastic tubing or a stainless steel bailer was used to withdraw water. Private domestic wells were sampled at outside taps after the water had been run a few minutes to evacuate water that had been in the pipes.

AQUIFERS IN THE CLARENCE-LANCASTER-NEWSTEAD AREA

These two aquifers underlie parts of the towns of Clarence, Lancaster, Newstead, and Alden in the northeastern part of Erie County (fig. 2). The topography ranges from level to gently sloping except in the northern part, where the resistent Devonian Onondaga Limestone crops out to form a 50-ft escarpment (fig. 2).

Surface drainage flows south to Ellicott Creek and north to Ransom Creek. (Ellicott Creek then flows northwest 12 mi into Tonawanda Creek, and Ransom Creek flows 10 mi northwest, also to Tonawanda Creek.) The aquifer area contains several wetlands.

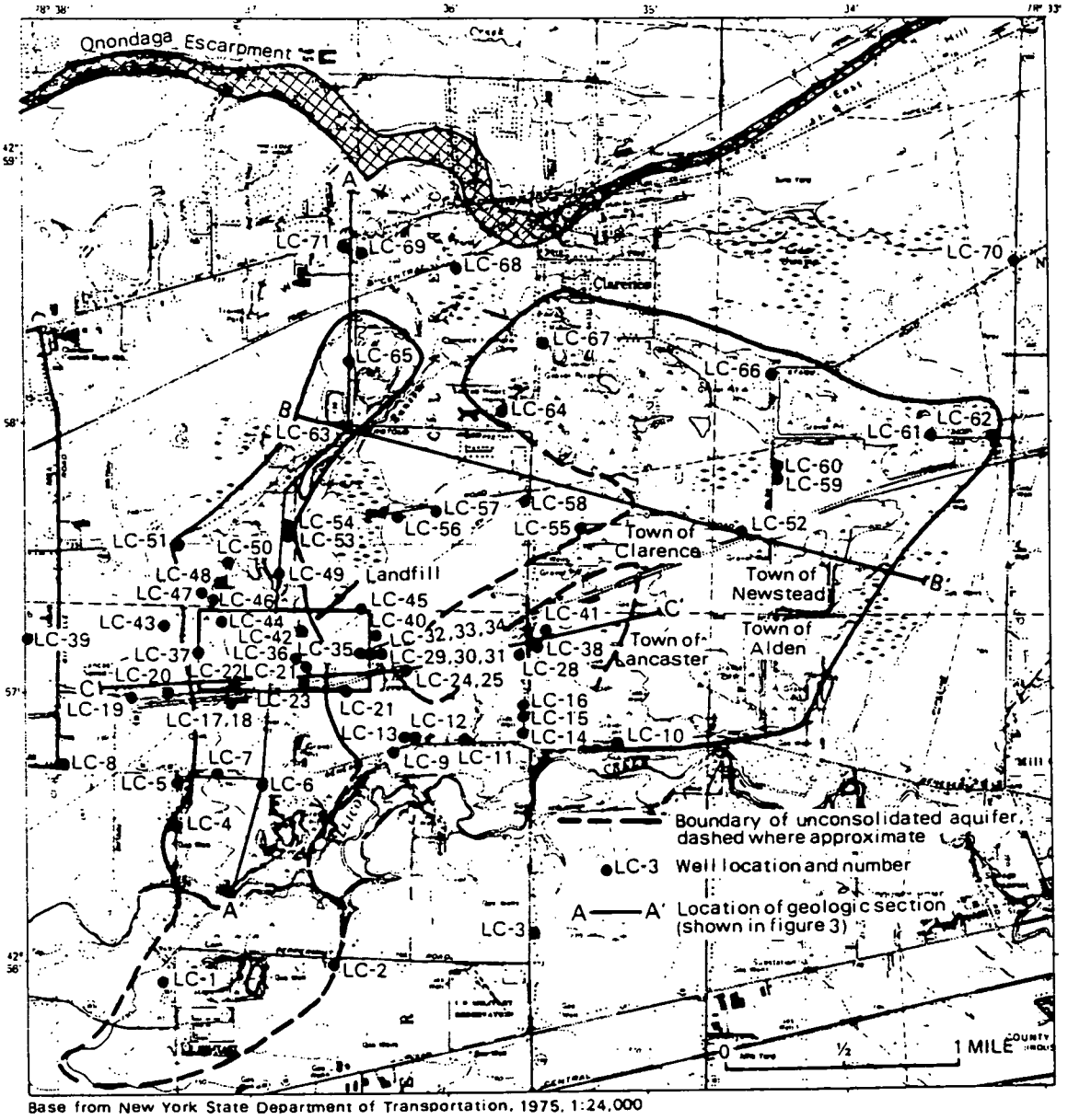
Land use is predominantly residential with extensive sand and gravel mining. A 0.1-mi^2 sanitary landfill is in operation north of the New York State Thruway along the western part of the area (fig. 2).

Population and Ground-Water Use

The area underlain by the sand and gravel aquifer has a population of about 1,000. A public water-supply system that withdraws water from the Niagara River, 17 miles west of the aquifer, serves part of the towns of Clarence and Lancaster, but some inhabitants use ground water from the

Onondaga Limestone or the sand and gravel deposits as their primary or secondary source. For example, a nursing home in Clarence uses ground water for air conditioning, and many residents use ground water to water lawns. Ground water is the sole source of water for the Town of Newstead.

Ground-water use is not quantified because the number of residences in Clarence and Lancaster that use ground water is unknown, because withdrawals at several commercial facilities and institutions are unmetered, and because use of wells installed in sand and gravel and the underlying bedrock to supplement the public water-supply system is sometimes unreported.



Base from New York State Department of Transportation, 1975, 1:24,000

Figure 2.--Location of wells, landfill, Onondaga Escarpment, and geologic sections in Clarence-Lancaster-Newstead area. (Geologic sections are shown in fig. 3.)

Hydrogeologic Framework

The unconsolidated surficial sand and gravel aquifer underlies parts of the gently westward sloping plain that overlies the Onondaga Limestone, as shown in figure 2. The part of the Onondaga Limestone that was investigated in this study is the part that directly underlies the unconsolidated aquifer.

Unconsolidated Aquifer

Glaciation of the area resulted in the deposition of a variety of sediments on the Onondaga Limestone. In the southwestern and central parts of the area (Muller, 1977), till overlies a poorly defined end moraine (poorly sorted silt, sand, gravel, and boulders that were deposited in front of the glacier) and subglacial or subaqueous outwash (sorted and stratified sand, or sand and gravel deposited by glacial meltwaters at the bottom of grounded ice). Logs of borings along the western side of the aquifer (section A-A', fig. 3) indicate 30 to 45 ft of sand with some gravel between a basal lodgment till 3 to 15 ft thick and an overlying surficial till. Well logs reveal that glacial sediments are thickest (30 to 45 ft) where they fill a buried north-south-trending preglacial valley incised into the Onondaga Limestone. (See section B-B' in fig. 3 and C-C' and the structure-contour map in fig. 4). The extent of the moraine in the center of the area is poorly defined because relatively few borings have been made and because its subdued, low to flat relief makes its extent difficult to trace.

Several borings in the southeastern part of the area reveal 20 to 30 ft of well-sorted stratified outwash sand and gravel underlain by 10 to 15 ft of lacustrine silt and sandy silt that is in turn underlain by 2 to 12 ft of

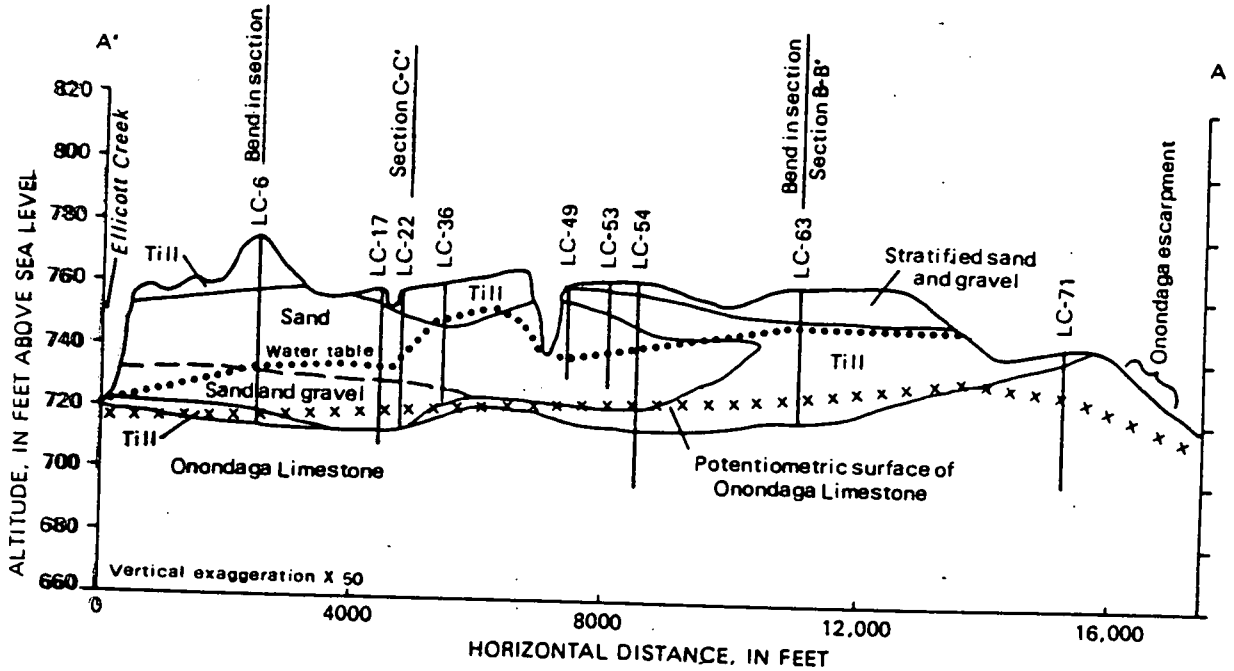


Figure 3A.--Geologic section A-A' north-south through Clarence-Lancaster-Newstead area. (Location is shown in fig. 2.)

lodgment till. (See section C-C' in fig. 3 and map in fig. 4.) A gravel pit in the central area near Jones and Stage Roads exposes morainal deposits of sand and gravel with large boulders of Onondaga Limestone (sec. B-B' in fig. 3). The morainal sand and gravel disappears near Stage Road south of Clarence. A large amount of the outwash and morainal deposits have been extracted by sand and gravel mining.

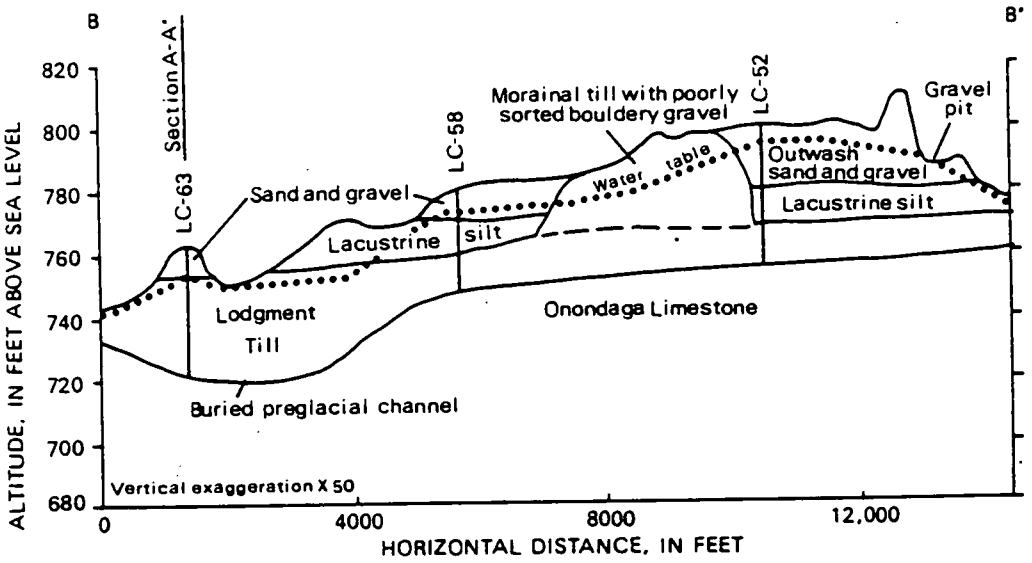


Figure 3B.--Geologic section B-B' through northern part of Clarence-Lancaster-Newstead area. (Location is shown in fig. 2.)

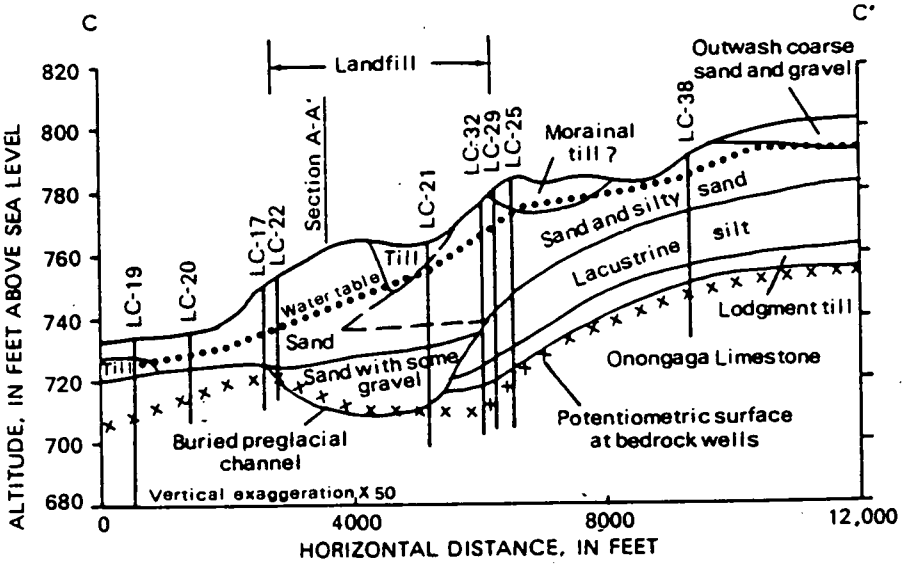
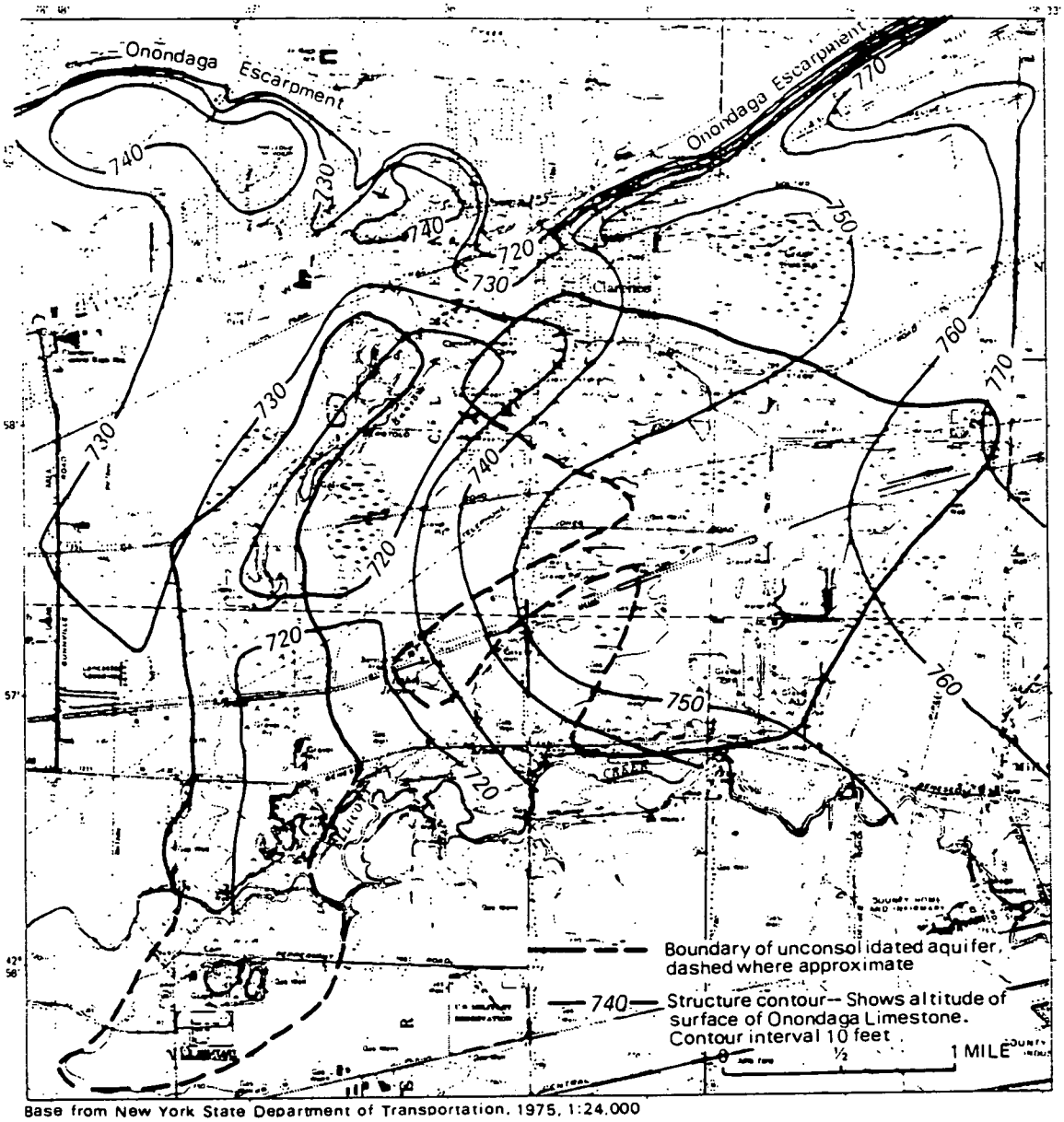


Figure 3C.--Geologic section C-C' through southern part of Clarence-Lancaster-Newstead area. (Location is shown in fig. 2.)



Base from New York State Department of Transportation, 1975, 1:24,000

Figure 4.--Altitude of top of Onondaga Limestone and boundary of unconsolidated aquifer in Clarence-Lancaster-Newstead area.

Onondaga Limestone

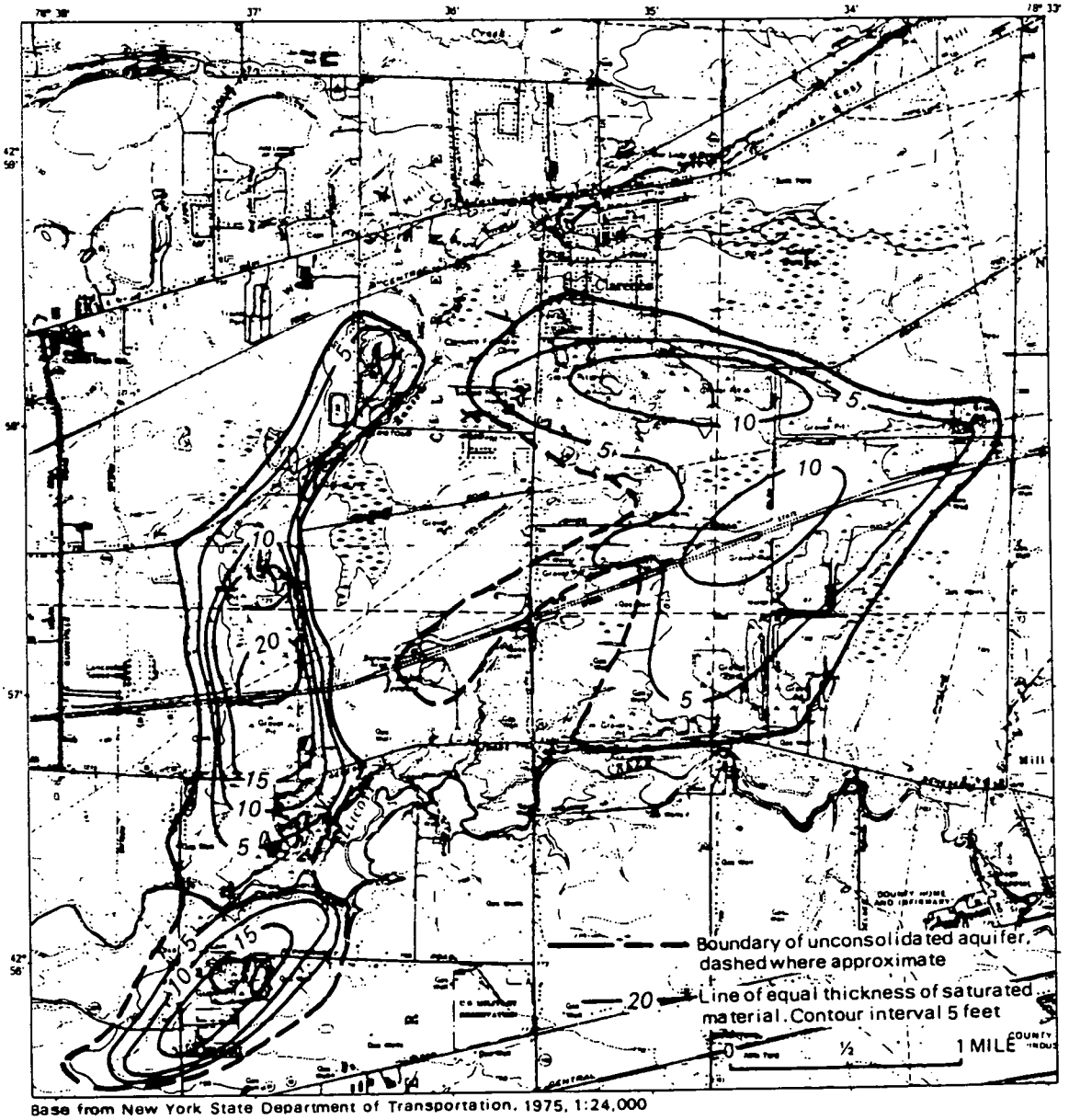
The Onondaga Limestone is a productive aquifer that extends from Buffalo to Albany as an east-west belt several miles wide. It is a massive cherty and argillaceous limestone approximately 140 ft thick (Buehler, 1966) where it has not been subjected to erosion. Along the escarpment in the Clarence area, it has been eroded to several tens of feet thick.

The Onondaga Limestone contains little primary porosity but does contain significant secondary openings in the form of joints and fractures, widened by solutioning. Where the widening of joints and fractures is significant, the

overlying rock and sediments may collapse, forming sinkholes. Sinkholes were observed both east and west of the landfill area. Wells installed in the limestone typically yield 10 to 300 gal/min (La Sala, 1968). Most wells do not fully penetrate to the bottom of the Onondaga Limestone, so the thickness of this unit could not be determined.

Saturated Thickness

The unconsolidated aquifers lie within relatively thin outwash and morainal deposits that range in thickness from 5 to 55 ft; the saturated thickness is between 10 and 25 ft in most places (fig. 5). The thickest saturated deposits are in the buried preglacial valley. In the eastern part



Base from New York State Department of Transportation, 1975, 1:24,000

Figure 5.--Saturated thickness of unconsolidated aquifer in the Clarence-Lancaster-Newstead area.

of the aquifer, where much of the sand and gravel has been mined away, 5 to 14 ft of saturated sand and gravel overlies thin lake and till deposits (fig. 3, section B-B'). In the western part of the aquifer, 5 to 23 ft of saturated sand with some sand and gravel in the deeper zones overlies the buried bedrock valley (fig. 3, section A-A'). Saturated thickness is greatest (25 ft) in the area under the landfill. South of Ellicott Creek, a gravel pit and a log from well LC-2 indicate 5 to 15 ft of saturated morainal sand and sand and gravel.

Ground-Water Movement

Recharge

Unconsolidated aquifer.-Recharge to the unconsolidated aquifer, which contains the water table, is solely from precipitation that infiltrates downward to the water table. Because the unconsolidated aquifer is on a level area on a topographic high, it is not bounded by valley walls that could provide recharge, nor does it have streams to provide seepage from higher areas. Estimated average annual recharge ranges from 0.2 to 0.4 (Mgal/d)/mi^2 La Sala, 1968).

The water table rises and falls in response to changes in the rate of recharge and discharge of ground water. Water-level measurements were used to construct hydrographs (fig. 6), which indicate that most recharge occurs from October or November through April, when evapotranspiration is at a minimum,

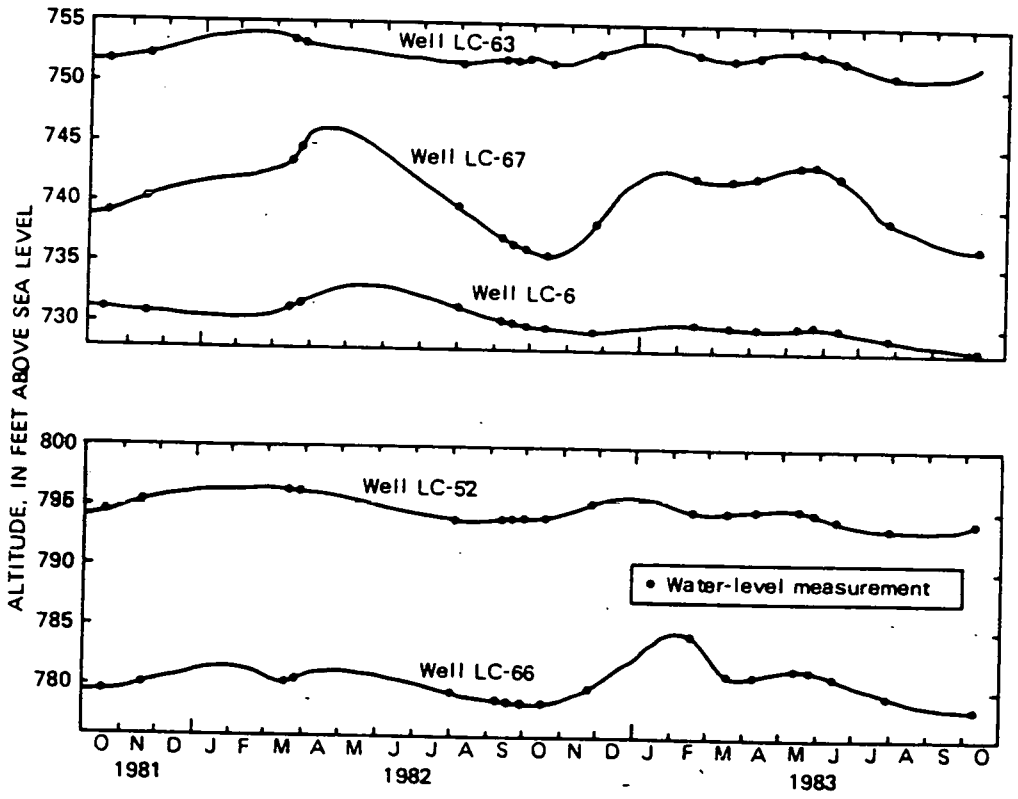


Figure 6.--1981-83 hydrographs of wells that tap the unconsolidated aquifer in Clarence-Lancaster-Newstead area. (Well locations are shown in fig. 2.)

and that water levels were highest in February. A second peak in May 1983 was due to an unseasonably wet spring. Annual water-level fluctuations ranged from 2 to 8 ft and averaged 4 ft. Water levels at wells LC-52, LC-63, and LC-6, which are near ground-water discharge areas such as ponds, wetlands, and streams, fluctuated less because relatively large amounts of ground water move from the edges of the aquifer toward these discharge areas. Water levels in wells LC-66 and LC-67, which are nearer the ground-water divide and further from discharge areas, fluctuated more because they have smaller catchment areas and receive less ground-water flow.

Onondaga Limestone aquifer.--Recharge to the limestone aquifer occurs (1) by infiltration of precipitation into the joints, fractures, and solution openings where the formation crops out at or near land surface, (2) by downward seepage of water from the overlying unconsolidated deposits and wetlands, (3) by seepage from storm runoff and streams flowing into sinks or swallets on top of the limestone, and (4) possibly by water that has been pumped out of a quarry 6 mi east of the study area and then discharged as surface flow, some of which may infiltrate back into the limestone.

Discharge

Unconsolidated aquifer.--During the late spring, summer, and early fall, when most precipitation is lost through evapotranspiration, the ground-water discharge to springs, streams, wetlands, and underlying bedrock exceeds the recharge, and the water table declines. A map of the water-table altitude with directions of ground-water flow is given in figure 7. The contours are based on water levels measured by the U.S. Geological Survey and the Erie County Department of Environment and Planning on October 15, 1981, in shallow wells and where water was first encountered during the drilling of deeper wells. A ground-water divide trends roughly east-west through the unconsolidated deposits. Ground-water flow south of the divide moves predominantly south and southwestward and discharges into Ellicott Creek, and ground water south of Ellicott Creek moves northwestward into Ellicott Creek. Ground water north of the divide moves northward and discharges to surface-water bodies such as Tillman and Cedar Swamps, and ultimately into Ransom Creek, which flows north over the Onondaga Escarpment.

Deep piezometers in sets of nested piezometers near the landfill had lower potentiometric surfaces than shallow piezometers at the same location (Wehran Engineering and Recra Research, 1980), which indicates a significant downward gradient. Therefore, ground water in the unconsolidated aquifer moves not only laterally but also downward to the underlying limestone.

Onondaga Limestone aquifer.--Ground water leaves the limestone aquifer as pumpage from wells at quarries, private residences, institutions, and commercial facilities; as seepage to the underlying rock formations and to Ellicott Creek, and to streams and springs along the lower part of the face of the escarpment. Water levels measured during late summer and early fall of 1981 were used to compile a potentiometric-surface map of the Onondaga Limestone (fig. 8); the contours indicate a ground-water divide trending east-west approximately 1 mi south of the escarpment. Ground water south of the divide moves west-southwest and discharges into Ellicott Creek and quarries; ground water north of the divide flows north and discharges as springs and headwaters of streams at the base of the escarpment.

Several wetlands in the Clarence-Newstead area and many wells in the Newstead area went dry and had to be deepened during the summers of 1982 and 1983 because of severely declining water levels in the limestone aquifer. The cause of the decline is not known at this time. Water levels in the overlying unconsolidated deposits declined considerably less, probably because of the relatively impermeable lacustrine silt and lodgment till between the two layers, which retards vertical movement of ground water. If the confining unit were absent, ground water would have moved downward to recharge the limestone aquifer, and the water level in the sand and gravel would have declined more.

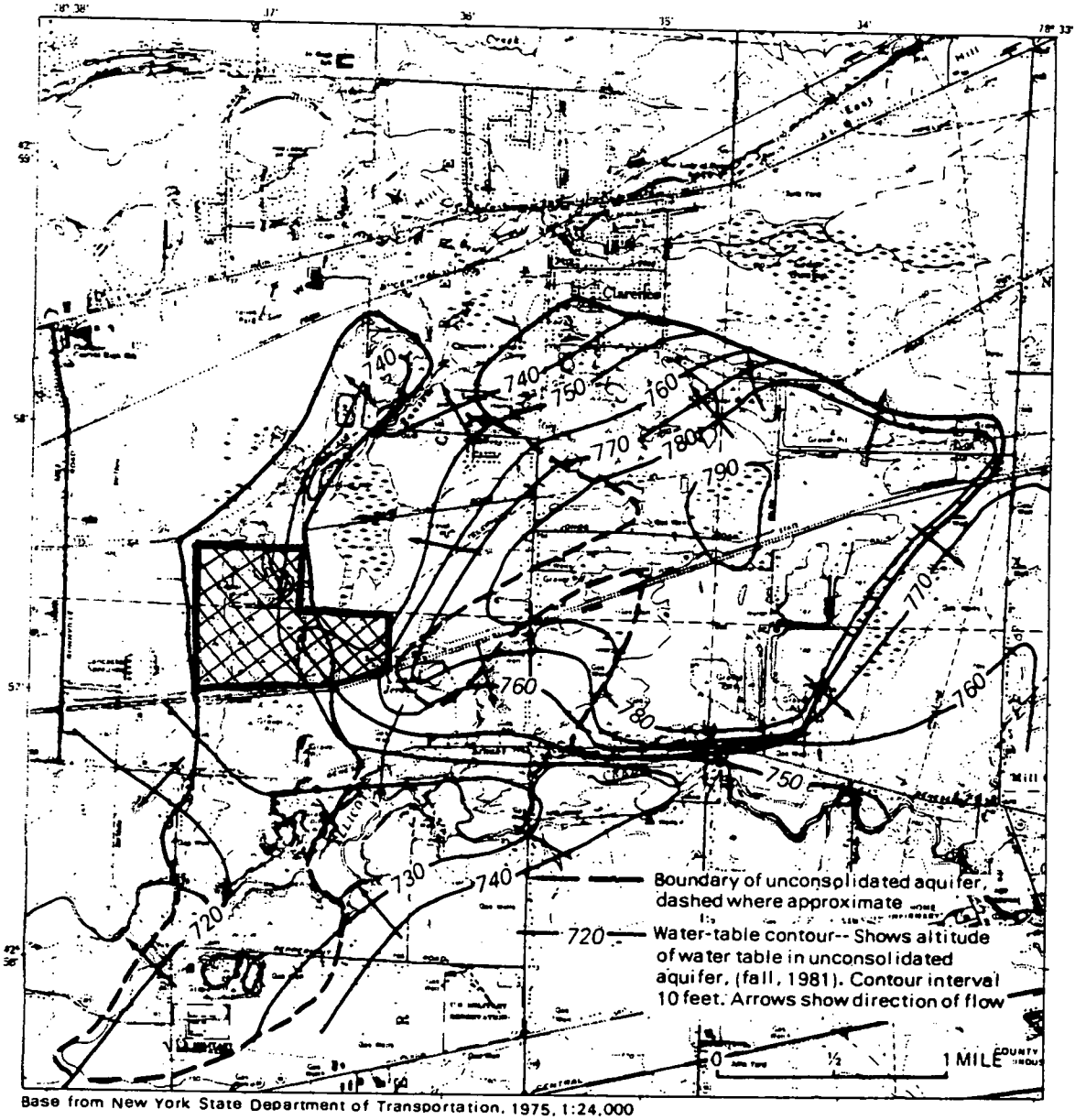


Figure 7.--Water-table altitude in fall 1981 and direction of ground-water flow in unconsolidated aquifer, Clarence-Lancaster-Newstead area.

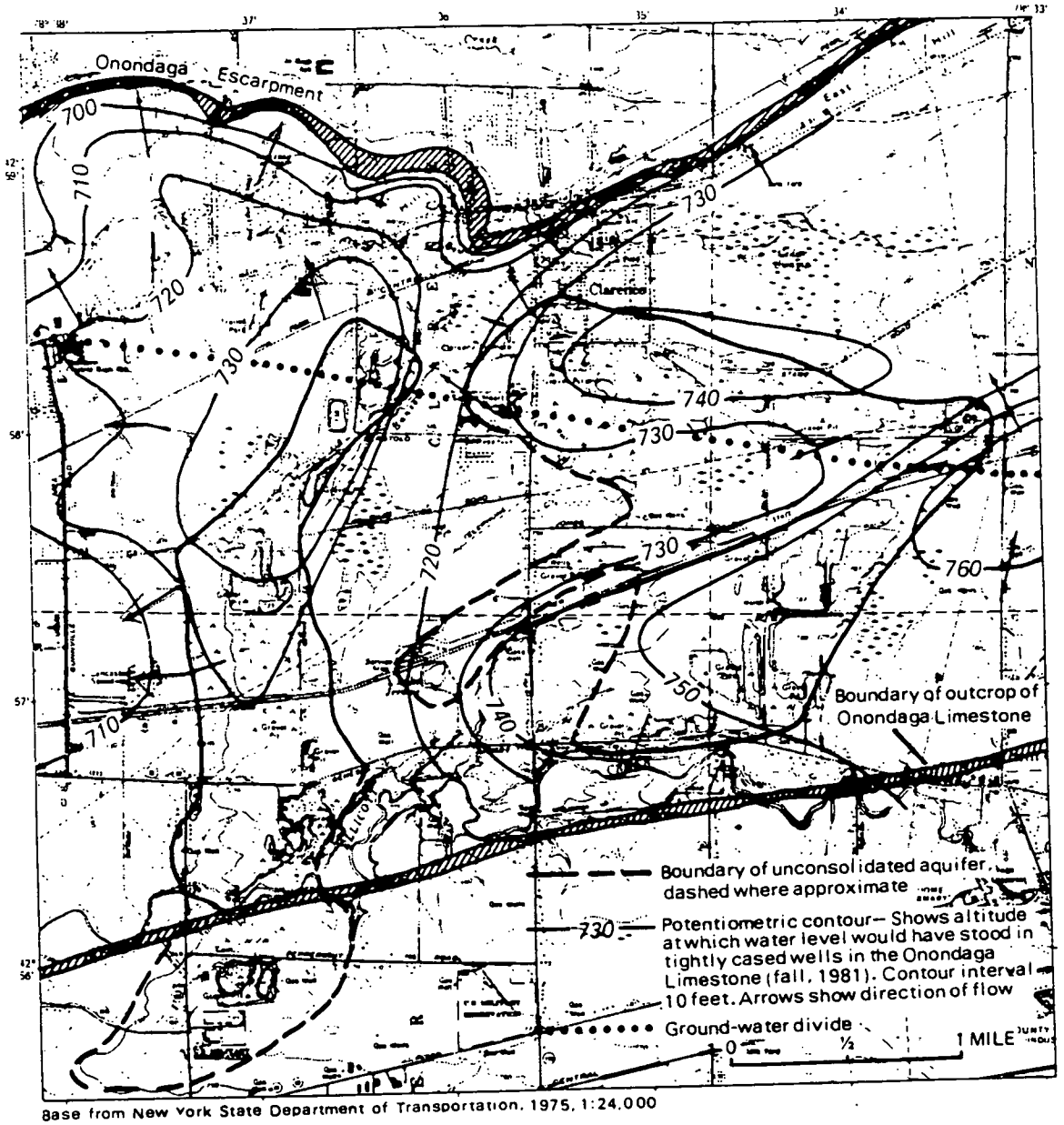


Figure 8.--Potentiometric surface in fall 1981 and directions of ground-water flow in upper part of the Onondaga Limestone aquifer in Clarence-Lancaster-Newstead area.

Water Quality

Water samples were collected from 15 wells in the Clarence-Lancaster-Newstead area during September 1981, March and August 1982, and February and June 1983. Chemical analyses for each well are given in table 10A (at end of report); average mean, median, maximum, and minimum values of each constituent from all wells are given in table 1. Seven of the wells tap sand or sand and

Table 1.--Minimum, maximum, mean, and median values and concentrations of water-quality constituents in samples from unconsolidated and limestone aquifers in Clarence, N.Y.

Constituent	Unconsolidated aquifer					Onondaga Limestone aquifer					New York State drinking-water standard[a]
	No. of samples	Value or concentration				No. of samples	Value or concentration				
		Minimum	Maximum	Mean	Median		Minimum	Maximum	Mean	Median	
Specific conductance (µmho/cm)	31	297	2,550	990	1,020	25	361	1,274	698	694	--
pH, lab (standard units)	31	6.8	8.3	--	7.8	25	7.3	8.1	--	7.7	--
Carbon, total organic (mg/L as C)	29	8.5	40	19	20	23	8	36	18	18	--
Hardness (mg/L as $CaCO_3$)	32	136	763	344	333	24	164	871	349	301	--
Alkalinity, lab (mg/L as $CaCO_3$)	31	52	415	240	231	25	151	268	218	225	--
Calcium, dissolved (mg/L)	32	16	183	87	33	25	2.1	258	88	79	--
Magnesium, dissolved (mg/L)	32	8.1	84	31	30	25	0.1	56	28	27	--
Potassium, dissolved (mg/L)	27	1	7.1	2.4	1.8	23	0	3.2	1.4	1.1	--
Sodium, dissolved (mg/L)	31	1.3	476	98	35	23	4	430	32	16	--
Chloride, dissolved (mg/L)	31	2.5	675	169	150	25	2.5	72	26	20	250
Fluoride, dissolved (mg/L)	32	<0.2	1.3	0.42	0.31	25	<0.2	1.1	0.33	<0.2	1.5
Nitrogen, NO_2+NO_3, dissolved (mg/L as N)	31	0.1	15	2.2	0.38	25	0.1	4.9	1.2	0.9	10[b]
Phosphorus, ortho, dissolved (mg/L as P)	29	<0.01	0.4	0.6	0.02	20	<0.01	0.1	0.04	0.03	--
Sulfate, dissolved (mg/L as SO_4)	31	6	103	49	40	25	18	535	114	70	250
Arsenic, dissolved (µg/L)	31	<20	<20	<20	<20	23	<20	<20	<20	<20	50
Barium, dissolved (µg/L)	30	<200	700	250	<200	19	<200	400	230	<200	1,000
Cadmium, dissolved (µg/L)	31	<1	5	2	2	19	<1	2	1	<1	10
Chromium, dissolved (µg/L)	31	<10	<10	<10	<10	19	<10	<10	<10	<10	50
Copper, dissolved (µg/L)	29	<20	60	23	<20	19	<20	210	41	<20	1,000
Iron, dissolved (µg/L)	32	<50	4,700	520	<50	25	<50	310	77	<50	300[c]
Lead, dissolved (µg/L)	30	<10	200	24	<10	23	<10	20	10	<10	50
Manganese, dissolved (µg/L)	30	<10	1,700	210	90	23	<10	80	25	<10	300[c]
Mercury, dissolved (µg/L)	30	<0.4	4	0.6	<0.4	23	<0.4	0.8	0.4	<0.4	--
Selenium, dissolved (µg/L)	31	<1	2	1	<1	20	<1	<1	<1	<1	10
Silver, dissolved (µg/L)	31	<10	<10	<10	<10	20	<10	<10	<10	<10	50
Zinc, dissolved (µg/L)	30	<20	2,100	210	30	19	<20	220	60	40	5,000

a) Drinking-water standards from New York State Department of Health, 1964 and 1977. A dash indicates no data.
b) Only nitrate as N
c) If iron and manganese are both present, the total concentration of both substances should not exceed 300 µg/L.

gravel deposits and range in depth from 12 to 58 ft; seven wells tap the limestone aquifer and range in depth from 50 to 100 ft, and one 75-ft well taps shale that overlies the Onondaga Limestone at a depth of 75 ft. Locations of wells sampled are shown in figure 2.

Results of the analyses (tables 1 and 10A) indicate that, although the water quality of the unconsolidated deposits is generally similar to that of the underlying limestone bedrock, it varies areally and is locally of poor quality. The similarity of water in these two aquifers reflects their similar composition--the unconsolidated deposits contain an abundance of limestone clasts derived from the underlying Onondaga formation. Both aquifers have similar mean and median values of alkalinity, hardness, most major ions, and most metals (table 1).

Unconsolidated Aquifer

The variability in the ground-water quality of the unconsolidated deposits probably results from local variations in land use combined with the relatively high permeability of the surface deposits. The New York State drinking-water standards for iron and manganese were exceeded in 12 samples from five wells (table 10A). The standard for chloride was exceeded in eight samples from three wells; the standard for lead was exceeded in four samples from three wells, and the nitrate standard was matched or exceeded in three samples from one well.

