EPA WORK ASSIGNMENT NO: 076-2JZZ
EPA CONTRACT NO: 68-W8-0110
FOSTER WHEELER ENVIRONMENTAL CORPORATION
ARCS II PROGRAM

FINAL
SITE INSPECTION PRIORITIZATION (SIP)
PEERLESS TUBE CORPORATION SITE
BLOOMFIELD
ESSEX COUNTY, NEW JERSEY
CERCLIS NO: NJD002171122

AUGUST 1995

VOLUME I OF II

NOTICE

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FOSTER WHEELER ENVIRONMENTAL CORPORATION

August 16, 1995
ARCSII-95-076-1281

Ms. Catherine E. Moyik
Work Assignment Manager
US Environmental Protection Agency
18th Floor
290 Broadway
New York, New York 10007

SUBJECT: ARC II PROGRAM - EPA CONTRACT NO 68-W8-0110
WORK ASSIGNMENT NO. 076-2JZZ - PREREMEDIAL INVESTIGATIONS
SITE INSPECTION PRIORITIZATION (SIP) REPORT
PEERLESS TUBE CORPORATION SITE

Dear Ms. Moyik:

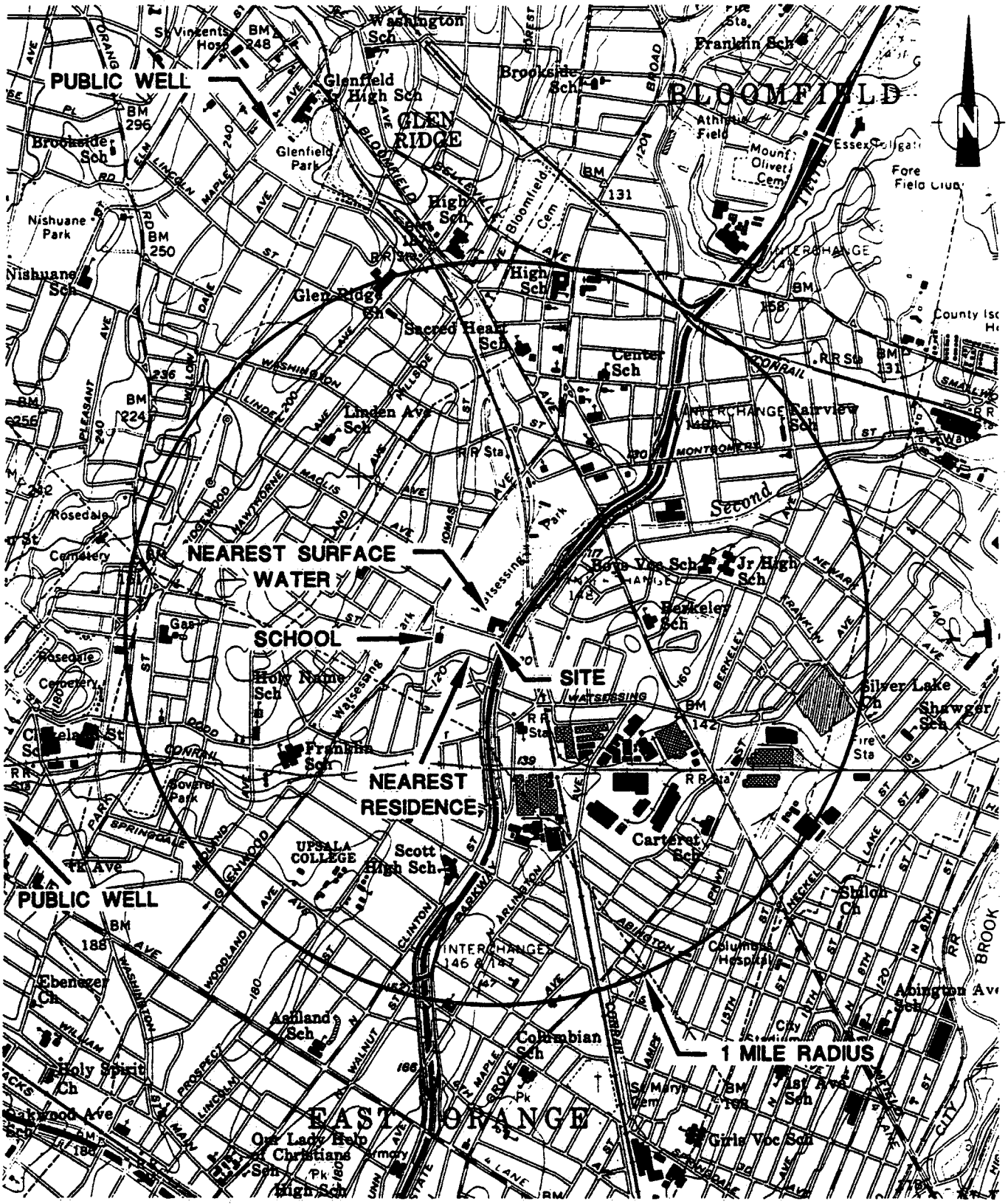
The following is a summary of the Site Inspection Prioritization (SIP) evaluation of the Peerless Tube Corporation site, CERCLIS No. NJD002171122 located at 58-76 Locust Street, Bloomfield, Essex County, New Jersey. This evaluation is based upon the Revised Hazard Ranking System Final Rule (Ref. 1; Ref. 2).

General Description and Site History

The 4-acre Peerless Tube Corporation (PTC) site contains an active aerosol can and squeeze tube manufacturing facility consisting of three buildings which cover approximately 75 percent of the site. Figure 1 indicates the general site location and Figure 2 provides a detailed site sketch. The site is divided into two sections by Locust Avenue: the northern section, bounded north and west by Watsessing Park is occupied by one building; and the southern section, bounded on the west by a parking lot and south by Willow Street, is occupied by two buildings. The south side of Willow Street is occupied by private houses (Ref. 7, p. 1 of 1). The two sections are bounded on the east by the John F. Kennedy Drive, which runs parallel to the adjacent Garden State Parkway. The site is also close to the Wigwam Brook (in Watsessing Park), a small stream which flows 1,200 feet northeast before joining the Second River. The area within 4 miles is primarily urban with a total of 541,487 residents present. More than 33,000 residents are located within 1 mile (Ref. 8, pp. 3 and 4 of 4).

Peerless Tube Corporation purchased the original building and land in 1920 (Ref. 9, p. 2 of 27). Information concerning the previous owner was unavailable or unknown. In the late 1950s, PTC acquired Smoke A-Dor, an ashtray manufacturer which was located in the building on the northern section of the present site area (Ref. 9, p. 2 of 27). In 1970, PTC acquired the Raja Razor Company, a razor blade manufacturer, formerly located in the building next door on the

8 PEACH TREE HILL ROAD, LIVINGSTON, NJ 07039
TEL: 201-597-7000 FAX: 201-597-7025

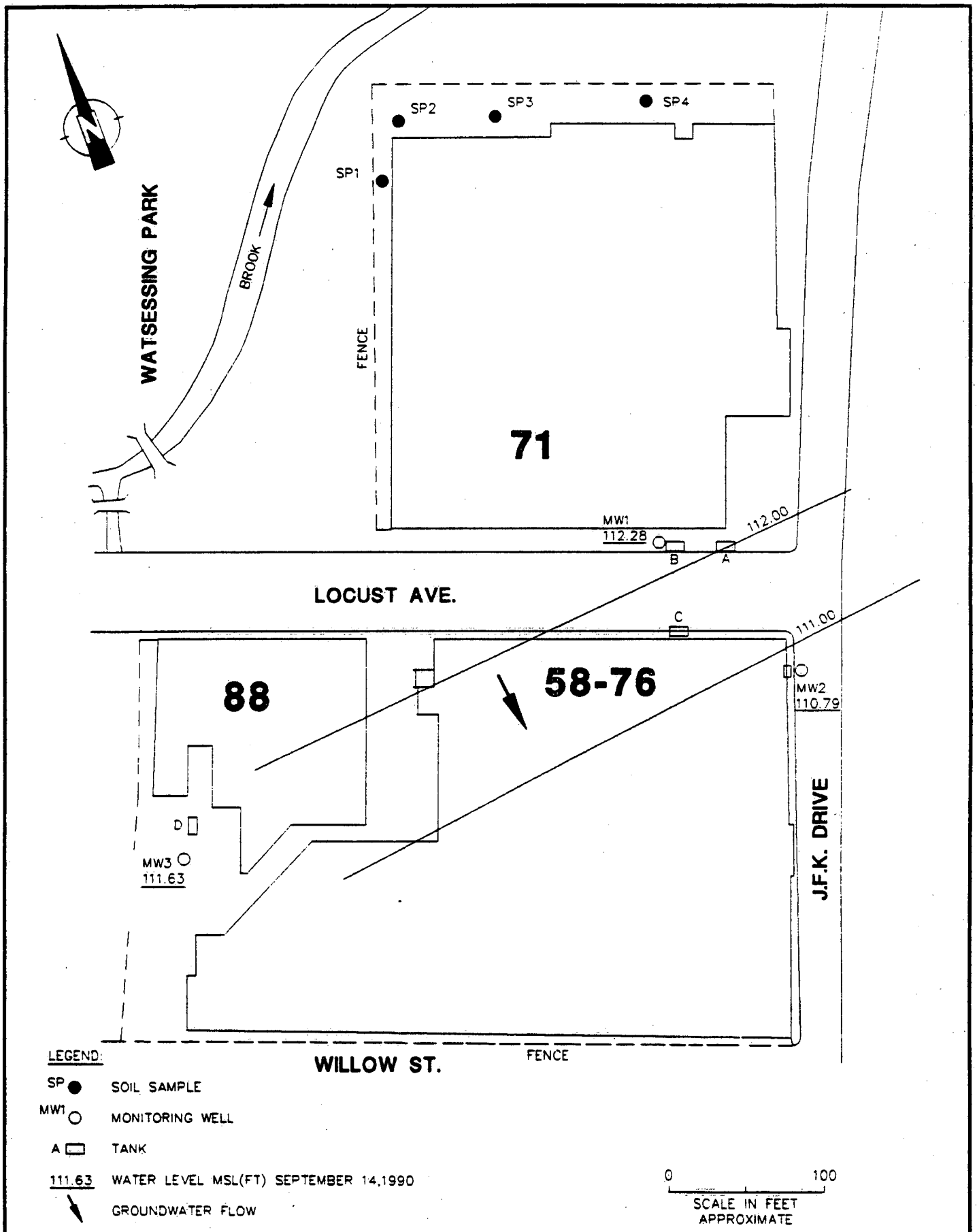


EBASCO
EBASCO SERVICES
ENVIRONMENTAL DIVISION

SOURCE:
U.S.G.S. ORANGE, QUADRANGLE, N.J.
7.5 MINUTE SERIES (TOPOGRAPHIC)

FIGURE 1
SITE MAP

PEERLESS TUBE CO.
BLOOMFIELD, N.J.



EBASCO
EBASCO SERVICES
ENVIRONMENTAL DIVISION

SOURCE:
CITY OF BLOOMFIELD TAX MAP REF 7
WATER LEVEL FROM
METCALF & EDDY DICAR
REPORT REF. 16

FIGURE 2.
SITE SKETCH

PEERLESS TUBE CO.
BLOOMFIELD, N.J.

western portion of the present site area (Ref. 9, p. 2 of 27). Years of operation for both acquired companies are unknown (Ref. 9, p. 2 of 27).

According to a Generator Information Report, the wastes presently generated by the facility consist of paint (6 to 7 drums/month), trichloroethene (6 to 12 drums/month), oil from a compressor, and a mixture of paint and chlorinated solvents (15 to 18 drums/month) (Ref. 10, p. 3 of 3).

The waste is presently placed in up to 250 55-gallon drums on a concrete storage pad located indoors. All hazardous wastes are maintained on site less than 90 days and are removed by Safety-Kleen of Linden, New Jersey (Ref. 11, pp. 1 and 3 of 3). Before 1989, PTC maintained four underground storage tanks to store fuel oil (Ref. 9, p. 3 of 27). A fifth tank (designated as Tank B on Fig. 2) was used to store fuel until 1984, when it was emptied, cleaned and changed in service to the storage of trichloroethene. Between 1986 and 1989, a 3,000-gallon fuel tank, a 10,800-gallon fuel tank, and a 1,500-gallon heating oil tank were excavated and removed (Ref. 12, p. 2 of 4; Ref. 13, p. 4 of 11). Another fuel oil tank with a 20,000-gallon capacity was removed from service permanently and underwent New Jersey Department of Environmental Protection (NJDEP) specified abandonment procedures (Ref. 13, p. 3 of 11). The only reported contamination from post removal sampling was low concentrations of total petroleum hydrocarbons (TPHC) (Ref. 14, p. 2 of 8). The same procedure was also used to remove from service the 10,200-gallon trichloroethene (TCE) tank (Ref. 13, p. 4 of 11). During the abandonment, TCE contamination was reported in soil samples collected around the tank (Ref. 14, pp. 3 and 5 of 8). Three monitoring wells were installed to determine if the potential groundwater contamination resulted from the TCE storage tank (Ref. 15, p. 1 of 1). Sampling and analyses of the groundwater show TCE contamination to be present in the downgradient sample (Ref. 16, pp. 11 and 12 of 13; Ref. 17, pp. 12, 14, 16, and 18 of 84).

Other alleged spills or releases of hazardous materials were reported, but none were substantiated or supported during the following investigations. In May 1985, an Incident Report Claim reported that lacquer and thinner were deliberately dumped in a pit behind the plant (Ref. 18, pp. 1 and 2 of 2). The case was closed due to lack of evidence (Ref. 19, pp. 1 and 2 of 2). A preliminary assessment conducted by Malcolm Pirnie Co. in 1986 confirmed the lack of evidence (Ref. 20, p. 1 of 8). On September 1986, a white substance was observed in the Wigwam Brook downstream of the site (Ref. 21, p. 1 of 1). An investigation conducted by the NJDEP Division of Waste Management failed to locate the source of the discharge (Ref. 22, p. 1 of 1).

In 1990-1991, a site inspection was performed by the NJDEP that included a review of existing data, sampling of soil and groundwater, and analyses and qualification review. Chlorinated contaminants including TCE were found in groundwater and in surface soil samples (Ref. 17, pp. 9, 12, 14, 16, 18 of 84).

Evaluation of Existing Information

The NJDEP Site Inspection (SI) Report was used to complete an initial evaluation of the site. Of the various series of chemical analyses of soil and water performed during the 1985 preliminary assessment, the 1989 UST closure, the followup groundwater investigation, and the SI, only the sampling and analyses performed by NJDEP during the SI included the appropriate

quality assurance review (Ref. 9, pp. 8 through 27 of 27; Ref. 17, pp. 85 through 129 of 129). Other results were used for screening information.

Hazard Assessment

Additional and more current information and data were collected to determine the need for CERCLA remedial action. They include the 4-mile radius population distribution, wetland and sensitive environment information, and a detailed study of the population served by public and private wells.

Waste Source Description

Two sources of contamination were defined on site: Source 1, the underground storage tank B (or UST B); and Source 2, the area of contaminated soil located on the northern portion of the site.

Underground Storage Tank

Between 1984 and 1989, when it was decommissioned, UST "B" contained TCE used as a degreaser by PTC (Ref. 13, p. 4 of 11). During the tank closure, soil samples collected at a depth of 5 feet indicated TCE contamination in the soil borings drilled north and south of the tank (Ref. 13, p. 9 of 11; Ref. 14, pp. 3 and 5 of 8). TCE and 1,2-dichloroethene were also detected in the groundwater collected in two of the three installed monitoring wells (Ref. 16, pp. 11 and 12 of 13). The tank was abandoned in place after vacuum cleaning and filling with bankrun material. The capacity of the tank was 10,200 gallons.

Subsequently, the water sampling and analyses performed by NJDEP indicated a TCE concentration of 130 ppb in the groundwater collected in the monitoring well (MW-1) located within 10 feet of UST "B" (Figure 2, Ref. 17, p. 14 of 129). This concentration is significantly higher than the TCE concentration of 28 ppb detected in the monitoring well (MW-3) installed approximately 355 feet of UST "B" (Ref. 17, p. 18 of 129).

Contaminated Soil

An incident of waste material dumping (Ref. 18, pp. 1 and 2 of 2) was reported in the northern section of the site, although it was not confirmed by visual inspection at the time (Ref. 19, pp. 1 and 2 of 2; Ref. 20, pp. 1 and 5 of 8). Surface soil samples were collected during the SI in the same area (Ref. 9, pp. 10 and 16 through 20 of 27). TCE (17,000 ppb) and 1,2-dichloroethene (47,000 ppb), were found at sample location SP-2 (or Soil-2) and TCE (11,000 ppb) and tetrachloroethene (37,000 ppb) at sample location SP-4 (or Soil-4) (Figure 2, Ref. 17, pp. 7, 12 of 129). These concentrations are significantly higher than the concentration found at background sample location SP-1 (or Soil-1), which is located on the west side of the northern building area (Figure 2, Ref. 17, p. 5 of 129).

Groundwater Pathway

Essex County is in the Triassic Lowland of the Piedmont Province. The unconsolidated Glacial Drift sediments of the Pleistocene age mantle the bedrock throughout the county. Its substratum is made of the rock of the Brunswick Formation, which forms the main source of groundwater in Essex County. The Brunswick Formation is intersected by various systems of joints and fractures allowing the water to move vertically as well as horizontally (Ref. 24, pp. 5 through 11 of 30).