The mean and median values of sodium, chloride, and specific conductance are also appreciably greater in the unconsolidated aquifer than in the bedrock aquifer. The elevated sodium and chloride concentrations and the resulting high specific conductance most likely result from the infiltration of road salts used on the New York State Thruway and other major roads in the area. For example, well LC-52, adjacent to the Thruway (fig. 2), had chloride concentrations ranging from 400 to 675 mg/L, and wells LC-8 and LC-6, south (downgradient) of the Thruway, had sodium concentrations ranging from 24 to 136 mg/L and chloride concentrations ranging from 75 to 400 mg/L.

Onondaga Limestone

Water quality in the bedrock aquifer is generally suitable for most uses. The New York State drinking-water standard for iron and manganese was exceeded at only one well and for sulfate at only one well.

The water quality deteriorates with depth. During the summer of 1982, several wells went dry. When they were deepened, the pumped water was more mineralized. For example, well LC-68, near the escarpment, was deepened in July 1982 from 40 ft to 62 ft. Comparison of water samples taken in March 1982 with those taken in February 1983 (table 10A, at end of report) shows that specific conductance increased from 396 to 1,270 mho, hardness increased from 206 to 871 mg/L as $CaCO_3$, calcium increased from 61 to 258 mg/L, sulfate increased from 49 to 533 mg/L, and alkalinity as $CaCO_3$ increased from 151 to 229 mg/L. The large increases in the calcium and sulfate concentrations may reflect upward-moving water from underlying gypsum-bearing rock formations such as the Camillus Shale of the Salina Group.

Effects of Landfill Near Lancaster

Location and Description

The landfill near Lancaster (fig. 3, section C-C') is excavated in the permeable silt, sand, and sand and gravel deposits that overlie the Onondaga Limestone. The landfill has been in operation since 1961 for the disposal of mostly residential and commercial refuse, although it may contain some industrial wastes. Local and county concern has prompted several geohydrologic studies in the landfill vicinity to determine whether leachate is moving offsite.

The landfill operation began in abandoned sand and gravel pits. Borings within the landfill revealed 20 to 40 ft of refuse overlying outwash or morainal deposits consisting of fine sand or fine sand and gravel that generally overlie the basal till (Wehran Engineering and Recra Research, 1980).

Borings along the perimeter of the landfill by Wehran Engineering during 1970-80 revealed 3 to 15 ft of till and sand deposits underlain by 20 to 50 ft of outwash and(or) morainal sands and gravelly sand that in turn overlie 0 to 10 ft of basal till. (Some borings did not encounter till.) The basal till is underlain by Onondaga Limestone.

Ground-Water Movement

Ground water is under water-table conditions in the upper sand, silt, and sand and gravel and in the refuse. Nested piezometers installed in the landfill vicinity reveal a significant downward component of ground-water flow into the Onondaga Limestone (Wehran Engineering and Recra Research, 1979, 1980); thus, leachate migration into the underlying sand, silt, and sand and gravel, and eventually into the Onondaga Limestone, is possible. The water-table contours (fig. 7) reveal a ground-water divide extending northeast-southwestward through the deposits; ground water north of the divide flows northwestward toward Tillman Swamp, and ground water south of the divide flows southwestward toward Ellicott Creek.

The discontinuous thin layer of relatively impermeable till that overlies the limestone is an important control on the amount of leachate that can infiltrate from the sand, silt, and sand and gravel into the limestone aquifer. The till is a discontinuous semiconfining layer separating the sand and gravel aquifer from the limestone. Wherever it is present, it would slow the rate of migration of leachate into limestone. The fine-grained portion (clay, silt, and fine sand) of the till would adsorb some of the constituents of the leachate. Where coarser deposits of silt and sand and gravel are in hydraulic contact with the limestone aquifer, leachate would readily infiltrate into the limestone.

Water levels in borings drilled into the Onondaga Limestone decreased progressively as the hole depth increased, indicating a significant downward component of ground-water flow. Water levels measured during the fall of 1981 in wells penetrating the upper 10 to 25 ft of the limestone (fig. 8) reveal that the direction of horizontal ground-water flow is westward. Thus, if leachate were to seep into the limestone beneath the landfill, it would move both vertically downward and westward.

Most private domestic wells in this area are drilled through the relatively thin saturated sand and gravel deposits and installed in the bedrock (Onondaga Limestone) to minimize the chance of drying up during a severe drought.

Ground-Water Quality

The local variability of ground-water quality makes the effects of the landfill difficult to evaluate. Wells LC-8 and LC-6, downgradient (0.5 mi southwest and 0.5 mi south, respectively) of the landfill (fig. 2), exhibited relatively high concentrations of some constituents that are indicators of landfill leachate. Other important indicator constituents were absent, however, and other sources of indicator constituents are in the vicinity. For example, well LC-8, a dug well 20 ft deep along a major highway 1,000 ft south (downgradient) of the New York State Thruway, had specific-conductance values ranging from 920 to 1,200 µmho, nitrate and nitrite concentrations ranging from 5.1 to 15 mg/L as N, hardness values ranging from 343 to 548 mg/L as $CaCO_3$, sodium concentrations ranging from 70 to 136 mg/L, and chloride concentrations ranging from 175 to 400 mg/L. Most of these concentrations are appreciably greater than the median values reported for wells tapping the unconsolidated deposits (table 1); however, the concentrations of metals and total organic carbon are not. Thus, the elevated specific conductance values and sodium and chloride concentrations are probably due to road salt. The high nitrate concentrations could be due to fertilizers or a septic system. Thus, the relatively poor quality of water from this well is not necessarily derived from the landfill. Water from well LC-39, which taps the limestone about 3,000 ft west (downgradient) of the landfill, yields water within the range of values measured elsewhere in the limestone aquifer.

In conclusion, no significant contamination of wells in the unconsolidated deposits or the upper part of the limestone could be directly attributed to the landfill. Head data from wells drilled in the Onondaga Limestone reveal a significant downward component of flow, which indicates that leachate from the landfill may be moving into deeper zones of the limestone. Only limited data on these deeper zones are available, however.

AQUIFER IN THE SARDINIA AREA

This aquifer, which includes about 9 mi^2 in the Town of Sardinia in the southeastern corner of Erie County (fig. 9), occupies a broad, flat, southward-draining valley bounded on the east and west by bedrock hills that rise as much as 250 ft above the valley floor, on the south by Cattaraugus Creek, and on the north by many small till hills. The western and central parts of the aquifer are drained by Hosmer Brook; the eastern area is drained by a small unnamed tributary to Cattaraugus Creek.

The hamlets of Sardinia and Chaffee lie on the aquifer, but the predominant land use is agriculture and pastureland. A landfill is excavated in a till hill adjacent to the northern border of the surficial aquifer (fig. 9).

REFERENCE NO. 7

WEHRAN
ENGINEERING
Consulting Engineers

August 22, 1984

approved by letter dated 24 Sept. 84

Mr. Robert Mitrey
NYSDEC
Region 9
600 Delaware Avenue
Buffalo, New York 14202

RE: Groundwater Monitoring Program
at Lancaster Sanitary Landfill
(WE Project No. 01339035 B-5)

Dear Mr. Mitrey:

This report has been prepared in order to address Item 3, "Groundwater Monitoring Re-evaluation Program" of the New York State DEC Consent Order (Schedule A), regarding the Lancaster Sanitary Landfill. The following items are discussed in accordance with the concerns of the State, as expressed during our August 10, 1984, meeting with Ms. Mary McIntosh:

1. The installation of additional monitoring wells, especially southwest of the landfill.
2. The possible need to monitor the glacial outwash aquifer.
3. The application of geophysical techniques.
4. Sampling frequency and parameters for analysis.

The results of three previous investigations (reports) were used as the basis of the enclosed monitoring plan evaluation. These are: Hydrogeologic Investigation, Wehran Engineering and RECRA Research, Inc., June 21, 1979; Supplemental Hydrogeologic Investigation, Wehran Engineering and RECRA Research, Inc., January 14, 1980; and Bedrock Aquifer Investigation, Wehran Engineering, August 4, 1980.

Groundwater Monitoring of the Glacial Outwash

In the vicinity of the landfill, the primary direction of groundwater flow and contaminant migration is downward from the glacial outwash into the underlying Onondaga Limestone. Accordingly, the primary emphasis of our groundwater monitoring program must, and does, address water quality in the

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bedrock. A lesser horizontal component of flow does exist however, within the outwash, and provides the potential for off-site contaminant migration within this zone. Based on this potential, a limited monitoring program of the outwash is proposed.

The plan consists of three shallow monitoring wells installed along the southern border of the site as shown on Figure 1. The actual location of the wells would be determined in the field, subject to outwash thickness encountered during installation of the bedrock wells. In the event that both aquifer thickness and groundwater contamination were observed to be generally extensive, the proposed program could be modified to include additional wells. One of the wells (western most) would be installed adjacent to the bedrock monitoring well forming a couplet.

Additional Bedrock Monitoring Wells

Currently, groundwater is being monitored in six bedrock wells in the vicinity of the Lancaster Sanitary Landfill: W-3, W-5, W-6, W-7, W-8, and B-24D (refer to Figure 1). The objective of installing and monitoring additional wells would be to more accurately define the direction and extent of off-site contaminant migration within the Onondaga Limestone aquifer.

The direction of groundwater flow in the bedrock is generally toward the west-southwest, and is consistent with flow in the upper glacial aquifer (Bedrock Aquifer Investigation, Wehran, August 4, 1980). This is supported by water quality data which indicates Well W-3 contains elevated values of organics, manganese, specific conductance, and chloride.

A total of eight additional bedrock monitoring wells are proposed to be constructed and sampled in a two-phase approach. Phase I would consist of the installation of four wells in the vicinity of the Lancaster Speedway, and the property immediately south of the thruway as shown on Figure 1. These wells have been designated as "I" for Phase I. The location of these wells would provide additional water level data as well as water quality data to more accurately define the direction of contaminant migration. Upon installation of the four wells, it is proposed that a quarterly sampling event be conducted (as discussed below) prior to initiation of Phase II.

Phase II would consist of the installation and sampling of four monitoring wells to be located based on the result of Phase I. It is anticipated that these wells be located at increasing distances from the landfill, directly downgradient of flow, in order to more accurately assess the horizontal extent of contaminant migration. So as not to be omitted from a total well count, these wells are shown on Figure 1, at tentative locations and are designated "II".

The wells would be constructed in a similar fashion to existing Wells 1 through 8. That is, the boring would be advanced to a depth of 15 feet below the top of saturated rock. It is assumed that permission from off-site property owners would not be a problem. The road right-of-way could also be used, if necessary.

Application of Geophysical Techniques

An earth resistivity survey was conducted as part of the Supplemental Hydrogeologic Investigation (January 14, 1980) in order to define the extent of leachate migration from the Lancaster Sanitary Landfill. The study was conducted during the week of August 20, 1979, and employed the services of a three-person field crew composed of Wehran Engineering and Recra Research, Inc. personnel. All work was performed with a Bison Modes 2350 earth resistivity meter. Resistivity investigations were conducted around and within the landfill complex, with rather extensive investigations to the south and southwest of the landfill south of the New York State Thruway (Interstate 90).

The results of this investigation were summarized in the January 14, 1980, Supplemental Hydrogeologic Investigation Report as follows:

> The earth resistivity study conducted in August and September 1979, to assess leachate migration in the glacial outwash deposits and the Onondaga Limestone, did not indicate extensive plume migration from the landfill. Factors complicating the interpretation of our resistivity results were:
>
> 1. A highly variable level of resistivity readings within the glacial outwash and glaciolacustrine deposits encountered in and around the site.
>
> 2. The variable depth of outwash deposits overlying the highly resistant Onondaga Limestone.

3. The possibility that other sources of groundwater contamination, most notably the New York State Thruway, could mask results from the landfill itself."...."Test soundings set up on "clean" and "dirty" outwash showed wide variation in the resistivities of each material, thereby, masking leachate occurrence in the zones being tested. It is possible that the lower readings on the west/northwest side of the Lancaster Landfill could be a result of natural geologic changes and not the result of a leachate plume."

Based on this limited success of our previous resistivity survey, additional geophysical investigations are not recommended at this time.

Sampling Frequency and Parameters for Analysis

The current groundwater monitoring program includes six bedrock wells which are sampled quarterly for the following parameters:

- pH
- Conductance
- Alkalinity
- Chloride
- TOC
- Ammonia Nitrogen
- Nitrate Nitrogen
- Fe (Total)
- Fe (Soluble)
- Mn (Total)
- Mn (Soluble)
- Benezene
- Ethylbenzene
- Methylene Chloride
- Toluene
- Trichloroethylene
- Vinyl Chloride

Our proposed plan (Phase I) would add four bedrock wells and three outwash wells to bring the total number to 13. Phase II would likely add four bedrock wells, bringing the ultimate total number of monitoring wells at the site to 17.

It is recommended that the current quarterly sampling frequency be continued for the parameters listed above. Due to the concerns of the DEC however, a more in-depth evaluation of heavy metals would be conducted immediately upon the installation of the seven Phase I wells and would include the six existing wells. This evaluation would consist of the analysis of priority

pollutant metals in all 13 wells in addition to the indicator parameters listed above. Upon review of the data in terms of the presence and/or severity of contamination from heavy metals, the need for future monitoring of metals would be addressed. If, for example, no evidence of metals were found, this portion of the monitoring plan might be discontinued. Conversely, if metals were found in significant concentrations in certain wells, these wells may be sampled for metals on an annual or semi-annual basis.

We would be happy to discuss any questions you may have regarding our proposed monitoring plan.

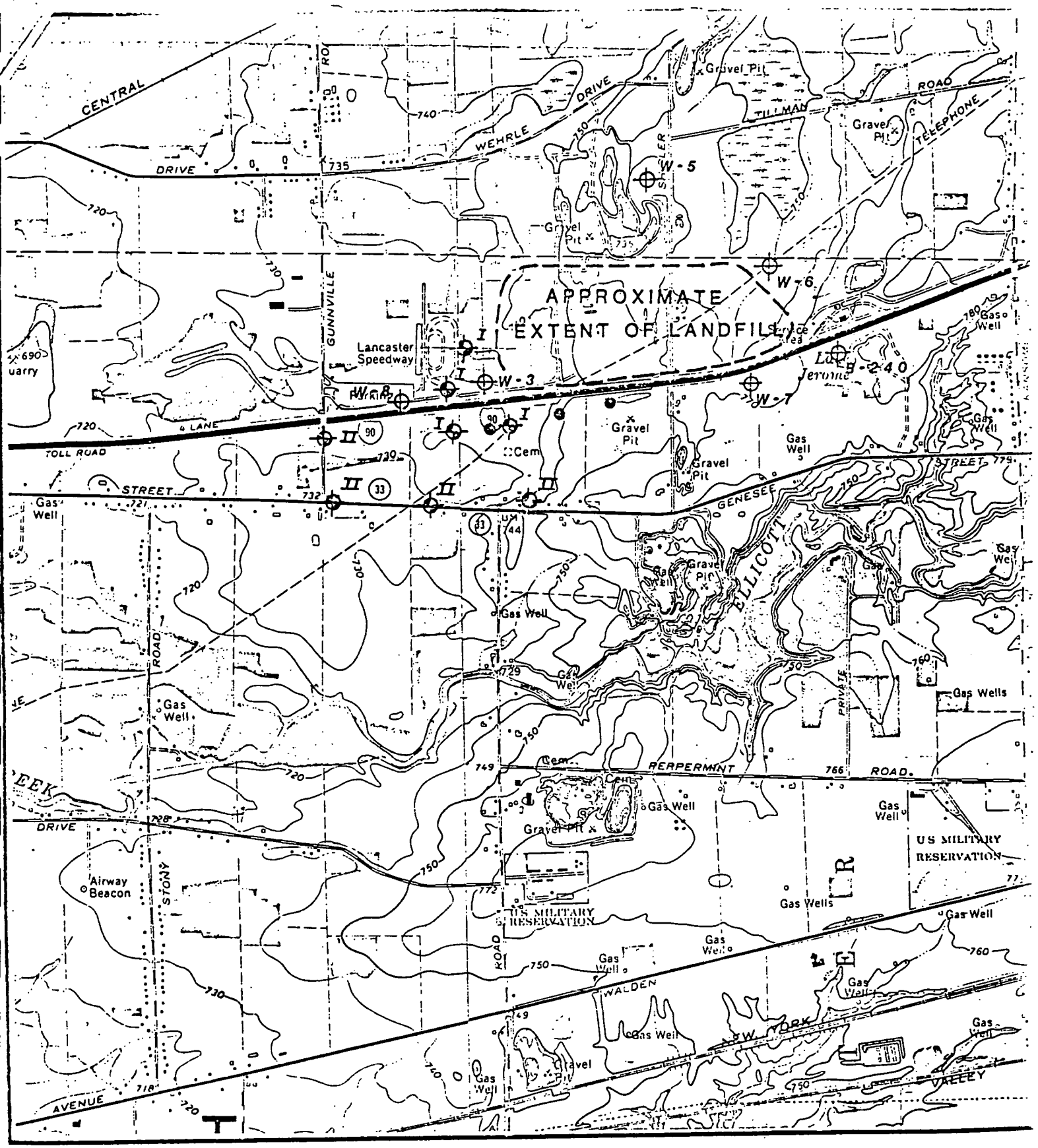
Very truly yours,

WEHRAN ENGINEERING, P. C.

William G. Soukup
Senior Geologist

James R. Woods, P. E.
Senior Engineer

WGS/JRW/in
Enclosure



NOTE: BASE MAP TAKEN FROM CLARENCE AND LANCASTER, N.Y. (1965) U.S.G.S. QUADRANGLES

● PROPOSED OUTWASH MONITORING WELL

⊕ EXIST. MONITORING WELL

⊕ PROPOSED BEDROCK MONITORING WELL

I PHASE ONE

Effective monitoring of the glacial outwash [illegible] landfill, the primary direction of groundwater flow is downward from the glacial outwash into the underlying Onondaga Limestone. Accordingly, the primary [illegible] monitoring program must, and does, [illegible]

FIGURE 1

LOCATION OF EXISTING AND PROPOSED MONITORING WELLS

LANCASTER SANITARY LANDFILL

New York

REFERENCE NO. 8

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual

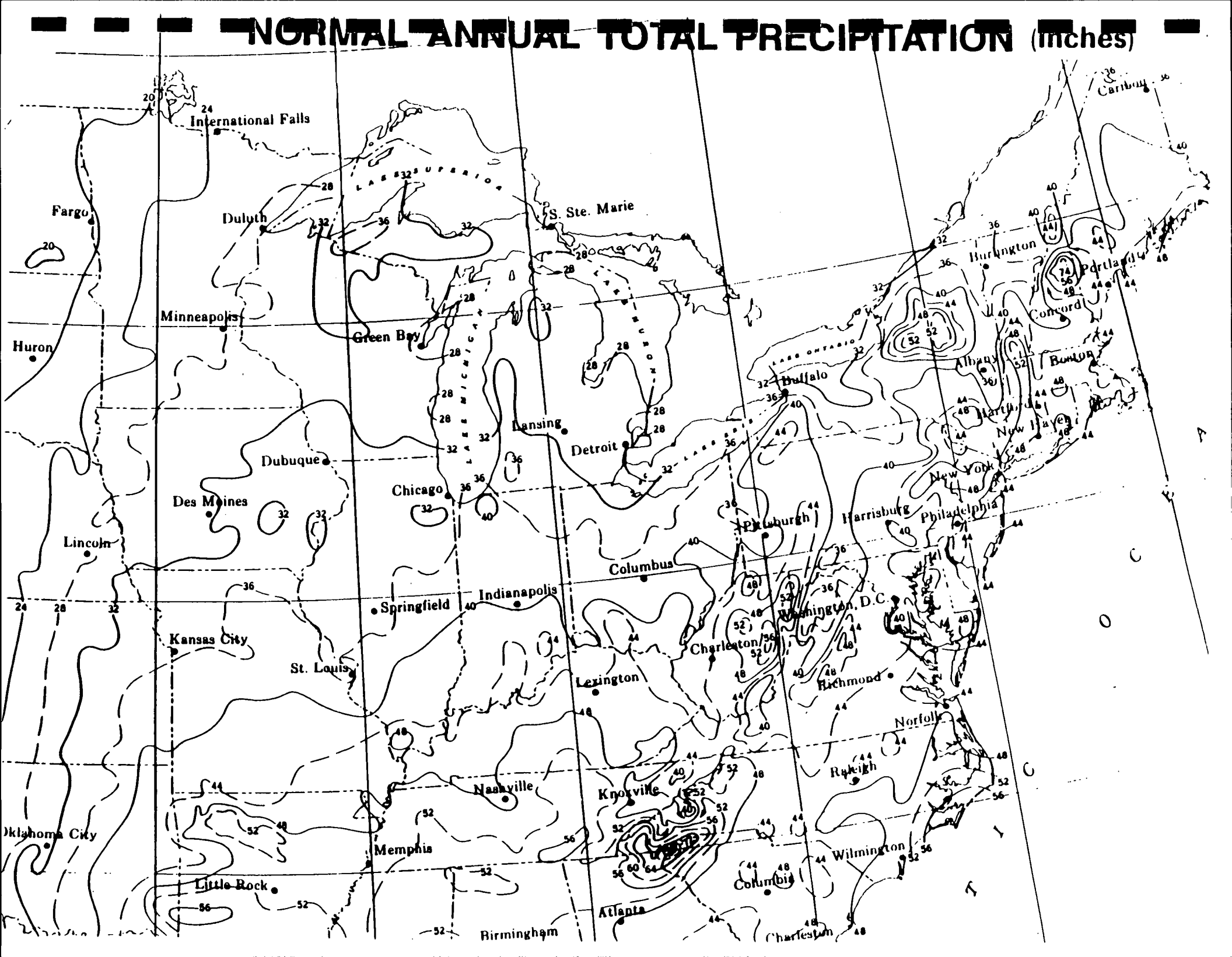
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

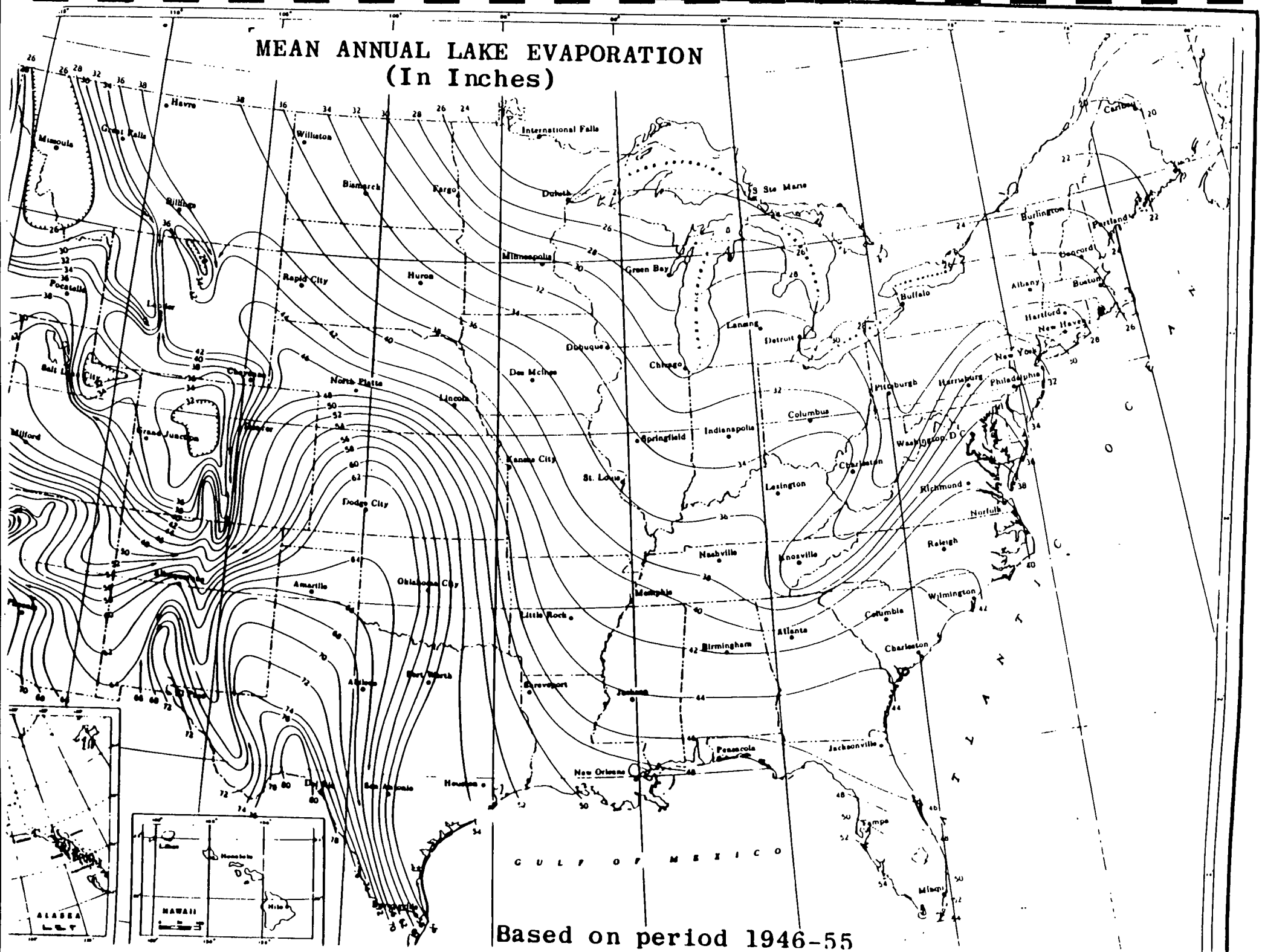
United States
Environmental Protection
Agency

1984

NORMAL ANNUAL TOTAL PRECIPITATION (Inches)



MEAN ANNUAL LAKE EVAPORATION
(In Inches)



Based on period 1946-55

GROUND WATER ROUTE
PERMEABILITY

HRS MANUAL INSTRUCTIONS

Permeability of unsaturated zone (or intervening geological formations) is an indicator of the speed at which a contaminant could migrate from a facility. Assign a value from Table 2.

TABLE 2
PERMEABILITY OF GEOLOGIC MATERIALS*

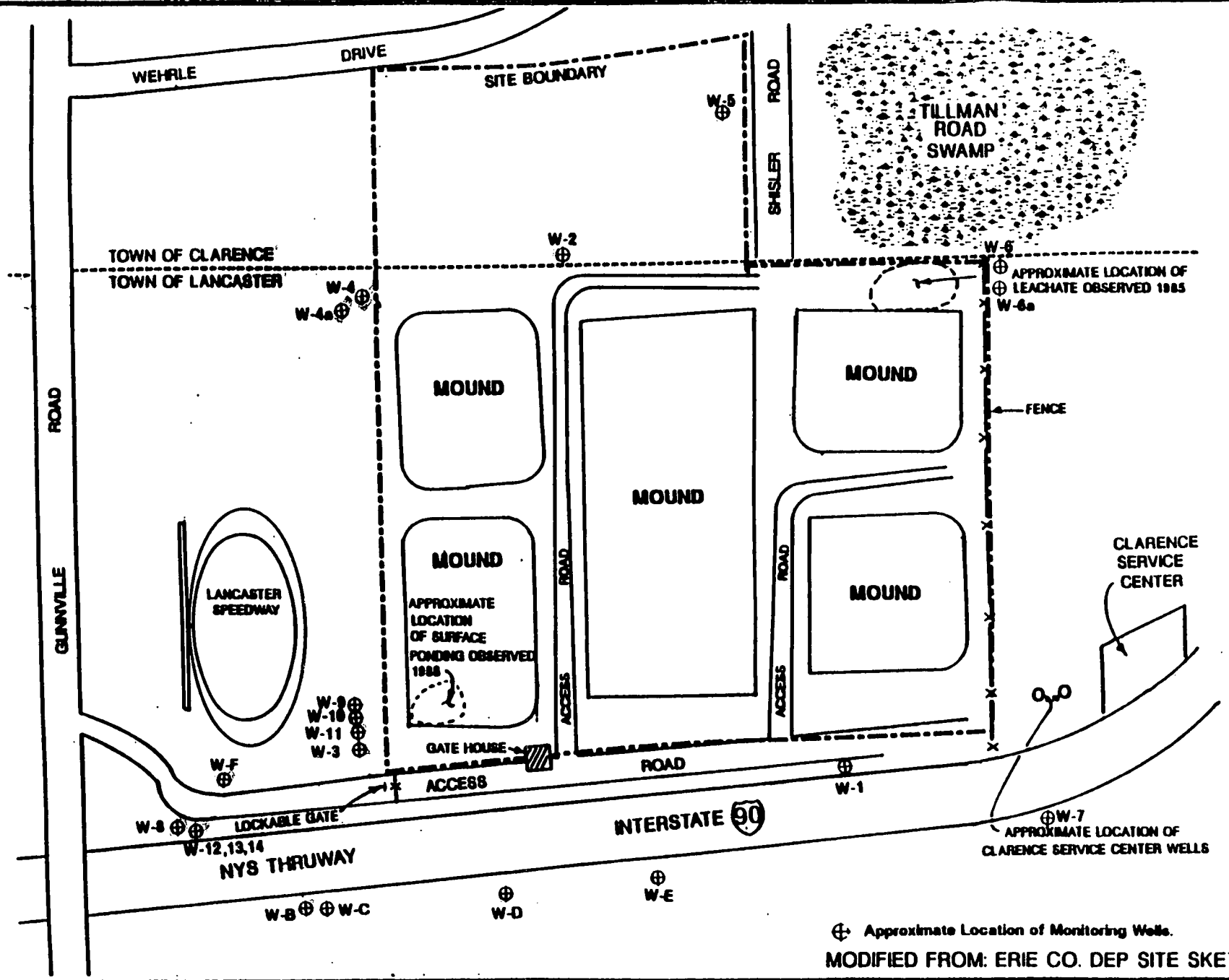
Type of Material	Approximate Range of Hydraulic Conductivity	Assigned Value
Clay, compact till, shale; unfractured metamorphic and igneous rocks	$<10^{-7}$ cm/sec	0
Silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomites, and sandstone; moderately permeable till	10^{-5} - 10^{-7} cm/sec	1
Fine sand and silty sand; sandy loams; loamy sands; moderately permeable limestone, dolomites, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till	10^{-3} - 10^{-5} cm/sec	2
Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite	$> 10^{-3}$ cm/sec	3

*Derived from:

Davis, S. N., Porosity and Permeability of Natural Materials in Flow-Through Porous Media, R.J.M. DeWest ed., Academic Press, New York, 1969.

Freeze, R. A. and J. A. Cherry, Groundwater, Prentice-Hall, Inc., New York, 1979.

REFERENCE NO. 9



MODIFIED FROM: ERIE CO. DEP SITE SKETCH 5/29/85

SCALE: N.T.S.	BY	DATE
DWN.	G.L.S.	5/89
CKD.	RAC	5/89
APPVD.	RAC	5/89
REV.		

NYSDEC
SUPERFUND PHASE I INVESTIGATION
LANCASTER SANITARY LANDFILL
SITE NO. 915068

PROJECT NO: 8C1301 CC

SITE SKETCH

A

FIGURE 1-3

REFERENCE NO. 10

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
LANCASTER,
NEW YORK
ERIE COUNTY

PANEL 2 OF 12
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
360249 0002 B

EFFECTIVE DATE:
DECEMBER 1, 1981

federal emergency management agency
federal insurance administration

may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:

MAY 24, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:

MAY 21, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:

DECEMBER 1, 1981

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6620.

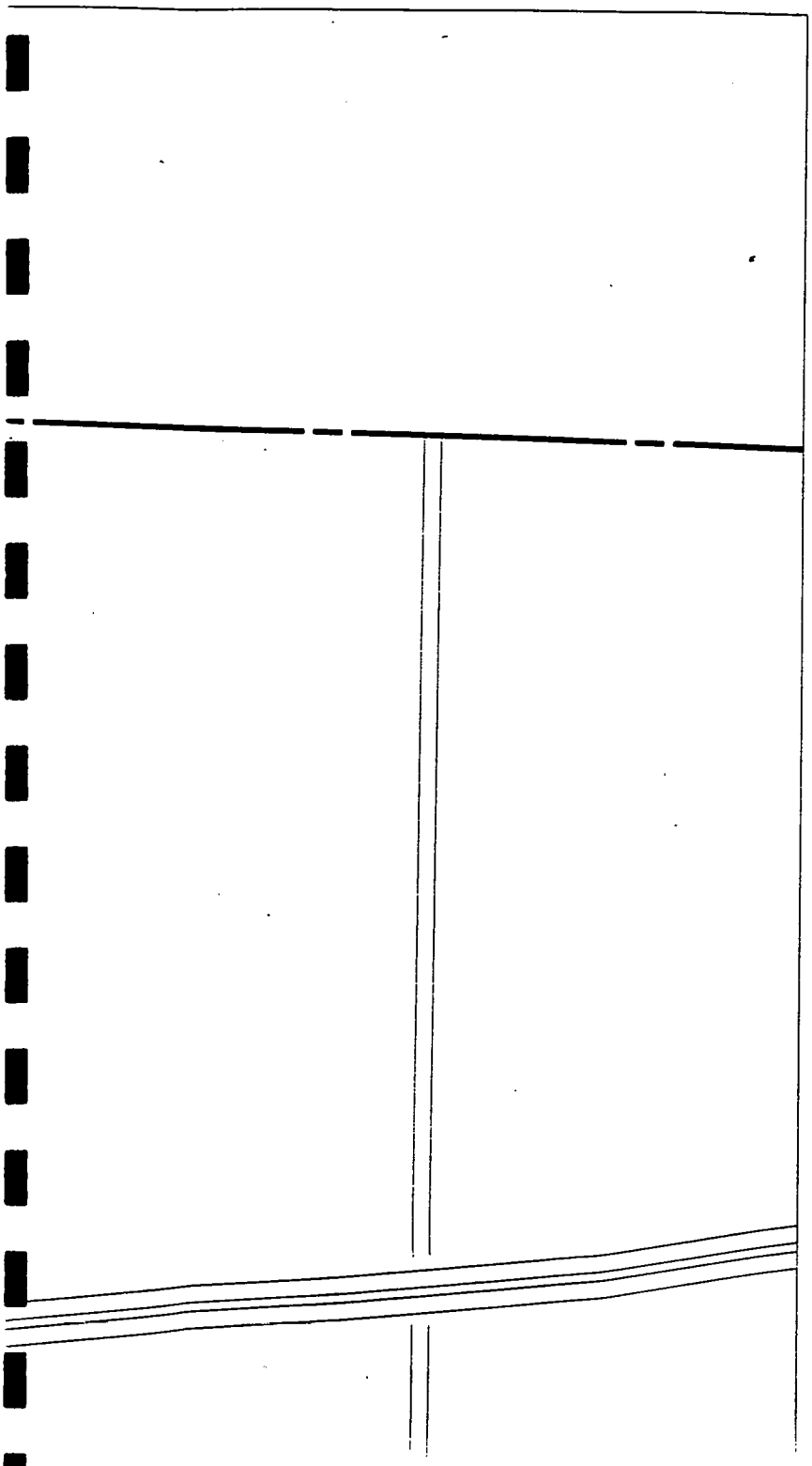
APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP



KEY TO MAP

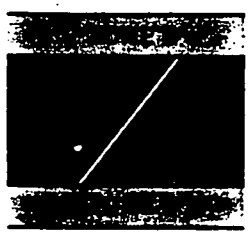
500-Year Flood Boundary

100-Year Flood Boundary

Zone Designations*

100-Year Flood Boundary

500-Year Flood Boundary



Base Flood Elevation Line With Elevation In Feet** — 513

Base Flood Elevation in Feet Where Uniform Within Zone** — (EL 987)

Elevation Reference Mark — RM7 ×

River Mile — • M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

CORPORATE LIMITS

Approximate site boundary

90

33

Base Floo
With Elev

Base Floo
Where Un

Elevation

River Mile

**Referer

*EXP

ZONE

A

A0

AH

A1-A30

A99

B

C

D

V

V1-V30

Certain ar
may be pr

This map
sarily sho
all planim

For adjoi
Panels.

FL

REFERENCE NO. 11

New York State Atlas of Community Water System Sources 1982

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF PUBLIC WATER SUPPLY PROTECTION

SOURCE LOCATIONS

The county maps in this atlas show the locations of surface water intakes and groundwater sources for community water systems in New York State. A community water system is defined in Part 5 of the New York State Sanitary Code as a public water system which serves at least five service connections used by year round residents or regularly serves at least 25 year round residents. Many different types of water systems are therefore included. Community water systems which purchase 100 percent of their water and have no sources of their own are not shown.

Each county map is accompanied by a list of the county's community water systems, population served, and source names. Systems are separated into MUNICIPAL COMMUNITY (program code 100) and NON-MUNICIPAL COMMUNITY (all other program codes) and listed alphabetically within each. MUNICIPAL COMMUNITY water systems are operated by a city, town, village, county or water authority or the water system may be a water district or privately owned. NON-MUNICIPAL COMMUNITY systems are primarily mobile home parks but also include apartments/condominiums, resident health care facilities, resident institutions, and federal facilities.

FOREWARD

EXPLANATION OF SYMBOLS

Suface water intakes are designated on the county maps by a triangle (▲) accompanied by the corresponding water supply number.

Groundwater sources are designated by a dot (•) followed by the supply number. Multiple wells separated by less than 1000' and supplying the same water system are shown with one dot. Springs and infiltration galleries are shown as groundwater sources unless the local health unit has designated it a surface source. Therefore, springs and infiltration galleries are listed as wells (springs) or wells (infiltration galleries).

If a Community Water System has source(s) located outside the county, these sources are shown in the county list and show in parentheses the system number, county and page number. Conversely, when a county contains source(s) which supply community water systems located outside the county, the name of the system is also shown in that county's list of sources.

ACKNOWLEDGEMENT

Data compiled in this Atlas is based on location of community water system sources from visits, in 1979, to every county health unit in the State by technicians working for the Bureau of Public Water Supply Protection. This data was updated in 1982 through use of the Department of Health's SAFWATER computer inventory and through limited field review. The Bureau of Public Water Supply Protection wishes to acknowledge the following organizations who have made the Atlas possible:

To the United States Environmental Protection Agency for funding this Atlas as a part of the Underground Injection Control Program.

To the Cartography Section of the New York State Department of Transportation for providing the talent, time and effort in performing the necessary cartographic work to produce this Atlas.

To the engineers and technicians of the Bureau of Public Water Supply Protection of the New York State Department of Health for the painstaking work of gathering the basic data and cross-checking it, and for leading this project through to completion.

ERIE COUNTY

ID NO	COMMUNITY WATER SYSTEM	POPULATION	SOURCE
Municipal Community			
	Akron Village (See No 1 Wyoming Co, Page 10).	3640	
1	Alden Village.	3460.	Wells
2	Angola Village.	8500.	Lake Erie
3	Buffalo City Division of Water.	357870.	Lake Erie
4	Caffee Water Company.	210.	Wells
5	Collins Water District #3.	704.	Wells
6	Collins Water Districts #1 and #2.	1384.	Wells
7	Erie County Water Authority (Sturgeon Point Intake).	375000.	Lake Erie
8	Erie County Water Authority (Van DeWater Intake).	NA.	Niagara River - East Branch
9	Grand Island Water District #2.	9390.	Niagara River
10	Holland Water District.	1670.	Wells
11	Lawtons Water Company.	138.	Wells
12	Lockport City (Niagara Co).		Niagara River - East Branch
13	Niagara County Water District (Niagara Co).		Niagara River - West Branch
14	Niagara Falls City (Niagara Co).		Niagara River - West Branch
15	North Collins Village.	1500.	Wells
16	North Tonawanda City (Niagara Co).		Niagara River - West Branch
17	Orchard Park Village.	3671.	Pipe Creek Reservoir
18	Springville Village.	4169.	Wells
19	Tonawanda City.	18538.	Niagara River - East Branch
20	Tonawanda Water District #1.	91269.	Niagara River
21	Wanakah Water Company.	10750.	Lake Erie
Non-Municipal Community			
22	Aurora Mobile Park.	125.	Wells
23	Bush Gardens Mobile Home Park.	270.	Wells
24	Circle B Trailer Court.	50.	Wells
25	Circle Court Mobile Park.	125.	Wells
26	Creekside Mobile Home Park.	120.	Wells
27	Donnelly's Mobile Home Court.	99.	Wells
28	Gowanda State Hospital.	NA.	Clear Lake
29	Hillside Estates.	160.	Wells
30	Hunters Creek Mobile Home Park.	150.	Wells
31	Knox Apartments.	NA.	Wells
32	Maple Grove Trailer Court.	72.	Wells
→ 33	Millgrove Mobile Park.	100.	Wells
34	Perkins Trailer Park.	75.	Wells
→ 35	Quarry Hill Estates.	400.	Wells
36	Springville Mobile Park.	114.	Wells
37	Springwood Mobile Village.	132.	Wells
38	Taylors Grove Trailer Park.	39.	Wells
39	Valley View Mobile Court.	42.	Wells
40	Villager Apartments.	NA.	Wells


LEWISTON
CAMBRIA
TUSCARORA INDIAN RES
Lewiston
Pekin
Lockport
Gasport
Middleport
Terry's Corners
ROYALTON
LOCKPORT
Sanborn
LOCKPORT AIR FORCE STATION
PENDLETON
WHEATFIELD
Niagara Falls
Nashville
Pendleton
Tonawanda
NIAGARA
Sandy Beach
GRAND ISLAND
CLARENCE
Swormville
Niagara
AMHERST
Clarence Center
Akron
Tonawanda
Amherst
CHEEKTOWAGA
Kenmore
Williamsville
Harris Hill
NEWSTEAD
Clarence
Depew
Crittenden
ALDEN
Alden Center
Alden
Cheektowaga
Lancaster
Town Line
LANCASTER
BUFFALO
West Seneca
Elma
Lackawanna
WEST SENECA
ELMA
MARILLA
Marilla
Orchard Park
Blasdell
Springbrook
Blasdell Heights
Mount Vernon
Orchard Park
East Aurora
Wales Center
Ellicott
AURORA
WALES
HAMBURG
Highland-on-the-Lake
Lake View
Hamburg
ORCHARD PARK
Jewettville
South Wales
West Falls
North Boston
EVANS
Derby
Evans
Angola
East Eden
Eden
Patchin
Colden
HOLLAND
EDEN
BOSTON
COLDEN
Boston
Holland
WYOMING
SCALE 1:250,000
5 0 5 MILES
NORTH
ONTARIO

REFERENCE NO. 12

NUS CORPORATION

TELECON NOTE

CONTROL NO:	DATE:	TIME:
02-9007-18	9-26-90	0941

DISTRIBUTION: Lancaster SCF

BETWEEN:	OF:	PHONE:
Katie Collins	Erie County Water Authority	(716)849-8484

AND: Bob Kurkjian

DISCUSSION: (NUS)

The Erie County Water Authority has approximately 450,000 customers. They do not serve the City of Buffalo or the Village of Kenmore.