Hydraulic conductivity was estimated to be 10^{-2} cm/sec for the Glacial Drift Aquifer and 2×10^{-3} cm/sec for the Brunswick Formation (Ref. 25, p. 1 of 3). There is no documentation of an intermediate layer with a hydraulic conductivity greater than 2 orders of magnitude between the two aquifers that extends radially greater than 2 miles from site. Therefore, the aquifers are considered interconnected. A wellhead protection area has not been defined within four miles of the site (Ref. 35, p. 1 of 1).

Water samples were collected in the monitoring wells screened to 15 feet below grade. Within the 4-mile distance from the site, the majority of the residents are supplied by public systems. The 4-mile radius encompasses 16 towns, which are served by 10 suppliers. Thirteen municipalities derive their potable water supplies from either reservoirs, groundwater sources, or a combination of the two that exist at distances greater than 4 miles and are not associated with the surface water pathway (Ref. 26, pp. 3 through 6, 14, 16 through 26 of 26). Glen Ridge and Montclair share a supply system, and Orange has its own system (Ref. 26, pp. 10 through 13, 15 of 26). The total estimated population served by public wells located within the 4-mile radius is 23,190 (Ref. 26, p. 2 of 26). The total estimated population served by private wells is 363 (Ref. 8, pp. 3 and 4 of 4). There is no drinking water well within the 0.25 mile radius (Ref. 8, pp. 3 and 4 of 4). There is no documented release to a drinking water well which could be related to the site.

Surface Water Pathway

The site topography is flat and bounded with streets which limit the drainage area to the site itself. The 2-year 24-hour rainfall is 3.5 inches (Ref. 4, p. 2 of 2). The site is within the 100-year floodplain, which contains Wigwam Brook (Ref. 27, p. 2 of 2). On June 5,1988 PTC was issued a New Jersey Pollutant Discharge Elimination System (NJPDES) permit to discharge noncontact cooling water and stormwater runoff to Wigwam Brook (Ref. 28, p. 1 of 1). Wigwam Brook joins the Second River at a point 0.23 mile downstream. The Second River discharges to the Passaic River, which runs into Newark Bay (Ref. 5, p. 1 of 1). No drinking water intakes are documented within the 15-mile surface water pathway defined for this evaluation (Ref. 30, pp. 2 through 6 of 6). According to the NJDEP Fish and Game Wildlife Department, there is no data which indicates a fishery to be present in the area, and the rivers are not stocked (Ref. 31, p.1 of 1). Health advisories recommend that fish or shellfish from the Second River, the Passaic River, and Newark Bay should not be consumed; however, people may continue to fish and some probably eat their catch (Ref. 31, p. 1 of 1). Streamflow for the Second River is documented at 18.3 cubic feet per second, and the Passaic River at 1,148 cubic feet per second (upstream of the Dundee Dam) (Ref. 32, p. 1 of 1; Ref. 33, p. 2 of 2).

No wetlands are found along the Second River and the Passaic River. The only observed wetland is 13 miles from the site and has a 0.4-mile frontage on Newark Bay (Ref. 29, p. 1 of 1). Three sensitive environments have been documented for the surface water pathway (Ref. 36, pp. 7 and 8 of 8). The Second River is classified as FW2-NT water (or non-trout water) suitable for the maintenance, migration and propagation of the natural and established biota, primary and secondary contact recreation, industrial and agricultural water supply, and public potable water supply after treatment. The Passaic River segment that lies within the 15-mile pathway and Newark Bay are classified as SE3 waters suitable for secondary contact recreation, maintenance and migration of fish populations, migration of diadramous fish, and maintenance of wildlife or any other reasonable uses (Ref. 36, pp. 1 through 8 of 8).

Soil Pathway

There are no day-care centers or schools within 200 feet of the contaminated soil (Source 2). The nearest school is approximately 457 feet southwest of the contaminated soil, and the nearest residence is located 651 feet to the south (Ref. 7, p. 1 of 1). There are approximately 1,710 residents within 0.25 mile of the site, 6,687 between 0.25 and 0.5 mile, and 25,258 between 0.5 and 1.0 mile (Ref. 8, p. 3 and 4 of 4). The number of on-site workers is approximately 300 (Ref. 3, p. 1 of 1). The northern section of the site is fenced; however, the portion limiting access from Watsessing Park was reported to be damaged (Ref. 20, pp. 6 and 7 of 8). There are no terrestrial sensitive environments documented as being located on or within 200 feet of the areas of observed contamination.

Air Pathway

There is no evidence of a documented release. There are a total of 541,487 residents within four miles of the site: 0.0-0.25 mile, 1,711; 0.25-0.5 mile, 6,687; 0.5-1.0 mile, 25,258; 1.0-2.0 miles, 129,320; 2.0-3.0 miles, 175,405; and 3.0-4.0 miles, 203,106 (Ref. 8, pp. 3 and 4 of 4). The Watsessing Recreation Park is adjacent to the north boundary of the site close to source 2 (Ref. 5, p. 1). Only three wetlands were identified within the 4-mile radius (Ref. 29, p. 1 of 1). The total surface area is less than 10 acres (Ref. 23, p. 1 of 1).

Summary

The existing information and newly collected data are sufficient to evaluate the site. The 4-acre site contains an active facility which manufactures aerosol cans and squeeze tubes. Its activities generate wastes which contain mainly paints and chlorinated organics. Two on-site sources of historical contamination were an out-of-service underground solvent storage tank and an area of contaminated soil located on the northern portion of the site.

Groundwater beneath the site is used on a limited basis within the site vicinity. Although both aquifers found beneath the site are capable of potable water supply, the majority of the population is supplied by ground and surface water sources located outside the 4-mile radius, or at some further considerable distance. There are only 23,553 people being served by drinking water wells within 4 miles of the site. The nearest well is located between 0.25 and 0.5 mile from the site. No contaminant release has been documented to these wells. No wellhead protection area is present within 4 miles of the site.

The surface water pathway includes the Wigwam Brook (adjacent to the site location), the Second River, the Passaic River, and Newark Bay. No release of contamination to any of these waterbodies has been documented. There are no surface water intakes, fisheries, or wetlands located along these waterbodies, except for a small acreage of wetlands adjacent to Newark Bay. Each waterbody (except Wigwam Brook) exhibits a state surface water classification as a sensitive environment. There are no wetlands or sensitive areas on the site property.

Analytical results of surface soil samples indicate contamination exists within two feet of the surface; however, there is no documentation for migration of contaminants from the sampled locations. There are no nearby day-care centers or terrestrial sensitive environments, on or within 200 feet of the contaminated soil. The nearest school and residence are also more than 200 feet away from the site property as well.

An observed release of contaminants via the air has not been documented. Although a total of 541,487 residents live within a 4-mile radius of the site, a low potential for release of contaminants to air from the small contaminated soil areas exists due to the low concentrations of volatile organic compounds found.

Prepared by:

Daniel M. Maitre
Task Leader
Ebasco Services Incorporated

Approved by:

for Dev Sachdev, Ph.D., P.E.
ARCS II Program Manager
Ebasco Services Incorporated

Reviewed by:

for Edgar J. Aguado
Site Manager
Ebasco Services Incorporated

REFERENCES

1. U.S. Environmental Protection Agency (EPA), Hazard Ranking System (HRS), Final Rule, 40 CFR 300, Vol. 55, No. 241, December 14, 1990.

2. U.S. Environmental Protection Agency, Superfund Chemical Data Matrix (SCDM), EPA 9360.4-18, July 1994, as incorporated in the PREscore Software, Version 3.0, Publication 779450.2200, August 1994.

3. Telecon Note: Conversation between W. Molner, Peerless Tube Company, and D. Maitre, Geologist, Ebasco Services Inc. February 27, 1995.

4. U.S. Department of Commerce, Rainfall Frequency Atlas of the U.S. for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 years. May 1961.

5. 4-mile Radius Vicinity Map/Public Water Supply Wellfield Locations, Peerless Tube Company, Bloomfield, Essex County, NJ, compiled from U.S. Dept. of Interior, Geological Survey Topographic Quadrangles; "Caldwell, NJ", 1954 (photorevised 1981); "Elizabeth, NJ, 1967 (photorevised 1981); "Orange, NJ", 1955 (photorevised 1981); "Roselle, NJ", 1955 (photorevised 1981).

6. Calculation Work Sheet. Determination of Latitude and Longitude for the Peerless Tube site. December 3, 1994.

7. Essex County Tax Map. Block 126, 129, and 152. Undated.

8. Letter from R. Frost, Frost Associates, to E. Aguado, Ebasco Services, Inc. November 16, 1994.

9. New Jersey Department of Environmental Protection (NJDEP) (Bureau of Planning and Assessment). Site Inspection, Peerless Tube. August 14, 1991.

10. NJDEP, Division of Hazardous Waste Management. Generator Inspection Report - Peerless Tube. February 1, 1990.

11. NJDEP, Division of Water Resources. Discharge Surveillance Report. December 8, 1989.

12. NJDEP. Incident Notification Report. September 17, 1986.

13. Metcalf and Eddy, Inc. Scope of Work for Closure of Underground Storage Tanks - Peerless Tube Company. March 1990.

14. Analytical Data Report Package, Project No. 89-16327. Peerless Tube sampling data. December 15, 1989.

15. NJDEP. Well Drilling Permit No. 26-21052. June 27, 1990.

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16. Letter from R. Kunze, Project Manager, Metcalf & Eddy, Inc. to NJDEP. October 15, 1990.

17. Analytical Data Report Package, Peerless Tube. January 8, 1991.

18. NJDEP. Incident Report. May 17, 1985.

19. Memorandum to Spill File, NJDEP, from F. Gagliano, NJDEP. August 6, 1985.

20. Malcolm Pirnie Inc. Potential Hazardous Waste Site Preliminary Assessment - Peerless Tube. April 29, 1986.

21. NJDEP. Communications Center Notification Report. September 29, 1987.

22. NJDEP. Division of Waste Management Investigation. October 5, 1987.

23. Project Note: To Peerless Tube file from J. Rieckhoff, Senior Scientist, Ebasco Services Inc. Subject: Wetland Acreage within 4-mile vicinity of Site-Air Pathway. June 8, 1995.

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25. Calculation Work Sheet, Permeability Computations - Peerless Tube site. December 28, 1994.

26. Project Note: To Peerless Tube file from J. Rieckhoff, Senior Scientist, Ebasco Services, Inc. Subject: Groundwater Target Apportionment. June 8, 1995.

27. Flood Insurance Rate Map (FIRM): Township of Bloomfield, New Jersey, Essex County; Community Parcel Number 340178-0001-B, Revised September 4, 1987.

28. NJDEP. Notice of Authorization: New Jersey Pollutant Discharge Elimination System Discharge to Surface Water Permit No. NJ0029327 issued to Peerless Tube Co. Inc., June 15, 1988.

29. 15-Mile Surface Water Pathway Map and 4-Mile Radius-Wetland Acreage Map, Peerless Tube, Bloomfield, Essex County, New Jersey, compiled from U.S. Dept. of Interior, National Wetlands Inventory Maps: "Caldwell, NJ", 1976; "Elizabeth, NJ", 1976; "Orange, NJ", 1976; "Roselle, NJ", 1976; "Jersey City, NJ", 1976; "Weehawken, NJ", 1976.

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31. Telecon Note: Conversation between D. Maitre, Geologist, Ebasco Services, Inc., and R. Soldwedel, Fish and Wildlife Division, NJDEP. Subject: Fisheries in Passaic and Second River, and Newark Bay. February 14, 1995.

32. Letter from R. Reiser, Hydrologist, U.S. Department of Interior, to D. Maitre, Geologist, Ebasco Services Inc. November 22, 1994.

33. U.S. Geological Survey. Water Resources Data - New Jersey, Water Year 1993, Report No. NJ-93-1.

34. Letter from R. Dutko, Senior Nongame Zoologist, Division of Parks and Forestry, NJDEP to J. Rieckhoff, Senior Scientist, Ebasco Services, Inc. November 28, 1994.

35. Telecon Note: Conversation between T. Romagna, Bureau of Water, NJDEP, and C. Kovari, Assistant Geologist, Ebasco Services, Inc. Subject: Wellhead Protection Planning and Policy for New Jersey. May 8, 1995.

36. NJDEP. Surface Water Quality Standards (N.J.A.C. 7:9B). April 1994.

REFERENCE 1

Reference 1

federal register

Friday
December 14, 1990

Part II

Environmental Protection Agency

40 CFR Part 300

Hazard Ranking System; Final Rule

REFERENCE 2

United States
Environmental Protection
Agency

Solid Waste and
Emergency Response
(5204G)

9360.4-18
PB94-963506
EPA 540-R-94-0(
June 1994

EPA

Superfund Chemical Data Matrix

REFERENCE 3

RECORD OF TELEPHONE CONVERSATION

DATE 02/27/1995

TO Bill Molner Peerless Tube 201-7435100 (130)

FROM Daniel Maitre Ebasco

CLIENT/PROJECT HRS Peerless Tube

SUBJECT Information on Worker number and Discharge permit

DISCUSSION

According to Mr Bill Molner, Peerless Tube Employee in charge of environment. There are approxi. 300 workers at Peerless Tube.

The discharge permit no NJ 0029327 Was renewed on 7-22-1994 with effect on 8-9-1994 and is valid up to 7-31 1999

COMMENTS

BY Daniel Maitre NAME Senior Geologist TITLE EC DEPT. NO.

CC:

REFERENCE 4

U.S. DEPARTMENT OF COMMERCE

WEATHER BUREAU

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

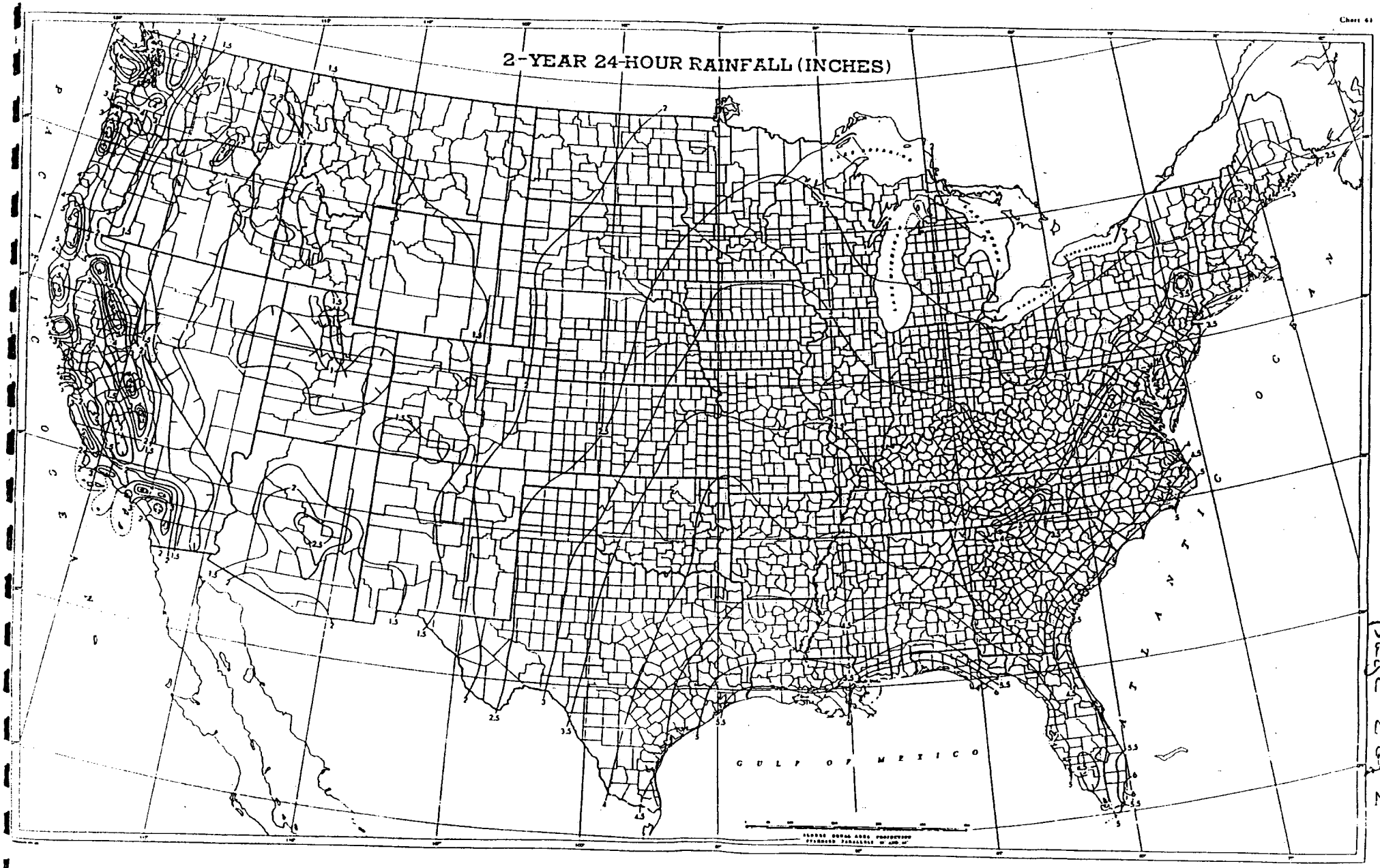
for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

WASHINGTON, D.C.