There are two water intakes:

① Van de Water Treatment Plant - intake is along the Niagra River in Tonawanda

② Sturgeon Point - intake is along Lake Erie in Southern Erie County.

Katie Collins referred me to Jon Byron for information on private wells.

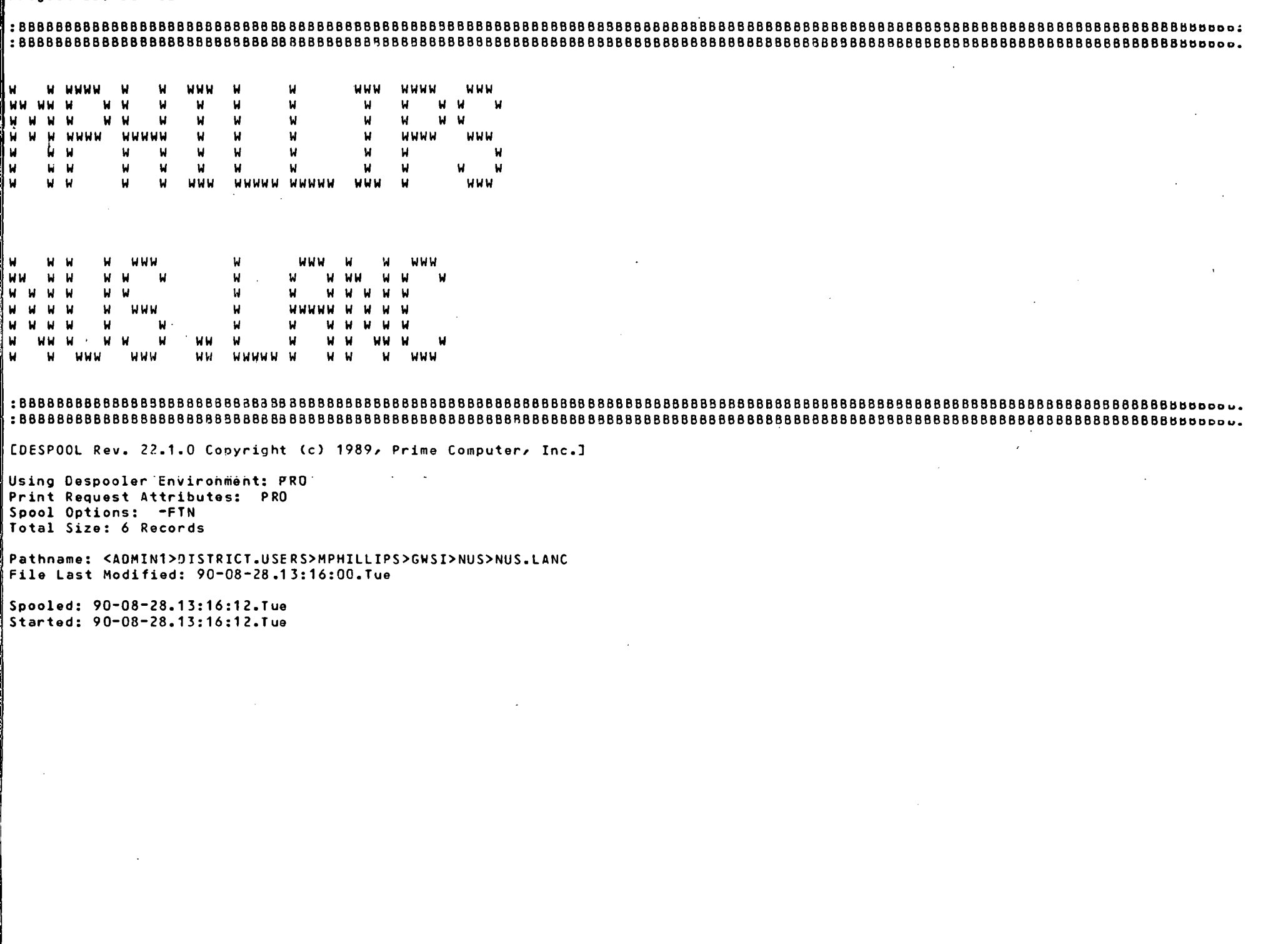
1055: I Spoke to Mr. Byron, he does not have any information on private wells

ACTION ITEMS:

REFERENCE NO. 13

Selected information from wells in groundwater site inventory data base, Water Resources Division, USGS, Request 688, May 22, 1990

Project ID: DEFAULT



[DESPOOL Rev. 22.1.0 Copyright (c) 1989, Prime Computer, Inc.]

Using Despooler Environment: PRO
Print Request Attributes: PRO
Spool Options: -FTN
Total Size: 6 Records

Pathname: <ADMIN1>DISTRICT.USERS>MPHILLIPS>GWSI>NUS>NUS.LANC
File Last Modified: 90-08-28.13:16:00.Tue

Spooled: 90-08-28.13:16:12.Tue
Started: 90-08-28.13:16:12.Tue

	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	OWNER	DEPTH DRILLED (FEET)	STATIC WATER LEVEL (FEET)	TOP OF OPEN INTERVAL (FEET)	BOTTOM OF OPEN INTERVAL (FEET)	AQUIFER CODE	LITH-OLOGY CODE
1	425452	0783441	GLOSE G	--	--	--	--	341CNNT	SHLE
		--			--	--	--	BEDROCK	--
2	425454	0783441	MAUE R	--	--	--	--	341CNNT	SHLE
		--			--	--	--	BEDROCK	--
3	425456	0783513	BURNS J	--	--	--	--	351CMLS	SHLE
		--			--	--	--	BEDROCK	--
4	425556	0783726	GUENTHER PRIVATE WELL	--	--	--	--	--	--
5	425558	0783634	LONG PRIVATE WELL, LANCA	--	--	--	--	--	--
6	425608	0783534	HUBER	--	--	--	--	341CNNT	SHLE
	425615	0784145	--	--	--	--	--	BEDROCK	--
	425619	0784151	--	--	--	--	--	BEDROCK	--
	425638	0783655	--	--	--	--	--	--	--
	425638	0783655	--	--	--	--	--	--	--
	425640	0783757	TOBYS GREENHOUS	--	--	--	--	351ACBB	--
7	425642	0783706	KICAK CEIL	--	--	--	--	344ONDG	LMSN
8	425643	0783755	MARTINO PRIVATE WELL	--	--	--	--	--	--
9	425647	0783504	RINGER PRIVATE WELL	--	--	--	--	--	--
10	425647	0783907	PAWLAK JOE	--	--	--	--	344ONDG	LMSN
11	425649	0783612	JOYCE HUNT-DOMESTIC WELL	--	--	--	--	--	--
	425659	0784150	--	--	--	--	--	BEDROCK	--
12	425700	0784128	WOJCKI GREGORY	--	--	--	--	344ONDG	LMSN
13	425706	0783310	JACKS	--	--	--	--	344ONDG	LMSN
14	425707	0783310	FOSMER	--	--	--	--	344ONDG	LMSN
15	425711	0783531	AUCTION HOUSE	--	--	--	--	344ONDG	LMSN
16	425716	0784124	WALTERS E	--	--	--	--	344ONDG	LMSN
	425719	0783649	LANCASTER LANDFILL	--	--	50.0	66.0	344ONDG	LMSN
17	425722	0784105	ROSE GARDEN RES	--	--	--	--	344ONDG	LMSN
R	425724	0783911	LONDOS	66.0	--	--	--	344ONDG	LMSN
18	425726	0783805	BENDER	--	--	--	--	344ONDG	LMSN
20	425726	0784012	Buffalo Crushed Stone, 8625 Wehrle Dr. NY	121	--	--	--	344ONDG	LMSN
		--			--	--	--	351AKRN	DLMT
		--			--	--	--	351BRTI	LMSN
		--			--	--	--	351SLRNU	SHLE
21	425730	0783759	HARRIS	--	--	--	--	344ONDG	LMSN
Y	425730	0783800	--	--	--	--	--	--	--
22	425730	0784053	ALLWEIN PAUL	--	--	--	--	344ONDG	LMSN
23	425731	0783841	TRESP PAUL	--	--	--	--	344ONDG	LMSN
	425733	0783431	--	--	--	--	--	--	--
	425735	0783435	--	--	--	--	--	--	--
24	425736	0783310	KURPITA	--	--	--	--	344ONDG	LMSN

Mick 685-4799
Louise 683-4060
L. Jean 684-5328

LATITUDE (DEGREES)	LONGITUDE (DEGREES)	DISCHARGE (GPM)	PRIMARY USE OF WATER	OTHER IDENTIFIER
425452	0783441	--	H	--
		--		--
425454	0783441	--	H	--
		--		--
425456	0783513	--	H	--
		--		--
425556	0783726	--	-	--
425558	0783634	--	-	--
425608	0783534	--	H	--
425615	0784145	--	-	--
425619	0784151	--	-	--
425638	0783655	--	-	WELL 81-20
425638	0783655	--	-	WELL 81-25
425640	0783757	--	C	TG36
425642	0783706	--	H	--
425643	0783755	--	-	--
425647	0783504	--	-	--
425647	0783907	--	U	--
425649	0783612	--	-	--
425659	0784150	--	-	--
425700	0784128	--	H	--
425706	0783310	--	H	--
425707	0783310	--	H	--
425711	0783531	--	H	--
425716	0784124	--	H	--
425719	0783649	--	U	W-5
425722	0784105	--	U	--
425724	0783911	30.0	H	TG-26
425726	0783805	--	H	--
425726	0784012	--	U	G-1
		--		--
		--		--
		--		--
425730	0783759	10.0	H	--
425730	0783800	--	-	--
425730	0784053	--	U	--
425731	0783841	--	H	--
425733	0783431	--	-	USGS WELL 81-8
425735	0783435	--	-	WELL 81-8
425736	0783310	--	H	--

	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	OWNER	DEPTH DRILLED (FEET)	STATIC WATER LEVEL (FEET)	TOP OF OPEN INTERVAL (FEET)	BOTTOM OF OPEN INTERVAL (FEET)	AQUIFER CODE	LITH-OLOGY CODE
—	425737	0783522	--	--	--	--	--	--	--
25	425737	0783926	SCARPELLO	--	--	--	--	3440NDG	LMSN
26	425738	0783420	SCHABERT	--	--	--	--	3440NDG	LMSN
27	425738	0783608	VOLKER PRIVATE WELL	--	--	--	--	--	--
28	425738	0783912	MAJEWSKI	--	--	--	--	3440NDG	LMSN
29	425739	0783536	MINNICK	--	--	--	--	3440NDG	LMSN
—	425739	0783758	--	--	--	--	--	--	--
—	425739	0783758	--	--	--	--	--	--	--
30	425740	0783420	CRIST DIAN	--	--	--	--	3440NDG	LMSN
31	425741	0783555	DEPAOLO	--	--	--	--	3440NDG	--
32	425742	0783420	MAREK	--	--	--	--	3440NDG	LMSN
33	425742	0783758	PFUELB ALFRED G	--	--	--	--	3440NDG	LMSN
—	425743	0783653	--	--	--	--	--	--	--
34	425745	0783420	WISNIEWSKI LYNN	--	--	--	--	3440NDG	LMSN
35	425746	0783652	REINECKE PRIVATE WELL	--	--	--	--	--	--
36	425747	0783421	MASSINGER	--	--	--	--	3440NDG	LMSN
37	425747	0783425	MCCUMBER B J	--	--	--	--	3440NDG	LMSN
—	425748	0783907	--	47.3	--	39	41	110QRNR	--
			--		--	--	--	3440NDG	LMSN
38	425750	0783420	REMINGTON	--	--	--	--	3440NDG	LMSN
—	425750	0783826	--	37	--	32	34	110QRNR	--
			--		--	--	--	3440NDG	LMSN
—	425751	0783758	--	--	--	--	--	BEDROCK	--
39	425751	0783841	BARTON	--	--	36.0	38.0	3440NDG	LMSN
—	425752	0783342	--	--	--	--	--	3440NDG	--
40	425753	0783420	REINECKE CARL	--	--	--	--	3440NDG	LMSN
—	425754	0783811	--	37.0	--	32.8	34.8	3440NDG	LMSN
41	425755	0783420	HOFFMAN	--	--	--	--	3440NDG	LMSN
—	425757	0783335	PORTER PRIVATE WELL	--	--	--	--	--	--
42	425757	0783423	TAGBIARINO	--	--	--	--	3440NDG	LMSN
—	425757	0783758	--	--	--	--	--	--	--
—	425758	0783630	--	--	--	--	--	--	--
—	425802	0784000	MAIN	47.3	--	39.2	41.2	3440NDG	LMSN
43	425809	0783942	BURDETTE	--	--	--	--	3440NDG	LMSN
44	425809	0783946	LAUGS	--	--	--	--	3440NDG	LMSN
45	425811	0783403	WENDE T J	--	--	--	--	3440NDG	LMSN
—	425811	0783423	--	--	--	--	--	--	--
46	425813	0783307	SCHULTZ	--	--	--	--	3440NDG	LMSN
—	425815	0783451	WATER TOWER	--	--	--	--	--	--
—	425818	0783530	--	--	--	--	--	--	--

LATITUDE (DEGREES)	LONGITUDE (DEGREES)	DISCHARGE (GPM)	PRIMARY USE OF WATER	OTHER IDENTIFIER
425737	0783522	--	-	--
425737	0783926	--	H	--
425738	0783420	10.0	H	--
425738	0783608	--	-	--
425738	0783912	--	H	--
425739	0783536	--	U	--
425739	0783758	--	-	--
425739	0783758	--	-	--
425740	0783420	--	H	--
425741	0783555	10.0	H	--
425742	0783420	10.0	H	--
425742	0783758	--	U	--
425743	0783653	--	-	--
425745	0783420	--	H	--
425746	0783652	--	-	--
425747	0783421	--	H	--
425747	0783425	--	H	--
425748	0783907	--	U	D-1
		--		--
425750	0783420	10.0	H	--
425750	0783826	--	U	A-1
		--		--
425751	0783758	--	-	--
425751	0783841	--	U	B-1
425752	0783342	--	-	--
425753	0783420	50.0	H	--
425754	0783811	--	U	A1
425755	0783420	20.0	H	--
425757	0783335	--	-	--
425757	0783423	1.00	H	--
425757	0783758	--	-	--
425758	0783630	--	-	USGS WELL 81-7
425802	0784000	--	U	D1
425809	0783942	--	-	TG-16
425809	0783946	--	H	TG-20
425811	0783403	--	H	--
425811	0783423	--	-	USGS WELL 81-5
425813	0783307	75.0	H	--
425815	0783451	--	P	--
425818	0783530	--	-	USGS WELL 81-4

LATITUDE (DEGREES)	LONGITUDE (DEGREES)	OWNER	DEPTH DRILLED (FEET)	STATIC WATER LEVEL (FEET)	TOP OF OPEN INTERVAL (FEET)	BOTTOM OF OPEN INTERVAL (FEET)	AQUIFER CODE	LITH-OLOGY CODE
425819	0783507	MELBOURNE EUGENE W	--	--	--	--	344ONDG	LMSN
425821	0783520	BLOODSWORTH HAROLD F	--	--	--	--	344ONDG	LMSN
425821	0783523	BICKERT RUTH E	--	--	--	--	344ONDG	LMSN
425822	0783308	BUGENHAGEN D	--	--	--	--	344ONDG	LMSN
425822	0783342	DORR G C	--	--	--	--	344ONDG	LMSN
425822	0783942	COMPTON GEORGE	--	--	--	--	344ONDG	LMSN
425823	0783334	BUGENHAGEN ALVIN	--	--	--	--	344ONDG	LMSN
425823	0784114	HELENWOOD	39.5	--	34.0	36.0	344ONDG	LMSN
425824	0783938	METZ K	--	--	--	--	344ONDG	LMSN
425829	0783734	STEPHAN ROB	--	--	--	--	344ONDG	LMSN
425834	0783558	TWELE PRIVATE WELL	--	--	--	--	--	--
425835	0783310	REBROVITCH	--	--	--	--	344ONDG	LMSN
425835	0783555	TWELE	--	--	--	--	344ONDG	LMSN
425836	0783723	--	--	--	--	--	BEDROCK	--
425836	0783849	MCLAUGHLIN	--	--	--	--	344ONDG	LMSN
425838	0783852	MILLER	--	--	--	--	344ONDG	LMSN
425838	0784024	SHERIDAN	37.3	--	21.0	23.0	351ACBB	--
425839	0783834	SCAVONE	--	--	--	--	344ONDG	LMSN
425843	0783510	EAST AVENUE	--	--	--	--	344ONDG	LMSN
425843	0783710	HUGHES DAVE	--	--	--	--	344ONDG	LMSN
425852	0783833	SMITH	--	--	--	--	344ONDG	LMSN
425856	0783549	ROUSE	--	--	--	--	344ONDG	--
425856	0783631	STOTT LLOYD	--	--	--	--	344ONDG	LMSN
425904	0783550	ERIKSON D	--	--	--	--	344ONDG	LMSN
425907	0783412	PARKER	--	--	--	--	344ONDG	LMSN
425908	0783809	KOEHLER DANIEL	--	--	--	--	344ONDG	LMSN
425920	0783754	TORAK	--	--	--	--	344ONDG	LMSN

LATITUDE (DEGREES)	LONGITUDE (DEGREES)	DISCHARGE (GPM)	PRIMARY USE OF WATER	OTHER IDENTIFIER
425819	0783507	--	H	--
425821	0783520	--	H	--
425821	0783523	--	H	--
425822	0783308	--	H	--
425822	0783342	10.0	H	--
425822	0783942	--	H	--
425823	0783334	10.0	H	--
425823	0784114	--	U	C-1
425824	0783938	--	U	TG10
425829	0783734	--	H	--
425834	0783558	--	-	--
425835	0783310	--	H	--
425835	0783555	25.0	H	--
425836	0783723	--	-	--
425836	0783849	--	H	--
425838	0783852	--	H	--
425838	0784024	--	U	E-1
425839	0783834	--	H	--
425843	0783510	--	H	--
425843	0783710	--	H	--
425852	0783833	--	U	--
425856	0783549	--	H	--
425856	0783631	--	H	--
425904	0783550	--	H	--
425907	0783412	--	H	--
425908	0783809	--	H	--
425920	0783754	--	U	--

REFERENCE NO. 14

SCALE 1:25 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

SCALE : 1 "= 2083 '

SCALE : 1 "= 2000 '

SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

DATUM IS MEAN SEA LEVEL

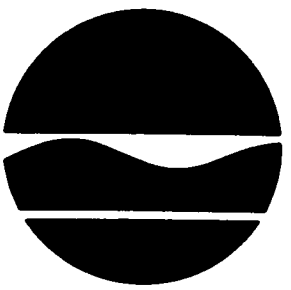
NUS CORPORATION	TITLE: FOUR MILE VICINITY MAP
	SITE : LANCASTER SLF LANCASTER, N.Y.
DATE : 8/6/90	
TDD : 02-9007-18	
QUAD : CLARENCE, N.Y.	FIGURE NUMBER:
	SCALE : (CHANGES

REFERENCE NO. 15

WATER QUALITY REGULATIONS

SURFACE WATER AND GROUNDWATER CLASSIFICATIONS AND STANDARDS

New York State
Codes, Rules and Regulations
Title 6, Chapter X
Parts 700-705



New York State Department of Environmental Conservation

This booklet contains New York State water quality regulations which were initially promulgated in 1950. Numerical standards for groundwater (Part 703) were last revised in 1978, and major revisions were made to the surface water regulations (Part 701) in 1985. Presented here are the complete regulations with revisions through March 31, 1986 as published in the New York State Official Compilation of Codes, Rules and Regulations. Please note that printing errors in the equations for calculating ammonia standards (Appendix 31, page 502.34) have been corrected by the Department of Environmental Conservation.

PART 700

TESTS OR ANALYTICAL DETERMINATIONS

(Statutory authority: Environmental Conservation Law, § 17-0303)

Sec.
700.1 Collection of samples
Sec.
700.2 Tests or analytical determinations

Historical Note

Part repealed, new filed: April 28, 1972; Feb. 25, 1974 eff. 30 days after filing.

Section 700.1 Collection of samples. In making any tests of analytical determinations to determine compliance or noncompliance of sewage, industrial wastes or other waste discharges with established standards, samples shall be collected in such manner and at such locations as are approved by the commissioner. In approving such locations the commissioner shall be guided by the fact that:

(a) there must be prompt mixing of the discharge with the receiving waters;

(b) the mixing will not interfere with biological communities to a degree which is damaging to the ecosystem; and

(c) the mixing will not diminish other beneficial uses disproportionately.

Historical Note

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974 eff. 30 days after filing.

700.2 Tests or analytical determinations. Tests or analytical determinations to determine compliance or noncompliance with standards shall be made in accordance with:

(a) *Standard methods for the Examination of Water and Wastewater* (see section 705.2 of this Title);

(b) *Methods for Chemical Analysis of Water and Wastes* (see section 705.2), prepared by Environmental Protection Agency (EPA);

(c) *Water Standards of the American Society for Testing and Materials (ASTM)* (see section 705.2 of this Title); or

(d) by other methods approved by the commissioner and the administrator as giving results equal to or superior to methods listed in any of the other documents.

Historical Note

Sec. repealed, new filed: April 28, 1972; Feb. 25, 1974; amd. filed Nov. 5, 1984 eff. Nov. 5, 1984. Amended (a)-(c).

CLASS "B"

Best usage of waters. Primary contact recreation and any other uses except as a source of water supply for drinking, culinary or food processing purposes.

Quality Standards for Class "B" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations, and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. pH	Shall be between 6.5 and 8.5.
3. Total dissolved solids.	None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.
4. Dissolved oxygen.	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "C"

Best usage of waters. The waters are suitable for fishing and fish propagation. The water quality shall be suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose.

Quality Standards for Class "C" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations, and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. pH	Shall be between 6.5 and 8.5.
3. Total dissolved solids.	None at concentrations which will be detrimental to the growth and propagation of aquatic life. Waters having present levels less than 500 milligrams per liter shall be kept below this limit.
4. Dissolved oxygen.	For cold waters suitable for trout spawning, the DO concentration shall not be less than 7.0 mg/l from other than natural conditions. For trout waters, the minimum daily average shall not be less than 6.0 mg/l. At no time shall the DO concentration be less than 5.0 mg/l. For non-trout waters, the minimum daily average shall not be less than 5.0 mg/l. At no time shall the DO concentration be less than 4.0 mg/l.

CLASS "D"

Best usage of waters. The waters are suitable for fishing. The water quality shall be suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose. Due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery or stream bed conditions, the waters will not support fish propagation.

Conditions related to best usage of waters. The waters must be suitable for fish survival.

Quality Standards for Class "D" Waters

Items	*Specifications*
1. pH	Shall be between 6.0 and 9.5.
2. Dissolved oxygen.	Shall not be less than 3 milligrams per liter at any time.
3. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.

Historical Note

Sec. added by renum. and amd. 701.4, filed July 3, 1985; amd. filed Sept. 20, 1985 eff. 30 days after filing.

701.20 Classes and standards for saline surface waters. The following items and specifications shall be the standards applicable to all New York saline surface waters which are assigned the classification of SA, SB, SC or SD, in addition to the specific standards which are found in this section under the heading of each such classification.

Quality Standards for Saline Surface Waters

Items	*Specifications*
1. Garbage, cinders, ashes, oils, sludge or other refuse.	None in any waters of the marine district as defined by Environmental Conservation Law (§ 17-0105)
2. pH	The normal range shall not be extended by more than one-tenth (0.1) pH unit.
3. Turbidity.	No increase except from natural sources that will cause a substantial visible contrast to natural conditions. In cases of naturally turbid waters, the contrast will be due to increased turbidity.
4. Color.	None from man-made sources that will be detrimental to anticipated best usage of waters.
5. Suspended, colloidal or settleable solids.	None from sewage, industrial wastes or other wastes which will cause deposition or be deleterious for any best usage determined for the specific waters which are assigned to each class.
6. Oil and floating substances.	No residue attributable to sewage, industrial wastes or other wastes, nor visible oil film nor globules of grease.
7. Thermal discharges.	(See Part 704 of this Title.)

CLASS "SA"

Best usage of waters. The waters shall be suitable for shellfishing for market purposes and primary and secondary contact recreation.

Quality Standards for Class "SA" Waters

Items	*Specifications*
1. Coliform.	The median MPN value in any series of samples representative of waters in the shellfish-growing area shall not be in excess of 70 per 100 ml.
2. Dissolved oxygen.	Shall not be less than 5.0 mg/l at any time.
3. Toxic wastes and deleterious substances.	None in amounts that will interfere with use for primary contact recreation or that will be injurious to edible fish or shellfish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor or sanitary condition thereof, or impair the waters for any other best usage as determined for their specific waters which are assigned to this class.

CLASS "SB"

Best usage of waters. The waters shall be suitable for primary and secondary contact recreation and any other use except for the taking of shellfish for market purposes.

Quality Standards for Class "SB" Waters

Items	*Specifications*
1. Coliform.	The monthly median coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations, and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. Dissolved oxygen.	Shall not be less than 5.0 mg/l at any time.
3. Toxic wastes and deleterious substances.	None in amounts that will interfere with use for primary contact recreation or that will be injurious to edible fish or shellfish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor or sanitary condition thereof, or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.

CLASS "SC"

Best usage of waters. The waters are suitable for fishing and fish propagation. The water quality shall be suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose.

Quality Standards for Class "SC" Waters

Items	*Specifications*
1. Coliform.	The monthly medial coliform value for 100 ml of sample shall not exceed 2,400 from a minimum of five examinations and provided that not more than 20 percent of the samples shall exceed a coliform value of 5,000 for 100 ml of sample and the monthly geometric mean fecal coliform value for 100 ml of sample shall not exceed 200 from a minimum of five examinations. This standard shall be met during all periods when disinfection is practiced.
2. Dissolved oxygen.	Shall not be less than 5.0 mg/l at any time

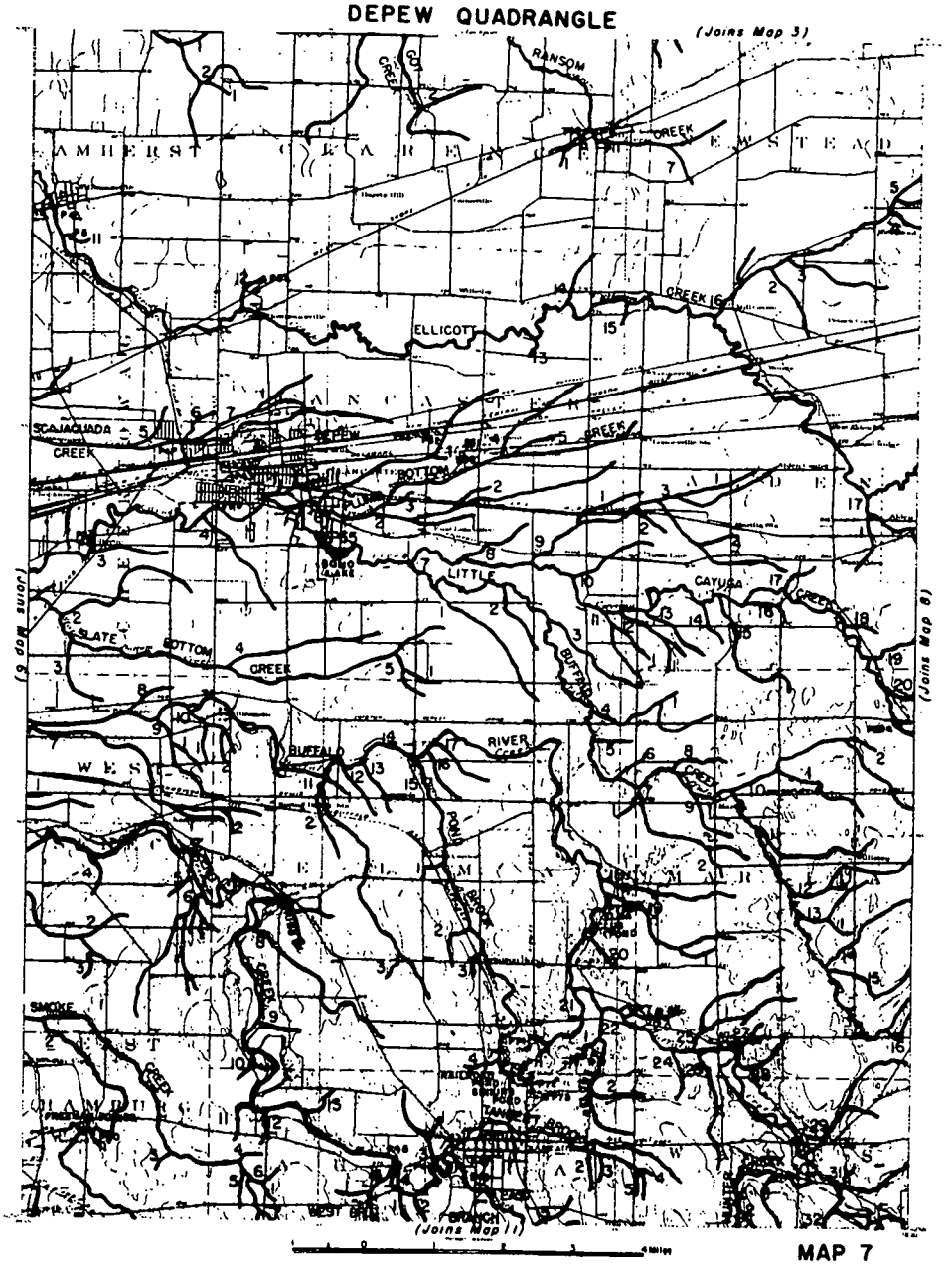
TABLE I *(cont'd)*

Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
39	0-158-12-1-28 and 29	Tributaries of Ellicott Creek	Enter Ellicott Creek from southeast between trib. 27, item no. 38, and source	8	B	B
40	0-158-12-2	Tributary of Tonawanda Creek	Enters Tonawanda Creek from northeast at a point approximately 4.2 miles above mouth.	2	D	D
41	0-158-12-3	Bull Creek	Enters Tonawanda Creek from north at Martinsville.	2	C	C
42	0-158-12-3-1	Sawyer Creek	Enters Bull Creek from northwest at a point approximately 0.7 miles above mouth.	2	D	D
43	0-158-12-3-2,3, and 4 and trib. as shown on reference map	Tributaries of Bull Creek	Enter Bull Creek from west, north and northeast respectively between Sawyer Creek, item no. 42, and source.	2	D	D
44	0-158-12-4 and 5 and tribs. as shown on reference map	Tributaries of Tonawanda Creek	Enter Tonawanda Creek from north and south approximately 2.7 and 5.2 miles respectively above Bull Creek, item no. 41.	2	D	D
45	0-158-12-6 portion as described	Ransom Creek	Enters Tonawanda Creek from southeast at a point approximately 5.4 miles above Bull Creek, item no. 41. Mouth to Got Creek, item no. 49.	2,3	C	C

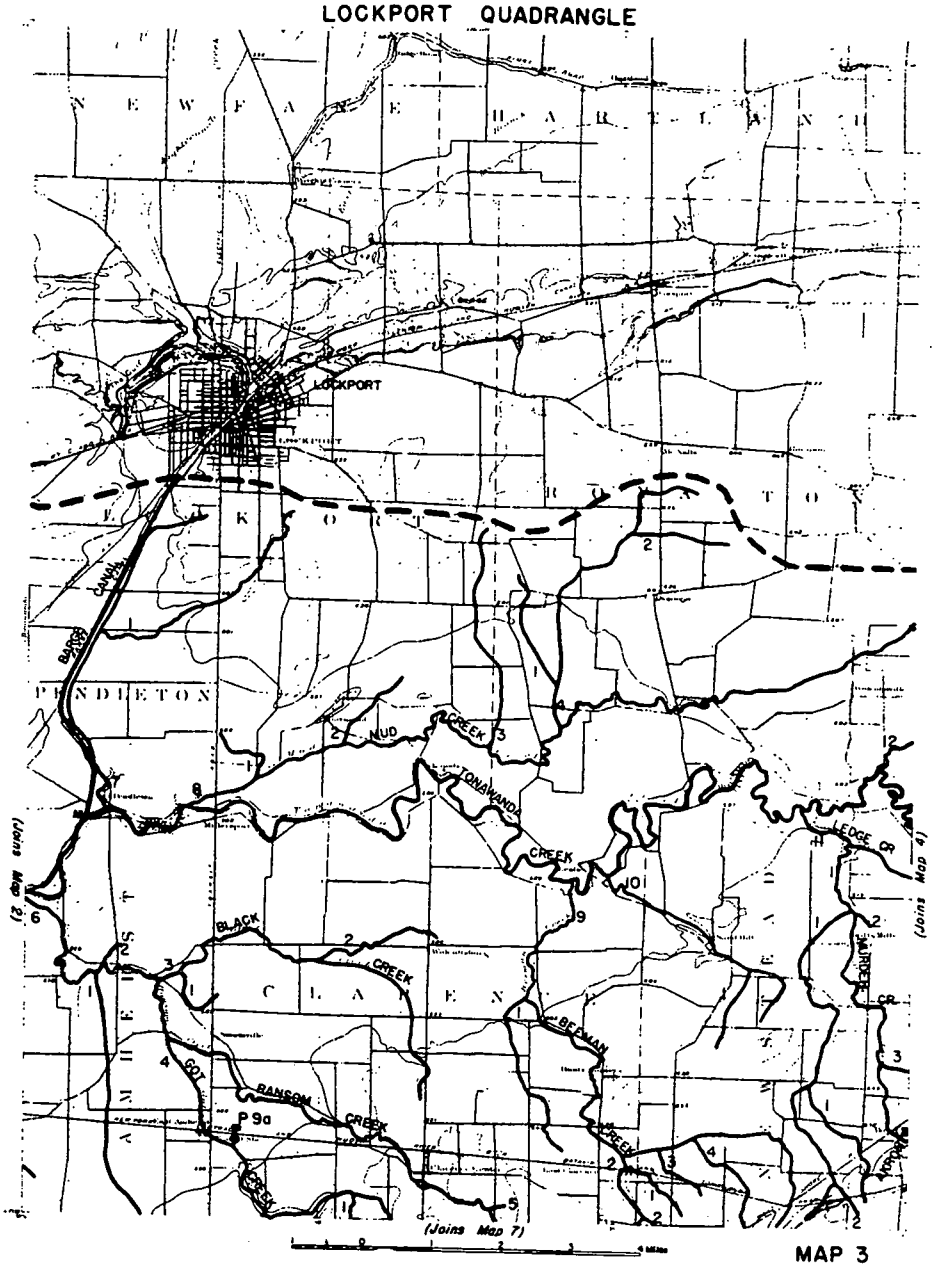
1612 CN 1-31-77

TABLE I (contd.)

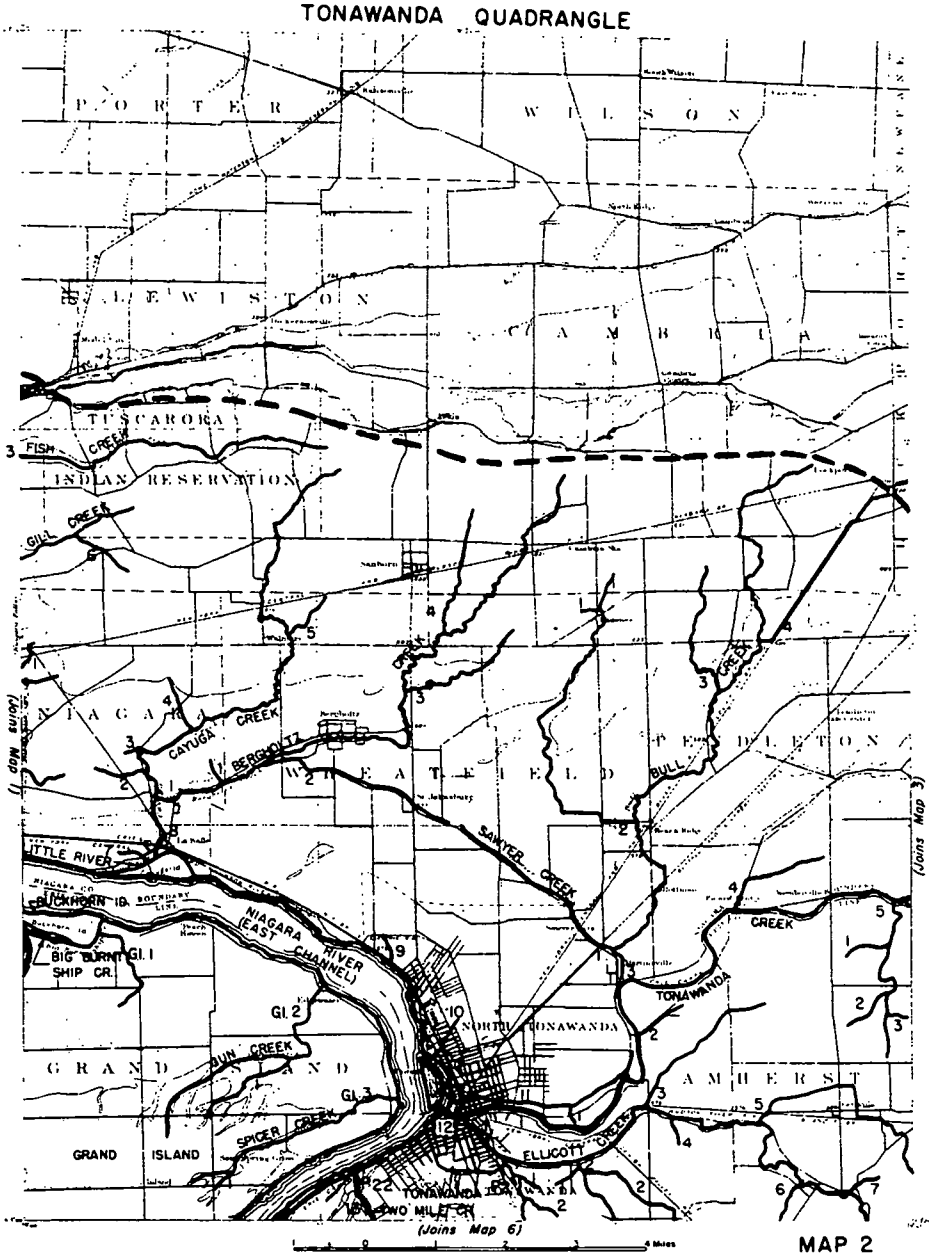
Item No.	Waters Index Number	Name	Description	Map Ref. No.	Class	Standards
46	0-158-12-6 portion as described including P 11	Ransom Creek	From Got Creek, item no. 49, to source.	3,7	C	C(T)
47	0-158-12-6-1 and tribs. and 2 as shown on reference map	Tributaries of Ransom Creek	Enter Ransom Creek from south and north approximately 2.4 and 2.6 miles respectively above mouth.	3,7	D	D
48	0-158-12-6-3 and tribs. as shown on reference map	Black Creek	Enters Ransom Creek from east approximately 3.4 miles above mouth.	3	D	D
49	0-158-12-6-4 and tribs. including P 9a as shown on reference map	Got Creek	Enters Ransom Creek from south appro imately 1.0 mile above Black Creek, item no. 48.	3,7	C	C(T)
50	0-158-12-6-5,6 and trib. and 7 as shown on reference map including P 10	Tributaries of Ransom Creek	Enter Ransom Creek from east and south between Got Creek, item no. 49, and source.	3,7	D	D
51	Barge Canal portion as described	Barge Canal	From separation with Tonawanda Creek at Pendleton to watershed limit.	3	C	C
52	0-158-12-7 and trib. as shown on reference map	Tributary of Tonawanda Creek	Enters Tonawanda Creek from north of Pendleton.	3	B	B


DEPEW QUADRANGLE
(Joins Map 3)
RANSOM CREEK
AMHERST
CLEARFIELD
WESTEAD
ELLICOTT CREEK
SCAJAQUADA CREEK
BOTTOM
LITTLE
CAYUGA CREEK
SLATE BOTTOM CREEK
BUFFALO RIVER
BUFFALO CREEK
SMOKE CREEK
WEST BRANCH
(Joins Map 11)
(Joins Map 8)
MAP 7

LOCKPORT QUADRANGLE



MAP 3



1650 CN 10-15-66

REFERENCE NO. 16

Mr. Mitrey

New York State Department of Environmental Conservation
Division of Regulatory Affiars - Region 9
600 Delaware Avenue, Buffalo, NY 14202-1073
716/847-4551

1. MHC KH RJT
2. File: 15521

Henry G. Williams
Commissioner

March 10, 1987

Mr. Richard J. Sherwood
Town Attorney
Town of Lancaster
21 Central Avenue
Lancaster, NY 14086

Dear Mr. Sherwood:

This office is in receipt of your letter dated February 27, 1987, regarding the methane gas recovery project at the Lancaster Sanitary Landfill. In checking with Mr. Mitrey of our Solid Waste Section, he informs me that the Town was notified of this gas recovery project at a meeting held at the Town of Lancaster offices on May 29, 1986. In addition, reviewing the attached July 15, 1986 letter which summarized this meeting, it is apparent that you were also present. This letter further states that it was the understanding of Mr. Coveny, who is the engineer for the project, that no permits were needed from the Town of Lancaster.

On January 23, 1987, Mr. Mitrey approved the project providing certain conditions at the landfill were met. (See attached letter) However, apparently the Town was not sent a copy of that correspondence. That was unfortunate, but inadvertent.

On or about February 25, 1987, this Department was informed of a fire that occurred on February 14, 1987 at the landfill. Mr. Mitrey then forwarded a letter to Mr. Richard Kennedy, Lancaster Landfill's attorney, informing him that the Department was unable to reach National Gas and Electric and requesting that all gas recovery operations cease immediately until an investigation could be carried out.

On February 26, 1987, Department representatives Mary McIntosh and Kevin Hintz made an inspection of the site to verify the present condition and to get more information as to what had happened on February 14 (see attached February 26, 1987 memo). In addition, on February 26, Mr. Roy Davis, Project Manager, hand carried a letter to this office describing this incident. (See attached February 25, 1987 letter). On February 27, 1987, Mr. Mitrey then contacted Mr. Robert Laney, Town Building Inspector and informed him that he wanted the Towns' concurrence before he would allow the project to continue. Mr. Laney informed Mr. Mitrey that he would concur with the restart operations on February 27, 1987. Mr. Mitrey allowed the restart of drilling operations providing the driller had made arrangements with the Town for any possible contingencies. (See February 27, 1987 letter).

Also, attached is a February 28, 1987 letter to the Department from Roy Davis, Project Manager outlining a fire contingency plan.

If you should need any additional information, please contact Mr. Mitrey directly at 847-4585.

Sincerely,

Steven J. Doleski

Steven J. Doleski
Regional Permit Administrator

SJD/jmm

cc: Mr. Robert Mitrey w/incoming

REFERENCE NO. 17

Feb. 26, 1987

Robert J. Mitrey, P.E.
New York State Department of Environmental Conservation
600 Delaware Avenue
Buffalo, N.Y. 14202-1073

Re: Fire at drilling site Feb. 7, 198

Dear Sir,

This is a report regarding the fire at the gas recovery project at the Lancaster Landfill.