K2.32
R

Reference-4-1 page 142

2-YEAR 24-HOUR RAINFALL (INCHES)



Page 1 of 2

REFERENCE 5

Reference 5
Page 1 of 1

PUBLIC SUPPLY WELLS

No1 MONTCLAIR - MAPLE AVE.
No2 MONTCLAIR - NORTH FULLERTON AVE
No3 MONTCLAIR - NORTH MOUNTAIN
No4 ORANGE - HIGHLAND AVE EAST (WELL 1)
No5 ORANGE - 61ST PLACE (WELL 2)

4-MILE RADIUS VICINITY MAP

PEERLESS TUBE CO.

SCALE: 1/24,000
U.S. G.S. 7.5 MINUTE SERIES (TOPOGRAPHIC)
QUADRANGLES: Caldwell, Elizabeth, Orange and Ros elle.

EBASCO SERVICES INCORPORATED

Ref. 5
P 1 of

REFERENCE 6

Reference G
page 1 of 1

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: Peerless Tube CERCLIS #: NJD002171122

AKA: _____ SSID: _____

ADDRESS: 55 Locust Street

CITY: Bloomfield STATE: N.J. ZIP CODE: _____

SITE REFERENCE POINT: South of northern building

USGS QUAD MAP NAME: ORANGE, N.J. TOWNSHIP: ____ N/S RANGE: ____ E/W

SCALE: 1:24,000 MAP DATE: 1955 SECTION: ____1/4 ____1/4 ____1/4

MAP DATUM: (1927) 1983 (CIRCLE ONE) MERIDIAN: _____

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 74° 07' 30" LATITUDE: 40° 45' 00"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 74° 10' 00" LATITUDE: 40° 45' 00"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 391

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 129.18"

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 2' 09.18"

D) ADD TO STARTING LATITUDE: 40° 47' 00.00" + 2' 09.18 =

SITE LATITUDE: 40° 47' 09.18"

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 382

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 126.21"

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 2' 06.22"

D) ADD TO STARTING LONGITUDE: 74° 10' 00.00" + 2' 06.22 =

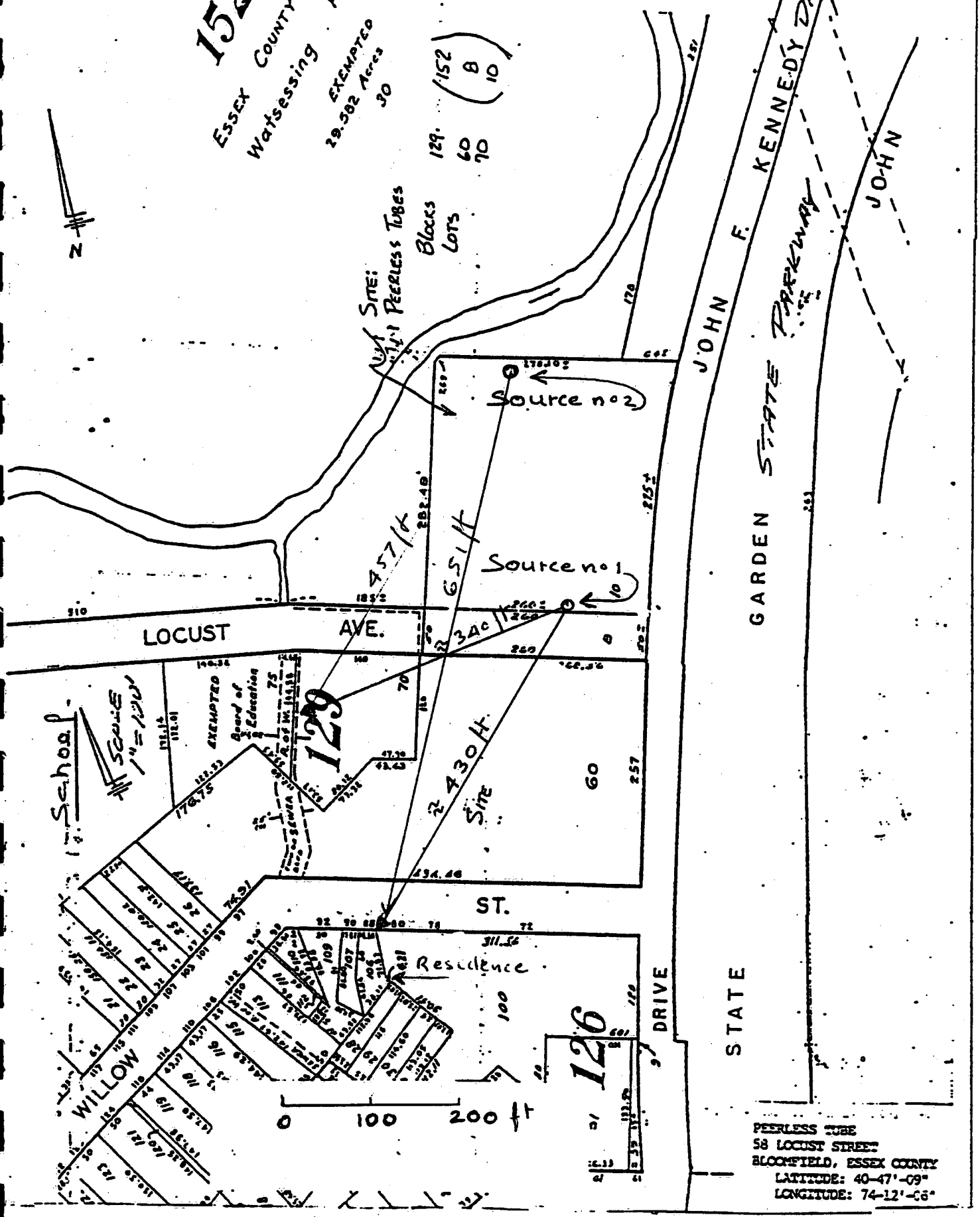
SITE LONGITUDE: 74° 12' 06.22"

INVESTIGATOR: Dan Maike DATE: Dec 3, 1994

REFERENCE 7

Reference 7
page 1 of 1

LOCAL TAX MAP



PEERLESS TUBE
58 LOCUST STREET
BLOOMFIELD, ESSEX COUNTY
LATITUDE: 40-47'-09"
LONGITUDE: 74-12'-06"

REFERENCE 8

FROST ASSOCIATES

Reference 8 Page 1 of 4 original

P.O.Box 495, Essex, Connecticut 06426
(203) 767-7644 FAX (203) 767-1971

Nov 16, 1994

To: Edgar Aguado
Ebasco Services Inc.
1290 Wall Street West
P.O Box 661
Lyndhurst, Jersey 07071

From: Bob Frost
Frost Associates
P.O. Box 495
Essex, Conn 06426

Tel: (203) 767-1254
Fax: (203) 767-7069

Sub: Peeless Tube
58-76-Locust Street, Bloomfield, Essex Cty, NJ

CERCLIS: NJD002171122

Job: 50127

Site Longitude: 74-12-03 74.200844
Site Latitude : 40-47-09 40.785831

The CENTRACTS report below identifies the population, households, and private water wells of each Block Group that lies within, or partially within, the 4, 3, 2, 1, .5, and .25, mile "rings" of the latitude and longitude coordinates above. CENTRACTS may have up to ten radii of any length. 1000 block groups, and 15000 block group sides.

CENTRACTS uses the 1990 Block Group population and Block Group house count data found in the Census Bureau's 1990 STF-1A files. The sources of water supply data are from the Bureau's 1990 STF-3A files. The boundary line coordinates of the Block Groups were extracted from the Census Bureau's 1990 TIGER/Line Files.

CENTRACTS reports are created with programs written by Frost Associates, P.O. Box 495, Essex, Conn. The code was written using Microsoft's Quick-Basic Ver. 4.5.

Latitude and Longitude coordinates identifying a site are entered in degrees and decimal degrees. One or more county files holding Block Group boundary lines are selected for use by CENTRACTS by determining whether the site coordinates fall within the minimum and maximum Lat\Lon coordinates of each county in the state.

Each Block Group line segment has Lat\Lon coordinates representing the "From" and "To" ends of that line. All coordinates from the selected county files are read and converted from degrees, decimal degrees to X\Y miles from the site location. Each line segment is then examined whether it lies within or partially within the maximum ring from the site.

The unique Block Group ID numbers of each line segment that lie within the maximum ring are retained. All Block Group boundary lines matching the Block Group numbers are then extracted from the respective county files to obtain all sides of the included Block Groups. Boundary records are then sorted in adjacent side order to determine the shape and area of each Block Group polygon.

Peeless Tube
8-76 Locust Street, Bloomfield, Essex Cty, NJ
0127

method to solve for the area of a polygon is to take one-half the sum of the products obtained by multiplying each X-coordinate by the difference between the adjacent Y-coordinates. For a polygon with coordinates at adjacent angles A, B, C, D, and . The formula can be expressed:

Area = 1/2{Xa(Ye-Yb)+ Xb(Ya-Yb)+ Xc(Yb-Yd)+ Xd(Yc-Ye)+ Xe(Yd-Ya)}

or each ring, the selected Block Groups will be inside, outside, or intersected by he ring. When a polygon is intersected, the partial Block Group area within that ring is calculated using the method described below.

hen a ring intersects a Block Group, the intersect points are solved and plotted at the points where the ring enters and exits the shape. The chord line, a line within the circle connecting the intersect points is determined. This chord line is used to alculate the segment area, the half moon shape between the chord line and the ring, nd the sub-polygon created by the chord line and the Block Group boundaries that lie outside the ring.

he segment area is subtracted from the sub-polygon area to determine the area of the ub-polygon outside the ring. The area outside the ring is then subtracted from the area of the entire polygon to arrive at the inside area. This inside area is then ivided by the tract's total area to determine the percentage of area within the ing. This process is repeated for each block group that is intersected by one of the rings. The total area, partial area, and percentage of partial area of those block roups within, or partially within a ring, are held in memory for the report.

n occasion, the algorithm described above is unable to determine the area of the partial area. Within the report program is a "Paint" routine which allows an enclosed hape to be highlighted. Another routine calculates the percentage of highlighted creen pixels to the pixels within the polygon. A manual entry is allowed. Both the "paint" method and manual entry method over ride the calculated method.

ENTRACTS lists, starting on page 4, all Block Groups in State, County, Census Tract, nd Block Group ID order that lie within, or partially within, the maximum ring. Each Block Group is identified by a City or Town name and by the Block Group's State, ounty, Tract and Block Group ID number. Following is the Block Group's 1990 populu ion and house count extracted from the Census Bureau's 1990 STF-1A files.

The next four columns display water source data from the 1990 STF-3A files. The first olumn is "Units with Public system or private company source of water", followed by nits with individual well, Drilled, source of water"; "Units with individual well, Dug, source of water" and "Units with Other source of water".

or each ring, CENTRACTS then shows the Block Groups that are within that ring, the lock Group's total area in square miles, the partial area of the Block Group within that ring, and the partial percentage within the ring. The areas of the included lock Group and the partial areas are then totaled.

The last section tallies the demographic data within each ring. The percentage of rea for each Block Group is multiplied times the census data for that Block Group nd totaled for all Block Group's within the ring. Ring totals are then determined y subtracting the three mile data from the four mile, the two mile from the three mile, one from the two, etc... Population on private wells is calculated using the ormula: ((Drilled + Dug Wells) / Households) * Population

Reference 8
Page 3 of 4

Peeless Tube
58-76 Locust Street, Bloomfield, Essex Cty, NJ
0127

Population density:
Population / Households = 541486/213376 = 2.5

========== Site Data ==========

Population:	541486.31
Households:	213376.05
Drilled Wells:	123.84
Dug Wells:	21.00
Other Water Sources:	178.14

========== Partial (RING) data ==========

---- Within Ring: 4 Mile(s) and 3 Mile(s)

Population:	203105.81
Households:	79516.25
Drilled Wells:	22.61
Dug Wells:	0.00
Other Wells:	21.68
** Population On Private Wells:	57.74

Population on drilled well: 57.74

---- Within Ring: 3 Mile(s) and 2 Mile(s)

Population:	175404.78
Households:	67732.86
Drilled Wells:	52.46
Dug Wells:	8.00
Other Wells:	84.92
** Population On Private Wells:	156.56

Population on drilled well: $\frac{156.56}{52.46+8} \times 52.46 = 135.8$

Population on dug well: $\frac{156.56}{52.46+8} \times 8 = 20.71$

---- Within Ring: 2 Mile(s) and 1 Mile(s)

Population:	129319.58
Households:	52181.63
Drilled Wells:	32.40
Dug Wells:	0.00
Other Wells:	62.54
** Population On Private Wells:	80.29

Population on drilled well: 80.29

Population on dug well: 0

---- Within Ring: 1 Mile(s) and .5 Mile(s)

Population:	25258.17
Households:	10254.88
Drilled Wells:	16.38
Dug Wells:	9.72
Other Wells:	9.00
** Population On Private Wells:	64.27

$\frac{64.27}{16.38+9.72} \times 16.38 = 40.33$

$\frac{64.27}{16.38+9.72} \times 9.72 = 23.93$

Reference 8
Page 4 of 4

Peeless Tube
58-76 Locust Street, Bloomfield, Essex Cty, NJ
5[illegible]127

---- Within Ring: .5 Mile(s) and .25 Mile(s) ----

Population:	6687.06
Households:	2889.39
Drilled Wells:	0.00
Dug Wells:	3.28
Other Wells:	0.00

Population On Private Wells: 7.60] Dug well population

---- Within Ring: .25 Mile(s) and 0 Mile(s) ----

Population:	1710.91
Households:	801.04
Drilled Wells:	0.00
Dug Wells:	0.00
Other Wells:	0.00

Population On Private Wells: 0.00

Total Population On Private Wells: 366.47

REFERENCE 9

Reference 9
Ref 9. 2 page 1 of 27

SITE INSPECTION

Peerless Tube

BLOOMFIELD TOWNSHIP, ESSEX COUNTY

EPA ID No.: NJD002171122

New Jersey Department of Environmental Protection
Division of Hazardous Waste Management
Bureau of Planning and Assessment

PEERLESS TUBE
58 LOCUST AVENUE
BLOOMFIELD TOWNSHIP, ESSEX COUNTY, NEW JERSEY
EPA ID NO. NJD002171122

GENERAL INFORMATION AND HISTORY

Peerless Tube is located on Block 129, Lots 60 and 70 and Block 152, Lots 8 and 10 in Bloomfield Township, Essex County. The facility consists of four large buildings on approximately 4 acres. The site is bounded to the north and west by Watsessing Park, to the south by Willow Street and to the east by John F. Kennedy Drive. Land use in the vicinity of the site is developed for light industrial purposes. The estimated population within 1 mile of the site is greater than 30,000. The population within a 4-mile radius of the site is greater than 500,000.

This site has been used by Peerless Tube for the manufacture of aerosol cans and squeeze tubes since they purchased the site in 1920. Information concerning the site's prior owners was unavailable or unknown. Throughout the years Peerless Tube acquired numerous properties which comprise the current facility. In the late 1950s Peerless Tube acquired Smoke-A-Dor, an ashtray manufacturer, which was located in the northern part of the present facility. In the 1970s Peerless Tube acquired the RAJA Razor Company, a razor blade manufacturer. RAJA Razor was located on the western portion of the present facility. Years of operation of both companies are unknown.

In addition, over the years Peerless Tube has made numerous additions to existing buildings. Exact years in which construction took place are unknown.

SITE OPERATIONS OF CONCERN

Peerless Tube's manufacturing operations begin with an aluminum slug extruded by air to form a hollow tube or can. The tube is then moved along a conveyer where it is threaded and cleaned with trichloroethane. After solvent cleaning it is heat dried and painted with solvent based or non-solvent based paints. The tubes are then oven dried and printed with the labels of the various companies which order the tubes. There are approximately 13 lines which produce these aerosol and squeeze tubes operating three 8-hour shifts 5 days a week.

Hazardous waste associated with the manufacturing of Peerless Tube consists of:

1. waste paint generated from the decoration of aluminum tubes and aerosol cans. The facility generates approximately six to seven 55-gallon drums every 30 days (left over paint).

2. waste trichloroethane generated from tube degreasing and still bottoms. The facility used tetrachloroethene in the past but trichloroethane was more successful. At present the facility generates approximately six to twelve 55-gallon drums per month.

3. waste paint mixed with chlorinated solvents from cleanup of decorating equipment. Approximately fifteen to eighteen 55-gallon drums are generated per month.

4. waste oil generated from compressor and several machine maintenance. The facility generates approximately six to ten drums every 90 days.

5. lab packs of various chemicals generated during lab clean out, approximately once a year.

Peerless Tube has a current design capacity of approximately 13,750 gallons for the maintenance of its waste. The design capacity consists of up to 250 55-gallon drums on a concrete storage pad located indoors. No underground or aboveground tanks are used for hazardous waste accumulation. All hazardous waste is maintaned on site for less than 90 days and is removed by Safety-Kleen of Linden, New Jersey.

Peerless Tube did at one time maintain five NJDEP, Division of Water Resources (DWR), Bureau of Underground Storage Tanks (BUST) registered underground storage tanks used to store fuel oil and trichloroethene. Tanks ranged in size from 1,500 to 20,000 gallons. Two of the tanks (10,000-gallon trichloroethene and 20,000-gallon No. 4 fuel oil) were sealed in place. The tanks were vacuumed, cleaned and filled with bank-run sand material from November 6 through 16, 1989 by ENSI Inc. of Newark, New Jersey. Soil samples collected by ENSI indicated soil contamination surrounding the 10,000-gallon trichloroethene tank. The three remaining tanks (1,500-gallon No. 4 fuel oil, 3,000-gallon No.4 fuel oil and 10,800-gallon No. 4 fuel oil) were excavated. The 3,000-gallon fuel oil tank was excavated in September 1986 by Direct Environmental of Newark, New Jersey; soil contamination was observed. The 1,500-gallon and 10,800-gallon fuel oil tanks were excavated by ENSI from November 6 through 16, 1989; soil samples collected revealed no soil contamination.