The drill must have created enough heat to ignite the gas. The drillers used Purple K extinguishers and knocked the fire down. They removed the drilling rig from the well. I took the Bob Cat and pushed snow over the hole to smother the fire. I called the Fire Department so that the fire could be completely extinguished. I put water from the F.D. Tanker and the fire was completely extinguished.

The well hole was filled with gravel and sealed with Betonite.

I checked the well several times over the weekend to be sure that the fire was out.

Yours truly,
Roy L. Davis
Project Manager

REFERENCE NO. 18

BIEL'S


NATIONAL WETLANDS INVENTORY
UNITED STATES DEPARTMENT OF THE INTERIOR
PFOIB
POWZA
PSSIA
PSSIB
PFOIE

CLARENCE , N.Y.

NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*)
- Dominance type (either vegetative or sedentary animal) can be added to the map by the interested user
- Additions or corrections to the wetlands information displayed on this map are solicited Please forward such information to the address indicated
- Some areas designated R4SB, R4SBW, or R4SBJ (intermittent streams) may not meet the definition of wetlands

AERIAL PHOTOGRAPHY

DATE 4 / / 81
SCALE 1:80000
TYPE B-W

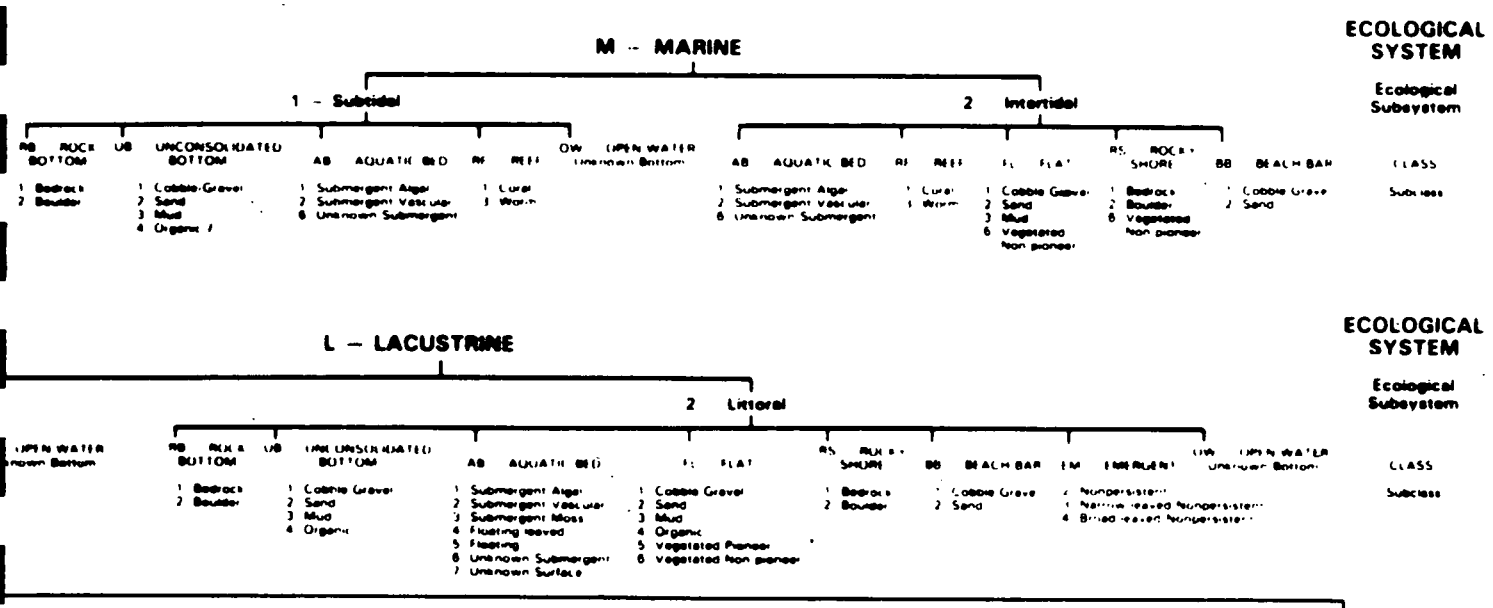
DATE / /
SCALE
TYPE

DATE / /
SCALE
TYPE

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

Prepared by Office of Biological Services for the National Wetlands Inventory



MODIFYING TERMS

scribe wetland and aquatic habitats one or more of the water regime water chemistry soil or special modifiers
lass or lower level in the hierarchy The farmed modifier may also be applied to the ecological system

Tidal	WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS
	Coastal Salinity	Inland Salinity	pH Modifiers for all Fresh Water		
R Seasonal Tidal S Temporary Tidal T Semipermanent Tidal V Permanent Tidal U Unknown	1 Hypersaline 2 Eusaline 3 Mixohaline (Brackish) 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	Z Hypersaline A Eusaline B Mesosaline C Fresh	a Acid i Calcareous n Alkaline	g Organic m Mineral	b Beaver d Partially Drained Ditched f Farmed h Diked Impounded r Artificial s Spoil x Excavated

BUFFALO NE

BUFFALO

SPECIAL NOTE

This document was prepared prima
analysis of high altitude aerial photogra
identified on the photographs based o
hydrology, and geography in accorda
tion of Wetlands and Deep-Water Ha
States (An Operational Draft), Coward
aerial photographs typically reflect c
specific year and season when they
tion, there is a margin of error inhere
aerial photographs. Thus, a detailed
historical analysis of a single site may
the wetland boundaries established t
interpretation. In addition, some small
obscured by dense forest cover may n
document.

Federal, State and local regulatory a
tion over wetlands may define and de
different manner than that used in thi
no attempt, in either the design or pr
tory, to define the limits of proprietar
Federal, State or local government
geographical scope of the regulatory
ment agencies. Persons intending to e
volving modifications within or adjace
should seek the advice of appropriate F
agencies concerning specified agency
and proprietary jurisdictions that may a

Other information concerning the wetland resources depicted on this document may be available. For information, contact:

Regional Director (ARDE) Region V
U.S. Fish and Wildlife Service
1 Gateway Center, Suite 700
Newton Corner, Massachusetts 02158

ECOLOGICAL SYSTEM — **E – ESTUARINE**

Ecological Subsystem — 1 – Subtidal

CLASS	RB ROCK BOTTOM	UB UNCONSOLIDATED BOTTOM	AB AQUATIC BED	RF REEF	OW OPEN WATER
Subclass	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 4 Floating leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	2 Mollusk 3 Worm	Unknown Bottom

CLASS	AB AQUATIC BED	RF REEF	FL FLAT	SB STREAMBED	RS
Subclass	1 Submergent Algal 2 Submergent Vascular 6 Unknown Submergent 7 Unknown Surface	2 Mollusk 3 Worm	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non pioneer	1 Cobble Gravel 2 Sand 3 Mud 4 Organic	1 B 2 B 6 U

ECOLOGICAL SYSTEM — **P – PALUSTRINE**

No Subsystem

CLASS	RB ROCK BOTTOM	UB UNCONSOLIDATED BOTTOM	AB AQUATIC BED	FL FLAT	MB MOSS LICHEN
Subclass	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating-leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non pioneer	1 Moss 2 Lichen

CLASS	EM EMERGENT	SS SCRUB/SHRUB	FO FORESTED
Subclass	1 Persistent 2 Nonpersistent 3 Narrow leaved Nonpersistent 4 Broad leaved Nonpersistent 5 Narrow leaved Persistent 6 Broad leaved Persistent	1 Broad leaved Deciduous 2 Needle leaved Deciduous 3 Broad leaved Evergreen 4 Needle leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad leaved Deciduous 2 Needle leaved Deciduous 3 Broad leaved Evergreen 4 Needle leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

ECOLOGICAL SYSTEM — **R – RIVERINE**

Ecological Subsystem — 1 – Tidal | 2 – Lower Perennial | 3 Upper Perennial | 4 – Intermittent | 5 – Unknown Perennia

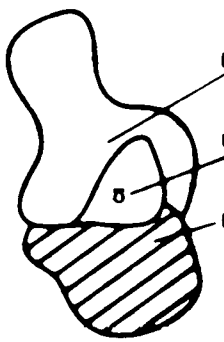
CLASS	EM EMERGENT	RB ROCK BOTTOM	UB UNCONSOLIDATED BOTTOM	AB AQUATIC BED	FL FLAT
Subclass	2 Nonpersistent 3 Narrow leaved Nonpersistent 4 Broad leaved Nonpersistent	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algal 2 Submergent Vascular 3 Submergent Moss 4 Floating leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated Pioneer 6 Vegetated Non pioneer

CLASS	SB STREAMBED	RS ROCKY SHORE	BB BEACH/BAR	OW OPEN WATER
Subclass	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand	Unknown

marily by stereoscopic
aphs. Wetlands were
n vegetation, visible
dance with Classifica-
Habitats of the United
din, et al, 1977. The
onditions during the
were taken. In addi
erent in the use of the
ed on the ground and
result in a revision of
through photographic
wetlands and those
not be included on this

gencies with jurisdic-
scribe wetlands in a
this inventory. There is
products of this inven-
tary jurisdiction of any
or to establish the
programs of govern-
o engage in activities in-
acent to wetland areas
federal, State or local
regulatory programs
ffect such activities.

SYMBOLOGY EXAMPLE



NOTES TO THE USER

- Wetlands which have been field examined are indicated on the map by an asterisk (*)
- Dominance type (either vegetative or sedentary animal) can be added to the map by the interested user
- Additions or corrections to the wetlands information displayed on this map are solicited. Please forward such information to the address indicated
- Some areas designated R4SB, R4SBW, or R4SBJ (intermittent streams) may not meet the definition of wetlands

AERIAL PHOTOGRAPHY

DATE 4 / / 81
SCALE 1:80000
TYPE B-W

DATE / /
SCALE
TYPE

DATE / /
SCALE
TYPE

WETLAND LEGEND

U – Primarily represents upland areas, but may include unclassified wetlands such as man-modified areas, non photo-identifiable areas and/or unintentional omissions.

M – MARINE

2 – Intertidal

ROCKY SHORE	BB BEACH/BAR	EM EMERGENT	SS SCRUB SHRUB	FO FORESTED
1 Bedrock 2 Boulder 3 Vegetated 4 Non-vegetated	1 Cobble/Gravel 2 Sand	1 Persistent 2 Nonpersistent 3 Narrow leaved Nonpersistent 4 Broad leaved Nonpersistent 5 Narrow leaved Persistent 6 Broad leaved Persistent	1 Broad leaved Deciduous 3 Broad leaved Evergreen 4 Needle leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad leaved Deciduous 3 Broad leaved Evergreen 4 Needle leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

1 – Subtidal

RB ROCK BOTTOM	UB UNCONSOLIDATED BOTTOM	AB AQUATIC BED	RF REEF	OW OPEN WATER Unknown Bottom
1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algae 2 Submergent Vascular 6 Unknown Submergent	1 Coral 2 Worm	

L – LACUSTRINE

1 Limnetic

RB ROCK BOTTOM	UB UNCONSOLIDATED BOTTOM	AB AQUATIC BED	OW OPEN WATER Unknown Bottom
1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algae 2 Submergent Vascular 3 Submergent Moss 4 Floating leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	

2

RB ROCK BOTTOM	UB UNCONSOLIDATED BOTTOM	AB AQUATIC BED	
1 Bedrock 2 Boulder	1 Cobble/Gravel 2 Sand 3 Mud 4 Organic	1 Submergent Algae 2 Submergent Vascular 3 Submergent Moss 4 Floating leaved 5 Floating 6 Unknown Submergent 7 Unknown Surface	1 Cobble G 2 Sand 3 Mud 4 Organic 5 Vegetated 6 Vegetated

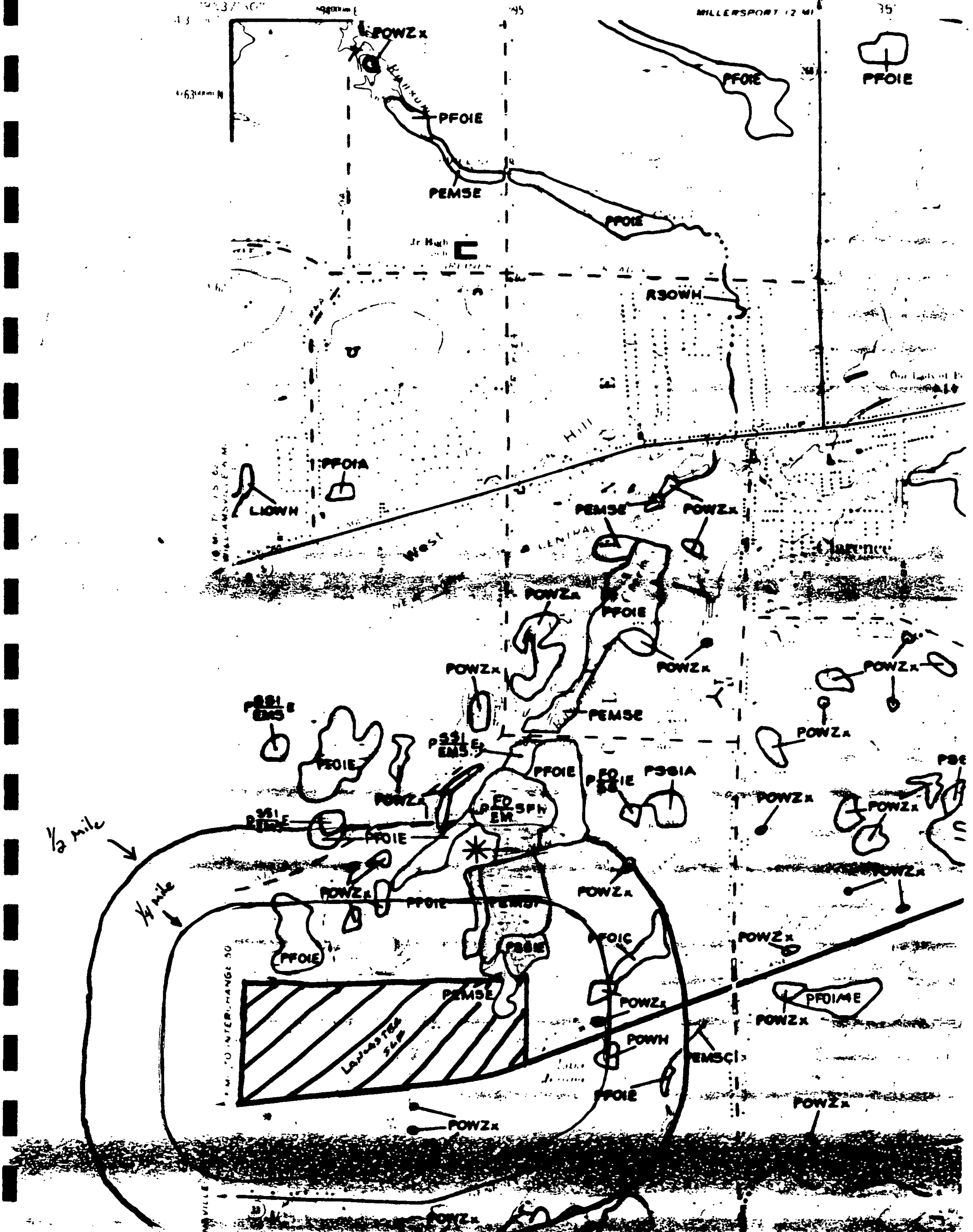
OW OPEN WATER Unknown Bottom

MODIFYING TERMS

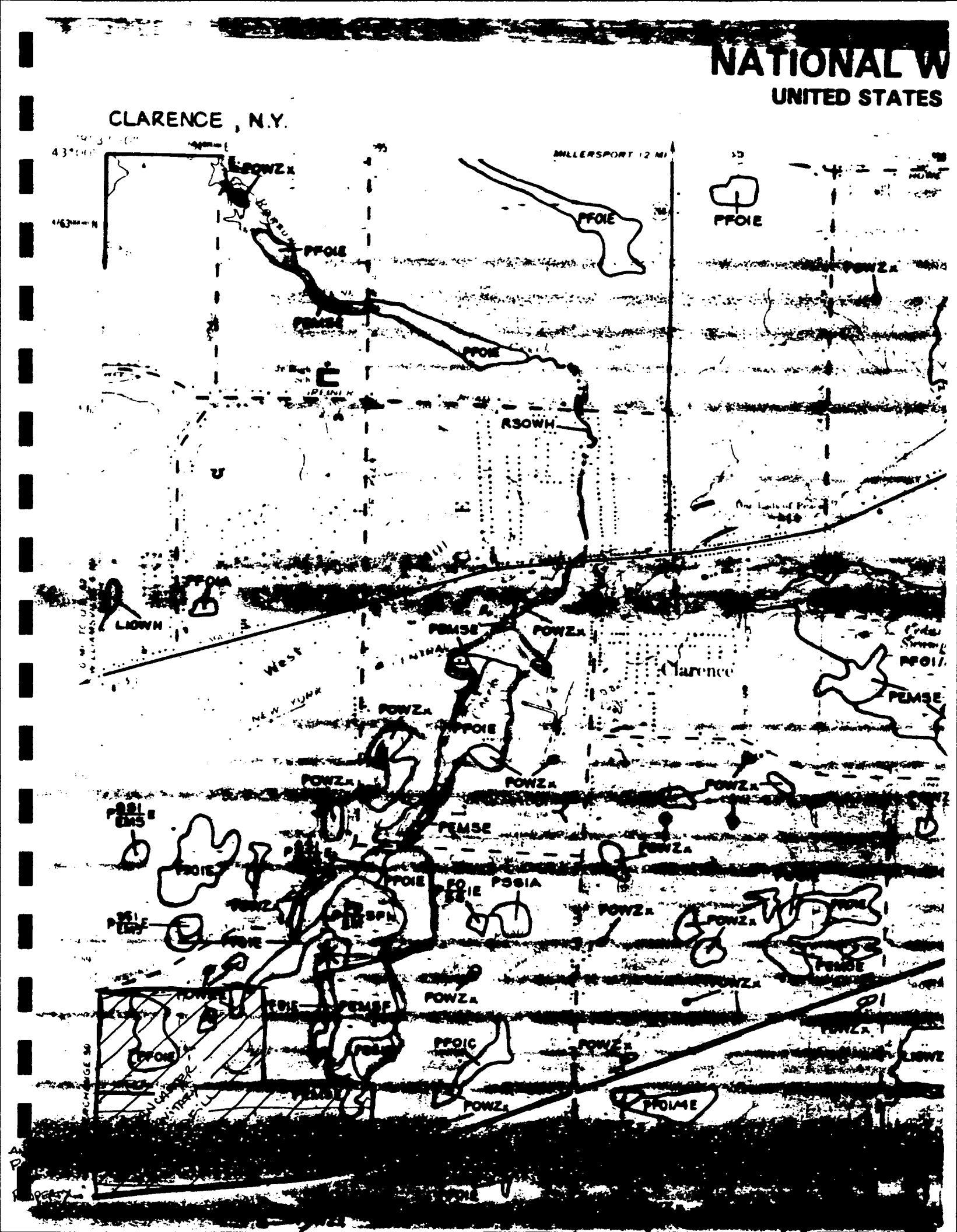
In order to more adequately describe wetland and aquatic habitats one or more of the water regime, water chemistry, may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the

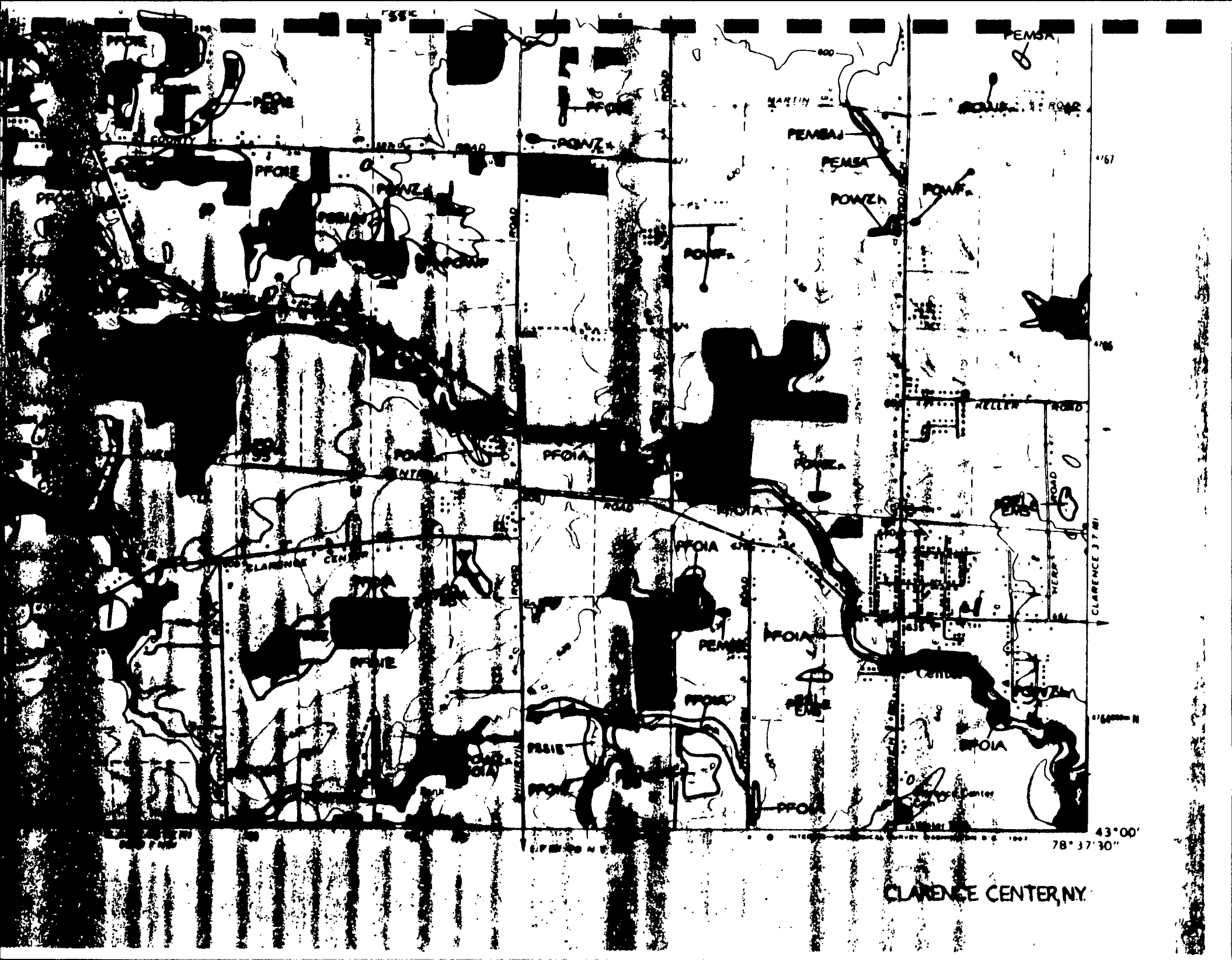
WATER REGIME(1)				WATER CHEMISTRY		
Non-Tidal		Tidal		Coastal Salinity	Inland Salinity	pH Modifiers for
A Temporary B Saturated C Seasonal D Seasonal Well drained E Seasonal Saturated F Semipermanent	H Permanent J Intermittently Flooded K Artificial Z Intermittently Exposed/Permanent W Intermittently Flooded/Temporary Y Saturated/Semipermanent/Seasonal	R Artificial L Subtidal M Irregularly Exposed N Regular P Irregular	S Seasonal Tidal T Semipermanent Tidal V Permanent Tidal U Unknown	1 Hyperhaline 2 Euhaline 3 Mesohaline (Brackish) 4 Polyhaline 5 Mesohaline 6 Oligohaline	7 Hyperhaline 8 Euhaline 9 Mesohaline 0 Fresh	a Acid i Circum Alkalin

CLARENCE, N.Y.

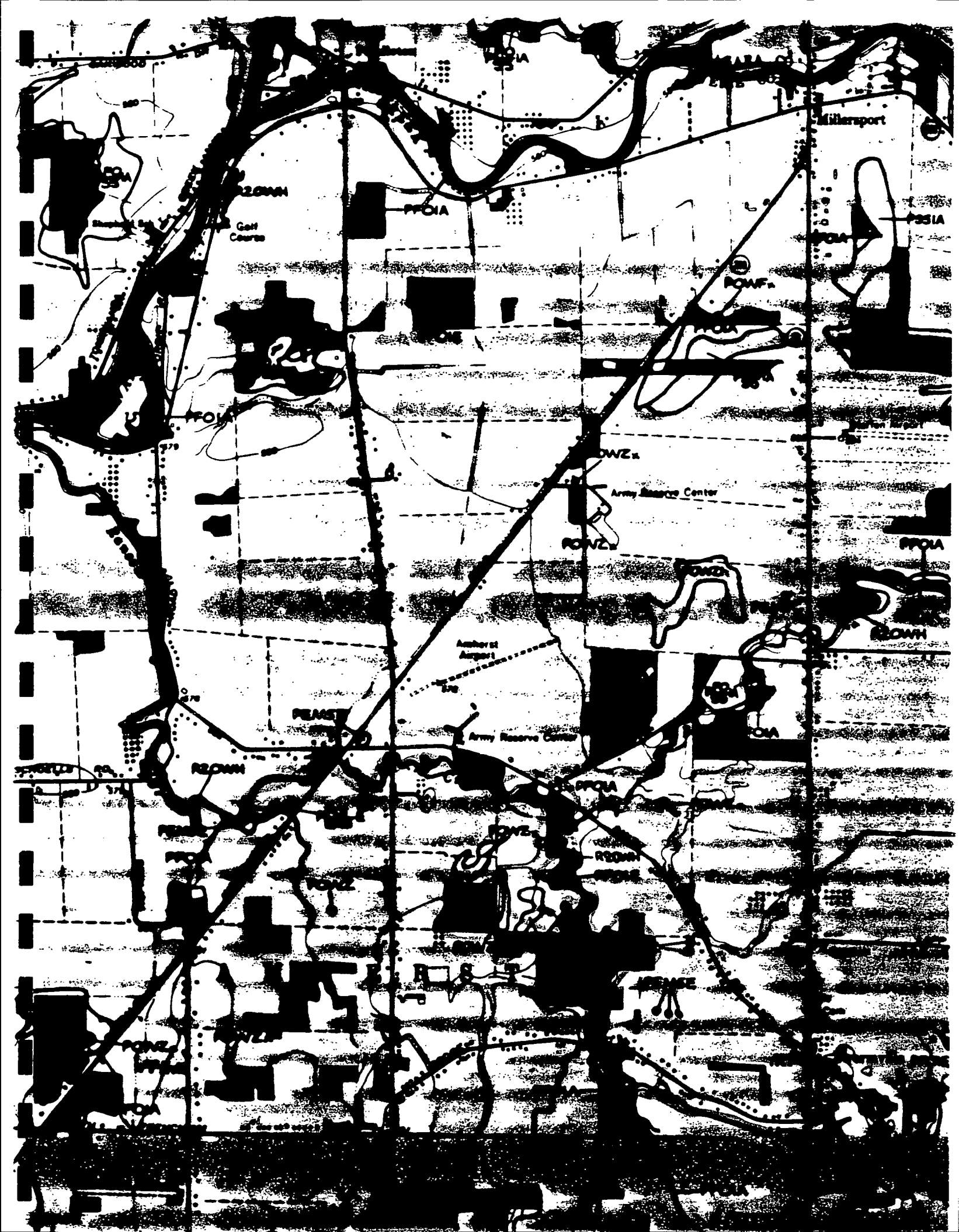


MILLERSPORT
POWZx
PFOIE
PEMSE
RSOWH
PFOIA
L1OWH
Clarence
West
PSS1/EM5 E
PSS1/EM5 E
PFO/EM SFH
PSSIA
PFOIC
PSSIE
PFOIME
POWH
EMSCI
PFOIE
POWZx
1/2 mile
1/4 mile
Lancaster Site


CLARENCE , N.Y.
MILLERSPORT 12 MI
PFOIE
POWZA
PEMSE
R30WH
L10WH
PFOIA
Clarence
WEST
NEW YORK
PFOIC
PFOI4E
P30IA



CLARENCE CENTER, N.Y.


Millersport
Golf Course
Army Reserve Center
Amherst Airport
Army Reserve Center

REFERENCE NO. 19

GEMS> I

LANCASTER SLF
LATITUDE 42:56:45 LONGITUDE 78:37:10 1980 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	1201	129	8263	16191	25784
RING TOTALS	0	0	1201	129	8263	16191	25784

GEMS> I

LANCASTER SLF
LATITUDE 42:56:45 LONGITUDE 78:37:10 1980 HOUSING

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	404	51	2799	5177	8431
RING TOTALS	0	0	404	51	2799	5177	8431

REFERENCE NO. 20

EPA ID NO.	SITE NAME / STREET / CITY / COUNTY CODE AND NAME	STATE ZIP / CONG DIST.	NFA. FLAG	OPRBLE UNIT	EVENT TYPE	ACTUAL START DATE	ACTUAL COMPL DATE	CURRENT EVENT LEAD
NYD057725012	LABORATORY FURNITURE 115 OLD COUNTRY ROAD CARLE PLACE 059 NASSAU	NY 11514	NFA	00	DS1 PA1	03/02/89	02/28/89 03/09/89	EPA (FUND) EPA (FUND)
NYD980506976	LACKAWANNA LF 1938 ABBOT RD LACKAWANNA 029 ERIE	NY 14218	NFA	00	DS1 PA1 PA2 HR1 SI2	03/01/86	04/01/80 05/01/83 03/17/86 05/01/83 03/17/86	EPA (FUND) EPA (FUND) STATE(FUND) OTHER STATE(FUND)
NYD980534580	LAGRANGE CEMETERY OVERLOOK RD LAGRANGE 037 GENESEE	NY 14525	NFA	00	DS1 PA1		04/01/80 12/30/87	EPA (FUND) EPA (FUND)
NYD980654339	LAKE CARMEL WELLS NO STREET APPLICABLE KENT 079 PUTNAM	NY 10512	NFA	00	DS1 PA1		02/24/86 03/24/86	EPA (FUND) EPA (FUND)
NYD000513911	LANCASTER RECLAMATION 403 PAVEMENT RD LANCASTER 029 ERIE	NY 14086		00	DS1 PA1 SI1 SI2	06/19/87 08/01/89	04/15/80 09/29/86 06/29/87 08/30/89	EPA (FUND) STATE(FUND) EPA (FUND) STATE(FUND)
NYD079934170	LANCASTER SLF 2255 BAILEY AVE BUFFALO 029 ERIE	NY 14214		00	DS1 PA1 PA2	05/04/90	03/01/79 11/01/79 10/01/90	EPA (FUND) EPA (FUND) STATE(FUND)
NYD000513929	LAND RECLAMATION INDIAN RD DEPEW 029 ERIE	NY 14043		00	DS1 PA1 SI1	02/28/87	02/17/86 03/24/86 03/01/87	EPA (FUND) EPA (FUND) EPA (FUND)
NYD000514190	LASALLE EXPRESSWAY WILLIAMS RD NIAGARA FALLS 063 NIAGARA	NY 14304	NFA	00	DS1 PA1 PA2 SI1	11/01/81	04/01/80 11/01/81 01/22/90 11/01/81	EPA (FUND) EPA (FUND) STATE(FUND) EPA (FUND)

EPA ID	SITE/ALIAS NAME STREET CITY COUNTY NAME	STATE COUNTY	ZIP CODE	ALIAS SEQ. #	NAME SOURCE	FED FAC
NYD980654339	LAKE CARMEL WELLS NO STREET APPLICABLE KENT PUTNAM	NY 079	10512		EPA	N
NYD000513911	LANCASTER RECLAMATION 403 PAVEMENT RD LANCASTER ERIE	NY 029	14086		STS	N
NYD079934170	LANCASTER SLF 2255 BAILEY AVE BUFFALO ERIE	NY 029	14214		STS	N
NYD000513929	LAND RECLAMATION INDIAN RD DEPEW ERIE	NY 029	14043		STS	N
	LAND RECLAM INC BROADWAY&INDIAN RDS CHEEKTOWAGA	NY	14225	01		
	LAND RECLAMATION INDIAN CHURCH RD CHEEKTOWAGA	NY	14225	02		
NYD000514190	LASALLE EXPRESSWAY WILLIAMS RD NIAGARA FALLS NIAGARA	NY 063	14304		STS	N
NYD980534606	LASALLE RESERVOIR EAST AMHERST ST BUFFALO ERIE	NY 029	14215		STS	N
NYD002041531	LAWRENCE AVIATION INDUSTRIES INC SHEEP PASTURE ROAD PORT JEFFERSON STATION SUFFOLK	NY 103	11776		EPA	N

REFERENCE NO. 21

WEHRAN ENGINEERS & SCIENTISTS

June 30, 1986

Ms. Mary McIntosh
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202

Re: Lancaster Sanitary
Landfill, Inc.
Final Cover Construction
WE Proj. No. 09035

Dear Ms. McIntosh:

This report is the second bi-weekly progress report for the 1986 construction season and is organized similarly to previous progress reports for this project. This report provides essential documentation regarding the quality control implemented for the final cover construction during the period of June 9, 1986 to June 22, 1986. For your convenience, this report is segregated into the following major topics:

(1) Progress
(2) Observation and In-situ Testing
(3) Confirmatory Permeability Testing

(1) PROGRESS

Final cover placement was performed on seven (7) days in the period from June 9, 1986 to June 22, 1986. No work was performed on Saturdays or Sundays. During the fourteen (14) day period, the second lift of clayey soil for the cap was completed in Area E and was extended into Area F. All progress is illustrated on the accompanying plan sheet. The construction procedure for placement of the clayey soils of the final cover was as follows:

(a) Add water to the surface of the previous lift if needed.

(b) Roll the surface with a sheepsfoot roller.

(c) Place the clayey material along the working face by dump truck.

(d) Spread the clayey material into a lift with a bulldozer.

(e) Compact the lift with a sheepsfoot roller. After compaction, the lift was tested, and upon approval, the area was backbladed by the bulldozer. If a test failed, the area represented by the failing test, usually a 100' x 100' grid square, was reworked and retested.

(2) OBSERVATION AND IN-SITU TESTING

Attachment No. 1 at the end of this report contains the results of our in-situ moisture and density testing performed during the above-referenced period. Please be advised that soil from the Peppermint Road borrow site was used for all final cover construction during this period. The soil from the site was obtained from the floor excavation in the borrow area. The compaction curve that was generated from soil testing on a sample from this borrow area last year remains valid for the above-referenced period. This curve has a maximum dry density of 133.7 pounds per cubic foot (pcf) at 8.5% optimum moisture. Attachment No. 2 illustrates the plotting of the moisture-density test results for the subject construction period, superimposed on the compaction curve.

(3) CONFIRMATORY PERMEABILITY TESTING

As mentioned in our last report, two (2) Shelby tube sample series, ST-28 and ST-29, were obtained during the previous report period. Soil samples from tubes ST-28 A, B, C and D were not loaded in the permeameter because of gravel fragments scaring the sides of the specimens. On June 9, 1986, Samples ST-28E, F, G and H were obtained from the same area and shipped to the soils laboratory. Sample ST-28 exhibited a permeability of 2.6×10^{-5} cm/sec and, therefore, did not meet the project specifications. On June 16, 1986, the area around the ST-28 samples was disked, water was added and the area was recompacted. Sample ST-30 was obtained from the reworked area, shipped to the laboratory and tested, indicating a permeability of 1.7×10^{-5} cm/sec. A grain size analysis of the soils from Samples ST-28G and ST-30C indicate a slightly higher percetntage of silt and fine sand than are typically found in samples which achieve the required permeability. The area represented by Samples ST-28 and ST-30 will be removed and replaced with suitable soils, subsequent to the replacement and an additional sample will be obtained for confirmatory permeability testing. Samples ST-29 and ST-31, which was obtained from the second lift in Area E, exhibited acceptable permeabilities, as illustrated in the following table:

Sample	Date	%Moisture	%Compaction	Permeability
ST-28 A/B/C/D	6-4-86	no	sample	obtained
ST-29C	6-4-86	9.7	97.0	6.6 x 10-7
ST-28 G	6-9-86	11.0	92.7	2.6 x 10-5
ST-30C	6-16-86	11.0	91.4	1.7 x 10-5
ST-31A	6-16-86	16.0	88.5	6.6 x 10-8

Should you have any questions, please do not hesitate to contact us.

Yours very truly,
WEHRAN ENGINEERING, P.C.

James A. Daigler

James A. Daigler, P.E.
Regional Manager of
Technical Services

WAP:JAD:lc
enc.
cc: M. Kahle/R. Jones/T. Welsch
R. Kennedy

ATTACHMENT NO. 1

CONSULTING ENGINEERS

PROJECT NUMBER 90 [redacted]

TABULATION OF FIELD DENSITY RESULTS

MAXIMUM DRY DENSITY 133.7 lbs./Cu.Ft. OPTIMUM MOISTURE 8.5 %

DATE OF TEST	TEST No.	TEST OFFSET South	TEST STATION East	DEPTH FROM GRADE	FIELD MOISTURE %	FIELD DRY DENSITY	% COMPACTION	REMARKS
6-24-86	921	14+00	9+00	6"	11.0	124.6	93.2	Lt 6" lift, rework a
6-24-86	922	14+00	9+00	10"	11.9	125.3	93.7	ST-32

WESTRAN ENGINEERING
CONSULTING ENGINEERS

PROJECT NUMBER 09035 SK

TABULATION OF FIELD DENSITY RESULTS

MAXIMUM DRY DENSITY 133.7 lbs./Cu.Ft. OPTIMUM MOISTURE 8.5 %

DATE OF TEST	TEST No.	TEST OFFSET South	TEST STATION East	DEPTH FROM GRADE	FIELD MOISTURE %	FIELD DRY DENSITY	% COMPACTION	REMARKS
6-25-86	923	12+00	3+00	10"	10.0	125.3	93.8	2nd lift
	924	13+00	3+00	10"	8.6	123.6	92.5	"
	925	11+00	3+00	10"	10.3	124.8	93.4	"
	926	14+00	3+50	10"	11.4	124.1	92.8	RT of 920
	927	13+00	3100	10"	9.6	124.2	92.9	RT of 924
	928	16+00	2+00	10"	10.2	124.7	93.3	2nd lift
6-25-86	429	15+00	2+00	10"	10.5	127.0	95.0	"

WESTERN ENGINEERING
CONSULTING ENGINEERS

PROJECT NUMBER 8903 SK

TABULATION OF FIELD DENSITY RESULTS

MAXIMUM DRY DENSITY 133.7 lbs./Cu.Ft. OPTIMUM MOISTURE 8.5 %

DATE OF TEST	TEST No.	TEST OFFSET South	TEST STATION East	DEPTH FROM GRADE	FIELD MOISTURE %	FIELD DRY DENSITY	% COMPACTION	REMARKS
6-27-86	930	14+00	2+00	10"	11.2	123.2	92.2	2nd lift
6-27-86	931	17+00	2+00	10"	10.1	116.9	87.5	"

WESTRAN ENGINEERING
CONSULTING ENGINEERS

PROJECT NUMBER 09035 SK

TABULATION OF FIELD DENSITY RESULTS

MAXIMUM DRY DENSITY 133.7 lbs./Cu.Ft. OPTIMUM MOISTURE 8.5 %

DATE OF TEST	TEST No.	TEST OFFSET South	TEST STATION East	DEPTH FROM GRADE	FIELD MOISTURE %	FIELD DRY DENSITY	% COMPACTION	REMARKS
6-30-86	932	13+00	2+00	10"	10.2	127.4	95.3	RT of 931
	933	14+00	4+00	10"	12.8	123.7	92.6	ST-33
	934	12+00	2+00	10"	9.3	126.9	94.9	2nd 1:Ft
	935	11+00	2+50	10"	9.0	130.3	97.4	"
6-30-86	936	11+00	2+00	10"	9.9	126.6	94.7	"

WEHRAN ENGINEERING
CONSULTING ENGINEERS

PROJECT NUMBER 0905 SK

TABULATION OF FIELD DENSITY RESULTS

MAXIMUM DRY DENSITY 133.7 lbs./Cu.Ft. OPTIMUM MOISTURE 8.5 %

DATE OF TEST	TEST No.	TEST OFFSET South	TEST STATION East	DEPTH FROM GRADE	FIELD MOISTURE %	FIELD DRY DENSITY	% COMPACTION	REMARKS
7-1-86	937	16+00	1+00	10"	9.8	123.2	92.1	2nd lift
	938	16+00	1+50	10"	12.1	125.8	94.1	"
	939	15+00	1+00	10"	11.2	122.9	91.9	"
	940	14+00	1+00	10"	11.8	121.1	90.6	"
7-1-86	941	13+00	1+00	10"	13.1	118.6	88.7	"

WEHRAN ENGINEERING
CONSULTING ENGINEERS

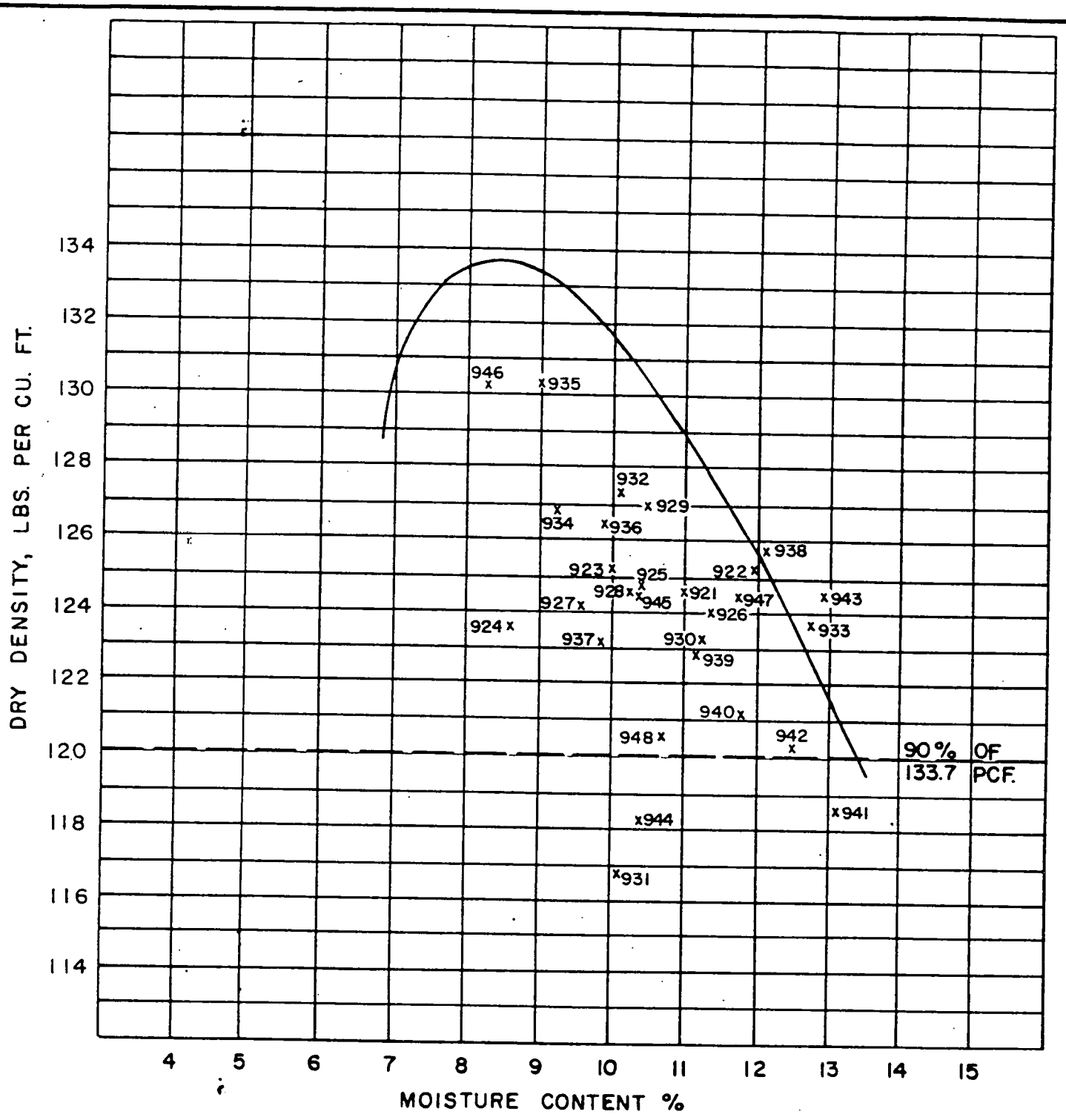
PROJECT NUMBER 09075 SK

TABULATION OF FIELD DENSITY RESULTS

MAXIMUM DRY DENSITY 133.7 lbs./Cu.Ft. OPTIMUM MOISTURE 8.5 %

DATE OF TEST	TEST No.	TEST OFFSET South	TEST STATION East	DEPTH FROM GRADE	FIELD MOISTURE %	FIELD DRY DENSITY	% COMPACTION	REMARKS
7-3-86	942	13+00	1+00	10"	12.5	120.3	90.0	RT of 941
	943	13+00	1+50	10"	12.9	124.6	93.2	2nd lift
	944	12+00	1+00	10"	10.4	118.2	88.4	"
	945	12+00	1+00	10"	10.3	124.7	93.3	RT of 944
	946	16+00	0+75	10"	8.3	130.2	97.4	2nd lift
	947	16+00	0+00	10"	11.7	124.5	93.1	"
7-3-86	948	15+00	0+00	10"	10.7	120.5	90.1	"

ATTACHMENT NO. 2



ATTACHMENT NO. 2

PROGRESS REPORT OF 7-6-86
LANCASTER SANITARY LANDFILL

1 OF 1

LEGEND:

x IN-SITU MOISTURE/DENSITY TEST

REPORT NO. 3

WEHRAN
ENGINEERS
& SCIENTISTS

July 23, 1986

Ms. Mary McIntosh
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202

Re: Lancaster Sanitary
Landfill, Inc.
Final Cover Construction
WE Proj. No. 09035

Dear Ms. McIntosh:

This report is the fourth bi-weekly progress report for the 1986 construction season and is organized similarly to previous progress reports for this project. This report provides essential documentation regarding the quality control implemented for the final cover construction during the period of July 6, 1986 to July 20, 1986. For your convenience, this report is segregated into the following major topics:

(1) Progress
(2) Observation and In-situ Testing
(3) Confirmatory Permeability Testing

(1) PROGRESS

Final cover placement of the clayey soil was performed on two (2) days in the period from July 7, 1986 to July 20, 1986. No work was performed on Saturdays or Sundays. The placement of the clayey soils for the final cover of Area F was completed on July 10, 1986. The remaining work consists of topsoil placement and seeding. During topsoil placement, Wehran will make spot checks about once a week to check their progress. All progress is illustrated on the accompanying plan sheet. The construction procedure for placement of the clayey soils of the final cover was as follows:

(a) Add water to the surface of the previous lift if needed.