A review of the historical operation at the Bloomfield facility has revealed several alleged spills or releases of hazardous substances.

On May 17, 1985 an incident report was filed claiming the management and personnel from Peerless Tube were deliberately dumping lacquers and thinners into a pit located behind their plant. An investigation by the NJDEP, Division of Hazardous Waste Management (DHWM), Bureau of Metro Enforcement (BME) did not reveal any evidence of dumping or of a pit. Also, a review of aerial photographs from 1940 through 1986 by the NJDEP, Division of Responsible Party Site Remediation (DRPSR), Bureau of Site Assessment (BSA) did not reveal anything that could be construed as a "pit" located on Peerless Tube's property.

On September 25, 1986 a white substance was observed in Wigwam Brook (adjacent to Peerless Tube) after it passed along Peerless Tube's property. The stream was clear before it flowed by the property. Also, on October 1, 1987 a fuel oil sheen was observed in the stream at the same location. An investigation conducted by the NJDEP, DHWM, BME failed to locate the source of the discharge and no further action was initiated. No water or stream bed samples were collected.

GROUNDWATER ROUTE

The area surrounding Peerless Tube is underlain by unconsolidated, moderately permeable, sediment deposited by glaciers or glacial meltdown during the Pleistocene Epoch. The Pleistocene sediment found at the Bloomfield facility is both stratified and unstratified drift. Unstratified drift consists of a heterogeneous mixture of clay, silt, sand, gravel, cobbles and boulders deposited by glacial ice. Stratified drift consists of either glaciofluvial stratified sand or glaciolacustrine laminated silt and clay, depending upon the depositional environment. The Pleistocene sediment has a combined thickness of approximately 0 to 200 feet. Deposits beneath this overburden comprise the Passaic Formation (formerly known as the Brunswick Formation). The Passaic Formation underlies the entire area around the site and most of Essex County. The formation consists primarily of brown, reddish-brown and gray shale, sandy shale and sandstone. The thickness of the formation is not known but is believed to be greater than 6,000 feet.

Groundwater beneath the site exists in the voids of the unconsolidated Quaternary glacial sediments and in the joints and fractures of the Passaic Formation. Groundwater beneath the site flows in a north to south direction. Groundwater use in the vicinity of the site is limited to a few industrial wells screened at depths of 20 to 80 feet.

Peerless Tube maintains two on-site industrial wells (Well Allocation permit No. 2152D) which were temporarily capped by the Passaic Valley Sewerage Commission of Newark, New Jersey in 1987. The wells are maintained for emergency use only as noncontact cooling water for air conditioners and compressors. The two wells' depths are 170 and 260 feet and tap the Passaic Formation, both wells are screened at 35 feet. Peerless Tube does not maintain a NJPDES Permit for groundwater discharge.

There are three monitoring wells on Peerless Tube's property, installed in July of 1990 by Advanced Environmental Boring of East Hanover, New Jersey. Monitoring wells were installed to determine if groundwater contamination resulted from the use of a 10,000-gallon underground trichloroethene tank. Monitoring wells were sampled on July 27, 1990 by Metcalf and Eddy of Somerville, New Jersey and the NJDEP, Division of Hazardous Waste Management (DHWM), Bureau of Planning and Assessment (BPA) now the Division of Responsible Part Site Remediation (DRPSR), Bureau Site Assessment (BSA) on November 2, 1990. Results have indicated volatile organics including trichloroethene (ND to 190 parts per billion [ppb]), 1,2-dichloroethene (ND to 120 ppb) and tetrachloroethene (ND to 18 ppb).

Groundwater within 4 miles of Peerless Tube is used for public and semipublic water supplies and for golf course irrigation, swimming pool supply and noncontact cooling purposes.

The Town of Montclair uses three wells to supplement their surface water supplies during peak demand periods. The wells are 300 feet deep, tap the Passaic Formation and serve up to 54,000 people. The Town of Montclair has agreements for the sale of water to the Township of Little Falls, Glen Ridge Borough and the City of Clifton.

The City of Orange also maintains wells within 4 miles of Peerless Tube. Well depths range from 500 to 551 feet and tap the Passaic Formation. Approximately 32,000 people are serviced by the City of Orange.

The Upper Montclair Country Club (UMCC) and Mountainside Hospital use groundwater for semipublic water supplies. UMCC uses groundwater to supply staff and members with drinking water and Mountainside Hospital uses groundwater to supply patients and staff with drinking water. The populations served by the UMCC and Mountainside Hospital wells are 1,000 and 2,000, respectively.

In addition, 155 acres of golf course property are irrigated by wells drawing from the Passaic Formation.

A potential for off-site wells to become contaminated exists as groundwater contamination has been observed on site. However, further contamination of groundwater is unlikely since chemicals used on-site are stored indoors on concrete and all floor drains have been sealed in storage areas. In addition Peerless Tube has removed or sealed all underground storage tanks which existed on site.

SURFACE WATER ROUTE

Peerless Tube is adjacent to Wigwam Brook. Wigwam Brook flows into the Second River approximately 0.25 stream mile northeast of the site. The Second River feeds into the Passaic River approximately 2.5 stream miles east of the site. The Passaic River feeds into Newark Bay approximately 8.0 stream miles southeast of the site. The Passaic River and its tributaries are classified as FW2-NT (freshwater-nontrout). Uses are recreational, industrial, commercial and for irrigation of private golf courses.

There are no records indicating surface water or sediment sampling in the past. Contamination of surface water is possible since an underground fuel oil tank leaked in the past and surface water spill complaints were reported to the NJDEP by Bloomfield Police and neighborhood residents.

Peerless Tube was issued NJPDES Permit No. NJ0029327 on June 15, 1988 to discharge into the surface waters of the state. Actual discharge is noncontact cooling water and stormwater runoff to Wigwam Brook.

There are no drinking water intakes within 15 stream miles and surface water is not used for agricultural irrigation. No freshwater wetlands or coastal wetlands are within 1 mile of the site. There are no federally listed endangered species within 1 mile of the site.

AIR ROUTE

Peerless Tube's manufacturing processes throughout the years have caused numerous odor (solvent odors) complaints from surrounding residents. The complainants are usually residents of Watsessing Avenue and Willow Street. The odor is characterized as an intermittent, lacquer odor. The odor source appears to be from several coating lines which use a clear coating (lacquer odor from clear-coating paint) and emissions from drying ovens. Peerless Tube has attempted to eliminate its odor problems by installing corrective devices such as a wet scrubber and charcoal absorbtion filters.

Peerless Tube, facility ID No. 05066, has 16 New Jersey Bureau of Air Pollution Control permits still in effect. The permits are for various coating lines and ovens used by Peerless Tube. The certificate numbers are: 072479, 072480, 079670, 079671, 072481, 033553, 033554, 033555, 033560, 033561, 033562, 033563, 070602, 068724, 091031, and 091723: They are monitored through the Division of Environmental Quality.

SOIL

The soils underlying the site consist primarily of heavily altered and reworked native-lacustrine deposits and fill materials. These glacio-lacustrine deposits are comprised of interbedded fine sands, silts and clays. These deposits were laid down during the Pleistocene Epoch of glaciation.

In September 1986, soil samples were collected from a 3,000-gallon fuel oil tank excavation by Direct Environmental of Newark, New Jersey. Results indicated soil contamination less than 100 ppm of total hydrocarbons (THCs). Approximately 20 cubic yards of contaminated soil was removed by Direct Environmental, the area backfilled with clean soil and a new concrete sidewalk poured.

Soil samples were also collected in November 1989 by ENSI, Inc. of Newark, New Jersey in the areas surrounding two underground storage tank excavations and two underground storage tanks that were sealed in place. Results indicated petroleum hydrocarbon contamination below NJDEP action levels, ranging from 66.7 ppm to 69.9 ppm in areas surrounding the 10,000-gallon trichloroethene tank. Trichloroethene was also detected at levels of 0.260 ppm in the same area. In areas surrounding the remaining three storage tanks, NJDEP action levels for petroleum hydrocarbons were also not exceeded.

During a Pre-Sampling Assessment conducted by the NJDEP, DHWM, BPA on August 30, 1990, above-background readings were observed using an HNu and an Organic Vapor Analyzer (OVA) in the northern portion of the facility. OVA readings ranged from 5 to 80 ppm above-background as calibrated to methane while HNu readings ranged from 20 to 180 ppm above-background as calibrated to benzene. No reading were observed in areas surrounding former underground storage tanks.

On November 3, 1990 soil samples were collected in these areas by the NJDEP, BPA. Results indicated volatile organic contamination with methylene chloride (ND to 35 ppb), 1,2-dichloroethene (ND to 4,700 ppb), trichloroethene (12 to 17,000 ppb) and tetrachloroethene (3 to 37,000 ppb).