(b) Roll the surface with a sheepsfoot roller.

(c) Place the clayey material along the working face by dump truck.

(d) Spread the clayey material into a lift with a bulld-

2451 BASELINE ROAD, GRAND ISLAND, NY 14072 • (716) 773-1801

(e) Compact the lift with a sheepsfoot roller. After compaction, the lift was tested, and upon approval, the area was backbladed by the bulldozer. If a test failed, the area represented by the failing test, usually a 100' x 100' grid square, was reworked and retested.

(2) OBSERVATION AND IN-SITU TESTING

Attachment No. 1 at the end of this report contains the results of our in-situ moisture and density testing performed during the above-referenced period. Please be advised that soil from the Peppermint Road borrow site was used for all final cover construction during this period. The soil from the site was obtained from the floor excavation in the borrow area. The compaction curve that was generated from soil testing on a sample from this borrow area last year remains valid for the above-referenced period. This curve has a maximum dry density of 133.7 pounds per cubic foot (pcf) at 8.5% optimum moisture. Attachment No. 2 illustrates the plotting of the moisture-density test results for the subject construction period, superimposed on the compaction curve.

(3) CONFIRMATORY PERMEABILITY TESTING

Shelby Tube Sample ST-34 was obtained on July 7, 1986 on the final lift in Area F at 16+00 South by 1+00 East. Sample ST-34 had an acceptable permeability and was the last permeability specimen required for the clayey material of the final cover for the area. The results for ST-34 are illustrated on the following table:

Sample	Date	%Moisture	Dry Density	Permeability
ST-34C	7-7-86	17.6	116.0 pcf	5.3 x 10^{-7} cm/sec

Should you have any questions, please do not hesitate to contact us.

Yours very truly,
WEHRAN ENGINEERING, P.C.
James A. Daigler
James A. Daigler, P.E.
Regional Manager of
Technical Services

WAP:JAD:lc
enc.
cc: M. Kahle/R. Jones/T. Welsch
R. Kennedy

WEHRAN
ENGINEERS
& SCIENTISTS

September 11, 1986

Ms. Mary McIntosh
New York State Department
of Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202

Re: Gunville Energy System, Inc.
(Lancaster Sanitary Landfill)
Final Cover Construction
WE Proj. No. 09035

Dear Ms. McIntosh:

This letter report is the fifth progress report for the 1986 construction season and provides essential documentation regarding the final cover construction during the period of July 21, 1986 to August 31, 1986.

The topsoil was extended in Areas E and F and the entire area has been seeded and mulched. All progress is illustrated on the accompanying plan sheet. The construction procedure for placement of the topsoil was as follows:

(1) Bring the topsoil to the site either by scraper or dump truck.

(2) Spread the topsoil with a bulldozer to get an acceptable lift thickness.

In reference to your July 10, 1986 letter, the gullying in the northern edge of Area D has been repaired by filling in

the gullies and seeding and mulching them. On August 4 and September 2, 1986, Wehran was on site and found no erosion gullies on the cap for Areas D, E and F.

Should you have any questions, please do not hesitate to contact us.

Yours very truly,
WEHRAN ENGINEERING, P.C.

James A. Daigler

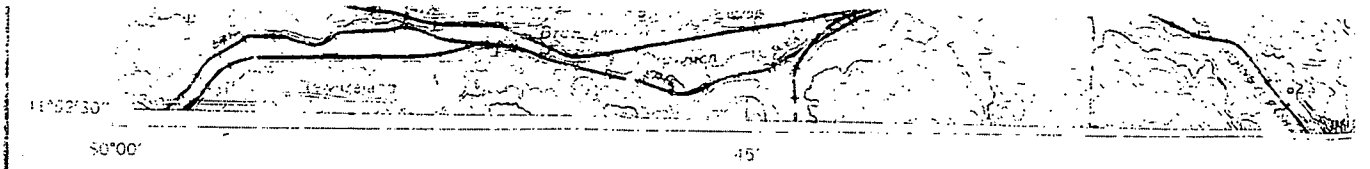
James A. Daigler, P.E.
Regional Manager of
Technical Services

JAD/WAP:lc
enc.
cc: R. Jones/M. Kahle/R. Welsh
R. Kennedy

REFERENCE NO. 22

POTENTIAL YIELDS OF WELLS IN UNCONSOLIDATED AQUIFERS IN UPSTATE NEW YORK--NIAGARA SHEET

By
Todd S. Miller



Base from U.S. Army Map Service; 1:250,000 scale

INTRODUCTION

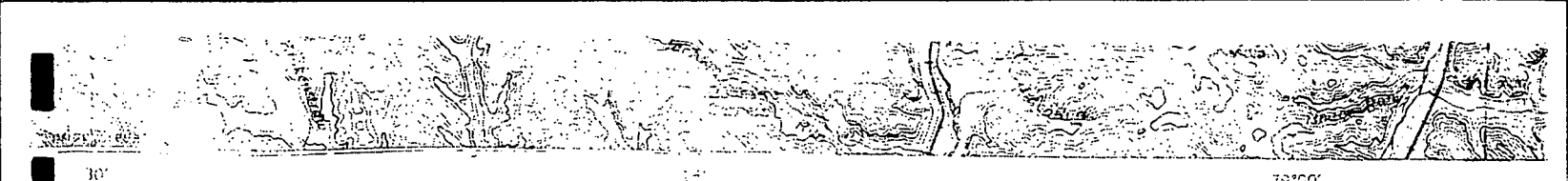
Development of ground-water-protection and management policies by Federal, State and local agencies requires information on the location and extent of unconsolidated aquifers. (Bedrock aquifers, although a source of water in many areas, are not addressed here.) A review of ground-water-resource maps of many New York State counties and river basins that were prepared by the U.S. Geological Survey in cooperation with New York State Department of Environmental Conservation during the 1950's and the 1960's revealed that the maps are inconsistent in scale, format, and amount of detail. Statewide maps that show aquifers at scales of 1:1,000,000 (Heath, 1964) and 1:750,000 (Kantrowitz and Snavely, 1982) have insufficient detail for development of most aquifer-protection plans.

In 1986, the U.S. Geological Survey, in cooperation with the New York State Department of Environmental Conservation, began a study to compile and publish a set of five maps at scale 1:250,000 showing the location and potential well yield of the unconsolidated aquifers in upstate New York (excluding New York City and Long Island). The maps also indicate the parts of those aquifers that are heavily used for public-water supplies and that have been designated as "Primary Water Supply Aquifers" by the State (New York State Department of Environmental Conservation, 1985).

This map is one in that series of five that together show the distribution of unconsolidated aquifers in upstate New York. To meet the needs of State and local water-resource managers and policymakers, the maps have a uniform scale of 1:250,000, are based on the most recent information publicly available, and use the same symbols to identify the unconsolidated aquifers and potential well yields.

The "primary" aquifers, which were mapped in detail during a study in the early 1980's in cooperation with New York State Department of Health and published at 1:24,000 scale, are outlined and are keyed by number to the corresponding published references. The small map (at right) shows the major river basins and indicates other areas covered in the ground-water reports used in this data compilation.

The scale of 1:250,000 was selected for this map series because it is the scale of the surficial and bedrock geology maps prepared by the New York State Geological Survey (Muller, 1977, Muller and Cadwell, 1986, and Fisher and others, 1970). Together these maps present a consistent set of geologic and hydrologic information for use in regional management of the ground-water resources of the State.



POTENTIAL YIELDS OF WELLS IN UNCONSOLIDATE

Todc

These maps show the general extent of the unconsolidated aquifers but are not intended to replace detailed site evaluations. Additional information for use in site-specific evaluations is given in the list of related references above, but to determine the precise location and well yield from a given aquifer may require onsite investigations. Ground water also may be obtained from unconsolidated aquifers that are too small to be shown at this scale and from till, from buried unconsolidated aquifers not yet identified, and from the underlying bedrock. Construction of wells that have an adequate yield for domestic use (3 to 5 gallons per minute) may be developed in any of these geologic settings. In some areas, bedrock aquifers are important and warrant consideration in the appraisal of ground-water resources. Several reports cited in the list of related publications include information on bedrock aquifers.

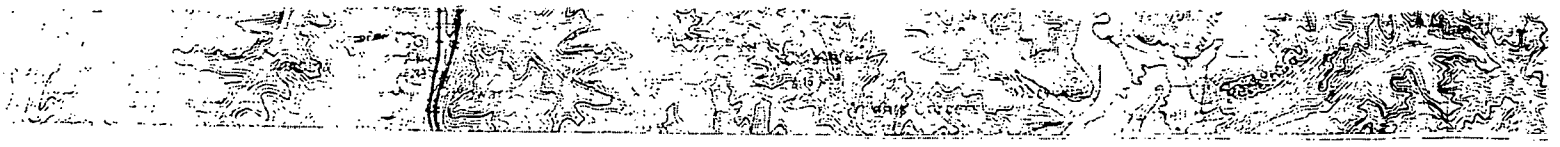
WELL YIELDS

The U.S. Geological Survey, in cooperation with many State and local government agencies, has mapped and appraised several aquifer systems in New York since the mid-1940's. The aquifer boundaries shown here were determined from published hydrogeologic and surficial-geology maps, numerous well records, and interpretation of topographic maps. Potential well yields were estimated from information presented in eight published reports and from pumpage data on file with the U.S. Geological Survey.

Well yields represent the range of potential yields from individual wells properly screened and developed in the aquifer. Yields may not represent sustained withdrawals from the aquifer but, rather, the potential short-term withdrawal. Yields in many areas are based on aquifer and well-capacity-test data and on reported yields from drillers and homeowners. Yields in some areas are estimates based on geologic logs, saturated thickness, and relation between grain size and hydraulic conductivity. Actual yields may differ from those indicated.

Aquifers to which no range of yield is assigned are in areas from which data on wells or hydrogeologic properties were insufficient to estimate the yield. These areas are underlain by coarse granular material, however, (Muller, 1977) and should be considered aquifers of unknown potential.

The colored areas represent unconfined aquifers of sand and gravel. Dark blue indicates aquifers with high potential well yields; green indicates aquifers with moderate potential well yields. High well yields are defined here as greater than 100 gallons per minute (gal/min), and moderate as 10 to



15'

QUIFERS IN UPSTATE NEW YORK--NIAGARA SHEET

ller

100 gal/min. These aquifers are recharged rapidly by water that infiltrates through the permeable overlying material to the zone of saturation. The stippled pattern indicates the location of confined aquifers of sand and gravel; these aquifers are confined beneath a relatively impermeable layer of till or lacustrine very fine sand, silt, and clay that minimizes direct recharge from land surface. A stippled pattern within a colored area indicates the presence of both an unconfined and confined aquifer. Uncolored areas with a letter designation represent sand and gravel deposits (Muller, 1977) that may be aquifers but have insufficient data to provide estimates of yield. The letters designate the type of material, as indicated in the explanation. Uncolored areas without letter designations are underlain by till, or by lacustrine very fine sand, silt, and clay, or by bedrock. Small patches of unconsolidated aquifers (0.5 square mile or less) may underlie the area but are too small to plot at this scale. Dug wells in till or lacustrine deposits may be capable of yielding 1 to 5 gal/min.

REFERENCES CITED

Fisher, D. W., Isachsen, Y. W., and Rickard, L. V., 1970, Geologic map of New York: New York State Museum and Science Service Map and Chart Series no. 15, 6 sheets, scale 1:250,000.

Heath, R. C., 1964, Ground water in New York: New York State Water Resources Commission Bulletin GW-51, 1 sheet, scale 1:1,000,000.

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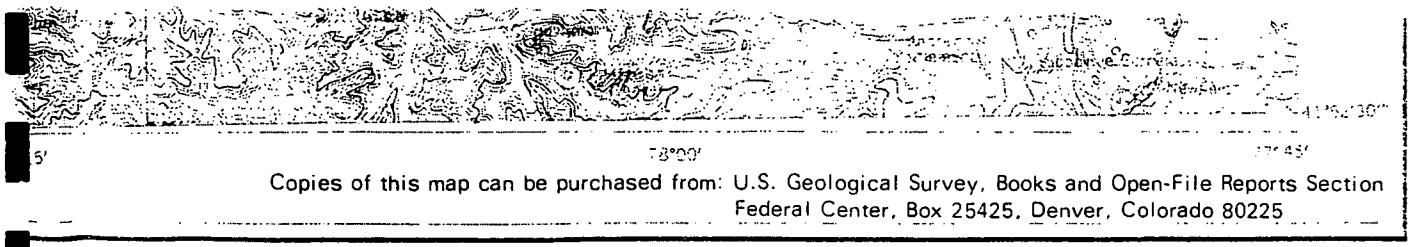
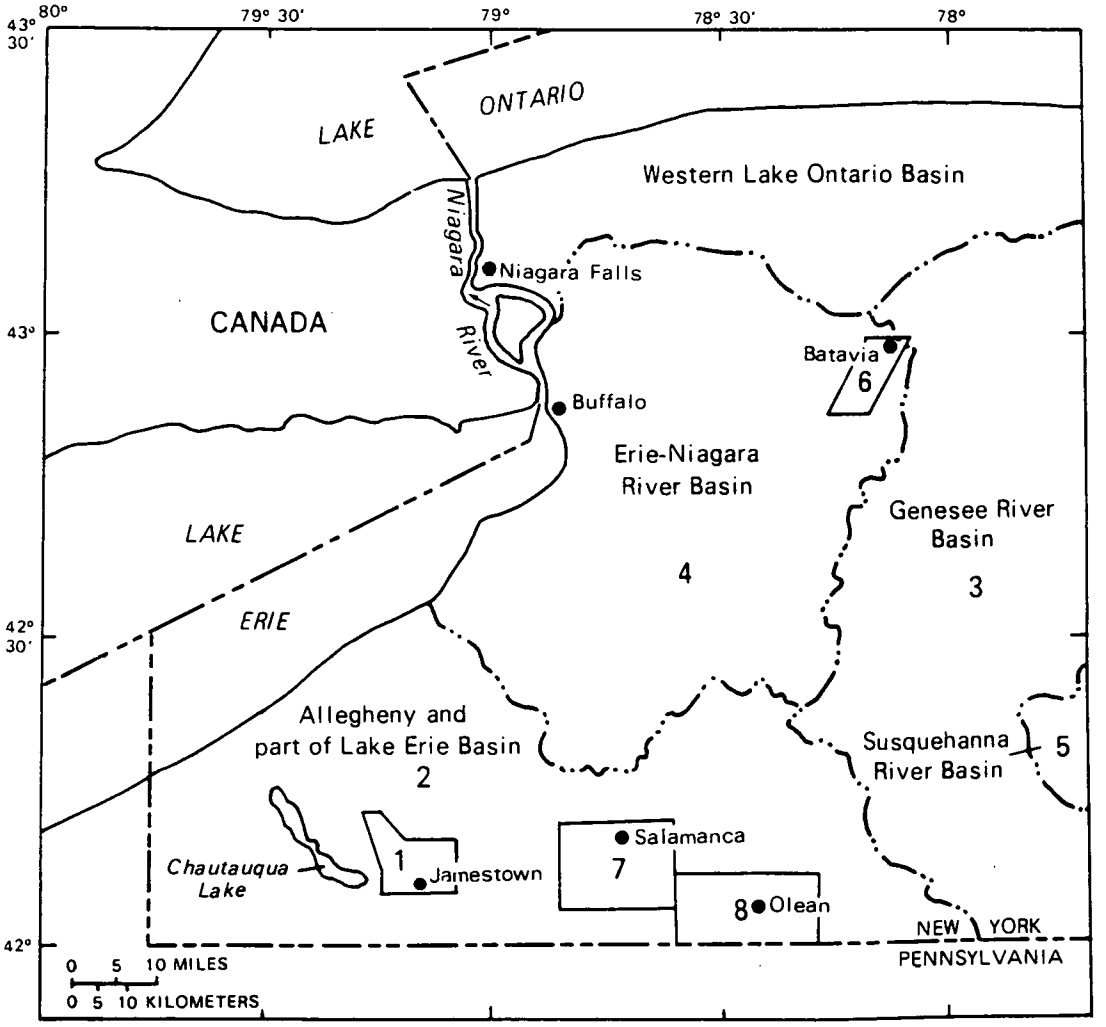
Muller, E. H., 1977, Quaternary geology of New York, western New York sheet: New York State Museum and Science Map and Chart Series no. 28, scale 1:250,000.

Muller, E. H., and Cadwell, D. H., 1986, Surficial geologic map of New York, Finger Lakes sheet: New York State Museum - Geological Survey Map and Chart Series No. 40, scale 1:250,000.

New York State Department of Environmental Conservation, 1985, Draft--Upstate New York groundwater management program: New York State Department of Environmental Conservation, 237 p.



Copies of this map can be purchased from: U.S. Geological Survey, Books and Open-File Reports Section
Federal Center, Box 25425, Denver, Colorado 80225



Base from U.S. Army Map Service, 1:250,000

EXPLANATION

—·—·— DRAINAGE-BASIN DIVIDE

5 REFERENCE NUMBER-- Indicates river basins and aquifer areas about which ground-water reports have been published. Numbers refer to related publications listed below. Outlined numbers represent primary aquifers

Drainage areas and reference numbers.

EXPLANATION

POTENTIAL YIELD OF WATER FROM WELLS THAT TAP UNCONSOLIDATED AQUIFERS

UNCONFINED AQUIFERS, 10 TO 100 GALLONS PER MINUTE--Sand and gravel with saturated zone generally less than 10 ft thick, or thicker but with less permeable silty sand and gravel. Yields in areas adjacent to streams may exceed 100 gal/min (gallons per minute) through pumping-induced infiltration, but these areas are too small to show at this scale

UNCONFINED AQUIFERS, MORE THAN 100 GALLONS PER MINUTE--Sand and gravel of high transmissivity and with saturated thickness greater than 10 ft. Many such areas are associated with a surface-water source that can provide additional water through pumping-induced recharge

CONFINED AQUIFER UNDERLYING UNCONFINED AQUIFER, 5 TO MORE THAN 500 GALLONS PER MINUTE (from confined aquifer)--Areas where a relatively impermeable till or lacustrine, very fine sand, silt, or clay layer separates the buried sand and gravel aquifer from an overlying surficial aquifer

CONFINED AQUIFER, 5 TO MORE THAN 500 GALLONS PER MINUTE--Sand and gravel overlain by till, very fine sand, silt, or clay, but without a surficial aquifer

AQUIFERS OF UNKNOWN POTENTIAL--Areas of sand and(or) sand and gravel for which little or no well data are on file to determine yield potential. Letter symbols, explained below, indicate the type of deposit

L — Lacustrine or eolian deposits--Fine to medium sand that probably yields less than 10 gal/min

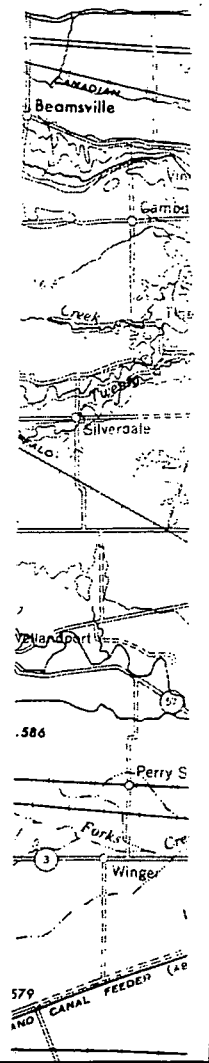
G — Kame, kame terrace, kame moraine, outwash, or alluvium--Sand and gravel of unknown thickness or saturation. Yield potential is greater where streams are present

M — Moraine--Mostly till and lacustrine deposits (very fine sand, silt, and clay) capped in some places with unsaturated sand and gravel. Thin, scattered confined aquifers of sand and gravel in some places

U — Confined aquifer--Areas of lacustrine deposits or till possibly underlain by sand and gravel aquifers. Depth and saturated thickness of aquifer not investigated

1 — PRIMARY WATER-SUPPLY AQUIFER--A highly productive aquifer that is being used as a source of water supply in major public-supply systems. Number indicates name of aquifer area (see key below) and report number in list of related publications. Reports and maps cited describe these aquifers in detail.

Primary aquifer number	Aquifer area
6	Batavia
1	Jamestown
8	



Chautauqua County, New York: U.S. Geological Survey Open-File Rep
82-113, 7 sheets, scale 1:24,000.

2. Frimpter, M. H., 1986, Surficial geology and ground-water availabili
the Allegheny River basin and part of the Lake Erie basin, New Yor
U.S. Geological Survey Water-Resources Investigations Report 86-40
sheets, scale 1:250,000.

3. Kammerer, J. C., and Hobba, A., 1986, Ground-water availability in t
Genesee River basin, New York and Pennsylvania: U.S. Geological S
Water-Resources Investigations Report 86-4048, 4 sheets, scale 1:1

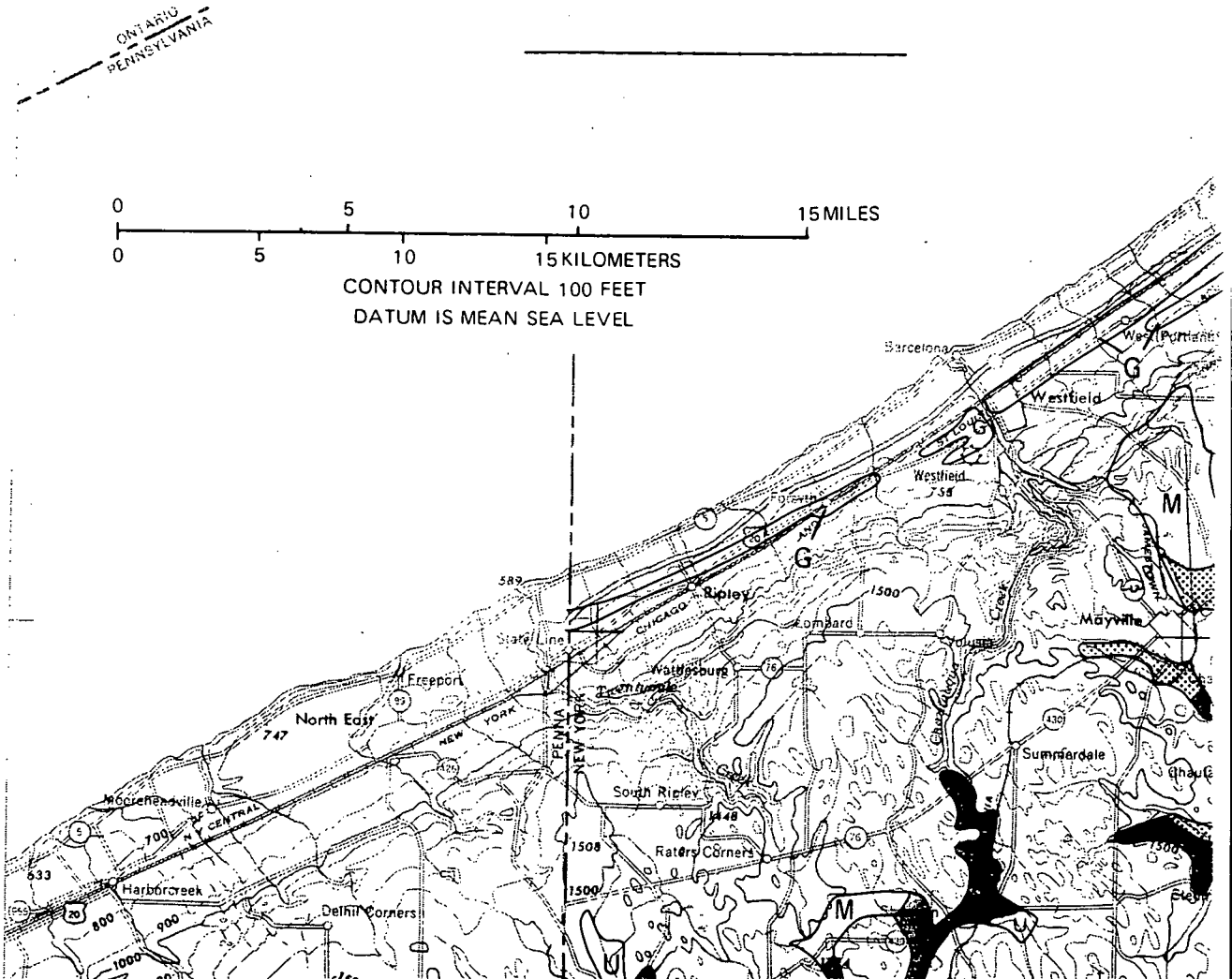
4. LaSala, A. M., 1968, Ground-water resources of the Erie-Niagara basi
York: New York State Water Resources Commission Basin Planning Re
ENB-3, 114 p., 5 plates, scale 1:125,000.

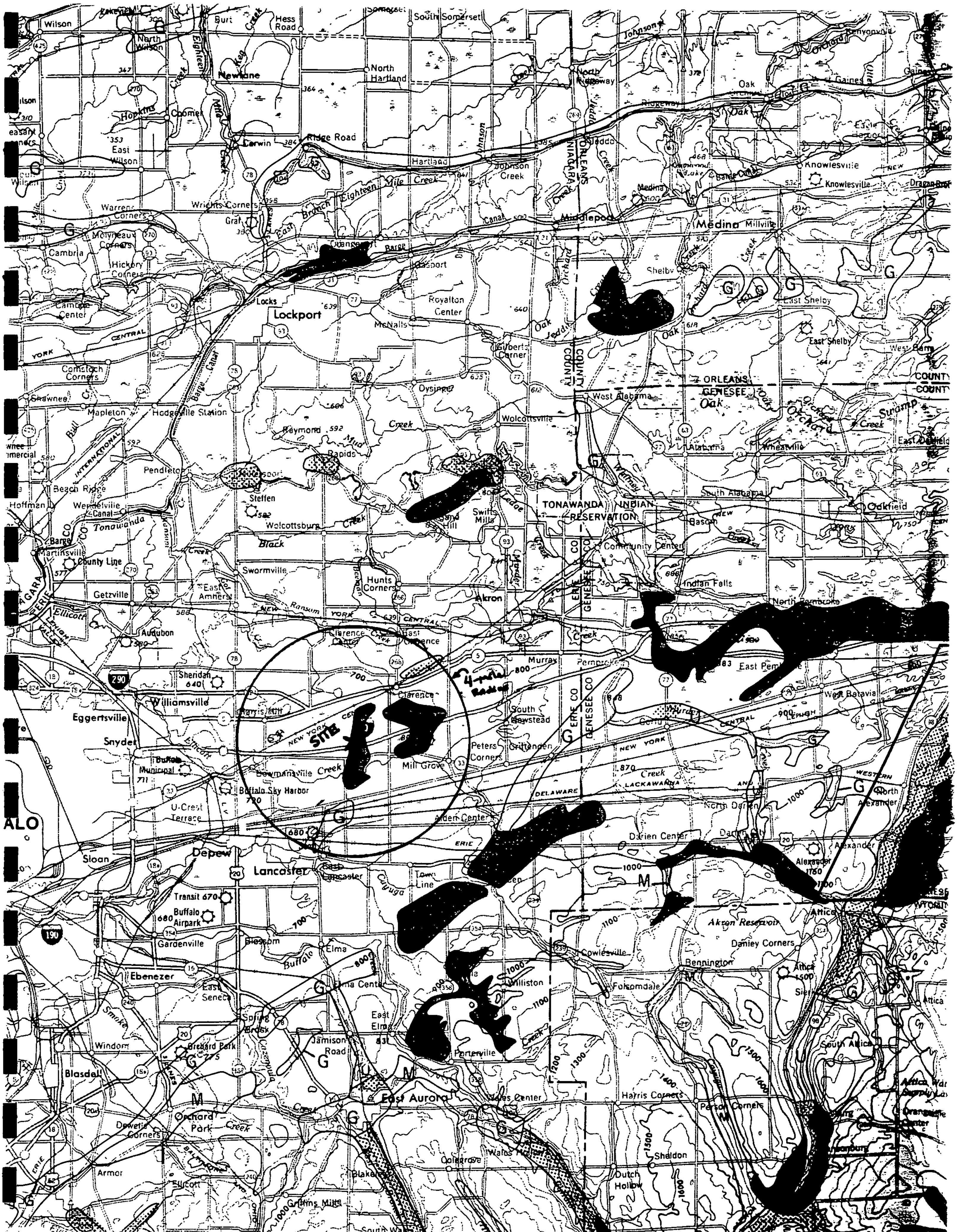
5. MacNish, R. D., and Randall, A. D., 1982, Stratified-drift aquifers
Susquehanna River basin, New York: New York State Department of
Environmental Conservation Bulletin 75, 68 p.

6. Terry, D. B., Pagano, T. S., and Ingram, A. W., 1986, Geohydrology o
glacial-outwash aquifer in the Batavia area, Tonawanda Creek, Gene
County, New York: U.S. Geological Survey Water Resources Investig
Report 85-4096, 6 sheets, scale 1:24,000.

7. Zarriello, P. J., 1987, Hydrogeology of the Salamanca area, Cattarau
County, New York: U.S. Geological Survey Water-Resources Investig
Report 85-4149, 4 sheets, scale 1:24,000.

8. Zarriello, P. J., and Reynolds, R. J., 1987, Hydrogeology of the Ole
area, Cattaraugus County, New York: U.S. Geological Survey Water-
Resources Investigations Report 85-4157, 9 sheets, scale 1:24,000.





Wilson
Burt
Hess Road
South Somerset
North Wilson
Newfane
North Hartland
Cambria
Lockport
Locks
Gasport
Royalton Center
McNalls
Middleport
Medina
Millville
Shelby
East Shelby
Knowlesville
Hartland
Johnson Creek
Ridge Road
Corwin
East Wilson
Wrights Corners
Warrens Corners
Molyneaux Corners
Hickory Corners
Gulberts Corner
Dysinger
Raymond
Rapids
Wolcottsville
West Alabama
Alabama
Wheatville
South Alabama
Oakfield
Basom
TONAWANDA INDIAN RESERVATION
Community Center
Indian Falls
North Pembroke
Pendleton
Beach Ridge
Wendelville
Mapleton
Hodgeville Station
Comstock Corners
Shawnee
Steffen
Wolcottsburg
Swormville
Hunts Corners
Getzville
East Amherst
Akron
Audubon
Clarence Center
East Clarence
Clarence
Murray
Pembroke
East Pembroke
West Batavia
Sheridan 640
Williamsville
Eggertsville
Harris Hill
Snyder
South Newstead
Crittenden
Peters Corners
Mill Grove
Bowmansville
Buffalo Municipal
Buffalo Sky Harbor
U-Crest Terrace
SITE
4-mile Radius
Alden Center
Darien Center
North Darien
Alexander
North Alexander
Sloan
Depew
Lancaster
East Lancaster
Town Line
Transit 670
Buffalo Airpark
Gardenville
Blossom
Elma
Elma Center
Ebenezer
East Seneca
Spring Brook
East Elma
Jamison Road
Porterville
Windom
Orchard Park
Blasdell
Dewey Corners
Armor
Ellicott
Griffins Mills
East Aurora
Wales Center
Wales Hollow
Colegrove
Blakeley
Harris Corners
Sheldon
Dutch Hollow
Person Corners
Cowlesville
Williston
Folsomdale
Bennington
Darley Corners
Akron Reservoir
Attica
South Attica
Sierks
Attica Water Supply
NIAGARA CO
ORLEANS CO
GENESEE CO
ERIE CO
NEW YORK CENTRAL
LACKAWANNA
DELAWARE
ERIE
Tonawanda Creek
Ellicott Creek
Murder Creek
Cayuga Creek
Buffalo Creek
Smoke Creek
Eighteen Mile Creek
Oak Orchard Creek
Barge Canal
G
M

REFERENCE NO. 23

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO.:	DATE:	TIME:
	12/5/90 and 12/6/90	1112 / 1435

DISTRIBUTION: LANCASTER SANITARY LANDFILL

BETWEEN:	OF:	PHONE:
Mr. TANNER	NEW YORK STATE Thruway Authority (Albany)	(716) 896-2525

AND: JESS TECSON (NUS)

DISCUSSION:

✓ contacted mr. Tanner to obtain information regarding water supply for the Clarence Rest Area.

Mr. Tanner said that he no longer work near that part of the Thruway, however, he'll obtain information that I requested — water supply, 2 wells, employee working at the rest area.

Jess Tecson 12/5/90

12/6/90 Mr. Tanner returned my call with the following information.

- There are two well at the rest area; one had been capped, the second had its controls disconnected.
- The Clarence rest area is supplied with water by the Erie County Water Authority.
- The NYS Thruway Authority has 2 full time employee operating the treatment system at the rest area.
- The restaurant has 45 employee during the winter season and 90 employee during the summer.
- The gas station employ 18-20 employees.

Jess Tecson 12/6/90

ACTION ITEMS:

REFERENCE NO. 24

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO.:	DATE: 12/5/90	TIME: 1151

DISTRIBUTION: Lancaster Sanitary Landfill

BETWEEN: George Markle	OF: Erie County Water Authority, Distribution Superintendent	PHONE: (716) 684-1510

AND: JESS TECSON (NUS)

DISCUSSION:

EXTENT OF WATER DISTRIBUTION IN AREAS OF LANCASTER AND CLARENCE.

- Erie County Water Authority water supply system extends part Lancaster and Clarence Township. Millgrove Road found east of Clarence is the ~~most~~ 12/5/90 area ~~that~~ farthest extention of the water supply system.

- Mr. Markle indicated that the whole town of Lancaster is supplied with water from the Erie County Water Authority.

- The majority of people ~~are~~ serviced by Erie County Water Authority ~~supply water~~ in the Lancaster and Clarence Townships ~~area~~. However, some people prefund to continue using their own well for domestic purposes.

ACTION ITEMS:

12/5/90

REFERENCE NO. 25

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO.:	DATE: 12/5/90	TIME: 1605

DISTRIBUTION: Lancaster Sanitary Landfill

BETWEEN: Mr. Thomas J. Welsh	OF: Pine Hill Concrete mix	PHONE: ~~(716) 894-2255~~ 2255 (716) 894-2255

AND: JESS TECSON (NUS)

DISCUSSION:

I contacted Mr. Welsh to obtain the number of people working on the site. (NOTE: Gunville Energy Systems currently operates a methane recovery system at the site. Facility is on top of the landfill.)

Mr. Welsh said that there are approximately 10 employees of Gunville Energy systems working 40 hr. per week at the site.

I asked for the mailing address of Gunville Energy Systems.

Mr. Welsh said that it is the same as Pine Hill Concrete mix (parent company)

ACTION ITEMS:

2255 Baily Ave.
Buffalo, NY 14211

REFERENCE NO. 26

NUS CORPORATION AND SUBSIDIARIES — TELECON NOTE

CONTROL NO.:	DATE: 4/5/91	TIME: 1102

DISTRIBUTION:

Lancaster Sanitary Landfill

BETWEEN:	OF:	PHONE:
Ms. Beverly Wright, (Information Services Assistant)	U.S. Dept. of Commerce Census, (NY City)	(212) 264-4730

AND: Jess Tecson (NUS)

DISCUSSION:

I contacted Ms. Wright for the following:

- Average Person per household count (PPH)

• Using the 1980 census...

Lancaster, NY (Erie Cty.)	2.78
Clarence, NY (Erie Cty.)	3.03
Harris Hill, NY (Erie Cty)	3.04

ACTION ITEMS:

REFERENCE NO. 27

SITE NAME: LANCASTER SANITARY LANDFILL
IDDH: 02-9007-18
SAMPLING DATE: 1/10/91
EPA CASE NO.: 15651 LAB: CLAYTON

VOLATILES

Sample ID No.	NYLM-SED1	NYLM-SED2	NYLM-S1(MS/MSD)	NYLM-S2	NYLM-S4	NYLM-S5(DUP)	NYLM-S6	NYLM-RIN1	NYLM-RIN2
Traffic Report No.	BFT38	BFT39	BFT32	BFT33	BFT35	BFT36	BFT37	BFT40	BFT41
Matrix	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor	1	1	1	1	1	1	1	1	1
Percent Moisture	39	3	6	21	39	38	19	--	--
Chloromethane								12	J
Bromomethane									
Vinyl Chloride									
Chloroethane									
Methylene Chloride									
Acetone									
Carbon Disulfide				J					
1,1-Dichloroethene									
1,1-Dichloroethane									
Trans-1,2-Dichloroethene (total)									
Chloroform	J								
1,2-Dichloroethane									
2-Butanone									
1,1,1-Trichloroethane									
Carbon Tetrachloride									
Vinyl Acetate									
Bromodichloromethane									
1,2-Dichloropropane									
cis-1,3-Dichloropropene									
Trichloroethene									
Dibromochloromethane									
1,1,2-Trichloroethane									
Benzene									
trans-1,3-Dichloropropene									
Bromoform									
4-Methyl-2-Pentanone									
2-Hexanone									
Tetrachloroethene			J	J					
Toluene		J	8	9			J		
1,1,2,2-Tetrachloroethane									
Chlorobenzene									
Ethylbenzene									
Styrene									
Xylenes (Total)									

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: LANCASTER SANITARY LANDFILL
TDD#: 02-9007-18
SAMPLING DATE: 1/10/91
EPA CASE NO.: 15651 LAB: CLAYTON

SEMI-VOLATILES									
Sample ID No.	NYLM-SED1	NYLM-SED2	NYLM-S1(MS/MSD)	NYLM-S2	NYLM-S4	NYLM-S5(DUP)	NYLM-S6	NYLM-RIN1	NYLM-RIN2
Traffic Report No.	BFT38	BFT39	BFT32	BFT33	BFT35	BFT36	BFT37	BFT40	BFT41
Matrix	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1/Y	1/Y	1/Y	1/Y	1/Y	1/Y	1/Y	1	1
Percent Moisture	39	3	6	21	39	38	19	--	--
Phenol									
bis(2-Chloroethyl)ether									
2-Chlorophenol									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Benzyl alcohol									
1,2-Dichlorobenzene									
2-Methylphenol									
bis(2-Chloroisopropyl)ether									
4-Methylphenol									
N-Nitroso-di-n-dipropylamine									
Hexachloroethane									
Nitrobenzene									
Isophorone									
2-Nitrophenol									
2,4-Dimethylphenol									
Benzoic acid									
bis(2-Chloroethoxy)methane									
2,4-Dichlorophenol									
1,2,4-Trichlorobenzene									
Naphthalene									
4-Chloroaniline									
Hexachlorobutadiene									
4-Chloro-3-Methylphenol									
2-Methylnaphthalene									
Hexachlorocyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2-Chloronaphthalene									
2-Nitroaniline									
Dimethylphthalate									
Acenaphthylene									
2,6-Dinitrotoluene									
3-Nitroaniline									
Acenaphthene									
2,4-Dinitrophenol									
4-Nitrophenol									
Dibenzofuran									
2,4-Dinitrotoluene									
Diethylphthalate									
4-Chlorophenyl-phenyl ether									
Fluorene									
4-Nitroaniline									
4,6-Dinitro-2-methylphenol									
N-nitrosodiphenylamine									
4-Bromophenyl-phenyl ether									
Hexachlorobenzene									

SITE NAME: LANCASTER SANITARY LANDFILL
IDD#: 02-9007-18
SAMPLING DATE: 1/10/91
EPA CASE NO.: 15651 LAB: CLAYTON

SEMI-VOLATILES									
Sample ID No.	NYLM-SED1	NYLM-SED2	NYLM-S1(MS/MSD)	NYLM-S2	NYLM-S4	NYLM-S5(DUP)	NYLM-S6	NYLM-RIN1	NYLM-RIN2
Traffic Report No.	BFT38	BFT39	BFT32	BFT33	BFT35	BFT36	BFT37	BFT40	BFT41
Matrix	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1/Y	1/Y	1/Y	1/Y	1/Y	1/Y	1/Y	1	1
Percent Moisture	39	3	6	21	39	38	19	--	--
Pentachlorophenol									
Phenanthrene									
Anthracene									
Di-n-butylphthalate									
Fluoranthene									
Pyrene									
Butylbenzylphthalate									
3,3'-Dichlorobenzidine									
Benzo(a)anthracene									
Chrysene									
bis(2-Ethylhexyl)phthalate									
Di-n-octylphthalate									
Benzo(b)fluoranthene									
Benzo(k)fluoranthene									
Benzo(a)pyrene									
Indeno(1,2,3-cd)pyrene									
Dibenz(a,h)anthracene									
Benzo(g,h,i)perylene									

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >0%

SITE NAME: LANCASTER SANITARY LANDFILL
TDD#: 02-9007-18
SAMPLING DATE: 1/10/91
EPA CASE NO.: 15651 LAB: CLAYTON

PESTICIDES									
Sample ID No.	NYLM-SED1	NYLM-SED2	NYLM-S1(MS/MSD)	NYLM-S2	NYLM-S4	NYLM-S5(DUP)	NYLM-S6	NYLM-RIN1	NYLM-RIN2
Traffic Report No.	BFT38	BFT39	BFT32	BFT33	BFT35	BFT36	BFT37	BFT40	BFT41
Matrix	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
Dilution Factor/GPC Cleanup (Y)	1/Y	1/Y	1/Y	1/Y	1/Y	1/Y	1/Y	1	1
Percent Moisture	39	3	6	21	39	38	19	--	--
alpha-BHC									
beta-BHC									
delta-BHC									
gamma-BHC (Lindane)									
Heptachlor									
Aldrin									
Heptachlor epoxide									
Endosulfan I									
Dieldrin									
4,4'-DDE									
Endrin									
Endosulfan II									
4,4'-DDD									
Endosulfan sulfate									
4,4'-DDT									
Methoxychlor									
Endrin ketone									
alpha-Chlordane									
gamma-Chlordane									
Toxaphene									
Aroclor-1016									
Aroclor-1221									
Aroclor-1232									
Aroclor-1242									
Aroclor-1248									
Aroclor-1254									
Aroclor-1260									

NOTES:
Blank space - compound analyzed for but not detected
B - compound found in lab blank as well as sample, indicates possible/probable blank contamination
E - estimated value
J - estimated value, compound present below CRQL but above IDL
R - analysis did not pass EPA QA/QC
N - Presumptive evidence of the presence of the material
NR - analysis not required
Detection limits elevated if Dilution Factor >1 and/or percent moisture >90%

SITE NAME: LANCASTER SANITARY LANDFILL
IDD#: 02-9007-18
SAMPLING DATE: 1/10/91
EPA CASE NO.: 15651
LAB NAME: SKINNER & SHERMAN

INORGANICS

Sample ID No.	NYLM-SED1	NYLM-SED2	NYLM-S1(MS/MSD)	NYLM-S2	NYLM-S4	NYLM-S5(DUP)	NYLM-S6	NYLM-RIN1	NYLM-RIN2
Traffic Report No.	MBEB07	MBEB08	MBEB01	MBEB02	MBEB04	MBEB05	MBEB06	MBEB09	MBEB10
Matrix	SEDIMENT	SEDIMENT	SOIL	SOIL	SOIL	SOIL	SOIL	WATER	WATER
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L
Aluminum	6570	15300	7030	17100	7150	6720	6290		J
Antimony									
Arsenic	J	4.3	3.6	4.7 E	J	J	2.3		
Barium	J	106	46.7	133	J	J	51.7		
Beryllium	J	J	J	J	J	J	J		
Cadmium				J					
Calcium	23600 E	50400 E	23700 E	4700 E	15500 E	15000 E	61600 E	J	J
Chromium	8.8	17.2	8.2	20.6	9.9	8.8	8.9		
Cobalt	J	J	J	12.6	J	J	J		
Copper	11.8	20.5	13.4	10.5	9.9	9.3	13.2		
Iron	10800	21400	12400	27000	11200	10600	10600	J	J
Lead	17	24.8	19.7	18.4	18.5	17.4	8.7	J	J
Magnesium	12500 E	21100 E	14300 E	5650 E	9300 E	8830 E	26500 E	J	J
Manganese	412	543	326	856	296	336	338		
Mercury									
Nickel	J	20.5	J	20.7	J	J	9.8		
Potassium	J	2310	J	1650	J	J	1220		
Selenium									
Silver									
Sodium	J	J	J	J	J	J	J	J	J
Thallium									
Vanadium	J	27.7 E	17.4 E	32.5 E	16.1 E	15.1 E	13.7 E	J	
Zinc	68.8 E	120 E	62 E	96.2 E	64.4 E	51.2 E	64.7 E		J

NOTES:
Blank space - compound analyzed for but not detected
E - estimated value
J - estimated value, compound present below CRDL but above IDL
R - analysis did not pass EPA QA/QC
NR - analysis not required

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Feb. 1990
Number: HW-2
Revision: 10

Case# 15651 Site LANCASTER S.F Matrix: Soil 7

SDG# MBEB01 Lab SKINNER Water 2

Contractor NUS FIT-2 Reviewer JOHN BULICH Other —

A.2.1 The case description and exceptions, if any, are noted below with reason(s) for rejection or qualification as estimated value(s) J.

1) Correlation coefficient — Se calibration standards were 0.9890. Flag the following samples as est. (J). Se → MBEB01,02,04-10

2) ICP ICS — Sodium is not expected to be found in the ICS solution. If is considered a false positive result (>IDL) and therefore associated positive data should be qualified. Flag as est. (J): Na → MBEB01,02,04-10

3) Soil Spiked Sample Recovery — Sb and Se have recoveries between 0-74%. Flag the following samples as est (J):
Sb → MBEB01,02,04-08
Se was not flagged as est (J) in sample MBEB01,02,04-08 because there were previously flagged as per statement #1.

4) Lab Dup. — Ca and Mg have RPDs >100%. Flag as est. (J):
Ca, Mg → MBEB01,02,04-08

5) ICP Serial Dil. — V & Zn (both soil) have differences >10%. Flag as est (J) all associated data ≥ 10 x IDL: V, Zn → MBEB01,02,04-08

6) MSA — Coefficient of correlation for As → MBEB02 is less than 0.995. Flag as est (J): As → MBEB02

A.2.1 (continuation)

A.2.1 (continuation)

A.2.3 Contract-Problems/Non-Compliance (continued)

4) Spike added concentrations on Form II A should be reported to one decimal place, not two (pg 25).

5) Duplicate injections were not run on arsenic. CCV 9 & 10 and CCB 9 & 10. Even though they are associated w/ the MSA run. QA/QC samples must have duplicate injections.

6)

A.2.2 Contract-Problems/Non-Compliance

1) Samples were diluted beyond contract requirements and the dilutions not noted on Form I's. Pb (5X) → MBEB 01, 02, 08
Se (5X) → MBEB 02, 08
In addition, the 5X dilution for Se in samples MBEB 02 and MBEB 08 were not stated in the raw data.

2) In the raw data, the "D" suffix is missing for MBEB 01DA, p. 126 and p. 149.

3) Aqueous prep. blanks on Form III should be reported to one decimal place not three (pg 19).

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: [signature] Date: 7/1/94 or 10-7-91
Signature

Verified by: _____ Date: _____

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WARNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: WARNER Case No.: 15651 SAS No.: SDG No.: MBEB01

SDG No.: MBEB01

EPA Sample No.	Lab Sample ID.
MBEB01	01057-01S
MBEB01D	01057-01SD
MBEB01S	01057-01DS
MBEB02	01057-02S
MBEB04	01057-03S
MBEB05	01057-04S
MBEB06	01057-05S
MBEB07	01057-06S
MBEB08	01057-07S
MBEB09	01057-08S
MBEB10	01057-09S

Were ICP interelement corrections applied?	Yes/No	YES
Were ICP background corrections applied?	Yes/No	YES
If yes-were raw data generated before application of background corrections?	Yes/No	NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [signature] Name: Richard P. Purdy

Date: 2/8/91. Title: CLP Program Manager

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB07

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0103

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-06S

Level (low/med): LOW Date Received: 01/11/91

% Solids: 51.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6570.00			P
7440-36-0	Antimony	5.00	U	N	P
7440-38-2	Arsenic	1.80	B	W	F
7440-39-3	Barium	46.90	B		P
7440-41-7	Beryllium	0.38	B		P
7440-41-7	Cadmium	1.10	U		P
7440-70-2	Calcium	23600.00		*	P
7440-47-3	Chromium	8.80			P
7440-48-4	Cobalt	3.50	B		P
7440-50-8	Copper	11.80			P
7439-89-6	Iron	10800.00		*	P
7439-92-1	Lead	17.00			F
7439-95-4	Magnesium	12500.00		*	P
7439-96-5	Manganese	412.00			P
7439-97-6	Mercury	0.18	U		CV
7440-02-0	Nickel	8.70	B		P
7440-09-7	Potassium	800.00	B		P
7782-49-2	Selenium	1.10	U	NW	F
7440-22-4	Silver	0.71	U		P
7440-23-5	Sodium	124.00	B		P
7440-28-0	Thallium	0.75	U		F
7440-62-2	Vanadium	15.00	B		P
7440-66-6	Zinc	68.80		*E	P
	Cyanide				NR

Color Before: GREY Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts: YES

Comments:

ROOTS

000007

FORM I - IN 3/90

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB08

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-079

Level (low/med): LOW Date Received: 01/11/91

% Solids: 74.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15300.00			P
7440-36-0	Antimony	3.30	U	N	P
7440-38-2	Arsenic	4.30		S	F
7440-39-3	Barium	106.00			P
7440-41-7	Beryllium	0.63	B		P
7440-41-7	Cadmium	0.70	U		P
7440-70-2	Calcium	50400.00		*	P
7440-47-3	Chromium	17.20			P
7440-48-4	Cobalt	8.70	B		P
7440-50-8	Copper	20.50			P
7439-89-6	Iron	21400.00		*	P
7439-92-1	Lead	24.80			F
7439-95-4	Magnesium	21100.00		*	P
7439-96-5	Manganese	543.00			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	20.50			P
7440-09-7	Potassium	2310.00			P
7782-49-2	Selenium	3.90	U	NW	F
7440-22-4	Silver	0.47	U		P
7440-23-5	Sodium	152.00	B		P
7440-28-0	Thallium	0.52	U		F
7440-62-2	Vanadium	27.70			P
7440-66-6	Zinc	120.00		*E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROOTS

000008

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB01

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0103

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-013

Level (low/med): LOW Date Received: 01/11/91

% Solids: 83.4

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7030.00			P
7440-36-0	Antimony	3.10		N	P
7440-38-2	Arsenic	3.60	U		F
7440-39-3	Barium	46.70			P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	0.65	U		P
7440-70-2	Calcium	23700.00		*	P
7440-47-3	Chromium	8.20			P
7440-48-4	Cobalt	4.10	B		P
7440-50-8	Copper	13.40			P
7439-89-6	Iron	12400.00			P
7439-92-1	Lead	19.70			F
7439-95-4	Magnesium	14300.00		*	P
7439-96-5	Manganese	326.00			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	3.50	B		P
7440-09-7	Potassium	461.00	B		P
7782-49-2	Selenium	0.69	U	NW	F
7440-22-4	Silver	0.44	U		P
7440-23-5	Sodium	79.90	B		P
7440-28-0	Thallium	0.46	U		F
7440-62-2	Vanadium	17.40			P
7440-66-6	Zinc	62.00		*E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:

STONES AND ROOTS

000002

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB02

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-02S

Level (low/med): LOW Date Received: 01/11/91

% Solids: 77.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17100.00			P
7440-36-0	Antimony	3.10	U	NJ	P
7440-38-2	Arsenic	4.70		+J	F
7440-39-3	Barium	133.00			P
7440-41-7	Beryllium	0.76	B		P
7440-41-7	Cadmium	0.75	B		P
7440-70-2	Calcium	4700.00		*J	P
7440-47-3	Chromium	20.60			P
7440-48-4	Cobalt	12.60			P
7440-50-8	Copper	10.50			P
7439-89-6	Iron	27000.00		*	P
7439-92-1	Lead	18.40			F
7439-95-4	Magnesium	5650.00		*J	P
7439-96-5	Manganese	356.00			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	20.70			P
7440-09-7	Potassium	1650.00			P
7782-49-2	Selenium	3.50	U	NW	F
7440-22-4	Silver	0.44	U		P
7440-23-5	Sodium	57.50	B	J	P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	32.50			P
7440-66-6	Zinc	96.20		*E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROOTS

000003

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB04

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0103

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-035

Level (low/med): LOW Date Received: 01/11/91

% Solids: 82.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7150.00			P
7440-36-0	Antimony	4.00	U	N	P
7440-38-2	Arsenic	1.80	B		F
7440-39-3	Barium	47.20	B		P
7440-41-7	Beryllium	0.36	B		P
7440-43-9	Cadmium	0.85	U		P
7440-70-2	Calcium	15500.00		*	P
7440-47-3	Chromium	9.90			P
7440-48-4	Cobalt	4.40	B		P
7440-50-8	Copper	9.90			P
7439-89-6	Iron	11200.00		*	P
7439-92-1	Lead	13.50			F
7439-95-4	Magnesium	9300.00		*	P
7439-96-5	Manganese	296.00			P
7439-97-6	Mercury	0.13	U		CV
7440-02-0	Nickel	9.30	B		P
7440-09-7	Potassium	895.00	B		P
7782-49-2	Selenium	0.94	U	NW	F
7440-22-4	Silver	0.57	U		P
7440-23-5	Sodium	83.20	B	"	P
7440-28-0	Thallium	0.62	U		F
7440-62-2	Vanadium	16.10			P
7440-66-6	Zinc	64.40		E	P
	Cyanide				NR

Color Before: GREY Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts: YES

Comments:

ROOTS AND LEAVES

000004

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB05

Lab Name: KINNER & SHERMAN LABS. Contract: 68-00-0108

Lab Code: KINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-04S

Level (low/med): LOW Date Received: 01/11/91

% Solids: 62.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6720.00			P
7440-36-0	Antimony	4.20	U	N J	P
7440-38-2	Arsenic	1.60	B	W	F
7440-39-3	Barium	44.80	B		P
7440-41-7	Beryllium	0.32	B		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	15000.00		*	P
7440-47-3	Chromium	8.30			P
7440-48-4	Cobalt	4.40	B		P
7440-50-8	Copper	9.30			P
7439-89-6	Iron	10600.00		*	P
7439-92-1	Lead	17.40			F
7439-95-4	Magnesium	8830.00		*	P
7439-96-5	Manganese	336.00			P
7439-97-6	Mercury	0.15	U		CV
7440-02-0	Nickel	9.20	B		P
7440-09-7	Potassium	820.00	B		P
7782-49-2	Selenium	0.39	U	NW	F
7440-22-4	Silver	0.60	U		P
7440-23-5	Sodium	76.70	B		P
7440-28-0	Thallium	0.59	U		F
7440-62-2	Vanadium	15.10			P
7440-66-6	Zinc	61.20		*E	P
	Cyanide				NR

Color Before: GREY Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts: YES

Comments:

ROOTS

000005

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB06

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-00-0108

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): SOIL Lab Sample ID: 01057-05S

Level (low/med): LOW Date Received: 01/11/91

%Solids: 81.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6290.00			P
7440-36-0	Antimony	1.10	U	N	P
7440-38-2	Arsenic	2.30		S	F
7440-39-3	Barium	51.70			P
7440-41-7	Beryllium	0.28	B		P
7440-41-7	Cadmium	0.66	U		P
7440-70-2	Calcium	61600.00			F
7440-47-3	Chromium	8.90			P
7440-48-4	Cobalt	4.30	B		P
7440-50-8	Copper	13.20			P
7439-89-6	Iron	10600.00		*	P
7439-92-1	Lead	8.70			F
7439-95-4	Magnesium	26500.00			P
7439-96-5	Manganese	338.00			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	9.80			P
7440-09-7	Potassium	1220.00			P
7782-49-2	Selenium	0.62	U	NW	F
7440-22-4	Silver	0.44	U		P
7440-23-5	Sodium	145.00	B		P
7440-28-0	Thallium	0.41	U		F
7440-62-2	Vanadium	13.70			P
7440-66-6	Zinc	64.70		*E	P
	Cyanide				NR

Color Before: GREY Clarity Before: Texture: FINE

Color After: GREY Clarity After: Artifacts: YES

Comments:

ROOTS

000006

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB09

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): WATER Lab Sample ID: 01057-0SS

Level (low/med): LOW Date Received: 01/11/91

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.00	U		P
7440-36-0	Antimony	14.00	U		P
7440-38-2	Arsenic	2.00	U	W	F
7440-39-3	Barium	2.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	3.00	U		P
7440-70-2	Calcium	41.50	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	2.00	U		P
7439-89-6	Iron	16.50	B		P
7439-92-1	Lead	1.20	B		F
7439-95-4	Magnesium	26.50	B		P
7439-96-5	Manganese	1.00	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	4.00	U		P
7440-09-7	Potassium	68.00	U		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	63.50	B	J	P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	2.20	B		P
7440-66-6	Zinc	5.00	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

000009

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBEB10

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: 15651 SAS No.: SDG No.: MBEB01

Matrix (soil/water): WATER Lab Sample ID: 01057-09S

Level (low/med): LOW Date Received: 01/11/91

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23.80	B		P
7440-36-0	Antimony	14.00	U		P
7440-38-2	Arsenic	2.00	U	W	F
7440-39-3	Barium	2.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-41-7	Cadmium	3.00	U		P
7440-70-2	Calcium	47.10	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	2.00	U		P
7439-89-6	Iron	34.10	B		P
7439-92-1	Lead	1.50	B		F
7439-95-4	Magnesium	34.40	B		P
7439-96-5	Manganese	1.00	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	4.00	U		P
7440-09-7	Potassium	68.00	U		P
7782-49-2	Selenium	3.00	U		F
7440-22-4	Silver	2.00	U		P
7440-23-5	Sodium	104.00	B		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	2.00	U		P
7440-66-6	Zinc	9.30	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

000010

15651 • 2 - 030-02

Midwestern Operations

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Clayton
ENVIRONMENTAL
CONSULTANTS

CASE NARRATIVE

Case No.: 15651
EPA Sample Nos.: BFT32-33, 35-41
SDG No.: BFT32
Contract No.: 68-D9-0035

Case Summary

Case 15651 was received on January 12, 1991, and consisted of 2 water samples for full organic analysis, and 7 soil samples for full organic analysis.

Two problems were noted when this case was received. Mr. Kevin Connell was contacted at sample management office (SMO) on January 14, 1991; he advised the following:

(1) A water matrix spike (MS) and matrix spike duplicate (MSD) was not designated. These samples are rinsates, and EPA Region II does not want QC done on these samples.

(2) The region would be notified that sample tags were not present.

Semivolatile sample BFT41 was extracted outside of holding times.

The semivolatile water blank (SBLKW1) failed surrogate QC. The blank was re-extracted, as defined in the statement of work (SOW) 2/88, E-38/SV, 4.3.1. This blank met all QC criteria. Both the original blank (SBLKW1) and the re-extracted blank (SBLKW1RE) are submitted.

The Hewlett Packard GC/MS data system Clayton uses has a combined NBS/WILEY library. The data system prints the mass spectra for all tentatively identified compounds (TIC) and the top three library matches. When no library matches are found, the data system prints "NO DATA BASE ENTRIES RETRIEVED."

Standards

The instrument was tuned to meet the abundance criteria for BFB and DFTPP before any standards, blanks, or samples were analyzed. Initial and continuing calibration data of the specific performance check compounds (SPCC) and continuing calibration check compounds (CCC) for volatile and semivolatile compounds are within the contract-required quality control (QC) limits.

In the volatile standards, all xylene isomers are included to allow retention time identification. On the packed column, the xylenes were quantitated as m-xylene since o- and p-xylene overlap. The o- and p-xylene peak is not listed on our quantitation report, since total xylenes are reported as required by the statement of work (SOW) 2/88, p. D-33.

Pesticide Linearity and Degradation

Linearity and degradation criteria are within the contract-required QC limits for megabore capillary column which was used for quantitation.

Percent-difference and retention time shifts for all pesticide compounds were within contract-required criteria for the primary run which was used for quantitation.

Dibutylchlorendate surrogate recoveries in the pesticide fraction were calculated using the Evaluation C standard from the primary analysis.

Surrogate Recoveries

Surrogate recovery results are reported on Form II and can be found in the QC summary data package.

Matrix Spike and Matrix Spike Duplicate

Matrix spike and matrix spike duplicate recovery data are reported on Form III and can be found in the QC summary data package.

Blanks

The method blanks with corresponding samples are reported on the method blank summary Form IV and can be found in the QC summary data package.

I certify that this data package is in compliance with the terms and the conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Todd J. Outhouse
Project Leader, CLP

2/11/91
Date

ATTACHMENT 1
SOP NO. HW-6

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 15651 SDG No BJT32 LABORATORY Clayton Nodi SITE Lancaster Sanitary Landfill

DATA ASSESSMENT:

The current functional guidelines (1988) for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Josephine Brown Date: 3/13/1991

Verified By: Susan Lenczyk Date: 03/14/1991

DATA ASSESSMENT:

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

BNA The holding time for the extraction of BJT41 was exceeded, therefore all analytes were qualified estimated 'J'.

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non- detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

QA Methylene Chloride was qualified 'U', undetected in BFT32,33,35,36,37,38,39.
Acetone was qualified 'U', undetected in BFT32,33,35, 36,37,38,39.

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

C) Trip blank contamination

DATA ASSESSMENT:

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl- phosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable, "R".

DATA ASSESSMENT:

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected ("R").

DATA ASSESSMENT:

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ" (if %D or RSD >50%). If there is a gross deviation of %RSD and %D, the non-detects may be rejected ("R").

For the PCB/PESTICIDE fraction, %RSD for aldrin, endrin, DDT, and dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

BNA Pyrene was qualified estimated 'J' in BJJ32 and BJJ40 due to %D>50 in the continuing calibration.

DATA ASSESSMENT:

6. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

DATA ASSESSMENT:

7. INTERNAL STANDARDS PERFORMANCE:

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/ml in the final sample extract.

DATA ASSESSMENT:

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data.

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

12. CONTRACT PROBLEMS____NON-COMPLIANCE:

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

BNA SBLKW1 was reanalyzed due to surrogate recovery being outside QC limits. The surrogate recovery for SBLKW1RE met QC criteria and therefore was used.

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

Repon

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 15651 LABORATORY Chem Fort Worth

SDG NO. BF732 DATA USER FIT 2

SOW _____ REVIEW COMPLETION DATE 3/13/91

NO. OF SAMPLES 2 WATER 7 SOIL _____ OTHER _____

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR FIT 2

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	O	M	O	
2. GC-MS TUNE/ GC PERFORMANCE	O	O	O	
3. INITIAL CALIBRATIONS	O	O	O	
4. CONTINUING CALIBRATIONS	O	X	O	
5. FIELD BLANKS ("F" = not applicable)	O	O	O	
6. LABORATORY BLANKS	X	O	O	
7. SURROGATES	O	O	O	
8. MATRIX SPIKE/DUPLICATES	O	O	O	
9. REGIONAL QC ("F" = not applicable)	F	F	F	
10. INTERNAL STANDARDS	O	O		
11. COMPOUND IDENTIFICATION	O	O	O	
12. COMPOUND QUANTITATION	O	O	O	
13. SYSTEM PERFORMANCE	X	M	O	
14. OVERALL ASSESSMENT	X	M	O	

O = No problems or minor problems that do not affect data usability.
X = No more than *about* 5% of the data points are qualified as either estimated or unusable.
M = More than *about* 5% of the data points are qualified as estimated.
Z = More than *about* 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

Type of Review: Total — Date: 3/13/91 — Case #: 15651

Project: Lancaster Sanitary Landfill — Lab Name: Clayton Nus

Reviewer's Initials: TB — Number of Samples: 9

Analytes Rejected due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Method Trip Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)							9	0 / 135
B/N (50)							9	0 / 450
VOA (35)				14/7			9	14 / 315
PEST (20)							9	0 / 180
PCB (7)							9	0 / 63
TCDD (1)							C	0/0

Analytes Estimated due to Exceeding Review Criteria for:

Acids (15)		15/1					9	15 / 135
B/N (50)		50/1	2/2	2/2 JB			9	52 / 450
VOA (35)							9	0 / 315
PEST (20)							9	0 / 180
PCB (7)							9	0 / 63
TCDD (1)							C	0/0

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT38

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871309

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3853

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. 39 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	9	~~B~~ U
67-64-1	Acetone	30	~~B~~ U
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	0.8	J
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	16	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	Trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	8	U
100-41-4	Ethylbenzene	8	U
100-42-5	Styrene	8	U
1330-20-7	Total Xylenes	8	U

15651 · 2-111-06

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BFT38

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871309

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3853

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 Date Analyzed: 01/15/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4806615	Cyclobutane, ethyl- (8CI9CI)	16.84	9.0	J N

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

15651 · 2-110-07
EPA SAMPLE NO.

BFT39

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871311

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3854

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 3 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
67-64-1	Methylene Chloride	10	U
75-15-0	Acetone	5 J	~~BJ~~
75-35-4	Carbon Disulfide	17	~~18~~
75-34-3	1,1-Dichloroethene	5	U
540-59-0	1,1-Dichloroethane	5	U
67-66-3	1,2-Dichloroethene (total)	5	U
107-06-2	Chloroform	5	U
78-93-3	1,2-Dichloroethane	5	U
71-55-6	2-Butanone	5	U
56-23-5	1,1,1-Trichloroethane	10	U
108-05-4	Carbon Tetrachloride	5	U
75-27-4	Vinyl Acetate	5	U
78-87-5	Bromodichloromethane	10	U
10061-01-5	1,2-Dichloropropane	5	U
79-01-6	cis-1,3-Dichloropropene	5	U
124-48-1	Trichloroethene	5	U
79-00-5	Dibromochloromethane	5	U
71-43-2	1,1,2-Trichloroethane	5	U
10061-02-6	Benzene	5	U
75-25-2	Trans-1,3-Dichloropropene	5	U
108-10-1	Bromoform	5	U
591-78-6	4-Methyl-2-Pentanone	5	U
127-18-4	2-Hexanone	10	U
79-34-5	Tetrachloroethene	10	U
108-88-3	1,1,2,2-Tetrachloroethane	5	U
108-90-7	Toluene	5	U
100-41-4	Chlorobenzene	1	J
100-42-5	Ethylbenzene	5	U
1330-20-7	Styrene	5	U
	Total Xylenes	5	U
		5	U

15651 · 2-111-07

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BFT39

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871311

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3854

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 3 Date Analyzed: 01/15/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4806615	Cyclobutane, ethyl- (8CI9CI)	16.72	6.5	J N

15651 · 2-110-01

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT32

Name: CLAYTON NOVI Contract: 68-D9-0035

Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871297

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3846

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 6 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	59	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	5	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	5	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	5	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	2	J
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	8	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT32

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871297

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3846

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 6 Date Analyzed: 01/15/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4806615	Cyclobutane, ethyl- (8CI9CI)	16.69	9.7	J N
2.	106683	3-Octanone (8CI9CI)	38.32	5.6	J N

1A

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

BFT33

Name: CLAYTON NOVI Contract: 68-D9-0035

Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871302

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3849

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 21 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	7	B U
67-64-1	Acetone	27	B U
75-15-0	Carbon Disulfide	2	J
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	9	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Total Xylenes	6	U

15651 · 2-111-02

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT33

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871302

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3849

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 21 Date Analyzed: 01/15/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4806615	Cyclobutane, ethyl- (8CI9CI)	16.69	10	J N

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT35

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871303

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3850

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. 39 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	8	B U
67-64-1	Acetone	30	B U
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	8	U
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	16	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	Trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	8	U
100-41-4	Ethylbenzene	8	U
100-42-5	Styrene	8	U
1330-20-7	Total Xylenes	8	U

1A

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT36

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871305

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3851

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. 38 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	10	B U
67-64-1	Acetone	51	B U
75-15-0	Carbon Disulfide	8	U
75-35-4	1,1-Dichloroethene	8	U
75-34-3	1,1-Dichloroethane	8	U
540-59-0	1,2-Dichloroethene (total)	8	U
67-66-3	Chloroform	8	U
107-06-2	1,2-Dichloroethane	8	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	8	U
56-23-5	Carbon Tetrachloride	8	U
108-05-4	Vinyl Acetate	16	U
75-27-4	Bromodichloromethane	8	U
78-87-5	1,2-Dichloropropane	8	U
10061-01-5	cis-1,3-Dichloropropene	8	U
79-01-6	Trichloroethene	8	U
124-48-1	Dibromochloromethane	8	U
79-00-5	1,1,2-Trichloroethane	8	U
71-43-2	Benzene	8	U
10061-02-6	Trans-1,3-Dichloropropene	8	U
75-25-2	Bromoform	8	U
108-10-1	4-Methyl-2-Pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	8	U
79-34-5	1,1,2,2-Tetrachloroethane	8	U
108-88-3	Toluene	8	U
108-90-7	Chlorobenzene	8	U
100-41-4	Ethylbenzene	8	U
100-42-5	Styrene	8	U
1330-20-7	Total Xylenes	8	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT36

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871305

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3851

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 38 Date Analyzed: 01/15/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4806615	Cyclobutane, ethyl- (8CI9CI)	16.77	12	J

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT37

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871307

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3852

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 19 Date Analyzed: 01/15/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	6 ~~4~~	~~UBJ~~ U
67-64-1	Acetone	34	~~UB~~ U
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Total Xylenes	6	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT37

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871307

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E3852

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 19 Date Analyzed: 01/15/91

Column (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4806615	Cyclobutane, ethyl- (8CI9CI)	16.87	11	JNR
2. 110543	Hexane (DOT) (8CI9CI)	22.17	8.1	

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT40

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871314

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E3902

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. _____ Date Analyzed: 01/18/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	12	
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

1E

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT40

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871314

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E3902

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. _____ Date Analyzed: 01/18/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 60297	Ethyl ether (8CI)	12.49	5.5	BJN

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT41

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871315

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E3901

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. _____ Date Analyzed: 01/18/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	4	J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Total Xylenes	5	U

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT41

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871315

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E3901

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. _____ Date Analyzed: 01/18/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	60297	Ethyl ether (8CI)	12.49	5.8	BJ
2.	110543	Hexane (DOT) (8CI9CI)	21.97	8.5	J

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT38

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871323

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2291

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1100	U
111-44-4	bis(2-Chloroethyl)Ether	1100	U
95-57-8	2-Chlorophenol	1100	U
541-73-1	1,3-Dichlorobenzene	1100	U
106-46-7	1,4-Dichlorobenzene	1100	U
100-51-6	Benzyl Alcohol	1100	U
95-50-1	1,2-Dichlorobenzene	1100	U
95-48-7	2-Methylphenol	1100	U
108-60-1	bis(2-Chloroisopropyl)Ether	1100	U
106-44-5	4-Methylphenol	1100	U
621-64-7	N-Nitroso-Di-n-Propylamine	1100	U
67-72-1	Hexachloroethane	1100	U
98-95-3	Nitrobenzene	1100	U
78-59-1	Isophorone	1100	U
88-75-5	2-Nitrophenol	1100	U
105-67-9	2,4-Dimethylphenol	1100	U
65-85-0	Benzoic Acid	5200	U
111-91-1	bis(2-Chloroethoxy)Methane	1100	U
120-83-2	2,4-Dichlorophenol	1100	U
120-82-1	1,2,4-Trichlorobenzene	1100	U
91-20-3	Naphthalene	1100	U
106-47-8	4-Chloroaniline	1100	U
87-68-3	Hexachlorobutadiene	1100	U
59-50-7	4-Chloro-3-Methylphenol	1100	U
91-57-6	2-Methylnaphthalene	1100	U
77-47-4	Hexachlorocyclopentadiene	1100	U
88-06-2	2,4,6-Trichlorophenol	1100	U
95-95-4	2,4,5-Trichlorophenol	5200	U
91-58-7	2-Chloronaphthalene	1100	U
88-74-4	2-Nitroaniline	5200	U
131-11-3	Dimethyl Phthalate	1100	U
208-96-8	Acenaphthylene	1100	U
606-20-2	2,6-Dinitrotoluene	1100	U

15651 • 2 - 210-12

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT38

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871323

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2291

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	5200	U
83-32-9	Acenaphthene	1100	U
51-28-5	2,4-Dinitrophenol	5200	U
100-02-7	4-Nitrophenol	5200	U
132-64-9	Dibenzofuran	1100	U
121-14-2	2,4-Dinitrotoluene	1100	U
84-66-2	Diethylphthalate	1100	U
7005-72-3	4-Chlorophenyl-phenylether	1100	U
86-73-7	Fluorene	1100	U
100-01-6	4-Nitroaniline	5200	U
534-52-1	4,6-Dinitro-2-Methylphenol	5200	U
86-30-6	N-Nitrosodiphenylamine (1)	1100	U
101-55-3	4-Bromophenyl-phenylether	1100	U
118-74-1	Hexachlorobenzene	1100	U
87-86-5	Pentachlorophenol	5200	U
85-01-8	Phenanthrene	1100	U
120-12-7	Anthracene	1100	U
84-74-2	Di-n-Butylphthalate	1100	U
206-44-0	Fluoranthene	1100	U
129-00-0	Pyrene	1100	U
85-68-7	Butylbenzylphthalate	1100	U
91-94-1	3,3'-Dichlorobenzidine	2200	U
56-55-3	Benzo(a)Anthracene	1100	U
218-01-9	Chrysene	1100	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1100	U
117-84-0	Di-n-Octyl Phthalate	1100	U
205-99-2	Benzo(b)Fluoranthene	1100	U
207-08-9	Benzo(k)Fluoranthene	1100	U
50-32-8	Benzo(a)Pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)Pyrene	1100	U
53-70-3	Dibenz(a,h)Anthracene	1100	U
191-24-2	Benzo(g,h,i)Perylene	1100	U

(1) - Cannot be separated from Diphenylamine

15651 • 2 - 211-06

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT38

Contract: 68-D9-0035

Lab Name: CLAYTON NOVI

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871323

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2291

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.0

Number TICs found: 19

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	4.30	25000	~~ABJ~~ R
2.		C9H20 Hydrocarbon	4.48	1200	~~BJ~~ R
3.		C9H20 Hydrocarbon	4.57	1100	~~BJ~~ R
4.		C9H20 Hydrocarbon	4.68	870	~~BJ~~ R
5.		Unknown Ketone or Ester	5.40	570	~~BJ~~ R
6.		C9H20 Hydrocarbon	5.65	2000	J N
7.	4436753	3-Hexene-2,5-dione	5.93	1700	~~BJ~~ R
8.		C9H20 Hydrocarbon	6.68	1400	~~BJ~~ R
9.		C9H20 Hydrocarbon	7.63	1300	J N
10.		Unknown	22.19	480	J
11.		Unknown Hydrocarbon	26.19	2500	J
12.		Unknown Hydrocarbon	26.96	990	J
13.		Unknown	27.27	6100	J
14.		Unknown Hydrocarbon	27.71	5400	J
15.		Unknown Hydrocarbon	29.02	840	J
16.		Unknown Hydrocarbon	29.56	1000	J
17.		Unknown	31.77	750	J
18.		Unknown	35.44	740	J
19.		Unknown	35.61	1100	J N

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

15651·2-210·13

EPA SAMPLE NO.

BFT39

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871324

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2292

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 3 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	680	U
111-44-4	bis(2-Chloroethyl)Ether	680	U
95-57-8	2-Chlorophenol	680	U
541-73-1	1,3-Dichlorobenzene	680	U
106-46-7	1,4-Dichlorobenzene	680	U
100-51-6	Benzyl Alcohol	680	U
95-50-1	1,2-Dichlorobenzene	680	U
95-48-7	2-Methylphenol	680	U
108-60-1	bis(2-Chloroisopropyl)Ether	680	U
106-44-5	4-Methylphenol	680	U
621-64-7	N-Nitroso-Di-n-Propylamine	680	U
67-72-1	Hexachloroethane	680	U
98-95-3	Nitrobenzene	680	U
78-59-1	Isophorone	680	U
88-75-5	2-Nitrophenol	680	U
105-67-9	2,4-Dimethylphenol	680	U
65-85-0	Benzoic Acid	680	U
111-91-1	bis(2-Chloroethoxy)Methane	3300	U
120-83-2	2,4-Dichlorophenol	680	U
120-82-1	1,2,4-Trichlorobenzene	680	U
91-20-3	Naphthalene	680	U
106-47-8	4-Chloroaniline	680	U
87-68-3	Hexachlorobutadiene	680	U
59-50-7	4-Chloro-3-Methylphenol	680	U
91-57-6	2-Methylnaphthalene	680	U
77-47-4	Hexachlorocyclopentadiene	680	U
88-06-2	2,4,6-Trichlorophenol	680	U
95-95-4	2,4,5-Trichlorophenol	680	U
91-58-7	2-Chloronaphthalene	3300	U
88-74-4	2-Nitroaniline	680	U
131-11-3	Dimethyl Phthalate	3300	U
208-96-8	Acenaphthylene	680	U
606-20-2	2,6-Dinitrotoluene	680	U

15651·2 - 210-14

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT39

Lab: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871324

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2292

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 3 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	680	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	680	U
121-14-2	2,4-Dinitrotoluene	680	U
84-66-2	Diethylphthalate	680	U
7005-72-3	4-Chlorophenyl-phenylether	680	U
86-73-7	Fluorene	680	U
100-01-6	4-Nitroaniline	3300	U
534-52-1	4,6-Dinitro-2-Methylphenol	3300	U
86-30-6	N-Nitrosodiphenylamine (1)	680	U
101-55-3	4-Bromophenyl-phenylether	680	U
118-74-1	Hexachlorobenzene	680	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	680	U
120-12-7	Anthracene	680	U
84-74-2	Di-n-Butylphthalate	680	U
206-44-0	Fluoranthene	680	U
129-00-0	Pyrene	680	U
85-68-7	Butylbenzylphthalate	680	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)Anthracene	680	U
218-01-9	Chrysene	680	U
117-81-7	bis(2-Ethylhexyl)Phthalate	680	U
117-84-0	Di-n-Octyl Phthalate	680	U
205-99-2	Benzo(b)Fluoranthene	680	U
207-08-9	Benzo(k)Fluoranthene	680	U
50-32-8	Benzo(a)Pyrene	680	U
193-39-5	Indeno(1,2,3-cd)Pyrene	680	U
53-70-3	Dibenz(a,h)Anthracene	680	U
191-24-2	Benzo(g,h,i)Perylene	680	U

(1) - Cannot be separated from Diphenylamine

15651 · 2 -211-07

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT39

Lab: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871324

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2292

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 3 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

Number TICs found: 22

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		C9H20 Hydrocarbon	4.12	280	J N
2.	123422	4-Hydroxy-4-methyl-2-pentano	4.32	20000	~~BJ~~ R
3.		C9H20 Hydrocarbon	4.45	530	~~BJ~~ R
4.		C9H20 Hydrocarbon	4.57	970	~~BJ~~ R
5.		C9H20 Hydrocarbon	4.68	780	~~BJ~~ R
6.		Unknown Ketone or Ester	5.40	520	~~BJ~~ R
7.		C9H20 Hydrocarbon	5.65	1300	J N
8.	4436753	3-Hexene-2,5-dione	5.93	1100	~~BJ~~ R
9.		C9H20 Hydrocarbon	6.68	1000	~~BJ~~ R
10.		Unknown	7.58	470	J N
11.		C9H20 Hydrocarbon	7.67	1500	J
12.		Unknown Hydrocarbon	16.77	280	J
13.		Unknown Hydrocarbon	21.97	400	J
14.		Unknown Hydrocarbon	22.89	470	J
15.		Unknown Hydrocarbon	23.75	280	J
16.		Unknown Hydrocarbon	26.19	450	J
17.		Unknown Hydrocarbon	26.94	430	J
18.		Unknown	27.26	590	J
19.		Unknown Hydrocarbon	27.71	2000	J
20.		Unknown Hydrocarbon	29.57	1800	J
21.		Unknown Hydrocarbon	32.09	640	J
22.		Unknown	36.36	3900	J N

1B

15651·2-210-01

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT32

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871317

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2300

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 6 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	700	U
111-44-4	bis(2-Chloroethyl)Ether	700	U
95-57-8	2-Chlorophenol	700	U
541-73-1	1,3-Dichlorobenzene	700	U
106-46-7	1,4-Dichlorobenzene	700	U
100-51-6	Benzyl Alcohol	700	U
95-50-1	1,2-Dichlorobenzene	700	U
95-48-7	2-Methylphenol	700	U
108-60-1	bis(2-Chloroisopropyl)Ether	700	U
106-44-5	4-Methylphenol	700	U
621-64-7	N-Nitroso-Di-n-Propylamine	700	U
67-72-1	Hexachloroethane	700	U
98-95-3	Nitrobenzene	700	U
78-59-1	Isophorone	700	U
88-75-5	2-Nitrophenol	700	U
105-67-9	2,4-Dimethylphenol	700	U
65-85-0	Benzoic Acid	3400	U
111-91-1	bis(2-Chloroethoxy)Methane	700	U
120-83-2	2,4-Dichlorophenol	700	U
120-82-1	1,2,4-Trichlorobenzene	700	U
91-20-3	Naphthalene	700	U
106-47-8	4-Chloroaniline	700	U
87-68-3	Hexachlorobutadiene	700	U
59-50-7	4-Chloro-3-Methylphenol	700	U
91-57-6	2-Methylnaphthalene	700	U
77-47-4	Hexachlorocyclopentadiene	700	U
88-06-2	2,4,6-Trichlorophenol	700	U
95-95-4	2,4,5-Trichlorophenol	3400	U
91-58-7	2-Chloronaphthalene	700	U
88-74-4	2-Nitroaniline	3400	U
131-11-3	Dimethyl Phthalate	700	U
208-96-8	Acenaphthylene	700	U
606-20-2	2,6-Dinitrotoluene	700	U

15651 · 2-210-02

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT32

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871317

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2300

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 6 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3400	U
83-32-9	Acenaphthene	700	U
51-28-5	2,4-Dinitrophenol	3400	U
100-02-7	4-Nitrophenol	3400	U
132-64-9	Dibenzofuran	700	U
121-14-2	2,4-Dinitrotoluene	700	U
84-66-2	Diethylphthalate	700	U
7005-72-3	4-Chlorophenyl-phenylether	700	U
86-73-7	Fluorene	700	U
100-01-6	4-Nitroaniline	3400	U
534-52-1	4,6-Dinitro-2-Methylphenol	3400	U
86-30-6	N-Nitrosodiphenylamine (1)	700	U
101-55-3	4-Bromophenyl-phenylether	700	U
118-74-1	Hexachlorobenzene	700	U
87-86-5	Pentachlorophenol	3400	U
85-01-8	Phenanthrene	700	U
120-12-7	Anthracene	700	U
84-74-2	Di-n-Butylphthalate	700	U
206-44-0	Fluoranthene	700	U
129-00-0	Pyrene	700	UJ
85-68-7	Butylbenzylphthalate	700	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)Anthracene	700	U
218-01-9	Chrysene	700	U
117-81-7	bis(2-Ethylhexyl)Phthalate	700	U
117-84-0	Di-n-Octyl Phthalate	700	U
205-99-2	Benzo(b)Fluoranthene	700	U
207-08-9	Benzo(k)Fluoranthene	700	U
50-32-8	Benzo(a)Pyrene	700	U
193-39-5	Indeno(1,2,3-cd)Pyrene	700	U
53-70-3	Dibenz(a,h)Anthracene	700	U
191-24-2	Benzo(g,h,i)Perylene	700	U

(1) - Cannot be separated from Diphenylamine

15651 • 2 -211-01

IF
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BFT32

CLAYTON

Contract: 68-D9-0035

Lab: CLAYTON Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871317

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2300

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 6 dec. ____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

Number TICs found: 15 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	4.28	16000	~~AB~~ R
2.		C9H20 Hydrocarbon	4.40	290	J N
3.		C9H20 Hydrocarbon	4.47	480	~~B~~ R
4.		C9H20 Hydrocarbon	4.53	690	~~B~~ R
5.		Unknown Ketone or Ester	4.65	600	~~BJ~~ R
6.		C9H20 Hydrocarbon	5.38	320	~~BJ~~ R
7.		3-Hexene-2,5-dione	5.63	640	J N
8.	4436753	C9H20 Hydrocarbon	5.93	1300	~~B~~ R
9.		Unknown Hydrocarbon	6.67	770	~~BJ~~ R
10.		Unknown Hydrocarbon	7.62	560	J N
11.		Unknown	26.89	440	J
12.		Unknown Hydrocarbon	27.19	960	J
13.		Unknown Hydrocarbon	27.64	1400	J
14.		Unknown	29.46	1000	J
15.			32.39	300	J N

15651·2-210-03

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT33

Name: CLAYTON NOVI Contract: 68-D9-0035

Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871319

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2296

Level: (low/med) LOW Date Received: 01/12/91

Moisture: not dec. 21 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	840	U
111-44-4	bis(2-Chloroethyl)Ether	840	U
95-57-8	2-Chlorophenol	840	U
541-73-1	1,3-Dichlorobenzene	840	U
106-46-7	1,4-Dichlorobenzene	840	U
100-51-6	Benzyl Alcohol	840	U
95-50-1	1,2-Dichlorobenzene	840	U
95-48-7	2-Methylphenol	840	U
108-60-1	bis(2-Chloroisopropyl)Ether	840	U
106-44-5	4-Methylphenol	840	U
621-64-7	N-Nitroso-Di-n-Propylamine	840	U
67-72-1	Hexachloroethane	840	U
98-95-3	Nitrobenzene	840	U
78-59-1	Isophorone	840	U
88-75-5	2-Nitrophenol	840	U
105-67-9	2,4-Dimethylphenol	840	U
65-85-0	Benzoic Acid	840	U
111-91-1	bis(2-Chloroethoxy)Methane	4100	U
120-83-2	2,4-Dichlorophenol	840	U
120-82-1	1,2,4-Trichlorobenzene	840	U
91-20-3	Naphthalene	840	U
106-47-8	4-Chloroaniline	840	U
87-68-3	Hexachlorobutadiene	840	U
59-50-7	4-Chloro-3-Methylphenol	840	U
91-57-6	2-Methylnaphthalene	840	U
77-47-4	Hexachlorocyclopentadiene	840	U
88-06-2	2,4,6-Trichlorophenol	840	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	4100	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethyl Phthalate	4100	U
208-96-8	Acenaphthylene	840	U
606-20-2	2,6-Dinitrotoluene	840	U

15651·2-210-04

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT33

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871319

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2296

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 21 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4100	U
83-32-9	Acenaphthene	840	U
51-28-5	2,4-Dinitrophenol	4100	U
100-02-7	4-Nitrophenol	4100	U
132-64-9	Dibenzofuran	840	U
121-14-2	2,4-Dinitrotoluene	840	U
84-66-2	Diethylphthalate	840	U
7005-72-3	4-Chlorophenyl-phenylether	840	U
86-73-7	Fluorene	840	U
100-01-6	4-Nitroaniline	4100	U
534-52-1	4,6-Dinitro-2-Methylphenol	4100	U
86-30-6	N-Nitrosodiphenylamine (1)	840	U
101-55-3	4-Bromophenyl-phenylether	840	U
118-74-1	Hexachlorobenzene	840	U
87-86-5	Pentachlorophenol	4100	U
85-01-8	Phenanthrene	840	U
120-12-7	Anthracene	840	U
84-74-2	Di-n-Butylphthalate	840	U
206-44-0	Fluoranthene	840	U
129-00-0	Pyrene	840	U
85-68-7	Butylbenzylphthalate	840	U
91-94-1	3,3'-Dichlorobenzidine	1700	U
56-55-3	Benzo(a)Anthracene	840	U
218-01-9	Chrysene	840	U
117-81-7	bis(2-Ethylhexyl)Phthalate	840	U
117-84-0	Di-n-Octyl Phthalate	840	U
205-99-2	Benzo(b)Fluoranthene	840	U
207-08-9	Benzo(k)Fluoranthene	840	U
50-32-8	Benzo(a)Pyrene	840	U
193-39-5	Indeno(1,2,3-cd)Pyrene	840	U
53-70-3	Dibenz(a,h)Anthracene	840	U
191-24-2	Benzo(g,h,i)Perylene	840	U

(1) - Cannot be separated from Diphenylamine

15651 · 2 - 211-02

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT33

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871319

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2296

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 21 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	4.28	22000	~~ABJ~~ R
2.		C9H20 Hydrocarbon	4.42	430	J N
3.		C9H20 Hydrocarbon	4.45	500	~~BJ~~ R
4.		C9H20 Hydrocarbon	4.53	980	~~BJ~~ R
5.		C9H20 Hydrocarbon	4.65	840	~~BJ~~ R
6.		Unknown Ketone or Ester	5.38	410	~~BJ~~ R
7.		C9H20 Hydrocarbon	5.62	750	J N
8.	4436753	3-Hexene-2,5-dione (8CI9CI)	5.92	1500	~~BJ~~ R
9.		C9H20 Hydrocarbon	6.67	820	~~BJ~~ R
10.		Unknown	27.12	650	J N
11.		Unknown Hydrocarbon	27.56	950	J N
12.		Unknown Hydrocarbon	29.34	890	J N

15651 • 2 - 210-05

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT35

Name: CLAYTON NOVI Contract: 68-D9-0035

Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871320

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2288

Level: (low/med) LOW Date Received: 01/18/91

% Moisture: not dec. 39 dec. ____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1100	U
111-44-4	bis(2-Chloroethyl)Ether	1100	U
95-57-8	2-Chlorophenol	1100	U
541-73-1	1,3-Dichlorobenzene	1100	U
106-46-7	1,4-Dichlorobenzene	1100	U
100-51-6	Benzyl Alcohol	1100	U
95-50-1	1,2-Dichlorobenzene	1100	U
95-48-7	2-Methylphenol	1100	U
108-60-1	bis(2-Chloroisopropyl)Ether	1100	U
106-44-5	4-Methylphenol	1100	U
621-64-7	N-Nitroso-Di-n-Propylamine	1100	U
67-72-1	Hexachloroethane	1100	U
98-95-3	Nitrobenzene	1100	U
78-59-1	Isophorone	1100	U
88-75-5	2-Nitrophenol	1100	U
105-67-9	2,4-Dimethylphenol	1100	U
65-85-0	Benzoic Acid	5200	U
111-91-1	bis(2-Chloroethoxy)Methane	1100	U
120-83-2	2,4-Dichlorophenol	1100	U
120-82-1	1,2,4-Trichlorobenzene	1100	U
91-20-3	Naphthalene	1100	U
106-47-8	4-Chloroaniline	1100	U
87-68-3	Hexachlorobutadiene	1100	U
59-50-7	4-Chloro-3-Methylphenol	1100	U
91-57-6	2-Methylnaphthalene	1100	U
77-47-4	Hexachlorocyclopentadiene	1100	U
88-06-2	2,4,6-Trichlorophenol	1100	U
95-95-4	2,4,5-Trichlorophenol	5200	U
91-58-7	2-Chloronaphthalene	1100	U
88-74-4	2-Nitroaniline	5200	U
131-11-3	Dimethyl Phthalate	1100	U
208-96-8	Acenaphthylene	1100	U
606-20-2	2,6-Dinitrotoluene	1100	U

15651 • 2 - 210-06

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT35

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871320

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2288

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	5200	U
83-32-9	Acenaphthene	1100	U
51-28-5	2,4-Dinitrophenol	5200	U
100-02-7	4-Nitrophenol	5200	U
132-64-9	Dibenzofuran	1100	U
121-14-2	2,4-Dinitrotoluene	1100	U
84-66-2	Diethylphthalate	1100	U
7005-72-3	4-Chlorophenyl-phenylether	1100	U
86-73-7	Fluorene	1100	U
100-01-6	4-Nitroaniline	5200	U
534-52-1	4,6-Dinitro-2-Methylphenol	5200	U
86-30-6	N-Nitrosodiphenylamine (1)	1100	U
101-55-3	4-Bromophenyl-phenylether	1100	U
118-74-1	Hexachlorobenzene	1100	U
87-86-5	Pentachlorophenol	5200	U
85-01-8	Phenanthrene	1100	U
120-12-7	Anthracene	1100	U
84-74-2	Di-n-Butylphthalate	1100	U
206-44-0	Fluoranthene	1100	U
129-00-0	Pyrene	1100	U
85-68-7	Butylbenzylphthalate	1100	U
91-94-1	3,3'-Dichlorobenzidine	2200	U
56-55-3	Benzo(a)Anthracene	1100	U
218-01-9	Chrysene	1100	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1100	U
117-84-0	Di-n-Octyl Phthalate	1100	U
205-99-2	Benzo(b)Fluoranthene	1100	U
207-08-9	Benzo(k)Fluoranthene	1100	U
50-32-8	Benzo(a)Pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)Pyrene	1100	U
53-70-3	Dibenz(a,h)Anthracene	1100	U
191-24-2	Benzo(g,h,i)Perylene	1100	U

(1) - Cannot be separated from Diphenylamine

15651 • 2 - 211-03

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT35

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871320

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2288

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. ____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.0

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	4.32	28000	~~BJ~~ R
2.		C9H20 Hydrocarbon	4.47	1300	~~BJ~~ R
3.		C9H20 Hydrocarbon	4.57	1400	~~BJ~~ R
4.		C9H20 Hydrocarbon	4.68	1200	~~BJ~~ R
5.		Unknown Ketone or Ester	5.42	580	~~BJ~~ R
6.		C9H20 Hydrocarbon	5.67	1900	J N
7.	4436753	3-Hexene-2,5-dione	5.95	1700	~~BJ~~ R
8.		C9H20 Hydrocarbon	6.68	1900	~~BJ~~ R
9.		C9H20 Hydrocarbon	7.67	1700	J N
10.		Unknown	22.19	520	J
11.		Unknown Hydrocarbon	26.19	1500	J
12.		Unknown Hydrocarbon	26.94	570	J
13.		Unknown Hydrocarbon	27.27	2900	J
14.		Unknown Hydrocarbon	27.71	4300	J
15.		Unknown Hydrocarbon	29.56	1600	J N

15851·2-210-07

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT36

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871321

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2289

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 38 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1100	U
111-44-4	bis(2-Chloroethyl)Ether	1100	U
95-57-8	2-Chlorophenol	1100	U
541-73-1	1,3-Dichlorobenzene	1100	U
106-46-7	1,4-Dichlorobenzene	1100	U
100-51-6	Benzyl Alcohol	1100	U
95-50-1	1,2-Dichlorobenzene	1100	U
95-48-7	2-Methylphenol	1100	U
108-60-1	bis(2-Chloroisopropyl)Ether	1100	U
106-44-5	4-Methylphenol	1100	U
621-64-7	N-Nitroso-Di-n-Propylamine	1100	U
67-72-1	Hexachloroethane	1100	U
98-95-3	Nitrobenzene	1100	U
78-59-1	Isophorone	1100	U
88-75-5	2-Nitrophenol	1100	U
105-67-9	2,4-Dimethylphenol	1100	U
65-85-0	Benzoic Acid	5200	U
111-91-1	bis(2-Chloroethoxy)Methane	1100	U
120-83-2	2,4-Dichlorophenol	1100	U
120-82-1	1,2,4-Trichlorobenzene	1100	U
91-20-3	Naphthalene	1100	U
106-47-8	4-Chloroaniline	1100	U
87-68-3	Hexachlorobutadiene	1100	U
59-50-7	4-Chloro-3-Methylphenol	1100	U
91-57-6	2-Methylnaphthalene	1100	U
77-47-4	Hexachlorocyclopentadiene	1100	U
88-06-2	2,4,6-Trichlorophenol	1100	U
95-95-4	2,4,5-Trichlorophenol	5200	U
91-58-7	2-Chloronaphthalene	1100	U
88-74-4	2-Nitroaniline	5200	U
131-11-3	Dimethyl Phthalate	1100	U
208-96-8	Acenaphthylene	1100	U
606-20-2	2,6-Dinitrotoluene	1100	U

15651 · 2-210-08

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT36

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871321

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2289

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 38 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	5200	U
83-32-9	Acenaphthene	1100	U
51-28-5	2,4-Dinitrophenol	5200	U
100-02-7	4-Nitrophenol	5200	U
132-64-9	Dibenzofuran	1100	U
121-14-2	2,4-Dinitrotoluene	1100	U
84-66-2	Diethylphthalate	1100	U
7005-72-3	4-Chlorophenyl-phenylether	1100	U
86-73-7	Fluorene	1100	U
100-01-6	4-Nitroaniline	5200	U
534-52-1	4,6-Dinitro-2-Methylphenol	5200	U
86-30-6	N-Nitrosodiphenylamine (1)	1100	U
101-55-3	4-Bromophenyl-phenylether	1100	U
118-74-1	Hexachlorobenzene	1100	U
87-86-5	Pentachlorophenol	5200	U
85-01-8	Phenanthrene	1100	U
120-12-7	Anthracene	1100	U
84-74-2	Di-n-Butylphthalate	1100	U
206-44-0	Fluoranthene	1100	U
129-00-0	Pyrene	1100	U
85-68-7	Butylbenzylphthalate	1100	U
91-94-1	3,3'-Dichlorobenzidine	2100	U
56-55-3	Benzo(a)Anthracene	1100	U
218-01-9	Chrysene	1100	U
117-81-7	bis(2-Ethylhexyl)Phthalate	1100	U
117-84-0	Di-n-Octyl Phthalate	1100	U
205-99-2	Benzo(b)Fluoranthene	1100	U
207-08-9	Benzo(k)Fluoranthene	1100	U
50-32-8	Benzo(a)Pyrene	1100	U
193-39-5	Indeno(1,2,3-cd)Pyrene	1100	U
53-70-3	Dibenz(a,h)Anthracene	1100	U
191-24-2	Benzo(g,h,i)Perylene	1100	U

(1) - Cannot be separated from Diphenylamine

15651 · 2 - 211-04

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT36

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871321

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2289

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 38 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.0

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	4.28	23000	~~ABJ~~ JR
2.		C9H20 Hydrocarbon	4.47	940	~~BJ~~ JR
3.		C9H20 Hydrocarbon	4.55	850	~~BJ~~ JR
4.		C9H20 Hydrocarbon	4.67	650	~~BJ~~ JR
5.		Unknown Ketone or Ester	5.40	450	~~BJ~~ JR
6.		C9H20 Hydrocarbon	5.63	1500	JN
7.	4436753	3-Hexene-2,5-dione	5.93	1500	~~BJ~~ JR
8.		C9H20 Hydrocarbon	6.68	940	~~BJ~~ JR
9.		C9H20 Hydrocarbon	7.63	1100	JN
10.		Unknown Hydrocarbon	26.19	490	J
11.		Unknown	27.26	2300	J
12.		Unknown Hydrocarbon	27.71	1800	J
13.		Unknown Hydrocarbon	29.56	1000	JN

15651 · 2 - 210-09

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT37

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871322

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2290

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 19 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	810	U
111-44-4	bis(2-Chloroethyl)Ether	810	U
95-57-8	2-Chlorophenol	810	U
541-73-1	1,3-Dichlorobenzene	810	U
106-46-7	1,4-Dichlorobenzene	810	U
100-51-6	Benzyl Alcohol	810	U
95-50-1	1,2-Dichlorobenzene	810	U
95-48-7	2-Methylphenol	810	U
108-60-1	bis(2-Chloroisopropyl)Ether	810	U
106-44-5	4-Methylphenol	810	U
621-64-7	N-Nitroso-Di-n-Propylamine	810	U
67-72-1	Hexachloroethane	810	U
98-95-3	Nitrobenzene	810	U
78-59-1	Isophorone	810	U
88-75-5	2-Nitrophenol	810	U
105-67-9	2,4-Dimethylphenol	810	U
65-85-0	Benzoic Acid	4000	U
111-91-1	bis(2-Chloroethoxy)Methane	810	U
120-83-2	2,4-Dichlorophenol	810	U
120-82-1	1,2,4-Trichlorobenzene	810	U
91-20-3	Naphthalene	810	U
106-47-8	4-Chloroaniline	810	U
87-68-3	Hexachlorobutadiene	810	U
59-50-7	4-Chloro-3-Methylphenol	810	U
91-57-6	2-Methylnaphthalene	810	U
77-47-4	Hexachlorocyclopentadiene	810	U
88-06-2	2,4,6-Trichlorophenol	810	U
95-95-4	2,4,5-Trichlorophenol	4000	U
91-58-7	2-Chloronaphthalene	810	U
88-74-4	2-Nitroaniline	4000	U
131-11-3	Dimethyl Phthalate	810	U
208-96-8	Acenaphthylene	810	U
606-20-2	2,6-Dinitrotoluene	810	U

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT37

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871322

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2290

Level: (low/med) LOW Date Received: 01/18/91

Moisture: not dec. 19 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4000	U
83-32-9	Acenaphthene	810	U
51-28-5	2,4-Dinitrophenol	4000	U
100-02-7	4-Nitrophenol	4000	U
132-64-9	Dibenzofuran	810	U
121-14-2	2,4-Dinitrotoluene	810	U
84-66-2	Diethylphthalate	810	U
7005-72-3	4-Chlorophenyl-phenylether	810	U
86-73-7	Fluorene	810	U
100-01-6	4-Nitroaniline	4000	U
534-52-1	4,6-Dinitro-2-Methylphenol	4000	U
86-30-6	N-Nitrosodiphenylamine (1)	810	U
101-55-3	4-Bromophenyl-phenylether	810	U
118-74-1	Hexachlorobenzene	810	U
87-86-5	Pentachlorophenol	4000	U
85-01-8	Phenanthrene	810	U
120-12-7	Anthracene	810	U
84-74-2	Di-n-Butylphthalate	810	U
206-44-0	Fluoranthene	810	U
129-00-0	Pyrene	810	U
85-68-7	Butylbenzylphthalate	810	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
56-55-3	Benzo(a)Anthracene	810	U
218-01-9	Chrysene	810	U
117-81-7	bis(2-Ethylhexyl)Phthalate	810	U
117-84-0	Di-n-Octyl Phthalate	810	U
205-99-2	Benzo(b)Fluoranthene	810	U
207-08-9	Benzo(k)Fluoranthene	810	U
50-32-8	Benzo(a)Pyrene	810	U
193-39-5	Indeno(1,2,3-cd)Pyrene	810	U
53-70-3	Dibenz(a,h)Anthracene	810	U
191-24-2	Benzo(g,h,i)Perylene	810	U

(1) - Cannot be separated from Diphenylamine

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BFT37

Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871322

Sample wt/vol: 30.0 (g/mL) G Lab File ID: F2290

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 19 dec. _____ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.0

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123422	4-Hydroxy-4-methyl-2-pentano	4.32	20000	~~ABJ~~ R
2.		C9H20 Hydrocarbon	4.50	1100	~~BJ~~ R
3.		C9H20 Hydrocarbon	4.58	1100	~~BJ~~ R
4.		C9H20 Hydrocarbon	4.68	900	~~BJ~~ R
5.		Unknown Ketone or Ester	5.42	470	~~BJ~~ R
6.		C9H20 Hydrocarbon	5.63	1500	J N
7.	4436753	3-Hexene-2,5-dione	5.95	1400	~~BJ~~ R
8.		C9H20 Hydrocarbon	6.70	1200	~~BJ~~ R
9.		C9H20 Hydrocarbon	7.65	940	J N
10.	10544500	Sulfur, mol. (S8) (8CI9CI)	20.92	2600	J
11.		Unknown Hydrocarbon	26.94	420	J
12.		Unknown	27.24	400	J
13.		Unknown Hydrocarbon	27.71	820	J
14.		Unknown Hydrocarbon	29.56	730	J N

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1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

BFT40

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871326

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F2302

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. _____ dec. _____ Date Extracted: 01/16/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	50	U
95-95-4	2,4,5-Trichlorophenol	10	U
91-58-7	2-Chloronaphthalene	50	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

15651·2-210-16

EPA SAMPLE NO.

1C

VOLATILE ORGANICS ANALYSIS DATA SHEET

BFT40

Lab: CLAYTON NOVI

Contract: 68-D9-0035

Client: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871326

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F2302

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. ____ dec. ____ Date Extracted: 01/16/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

15651·2-211-08

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BFT40

Lab: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871326

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F2302

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. _____ dec. _____ Date Extracted: 01/16/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/24/91

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Xylene	4.63	10	J ✓
2.	C10H22 Hydrocarbon	6.80	9.8	J ✓

R. Mack

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT41

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871329

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F2441

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. _____ dec. _____ Date Extracted: 02/05/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 02/06/91

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U J
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U J

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT41

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871329

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F2441

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. _____ dec. _____ Date Extracted: 02/05/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 02/06/91

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
99-09-2	3-Nitroaniline	50	U	J
83-32-9	Acenaphthene	10	U	
51-28-5	2,4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	
534-52-1	4,6-Dinitro-2-Methylphenol	50	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	50	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	10	U	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	20	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	J

(1) - Cannot be separated from Diphenylamine

15651·2-211-09

EPA SAMPLE NO.

BFT41

ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: NAVY Contract: 68-D9-0035

Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871329

Sample wt/vol: 1000 (g/mL) ML Lab File ID: F2441

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. _____ dec. _____ Date Extracted: 02/05/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 02/06/91

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.0

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT38

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871323

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	26	U
319-85-7	beta-BHC	26	U
319-86-8	delta-BHC	26	U
58-89-9	Lindane	26	U
76-44-8	Heptachlor	26	U
309-00-2	Aldrin	26	U
1024-57-3	Heptachlor epoxide	26	U
959-98-8	Endosulfan I	26	U
60-57-1	Dieldrin	52	U
72-55-9	4,4'-DDE	52	U
72-20-8	Endrin	52	U
33213-65-9	Endosulfan II	52	U
72-54-8	4,4'-DDD	52	U
1031-07-8	Endosulfan sulfate	52	U
50-29-3	4,4'-DDT	52	U
72-43-5	Methoxychlor	260	U
53494-70-5	Endrin ketone	52	U
5103-71-9	alpha-Chlordane	260	U
5103-74-2	gamma-Chlordane	260	U
8001-35-2	Toxaphene	520	U
12674-11-2	Aroclor-1016	260	U
11104-28-2	Aroclor-1221	260	U
11141-16-5	Aroclor-1232	260	U
53469-21-9	Aroclor-1242	260	U
12672-29-6	Aroclor-1248	260	U
11097-69-1	Aroclor-1254	520	U
11096-82-5	Aroclor-1260	520	U

RH 02/04/91

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT39

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871324

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 3 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	16	U
319-85-7	beta-BHC	16	U
319-86-8	delta-BHC	16	U
58-89-9	Lindane	16	U
76-44-8	Heptachlor	16	U
309-00-2	Aldrin	16	U
1024-57-3	Heptachlor epoxide	16	U
959-98-8	Endosulfan I	16	U
60-57-1	Dieldrin	33	U
72-55-9	4,4'-DDE	33	U
72-20-8	Endrin	33	U
33213-65-9	Endosulfan II	33	U
72-54-8	4,4'-DDD	33	U
1031-07-8	Endosulfan sulfate	33	U
50-29-3	4,4'-DDT	33	U
72-43-5	Methoxychlor	160	U
53494-70-5	Endrin ketone	33	U
5103-71-9	alpha-Chlordane	160	U
5103-74-2	gamma-Chlordane	160	U
8001-35-2	Toxaphene	330	U
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	330	U
11096-82-5	Aroclor-1260	330	U

– RW 02/04/91

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT32

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871317

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 6 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	Lindane	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	34	U
72-55-9	4,4'-DDE	34	U
72-20-8	Endrin	34	U
33213-65-9	Endosulfan II	34	U
72-54-8	4,4'-DDD	34	U
1031-07-8	Endosulfan sulfate	34	U
50-29-3	4,4'-DDT	34	U
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	34	U
5103-71-9	alpha-Chlordane	170	U
5103-74-2	gamma-Chlordane	170	U
8001-35-2	Toxaphene	340	U
12674-11-2	Aroclor-1016	170	U
11104-28-2	Aroclor-1221	170	U
11141-16-5	Aroclor-1232	170	U
53469-21-9	Aroclor-1242	170	U
12672-29-6	Aroclor-1248	170	U
11097-69-1	Aroclor-1254	340	U
11096-82-5	Aroclor-1260	340	U

- RH02-04-91

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT33

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871319

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 21 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20	U
319-85-7	beta-BHC	20	U
319-86-8	delta-BHC	20	U
58-89-9	Lindane	20	U
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	41	U
72-55-9	4,4'-DDE	41	U
72-20-8	Endrin	41	U
33213-65-9	Endosulfan II	41	U
72-54-8	4,4'-DDD	41	U
1031-07-8	Endosulfan sulfate	41	U
50-29-3	4,4'-DDT	41	U
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	41	U
5103-71-9	alpha-Chlordane	200	U
5103-74-2	gamma-Chlordane	200	U
8001-35-2	Toxaphene	410	U
12674-11-2	Aroclor-1016	200	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	200	U
12672-29-6	Aroclor-1248	200	U
11097-69-1	Aroclor-1254	410	U
11096-82-5	Aroclor-1260	410	U

- RH 02/04/91

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT35

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871320

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 39 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	26	U
319-85-7	beta-BHC	26	U
319-86-8	delta-BHC	26	U
58-89-9	Lindane	26	U
76-44-8	Heptachlor	26	U
309-00-2	Aldrin	26	U
1024-57-3	Heptachlor epoxide	26	U
959-98-8	Endosulfan I	26	U
60-57-1	Dieldrin	26	U
72-55-9	4,4'-DDE	52	U
72-20-8	Endrin	52	U
33213-65-9	Endosulfan II	52	U
72-54-8	4,4'-DDD	52	U
1031-07-8	Endosulfan sulfate	52	U
50-29-3	4,4'-DDT	52	U
72-43-5	Methoxychlor	52	U
53494-70-5	Endrin ketone	260	U
5103-71-9	alpha-Chlordane	52	U
5103-74-2	gamma-Chlordane	260	U
8001-35-2	Toxaphene	260	U
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	260	U
11141-16-5	Aroclor-1232	260	U
53469-21-9	Aroclor-1242	260	U
12672-29-6	Aroclor-1248	260	U
11097-69-1	Aroclor-1254	260	U
11096-82-5	Aroclor-1260	520	U

- RH 02-04-91

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT36

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871321

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 38 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	26	U
319-85-7	beta-BHC	26	U
319-86-8	delta-BHC	26	U
58-89-9	Lindane	26	U
76-44-8	Heptachlor	26	U
309-00-2	Aldrin	26	U
1024-57-3	Heptachlor epoxide	26	U
959-98-8	Endosulfan I	26	U
60-57-1	Dieldrin	52	U
72-55-9	4,4'-DDE	52	U
72-20-8	Endrin	52	U
33213-65-9	Endosulfan II	52	U
72-54-8	4,4'-DDD	52	U
1031-07-8	Endosulfan sulfate	52	U
50-29-3	4,4'-DDT	52	U
72-43-5	Methoxychlor	260	U
53494-70-5	Endrin ketone	52	U
5103-71-9	alpha-Chlordane	260	U
5103-74-2	gamma-Chlordane	260	U
8001-35-2	Toxaphene	520	U
12674-11-2	Aroclor-1016	260	U
11104-28-2	Aroclor-1221	260	U
11141-16-5	Aroclor-1232	260	U
53469-21-9	Aroclor-1242	260	U
12672-29-6	Aroclor-1248	260	U
11097-69-1	Aroclor-1254	520	U
11096-82-5	Aroclor-1260	520	U

RH02-04-41

15651 • 2 - 310-05

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT37

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) SOIL Lab Sample ID: 871322

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. 19 dec. __ Date Extracted: 01/15/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20	U
319-85-7	beta-BHC	20	U
319-86-8	delta-BHC	20	U
58-89-9	Lindane	20	U
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'-DDE	40	U
72-20-8	Endrin	40	U
33213-65-9	Endosulfan II	40	U
72-54-8	4,4'-DDD	40	U
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	40	U
72-43-5	Methoxychlor	40	U
53494-70-5	Endrin ketone	200	U
5103-71-9	alpha-Chlordane	40	U
5103-74-2	gamma-Chlordane	200	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	400	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	200	U
12672-29-6	Aroclor-1248	200	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	400	U
		400	U

CRH 02-04-91

15651 · 2 - 310-08

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT40

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871326

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. __ dec. __ Date Extracted: 01/14/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

RH 02/04/91

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BFT41

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 15651 SAS No.: _____ SDG No.: BFT32

Matrix: (soil/water) WATER Lab Sample ID: 871328

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 01/12/91

% Moisture: not dec. __ dec. __ Date Extracted: 01/14/91

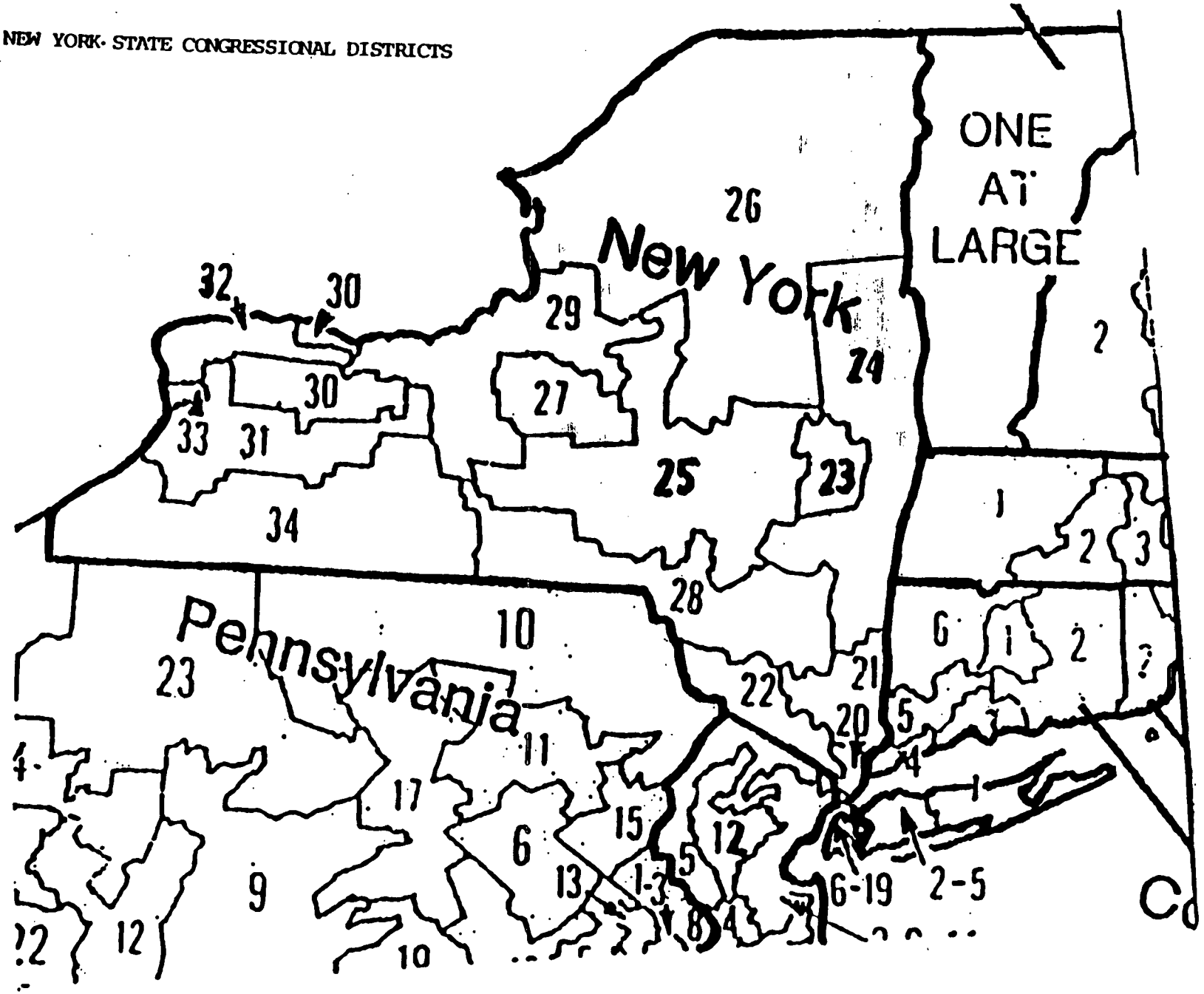
Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/31/91

GPC Cleanup: (Y/N) N pH: 6.5 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

REFERENCE NO. 28

NEW YORK- STATE CONGRESSIONAL DISTRICTS



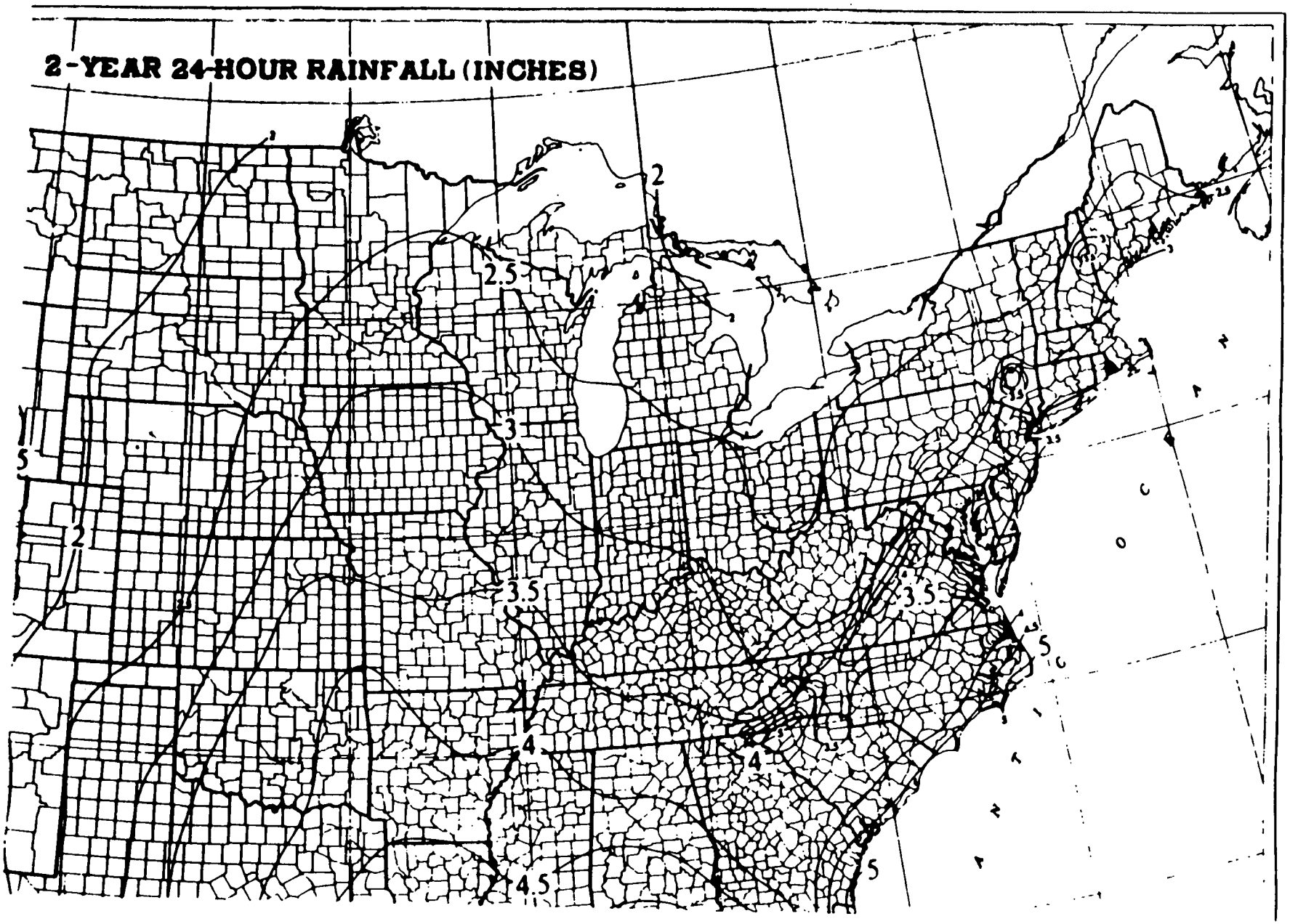
NEW YORK

Congressional District Identification—Continued

Table 1. MUNICIPALITIES—Continued

Municipality	County	Congressional district
[illegible] VILLAGE	NASSAU	3
[illegible] VILLAGE	CATTARAUGUS	34
[illegible] VILLAGE	MONROE	30
[illegible] VILLAGE	NASSAU	4
[illegible] VILLAGE	ONONDAGA	27
[illegible] VILLAGE	NASSAU	3
[illegible] VILLAGE	ST. LAWRENCE	26
[illegible] VILLAGE	GENESEE	30
[illegible] VILLAGE	ONONDAGA	27
[illegible]	ESSEX	26
[illegible] VILLAGE	ULSTER	28
[illegible] VILLAGE	CATTARAUGUS	34
[illegible]	JEFFERSON	26
[illegible] CITY	CHEMUNG	34
[illegible] VILLAGE	CHEMUNG	34
[illegible] VILLAGE	WESTCHESTER	22
[illegible]	BROOME	28
[illegible] VILLAGE	SCHOHARIE	25
[illegible]	JEFFERSON	26
[illegible] VILLAGE	ONONDAGA	27
[illegible] VILLAGE	CAYUGA	29
[illegible] VILLAGE	MONROE	30
[illegible] VILLAGE	CHAUTAUQUA	34
[illegible] VILLAGE	NASSAU	4
[illegible]	ERIE	31
[illegible] VILLAGE	ONONDAGA	27
[illegible]	ALLEGANY	34
[illegible]	DUTCHESS	21
[illegible] VILLAGE	DELAWARE	25
[illegible]	NASSAU	3,5
[illegible]	ORANGE	22
[illegible] VILLAGE	NASSAU	3
[illegible] VILLAGE	MONTGOMERY	25
[illegible] VILLAGE	CHAUTAUQUA	34
[illegible]	WASHINGTON	24
FORT EDWARD VILLAGE	WASHINGTON	24
FORT JOHNSON VILLAGE	MONTGOMERY	25
FORT PLAIN VILLAGE	MONTGOMERY	25
FRANKFORT VILLAGE	HERKIMER	26
FRANKLIN VILLAGE	DELAWARE	25
FRANKLINVILLE VILLAGE	CATTARAUGUS	34
FREDONIA VILLAGE	CHAUTAUQUA	34
FREEPORT VILLAGE	NASSAU	4,5
FREEVILLE VILLAGE	TOMPKINS	25
FULTON CITY	OSWEGO	29
FULTONVILLE VILLAGE	MONTGOMERY	25
GAINESVILLE VILLAGE	WYOMING	31
GALWAY VILLAGE	SARATOGA	24
GARDEN CITY VILLAGE	NASSAU	5
GENESEO VILLAGE	LIVINGSTON	31
GENEVA CITY	ONTARIO	31
	SENECA	29
GILBERTSVILLE VILLAGE	OTSEGO	25
GLEN COVE CITY	NASSAU	3
GLENHAM VILLAGE	JEFFERSON	26
GLENS FALLS CITY	WARREN	24
GLOVERSVILLE CITY	FULTON	26
GOSHEN VILLAGE	ORANGE	22
GOUVERNEUR VILLAGE	ST. LAWRENCE	26
GOWANDA VILLAGE	CATTARAUGUS	31
	ERIE	31
GRAND VIEW-ON-HUDSON VILLAGE	ROCKLAND	22
GRANVILLE VILLAGE	WASHINGTON	24
GREAT NECK VILLAGE	NASSAU	8
GREAT NECK ESTATES VILLAGE	NASSAU	8
GREAT NECK PLAZA VILLAGE	NASSAU	3
GREENE VILLAGE	CHENANGO	25
GREENISLAND VILLAGE	ALBANY	23
GREENPORT VILLAGE	SUFFOLK	1
GREENWICH VILLAGE	WASHINGTON	24
GREENWOOD LAKE VILLAGE	ORANGE	22
GRETON VILLAGE	TOMPKINS	25
HAGAMAN VILLAGE	MONTGOMERY	25
HAMBURG VILLAGE	ERIE	31
HAMILTON VILLAGE	MADISON	27
HAMMOND VILLAGE	ST. LAWRENCE	26
HAMMONDSPORT VILLAGE	STEUBEN	34
HANCOCK VILLAGE	DELAWARE	28
HANNIBAL VILLAGE	OSWEGO	29
HARRIS HILL VILLAGE	ORANGE	22
HARRISON VILLAGE	WESTCHESTER	20
HARRISVILLE VILLAGE	LEWIS	26
HASTINGS-ON-HUDSON VILLAGE	WESTCHESTER	22
HAVERSTRAW VILLAGE	ROCKLAND	22
HEAD OF THE HARBOR VILLAGE	SUFFOLK	1
HEMPSTEAD VILLAGE	NASSAU	5
HERKIMER VILLAGE	HERKIMER	26
HERMON VILLAGE	ST. LAWRENCE	26
HERRINGS VILLAGE	JEFFERSON	26
HEUVELTON VILLAGE	ST. LAWRENCE	26
HEWLETT BAY PARK VILLAGE	NASSAU	5
HEWLETT HARBOR VILLAGE	NASSAU	5
HEWLETT NECK VILLAGE	NASSAU	5
HIGHLAND FALLS VILLAGE	ORANGE	21
HILLBURN VILLAGE	ROCKLAND	22
HILTON VILLAGE	MONROE	30
HOBART VILLAGE	DELAWARE	25
HOLCOMB VILLAGE	ONTARIO	30
HOLLAND PATENT VILLAGE	ONEIDA	25
HOLLEY VILLAGE	ORLEANS	32
HOMER VILLAGE	CORTLAND	25
HONEOYE FALLS VILLAGE	MONROE	30
HOOSICK FALLS VILLAGE	RENSSELAER	24
HORNELL CITY	STEUBEN	34
HORSEHEADS VILLAGE	CHEMUNG	34
HUDSON CITY	COLUMBIA	24
HUDSON FALLS VILLAGE	WASHINGTON	24
HUNTER VILLAGE	GREENE	24
HUNTINGTON BAY VILLAGE	SUFFOLK	3
ILION VILLAGE	HERKIMER	26
INTERLAKEN VILLAGE	SENECA	29
IRVINGTON VILLAGE	WESTCHESTER	22
ISLAND PARK VILLAGE	NASSAU	4
ITHACA CITY	TOMPKINS	28
JAMESTOWN CITY	CHAUTAUQUA	34
JEFFERSONVILLE VILLAGE	SULLIVAN	28
JOHNSON CITY VILLAGE	BROOME	28
JOHNSTOWN CITY	FULTON	26
JORDAN VILLAGE	ONONDAGA	27
KEESEVILLE VILLAGE	CLINTON	26
	ESSEX	26
KENMORE VILLAGE	ERIE	32
KENSINGTON VILLAGE	NASSAU	8
KINDERHOOK VILLAGE	COLUMBIA	24
KINGS POINT VILLAGE	NASSAU	8
KINGSTON CITY	ULSTER	28
KIRYAS JOEL VILLAGE	ORANGE	22
LACKAWANNA CITY	ERIE	33
LACONA VILLAGE	OSWEGO	29
LAKE GEORGE VILLAGE	WARREN	24
LAKE GROVE VILLAGE	SUFFOLK	1
LAKE PLACID VILLAGE	ESSEX	26
LAKE SUCCESS VILLAGE	NASSAU	3
LAKEWOOD VILLAGE	CHAUTAUQUA	34
LANCASTER VILLAGE	ERIE	33
LANSING VILLAGE	TOMPKINS	25
LARCHMONT VILLAGE	WESTCHESTER	20
LATTINGTOWN VILLAGE	NASSAU	3
LAUREL HOLLOW VILLAGE	NASSAU	3
LAURENS VILLAGE	OTSEGO	25
LAWRENCE VILLAGE	NASSAU	5
LEICESTER VILLAGE	LIVINGSTON	31
LE ROY VILLAGE	GENESEE	30
LEWISTON VILLAGE	NIAGARA	32
LIBERTY VILLAGE	SULLIVAN	28
LIMA VILLAGE	LIVINGSTON	30
LIMESTONE VILLAGE	CATTARAUGUS	34
LINDENHURST VILLAGE	SUFFOLK	2
LISLE VILLAGE	BROOME	28
LITTLE FALLS CITY	HERKIMER	26
LITTLE VALLEY VILLAGE	CATTARAUGUS	34
LIVERPOOL VILLAGE	ONONDAGA	27
LIVONIA VILLAGE	LIVINGSTON	31
LLOYD HARBOR VILLAGE	SUFFOLK	3
LOCKPORT CITY	NIAGARA	32
LODI VILLAGE	SENECA	29
LONG BEACH CITY	NASSAU	5
LOWVILLE VILLAGE	LEWIS	26
LYNBROOK VILLAGE	NASSAU	5
LYNDONVILLE VILLAGE	ORLEANS	32

REFERENCE NO. 29


2-YEAR 24-HOUR RAINFALL (INCHES)
2
2.5
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5

REFERENCE NO. 30

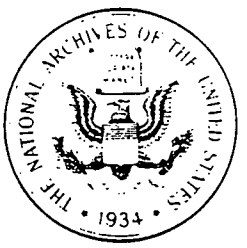
code of federal regulations

Protection of Environment

40

PARTS 100 TO 149

Revised as of July 1, 1986



or specified portions thereof, which waters are located within the boundaries of such State. Such application shall specify with particularly the waters, or portions thereof, for which a complete prohibition is desired. The application shall include identification of water recreational areas, drinking water intakes, aquatic sanctuaries, identifiable fish-spawning and nursery areas, and areas of intensive boating activities. If, on the basis of the State's application and any other information available to him, the Administrator is unable to make a finding that the waters listed in the application require a complete prohibition of any discharge in the waters or portions thereof covered by the application, he shall state the reasons why he cannot make such a finding, and shall deny the application. If the Administrator makes a finding that the waters listed in the application require a complete prohibition of any discharge in all or any part of the waters or portions thereof covered by the State's application, he shall publish notice of such findings together with a notice of proposed rule making, and then shall proceed in accordance with 5 U.S.C. 553. If the Administrator's finding is that applicable water quality standards require a complete prohibition covering a more restricted or more expanded area than that applied for by the State, he shall state the reasons why his finding differs in scope from that requested in the State's application.

(1) For the following waters the discharge from a vessel of any sewage (whether treated or not) is completely prohibited:

Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, as described in 16 U.S.C. 577-577d1.

[41 FR 4453, Jan. 29, 1976, as amended at 42 FR 43837, Aug. 31, 1977]

§ 140.5 Analytical procedures.

In determining the composition and quality of effluent discharge from marine sanitation devices, the procedures contained in 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants," or subsequent revisions or amendments thereto, shall be employed.

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

Subpart A—General

Sec.
141.1 Applicability.
141.2 Definitions.
141.3 Coverage.
141.4 Variances and exemptions.
141.5 Siting requirements.
141.6 Effective dates.

Subpart B—Maximum Contaminant Levels

141.11 Maximum contaminant levels for inorganic chemicals.
141.12 Maximum contaminant levels for organic chemicals.
141.13 Maximum contaminant levels for turbidity.
141.14 Maximum microbiological contaminant levels.
141.15 Maximum contaminant levels for radium-226, radium-228, and gross alpha particle radioactivity in community water systems.
141.16 Maximum contaminant levels for beta particle and photon radioactivity from man-made radionuclides in community water systems.

Subpart C—Monitoring and Analytical Requirements

141.21 Microbiological contaminant sampling and analytical requirements.
141.22 Turbidity sampling and analytical requirements.
141.23 Inorganic chemical sampling and analytical requirements.
141.24 Organic chemicals other than total trihalomethanes, sampling and analytical requirements.
141.25 Analytical methods for radioactivity.
141.26 Monitoring frequency for radioactivity in community water systems.
141.27 Alternative analytical techniques.
141.28 Approved laboratories.
141.29 Monitoring of consecutive public water systems.
141.30 Total trihalomethanes sampling, analytical and other requirements.
APPENDIX A—SUMMARY OF PUBLIC COMMENTS AND EPA RESPONSES ON PROPOSED AMENDMENTS TO THE NATIONAL INTERIM PRIMARY DRINKING WATER REGULATIONS FOR CONTROL OF TRIHALOMETHANES IN DRINKING WATER
APPENDIX B—SUMMARY OF MAJOR COMMENTS (FOR RESPONSES, SEE APPENDIX A)

Sec.
APPENDIX C—ANALYSIS OF TRIHALOMETHANES

Subpart D—Reporting, Public Notification and Recordkeeping

141.31 Reporting requirements.
141.32 Public notification.
141.33 Record maintenance.

Subpart E—Special Monitoring Regulations for Organic Chemicals and Otherwise Unregulated Contaminants

141.40 Special monitoring for organic chemicals.
141.41 Special monitoring for sodium.
141.42 Special monitoring for corrosivity characteristics.

Subpart F—Recommended Maximum Contaminant Levels

141.50 Recommended maximum contaminant levels for organic contaminants.
141.51 Recommended maximum contaminant levels for inorganic contaminants.

Subpart G—National Revised Primary Drinking Water Regulations: Maximum Contaminant Levels

141.60 Effective dates.
141.61 [Reserved]
141.62 Maximum Contaminant Levels for Inorganic Contaminants.

AUTHORITY: 42 U.S.C. 300g-1, 300g-3, 300j-4, and 300j-9.

SOURCE: 40 FR 59570, Dec. 24, 1975, unless otherwise noted.

NOTE: For community water systems serving 75,000 or more persons, monitoring must begin 1 year following promulation and the effective date of the MCL is 2 years following promulgation. For community water systems serving 10,000 to 75,000 persons, monitoring must begin within 3 years from the date of promulgation and the effective date of the MCL is 4 years from the date of promulgation. Effective immediately, systems that plan to make significant modifications to their treatment processes for the purpose of complying with the TTHM MCL are required to seek and obtain State approval of their treatment modification plans. This note affects §§ 141.2, 141.6, 141.12, 141.24 and 141.30. For additional information see 44 FR 68641, Nov. 29, 1979.

Subpart A—General

§ 141.1 Applicability.

This part establishes primary drinking water regulations pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Pub. L. 93-523); and related regulations applicable to public water systems.

§ 141.2 Definitions.

As used in this part, the term:

(a) "Act" means the Public Health Service Act, as amended by the Safe Drinking Water Act, Pub. L. 93-523.

(b) "Contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

(c) "Maximum contaminant level" means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.

(d) "Person" means an individual, corporation, company, association, partnership, State, municipality, or Federal agency.

(e) "Public water system" means a system for the provision to the public of piped water for human consumption, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. Such term includes (1) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a "community water system" or a "noncommunity water system."

(i) "Community water system" means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

(ii) "Non-community water system" means a public water system that is not a community water system.

(f) "Sanitary survey" means an onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

(g) "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

(h) "State" means the agency of the State government which has jurisdiction over public water systems. During any period when a State does not have primary enforcement responsibility pursuant to section 1413 of the Act, the term "State" means the Regional Administrator, U.S. Environmental Protection Agency.

(i) "Supplier of water" means any person who owns or operates a public water system.

(j) "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

(k) "Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem (mrem)" is 1/1000 of a rem.

(l) "Picocurie (pCi)" means the quantity of radioactive material producing 2.22 nuclear transformations per minute.

(m) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

(n) "Man-made beta particle and photon emitters" means all radionuclides emitting beta particles and/or photons listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238.

(o) "Gross boat particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

(p) "Halogen" means one of the chemical elements chlorine, bromine or iodine.

(q) "Trihalomethane" (THM) means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(r) "Total trihalomethanes" (TTHM) means the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane and tribromomethane [bromoform]), rounded to two significant figures.

(s) "Maximum Total Trihalomethane Potential (MTP)" means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after 7 days at a temperature of 25° C or above.

(t) "Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

(u) "Recommended maximum contaminant level" or "RMCL" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which includes an adequate margin of safety. Recommended maximum contaminant levels are nonenforceable health goals.

(v) "Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the Agency. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

[40 FR 59570, Dec. 24, 1975, as amended at 41 FR 28403, July 9, 1976; 44 FR 68641, Nov. 29, 1979; 50 FR 46900, Nov. 13, 1985; 51 FR 11410, Apr. 2, 1986]

§ 141.3 Coverage.

This part shall apply to each public water system, unless the public water system meets all of the following conditions:

(a) Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

(b) Obtains all of its water from, but is not owned or operated by, a public water system to which such regulations apply:

(c) Does not sell water to any person; and

(d) Is not a carrier which conveys passengers in interstate commerce.

§ 141.4 Variances and exemptions.

Variances or exemptions from certain provisions of these regulations may be granted pursuant to sections 1415 and 1416 of the Act by the entity with primary enforcement responsibility. Provisions under Part 142, *National Interim Primary Drinking Water Regulations Implementation*—Subpart E (Variances) and Subpart F (Exemptions)—apply where EPA has primary enforcement responsibility.

§ 141.5 Siting requirements.

Before a person may enter into a financial commitment for or initiate construction of a new public water system or increase the capacity of an existing public water system, he shall notify the State and, to the extent practicable, avoid locating part or all of the new or expanded facility at a site which:

(a) Is subject to a significant risk from earthquakes, floods, fires or other disasters which could cause a breakdown of the public water system or a portion thereof; or

(b) Except for intake structures, is within the floodplain of a 100-year flood or is lower than any recorded high tide where appropriate records exist. The U.S. Environmental Protection Agency will not seek to override land use decisions affecting public water systems siting which are made at the State or local government levels.

§ 141.6 Effective dates.

(a) Except as provided in paragraph (b) of this section, the regulations set forth in this part shall take effect on June 24, 1977.

(b) The regulations for total trihalomethanes set forth in § 141.12(c) shall take effect 2 years after the date of promulgation of these regulations for community water systems serving 75,000 or more individuals, and 4 years after the date of promulgation for communities serving 10,000 to 74,999 individuals.

(c) The regulations set forth in §§ 141.11 (a), (d) and (e); 141.14(a)(1); 141.14(b)(1)(i); 141.14(b)(2)(i); 141.14(d); 141.21 (a), (c) and (i); 141.22 (a) and (e); 141.23 (a)(3) and (a)(4); 141.23(f); 141.24(a)(3); 141.24 (e) and (f); 141.25(e); 141.27(a); 141.28 (a) and (b); 141.31 (a), (d) and (e); 141.32(b)(3); and 141.32(d) shall take effect immediately upon promulgation.

(d) The regulations set forth in § 141.41 shall take effect 18 months from the date of promulgation. Suppliers must complete the first round of sampling and reporting within 12 months following the effective date.

(e) The regulations set forth in § 141.42 shall take effect 18 months from the date of promulgation. All requirements in § 141.42 must be completed within 12 months following the effective date.

(f) The regulations set forth in § 141.11(c) and § 141.23(g) are effective May 2, 1986. Section 141.23(g)(4) is effective October 2, 1987.

[44 FR 68641, Nov. 29, 1979, as amended at 45 FR 57342, Aug. 27, 1980; 47 FR 10998, Mar. 12, 1982; 51 FR 11410, Apr. 2, 1986]

Subpart B—Maximum Contaminant Levels

§ 141.11 Maximum contaminant levels for inorganic chemicals.

(a) The MCL for nitrate is applicable to both community water systems and non-community water systems except as provided by in paragraph (d) of this section. The levels for the other inorganic chemicals apply only to commu-

nity water systems. Compliance with MCLs for inorganic chemicals is calculated pursuant to § 141.23.

(b) The following are the maximum contaminant levels for inorganic chemicals other than fluoride:

Contaminant	Level, milligrams per liter
Arsenic	0.05
Barium	1
Cadmium	0.010
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate (as N)	10
Selenium	0.01
Silver	0.05

(c) The Maximum Contaminant Level for fluoride is 4.0 mg/l. See 40 CFR 143.3, which establishes a Secondary Maximum Contaminant Level at 2.0 mg/l.

(d) At the discretion of the State, nitrate levels not to exceed 20 mg/l may be allowed in a non-community water system if the supplier of water demonstrates to the satisfaction of the State that:

(1) Such water will not be available to children under 6 months of age; and

(2) There will be continuous posting of the fact that nitrate levels exceed 10 mg/l and the potential health effects of exposure; and

(3) Local and State public health authorities will be notified annually of nitrate levels that exceed 10 mg/l; and

(4) No adverse health effects shall result.

[40 FR 59570, Dec. 24, 1975, as amended at 45 FR 57342, Aug. 27, 1980; 47 FR 10998, Mar. 12, 1982; 51 FR 11410, Apr. 2, 1986]

§ 141.12 Maximum contaminant levels for organic chemicals.

The following are the maximum contaminant levels for organic chemicals. The maximum contaminant levels for organic chemicals in paragraphs (a) and (b) of this section apply to all community water systems. Compliance with the maximum contaminant levels in paragraphs (a) and (b) of this section, is calculated pursuant to § 141.24. The maximum comtaminant level for total trihalomethanes in paragraph (c) of this section applies only to community water systems which serve a population of 10,000 or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process. Compliance with the maximum contaminant level for total trihalomethanes is calculated pursuant to § 141.30.

	Level, milligrams per liter
(a) Chlorinated hydrocarbons:	
Endrin (1,2,3,4,10, 10-hexachloro-6, 7-epoxy-1,4, 4a,5,6,7,8,8a-octahydro-1,4-endo, endo-5,8-dimethano naphthalene)	0.0002
Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2, 2-bis [p-methoxyphenyl] ethane)	0.1
Toxaphene ($C_{10}H_{10}Cl_8$-Technical chlorinated camphene, 67-69 percent chlorine)	0.005
(b) Chlorophenoxys:	
2,4-D, (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxypropionic acid)	0.01
(c) Total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform) and trichloromethane (chloroform))	0.10 mg/l.

[40 FR 59570, Dec. 24, 1975, as amended at 44 FR 68641, Nov. 29, 1979]

§ 141.13 Maximum contaminant levels for turbidity.

The maximum contaminant levels for turbidity are applicable to both community water systems and non-community water systems using surface water sources in whole or in part. The maximum contaminant levels for turbidity in drinking water, measured at a representative entry point(s) to the distribution system, are:

(a) One turbidity unit (TU), as determined by a monthly average pursuant to § 141.22, except that five or fewer turbidity units may be allowed if the supplier of water can demonstrate to the State that the higher turbidity does not do any of the following:

(1) Interfere with disinfection;

(2) Prevent maintenance of an effective disinfectant agent throughout the distribution system; or

(3) Interfere with microbiological determinations.

(b) Five turbidity units based on an average for two consecutive days pursuant to § 141.22.

tor or primacy state that issues variances determines that none of the treatment methods identified in § 142.61(a) are available and effective for the system, that system shall be entitled to a variance under the provisions of section 1415(a)(1)(A) of the Act. The Administrator's or primacy state's determination as to the availability and effectiveness of such treatment methods shall be based upon studies by the system and other relevant information. If a system submits information to demonstrate that a treatment method is not available and effective for fluoride control for that system, the Administrator or primacy state shall make a finding whether this information supports a decision that such treatment method is not available and effective for that system before requiring installation and/or use of such treatment method.

(c) Pursuant to § 142.43(c)-(g) or corresponding state regulations, the Administrator or primacy state that issues variances shall issue a schedule of compliance that may require the system being granted the variance to examine the following treatment methods (1) to determine the probability that any of these methods will significantly reduce the level of fluoride for that system, and (2) if such probability exists, to determine whether any of these methods are technically feasible and economically reasonable, and that the fluoride reductions obtained will be commensurate with the costs incurred with the installation and use of such treatment methods for that system:

(1) Modification of lime softening
(2) Alum coagulation
(3) Electrodialysis
(4) Anion exchange resins
(5) Well field management
(6) Alternate source
(7) Regionalization

(d) If the Administrator or primary state that issues variances determines that a treatment method identified in § 142.61(c) or other treatment method is technically feasible, economically reasonable, and will achieve fluoride reductions commensurate with the costs incurred with the installation and/or use of such treatment method for the system, the Administrator or primacy state shall require the system to install and/or use that treatment method in connection with a compliance schedule issued under the provisions of section 1415(a)(1)(A) of the Act. The Administrator's or primacy state's determination shall be based upon studies by the system and other relevant information.

[51 FR 11411, Apr. 2, 1986]

PART 143—NATIONAL SECONDARY DRINKING WATER REGULATIONS

Sec.
143.1 Purpose.
143.2 Definitions.
143.3 Secondary maximum contaminant levels.
143.4 Monitoring.
143.5 Compliance with secondary maximum contaminant level and public notification for fluoride.

AUTHORITY: 42 U.S.C. 300g-1(c), 300j-4, and 300j-9.

SOURCE: 44 FR 42198, July 19, 1979, unless otherwise noted.

§ 143.1 Purpose.

This part establishes National Secondary Drinking Water Regulations pursuant to section 1412 of the Safe Drinking Water Act, as amended (42 U.S.C. 300g-1). These regulations control contaminants in drinking water that primarily affect the aesthetic qualities relating to the public acceptance of drinking water. At considerably higher concentrations of these contaminants, health implications may also exist as well as aesthetic degradation. The regulations are not Federally enforceable but are intended as guidelines for the States.

§ 143.2 Definitions.

(a) "Act" means the Safe Drinking Water Act as amended (42 U.S.C. 300f *et seq.*).

(b) "Contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

(c) "Public water system" means a system for the provision to the public of piped water for human consumption, if such a system has at least fifteen service connections or regularly serves an average of at least twenty-

five individuals daily at least 60 days out of the year. Such term includes (1) any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (2) any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a "community water system" or a "non-community water system."

(d) "State" means the agency of the State government which has jurisdiction over public water systems.

(e) "Supplier of water" means any person who owns or operates a public water system.

(f) "Secondary maximum contaminant levels" means SMCLs which apply to public water systems and which, in the judgement of the Administrator, are requisite to protect the public welfare. The SMCL means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of public water system. Contamimants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.

§ 143.3 Secondary maximum contaminant levels.

The secondary maximum contaminant levels for public water systems are as follows:

Contaminant	Level
Chloride	250 mg/l.
Color	15 color units.
Copper	1 mg/l.
Corrosivity	Noncorrosive.
Fluoride	2.0 mg/l.
Foaming agents	0.5 mg/l.
Iron	0.3 mg/l.
Manganese	0.05 mg/l.
Odor	3 threshold odor number.
pH	6.5–8.5.
Sulfate	250 mg/l.
Total dissolved solids (TDS)	500 mg/l.
Zinc	5 mg/l.

These levels represent reasonable goals for drinking water quality. The States may establish higher or lower levels which may be appropriate dependent upon local conditions such as unavailability of alternate source waters or other compelling factors, provided that public health and welfare are not adversely affected.

[44 FR 42198, July 19, 1979, as amended at 51 FR 11412, Apr. 2, 1986]

§ 143.4 Monitoring.

(a) It is recommended that the parameters in these regulations should be monitored at intervals no less frequent than the monitoring performed for inorganic chemical contaminants listed in the National Interim Primary Drinking Water Regulations as applicable to community water systems. More frequent monitoring would be appropriate for specific parameters such as pH, color, odor or others under certain circumstances as directed by the State.

(b) Analyses conducted to determine compliance with § 143.3 should be made in accordance with the following methods:

(1) Chloride—Potentiometric Method, "Standard Methods for the Examination of Water and Wastewater," 14th Edition, p. 306.

(2) Color—Platinum-Cobalt Method, "Methods for Chemical Analysis of Water and Wastes," p. 36-38, EPA, Office of Technology Transfer, Washington, DC, 20460, 1974, or "Standard Methods for the Examination of Water and Wastewater," 13th Edition, pp. 160-162, 14th Edition, p. 64-66.

(3) Copper—Atomic Adsorption Method, "Methods for Chemical Analysis of Water and Wastes", pp. 108-109, EPA, Office of Technology Transfer, Washington, DC, 20460, 1974, or "Standard Methods for the Examination of Water and Wastewater," 13th Edition, pp. 210-215, 14th Edition, p. 144-147.

(4) Foaming Agents—Methylene Blue Method, "Methods for Chemical Analysis of Water and Wastes," pp. 157-158, EPA, Office of Technology Transfer, Washington, DC, 20460, 1974, or "Standard Methods for the Examination of Water and Wastewater," 13th Edition, pp. 339-342, 14th Edition, p. 600.

REFERENCE NO. 31

NUS CORPORATION AND SUBSIDIARIES — **TELECON NOTE**

CONTROL NO.:	DATE:	TIME:
	April 26, 1991	1320

DISTRIBUTION:

Lancaster Sanitary Landfill 02-9007-18

BETWEEN:	OF:	PHONE:
Ms. Jennifer Collier, Manager	Lancaster Speedway	(716) 759-6818

AND:

Jen Jessop (NUS)

DISCUSSION:

I contacted her office to determine the number of full-time employees working at the speedway.

Ms. Collier informed me that there are only 2 full-time employees at the speedway. The two people work at the speedway office. She also added that there is an office used outside of the speedway in the winter time.

ACTION ITEMS:

NUS 067 REVISED 0685

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Scoresheets

DRAFT

NOV 06 1990

Site Name: Lancaster SLF 4

Date: 4/15/91

GENERAL INFORMATION (continued)

Source Descriptions:

The Lancaster SLF site was formerly a gravel pit before landfilling began. Approximately 100 acres were initially apportioned for landfilling purposes. However, an additional 80 acres were added at a later date. Therefore, the total landfilled area of the site prior to closure in 1986 is approximately 180 acres. Only domestic and commercial wastes were reportedly accepted at the landfill. However, the landfill accepted industrial wastes from 13 or more companies in the northern Erie County area from 1961 to 1969. Industrial wastes reportedly deposited in the landfill comprised of oil sludge, waste oil, fly ash, waste ink, chlorinated solvents, filtration sludge, and PCB containing capacitors. Drummed chemical wastes were also deposited in the landfill.

Waste Characteristics (WC) Calculations:

(See PA Table 1, page 5)

- The total landfilled area of the site: **180 acres**

PA Table 1 shows that a landfilled area of **180 acres** has a **WC** of **32.**

WC = 32

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DRAFT

Site Name: Lancaster SLF 5
Date: 4/15/91

NOV 06 1990

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	*WC = 32*	*WC = 100*	Formula for Assigning Source WQ Values
CONSTITUENT	N/A	≤100 lbs	>100 to 10,000 lbs	>10,000 lbs	*lbs ÷ 1*
WASTESTREAM	N/A	≤500,000 lbs	>500,000 to 50 million lbs	>50 million lbs	*lbs ÷ 5,000*
VOLUME	Landfill	≤6.75 million ft³ ≤250,000 yd³	>6.75 million ft³ to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	*ft³ ÷ 67,500* *yd³ ÷ 2,500*
	Surface impoundment	≤6,750 ft³ ≤250 yd³	>6,750 ft³ to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	*ft³ ÷ 67.5* *yd³ ÷ 2.5*
	Drums	≤1,000 drums	>1,000 to 100,000 drums	>100,000 drums	*drums ÷ 10*
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons	>5 million gallons	*gallons ÷ 500*
	Contaminated soil	≤6.75 million ft³ ≤250,000 yd³	>6.75 million ft³ to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	*ft³ ÷ 67,500* *yd³ ÷ 2,500*
	Pile	≤6,750 ft³ ≤250 yd³	>6,750 ft³ to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	*ft³ ÷ 67.5* *yd³ ÷ 2.5*
AREA	Landfill	≤340,000 ft² ≤7.8 acres	>340,000 to 34 million ft² >7.8 to 780 acres	>34 million ft² >780 acres	*ft² ÷ 3,400* *acres ÷ 0.078*
	Surface impoundment	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	*ft² ÷ 13* *acres ÷ 0.00029*
	Contaminated soil	≤3.4 million ft² ≤78 acres	>3.4 million to 340 million ft² >78 to 7,800 acres	>340 million ft² >7,800 acres	*ft² ÷ 34,000* *acres ÷ 0.78*
	Pile*	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	*ft² ÷ 13* *acres ÷ 0.00029*
	Land treatment	≤27,000 ft² ≤0.62 acres	>27,000 to 2.7 million ft² >0.62 to 62 acres	>2.7 million ft² >62 acres	*ft² ÷ 270* *acres ÷ 0.0062*

1 ton = 2,000 lbs = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WQ Total	*WC Score*
>0 to 100	18
>100 to 10,000	32
>10,000	100

Site Name: Lancaster SLF
Date: 4/15/91

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics		
Do you suspect a release (see Ground Water Pathway Criteria List, page 7)?	Yes ✓	No ___
Is the site located in karst terrain?	Yes ✓	No ___
Depth to aquifer:	0 ft	
Distance to the nearest drinking-water well:	unknown ft	

LIKELIHOOD OF RELEASE

	A Suspected Release	B No Suspected Release	References
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 7), assign a score of 550, and use only column A for this pathway.	550		1
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			—
LR =	550		

TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you suspect have been exposed to hazardous substances from the site (see Ground Water Pathway Criteria List, page 7). ___ people x 10 =	0		8
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you do NOT suspect have been exposed to hazardous substances from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes ___ No ✓ If yes, attach a page to show apportionment calculations.	10		9
5. NEAREST WELL: If you have identified any Primary Targets for ground water, assign a score of 50; otherwise, assign the highest Nearest Well score from PA Table 2. If no drinking-water wells exist within 4 miles, assign a score of zero.	20		9
6. WELLHEAD PROTECTION AREA (WHPA): Assign a score of 20 if any portion of a designated WHPA is within ¼ mile of the site; assign 5 if from ¼ to 4 miles.	20		.3
7. RESOURCES: A score of 5 is assigned.	5	5	
T =	55		

WASTE CHARACTERISTICS

8. A. If you have identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		
B. If you have NOT identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4.	32	
WC =	32	

GROUND WATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82{,}500} = 11.73$$

LANCASTER SLF

Site Name:
Date: 4/15/91

NOV 03 1992

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PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	Population Value
0 to ¼ mile		20	1	2	5	16	52	163	521	1,633	5,214	16,325	
> ¼ to ½ mile		18	1	1	3	10	32	101	323	1,012	3,233	10,121	
> ½ to 1 mile		9	1	1	2	5	17	52	167	522	1,668	5,224	
> 1 to 2 miles		5	1	1	1	3	9	29	94	294	939	2,938	
> 2 to 3 miles		3	1	1	1	2	7	21	68	212	678	2,122	
> 3 to 4 miles		2	1	1	1	1	4	13	42	131	417	1,306	
Nearest Well =												Score =	

PA Table 2b: Karst Aquifers

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	Population Value
0 to ¼ mile	Ø	20	1	2	5	16	52	163	521	1,633	5,214	16,325	Ø
> ¼ to ½ mile	Ø	20	1	1	3	10	32	101	323	1,012	3,233	10,121	Ø
> ½ to 1 mile	24	(20)	1	(1)	3	8	26	82	261	816	2,607	8,162	1
> 1 to 2 miles	57	20	1	1	(3)	8	26	82	261	816	2,607	8,162	3
> 2 to 3 miles	81	20	1	1	(3)	8	26	82	261	816	2,607	8,162	3
> 3 to 4 miles	51	20	1	1	(3)	8	26	82	261	816	2,607	8,162	3
Nearest Well =	20											Score =	10

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NOV 06 1990

Site Name: Lancaster SLF

Date: 4/15/91

12

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Surface Water Pathway Criteria List, page 11)?	Yes ✓ No ___
Distance to surface water:	3,700 ft
Flood Frequency:	N/A yrs
What is the downstream distance to the nearest drinking-water intake?	N/A miles
nearest fishery? 0.7 miles	nearest sensitive environment? 0.0 miles

LIKELIHOOD OF RELEASE

	A Suspected Release	B No Suspected Release	References
1. SUSPECTED RELEASE: If you suspect a release to surface water (see page 11), assign a score of 550, and use only column A for this pathway.	[illegible]	[illegible]	
2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water, and the distance to surface water is 2,500 feet or less, assign a score of 500; otherwise, assign a score from the table below. Use only column B for this pathway.	[illegible]	[illegible] 100	11, 14
LR =	[illegible]	[illegible] 100	

Floodplain	Score
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100 ←

DRINKING WATER THREAT TARGETS

3. Determine the water body types, flows (if applicable), and number of people served by all drinking-water intakes within the 15-mile target distance limit. If there are no drinking-water intakes within the target distance limit, assign a total Targets score of 5 at the bottom of this page (Resources only) and proceed to page 14.

Intake Name	Water Body Type	Flow	People Served
NONE		___ cfs	
		___ cfs	
		___ cfs	

4. PRIMARY TARGET POPULATION: If you suspect any drinking-water intake listed above has been exposed to hazardous substances from the site (see Surface Water Pathway Criteria List, page 11), list the intake name(s) and calculate the factor score based on the number of people served.

___, ___

___ people x 10 =

5. SECONDARY TARGET POPULATION: Determine the Secondary Target Population score from PA Table 3 based on the populations using drinking-water from intakes that you do NOT suspect have been exposed to hazardous substances from the site.

Are any intakes part of a blended system? Yes ___ No ___
If yes, attach a page to show apportionment calculations.

6. NEAREST INTAKE: If you have identified any Primary Targets for the drinking water threat (Factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking-water intake exists within the 15-mile target distance limit, assign a score of zero.

7. RESOURCES: A score of 5 is assigned.

	A	B	References
	[illegible]	[illegible] —	—
		—	—
	[illegible]	[illegible] —	16
	(5) 5	(5) 5	
T =		5	

Site Name: Lancaster SLF
Date: 4/15/91

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow Characteristics (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
< 10 cfs	_____	20	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	_____
10 to 100 cfs	_____	2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	_____
> 100 to 1,000 cfs	_____	1	0	0	1	1	2	5	16	52	163	521	1,633	_____
> 1,000 to 10,000 cfs	_____	0	0	0	0	0	1	1	2	5	16	52	163	_____
> 10,000 cfs or Great Lakes	_____	0	0	0	0	0	0	0	1	1	2	5	16	_____
3-mile Mixing Zone	_____	10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,663	_____
Nearest Intake =		Ø											Score =	Ø

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body			Dilution Weight
Water Body Type	OR	Flow Characteristics	
minimal stream		flow less than 10 cfs	1
small to moderate stream		flow 10 to 100 cfs	0.1
moderate to large stream		flow greater than 100 to 1,000 cfs	N/A
large stream to river		flow greater than 1,000 to 10,000 cfs	N/A
large river		flow greater than 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers		flow 10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes		N/A	N/A

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	References
Enter the Surface Water Likelihood of Release score from page 12.	LR =		100	

HUMAN FOOD CHAIN THREAT TARGETS

8. Determine the water body types and flows (if applicable) for all fisheries within the 15-mile target distance limit. If there are no fisheries within the target distance limit, assign a Targets score of 0 at the bottom of this page and proceed to page 15.

Fishery Name	Water Body Type	Flow		References
RANSOM CREEK	small to Moderate	10-100	cfs	17
TONAWANDA CREEK	Moderate to Large	100-1000	cfs	
			cfs	
			cfs	
			cfs	

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the Primary Fisheries:

_____, _____,

_____, _____.

—

10. SECONDARY FISHERIES: If you have not identified any Primary Fisheries, assign a Secondary Fisheries score from the table below using the LOWEST flow at any fishery within the 15-mile target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30 ←
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

30

17

	T =		30

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET

LIKELIHOOD OF RELEASE

		A Suspected Release	B No Suspected Release	References
Enter the Surface Water Likelihood of Release score from page 12.	LR =		100	

ENVIRONMENTAL THREAT TARGETS

11. Determine the water body types and flows (if applicable) for all surface water sensitive environments within the 15-mile target distance limit (see PA Tables 4 and 5). If there are no sensitive environments within the 15-mile target distance limit, assign a Targets score of 0 at the bottom of this page, and proceed to page 17.

Environment Name	Water Body Type	Flow
Tillman Road Wildlife Management Area	Minimal Stream	<10 cfs
Wetland (Ramapo Creek & Tomahawanda Creek)	Small to Moderate	10-100 cfs
		cfs
		cfs
		cfs

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 13. List the Primary Sensitive Environments:

_____, _____,

_____, _____.

13. SECONDARY SENSITIVE ENVIRONMENTS:

A. For Secondary Sensitive Environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Dilution Weight (PA Table 4)		Environment Type and Value (PA Tables 5 and 6)		Total
<10 cfs	1	x	STATE LAND DESIGNATED FOR WILDLIFE MANAGEMENT 25	=	25
10 - 100 cfs	0.1	x	WETLANDS* 500	=	50
cfs		x		=	
cfs		x		=	
cfs		x		=	

* >30 miles & wetland frontage

Sum = 75

B. If NO Secondary Sensitive Environments are located on surface water bodies with flows of 100 cfs or less, assign a score of 10.

	A	B	References
			18
			18
		75	18
		—	
T =		75	

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Site Name: Lancaster SLF
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PA TABLE 5: SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

Sensitive Environment	Assigned Value
Critical habitat for Federally designated endangered or threatened species Marine Sanctuary National Park Designated Federal Wilderness Area Ecologically important areas identified under the Coastal Zone Wilderness Act Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes) National Monument National Seashore Recreation Area National Lakeshore Recreation Area	100
Habitat known to be used by Federally designated or proposed endangered or threatened species National Preserve National or State Wildlife Refuge Unit of Coastal Barrier Resources System Federal land designated for the protection of natural ecosystems Administratively Proposed Federal Wilderness Area Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay or estuary Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding National river reach designated as recreational	75
Habitat known to be used by State designated endangered or threatened species Habitat known to be used by a species under review as to its Federal endangered or threatened status Coastal Barrier (partially developed) Federally designated Scenic or Wild River	50
State land designated for wildlife or game management State designated Scenic or Wild River State designated Natural Area Particular areas, relatively small in size, important to maintenance of unique biotic communities	25
State designated areas for the protection/maintenance of aquatic life under the Clean Water Act	5
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA TABLE 6: SURFACE WATER WETLANDS FRONTAGE VALUES

Total Length of Wetlands	Assigned Value
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

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Site Name: Lancaster SLF

Date: 4/15/91

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	A *Suspected Release*	B *No Suspected Release*
14. A. If you have identified ANY Primary Targets for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	(100 or 32)	
B. If you have NOT identified any Primary Targets for surface water, assign the waste characteristics score calculated on page 4.	(100,32, or 18)	(100,32, or 18) 32
WC =		32

SURFACE WATER PATHWAY THREAT SCORES

Threat	*Likelihood of Release (LR) Score (from page 12)*	*Targets (T) Score*	*Pathway Waste Characteristics (WC) Score (determined above)*	*Threat Score LR x T x WC / 82,500* (rounded to a minimum of 1.00)
Drinking Water	100	5	32	0.19
Human Food Chain	100	30	32	1.16
Environmental	100	75	32	2.91

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

(rounded to a maximum of 100) 4.26

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Site Name: Lancaster SLF

Date: 4/15/91

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics	
Do any people live on or within 200 ft of areas of suspected contamination?	Yes ___ No ✓
Do any people attend school or day care on or within 200 ft of areas of suspected contamination?	Yes ___ No ✓
Is the facility active? Yes ✓ No ___ If yes, estimate the number of workers: 10	

LIKELIHOOD OF EXPOSURE		A Suspected Contamination	B No Suspected Contamination	References
1. SUSPECTED CONTAMINATION: Surficial contamination is assumed. A score of 550 is assigned.	LE =	550		—

RESIDENT POPULATION THREAT TARGETS

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18). ___ people x 10 =		0		20
3. RESIDENT INDIVIDUAL: If you have identified any Resident Population (Factor 2), assign a score of 50; otherwise, assign a score of 0.		0		20
4. WORKERS: Assign a score from the following table based on the total number of workers at the facility and nearby facilities with suspected contamination:		10		21
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value from PA Table 7 for each terrestrial sensitive environment that is located on an area of suspected contamination:	Sum =	25		22
6. RESOURCES: A score of 5 is assigned.		5		
	T =	40		

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10 ←
>1,000	15

Terrestrial Sensitive Environment Type	Value
Tillman Road Wildlife Management Area	25

WASTE CHARACTERISTICS

7. Assign the waste characteristics score calculated on page 4.	WC =	32

RESIDENT POPULATION THREAT SCORE: $\frac{LE \times T \times WC}{82,500}$ = 8.53

NEARBY POPULATION THREAT SCORE: *Assign a score of 2* = 2

SOIL EXPOSURE PATHWAY SCORE: Resident Population Threat + Nearby Population Threat = 10.53

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Date: 4/15/91

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PA TABLE 7: SOIL EXPOSURE PATHWAY
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

Terrestrial Sensitive Environment	*Assigned Value*
Terrestrial critical habitat for Federally designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federally designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

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Site Name: Lancaster SLF
Date: 4/15/91

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AIR PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Air Pathway Criteria List, page 21)?	Yes ___ No ✓
Distance to the nearest individual:	0.0 ft

	A Suspected Release	B No Suspected Release	References
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550, and use only column A for this pathway.	[illegible]	[illegible]	
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500, and use only column B for this pathway.	[illegible]	500	23
LR =		500	
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a release of hazardous substances through the air (see Air Pathway Criteria List, page 21). ___ people x 10 =		[illegible]	—
4. SECONDARY TARGET POPULATION: Determine the number of people within the 4-mile target distance limit, and assign the total population score from PA Table 8.		11	24
5. NEAREST INDIVIDUAL: If you have identified any Primary Targets for the air pathway, assign a score of 50; otherwise, assign the highest Nearest Individual score from PA Table 8.	[illegible]	20	21
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from air hazardous substances (see Air Pathway Criteria List, page 21).		[illegible]	
Sensitive Environment Type / Value: ___ / ___			
___ / ___			
Sum =			—
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.		2.14	.25
8. RESOURCES: A score of 5 is assigned.	5	5	
T =		38.14	
WASTE CHARACTERISTICS			
9. A. If you have identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	[illegible]	[illegible]	
B. If you have NOT identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4.	[illegible]	32	
WC =		32	

AIR PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ = 7.40

Site Name: LANCASTER, SLF
Date: 4/15/91

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	Population Value
Onsite	10	(20)	(1)	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	1
>0 to ¼ mile	114	20	1	1	1	(4)	13	41	130	408	1,303	4,081	13,034	40,811	4
>¼ to ½ mile	0	2	0	0	1	1	3	9	28	88	282	882	2,815	8,815	0
>½ to 1 mile	1201	1	0	0	0	1	1	(3)	8	26	83	261	834	2,612	3
>1 to 2 miles	129	0	0	0	0	0	1	1	3	8	27	83	266	833	0
>2 to 3 miles	8263	0	0	0	0	0	1	1	(1)	4	12	38	120	376	1
>3 to 4 miles	16191	0	0	0	0	0	0	1	1	(2)	7	23	73	229	2

Nearest Individual = 20

Score = 11

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value from PA Table 8 or 9	Product
Onsite	0.10	x	
		x	
0-1/4 mi	0.025	x 25 WILDLIFE MANAGEMENT AREA	0.625
		x 39 WETLANDS	0.975
		x	
1/4-1/2mi	0.0054	x 25 WILDLIFE MANAGEMENT AREA	0.135
		x 75 WETLANDS	0.405
		x	
		x	

Total Environments Score = 2.14

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Site Name: LANCASTER SLF 24
Date: 4/15/91

SITE SCORE CALCULATION

	S	S^2
GROUND WATER PATHWAY SCORE (S_{gw}):	11.73	137.59
SURFACE WATER PATHWAY SCORE (S_{sw}):	4.26	18.15
SOIL EXPOSURE PATHWAY SCORE (S_{se}):	10.53	110.88
AIR PATHWAY SCORE (S_a):	7.40	54.76
SITE SCORE: $\sqrt{\frac{321.38}{4}}$ $\sqrt{80.35}$	$\sqrt{\frac{S_{gw}^2+S_{sw}^2+S_{se}^2+S_a^2}{4}}$ =	8.96