DIRECT CONTACT

There have been no reported incidents of direct contact with hazardous waste or materials on site. A security fence surrounds the site limiting access onto the property. However, there is a potential for employees to come in contact with hazardous materials currently used and stored on site.

FIRE AND EXPLOSION

On October 20, 1986 a 40-ton dumpster ignited on Peerless Tube's property. Green and yellow liquid and crystals were found inside the dumpster. Five firemen were sent to the hospital for sickness and released. No samples of

material in dumpster were collected.

A potential for a fire or explosion to occur does exist from flammable materials stored on site.

ADDITIONAL CONSIDERATIONS

There have been no reported incidents of damage to flora and fauna. A potential exists; however, due to past spills and materials currently stored on site.

ENFORCEMENT ACTIONS

In 1987 Peerless Tube was issued an Administrative Order by the Division of Environmental Quality for permitting lacquer odors from coating operations to be emitted into the outdoor atmosphere in quantities which resulted in air pollution. The company was required to pay $4,000 in fines to NJDEP.

In 1987 Peerless Tube was issued an Administrative Order by the Division of Environmental Quality for permitting odors from spray painting and paint coating operations to be emitted into the outdoor atmosphere in quantities which resulted in air pollution. The company was required to pay $4,000 in fines to NJDEP.

In 1989 Peerless Tube was issued four Administrative Orders by the Division of Environmental Quality for permitting odors from spray painting and paint coating operations to be emitted into the outdoor atmosphere in quantities which resulted in air pollution. The company was required to pay $24,000 in fines to NJDEP.

SUMMARY OF SAMPLING DATA

1.	Sampling date:	November 1989
	Sampled by:	ENSI, Inc. Newark, New Jersey
	Samples:	Twenty-two soil samples
	Laboratory:	Nytest Environmental Inc. (#73469) Port Washington, New York
	Parameters:	Total petroleum hydrocarbons (PHC), and volatile organics scan plus 15.
	Sample description:	Twenty-two soil samples from two underground storage tank excavations and two underground storage tanks sealed in place.
	Contaminants detected:	See Table 1
	QA/QC:	All required QA/QC information was provided to the NJDEP.
	File location:	Attachment V NJDEP, DRPSR, BUST Trenton, New Jersey

2. Sampling date: July 27, 1990

Sampled by: Metcalf & Eddy
Bridgewater, New Jersey

Samples: Three groundwater samples

Laboratory: Accutest Laboratories (#12129)
Dayton, New Jersey

Parameters: Volatile organics plus 15 and PHCs

Sample description: Three groundwater samples from MW-1 through MW-3

Contaminants detected:

CONTAMINANT (ppb)	MW-1	MW-2	MW-3
trans-1,2,dichloroethene	26	120	ND
trichloroethene	46	190	ND
petroleum hydrocarbons	ND	ND	ND

ND = NOT DETECTED

QA/QC: All required QA/QC information was submitted to the NJDEP

File location: Attachment W
NJDEP, DRPSR, BUST
Trenton, New Jersey

3. Sampling date: November 2, 1990

Sampled by: NJDEP, DHWM, BPA
Robbinsville, New Jersey

Samples: Three groundwater samples and four soil samples

Laboratory: ETC Corporation (#12257)
Edison, New Jersey

Parameters: Target compound list

Sample description: Three groundwater samples from MW-1 through MW-3 and four soil samples collected from along the site's northern border

Reference 4
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Contaminants detected:

CONTAMINANTS (ppb)	MW-1	MW-2	MW-3	SOIL-1	SOIL-2	SOIL-3	SOIL-4
methylene chloride	ND	ND	ND	35	ND	8	ND
1,2-dichlorethene	77	6	44	150	4,700	ND	ND
trichloroethene	130	26	28	220	17,000	12	11,000
tetrachloroethene	2	18	ND	3	90	3	37,000

ND - NOT DETECTED

QA/QC: Overall, the data quality was satisfactory and all were accepted with the applied qualifier codes.

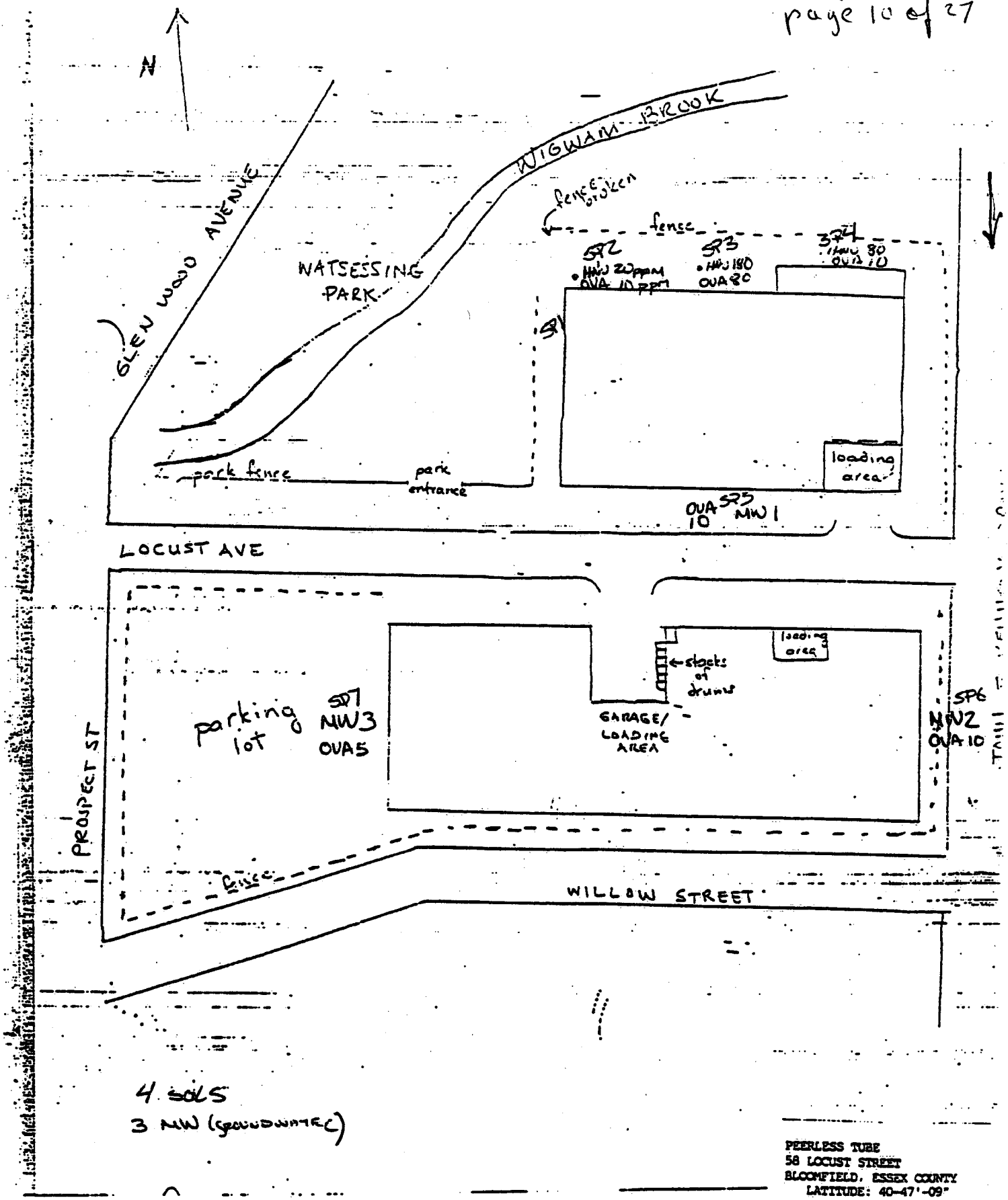
File location: Attachment Y
NJDEP, DRPSR, BSA
Robbinsville, New Jersey

RECOMMENDATIONS/CONCLUSIONS

Sampling of three monitoring wells located on site has revealed volatile organic contamination. In addition, soil samples collected along the site's northern border by NJDEP, BSA has also revealed volatile organic contamination. The NJDEP, DRPSR, Bureau of Underground Storage Tanks (BUST) currently monitors all on-site activities. This case should be transferred to the DRPSR, Bureau of State Case Management to review soil and groundwater sampling conducted by BSA and to determine if remediation is required. This case should be also be referred to DRPSR, BUST to review additional groundwater sampling conducted by BSA. No further action under CERCLA is recommended for this site.

Submitted by:

Hayder Camargo, HSMS IV
Bureau of Site Assessment
August 14, 1991



PEERLESS TUBE
58 LOCUST STREET
BLOOMFIELD, ESSEX COUNTY
LATITUDE: 40-47'-09"
LONGITUDE: 74-12'-06"

SITE MAP

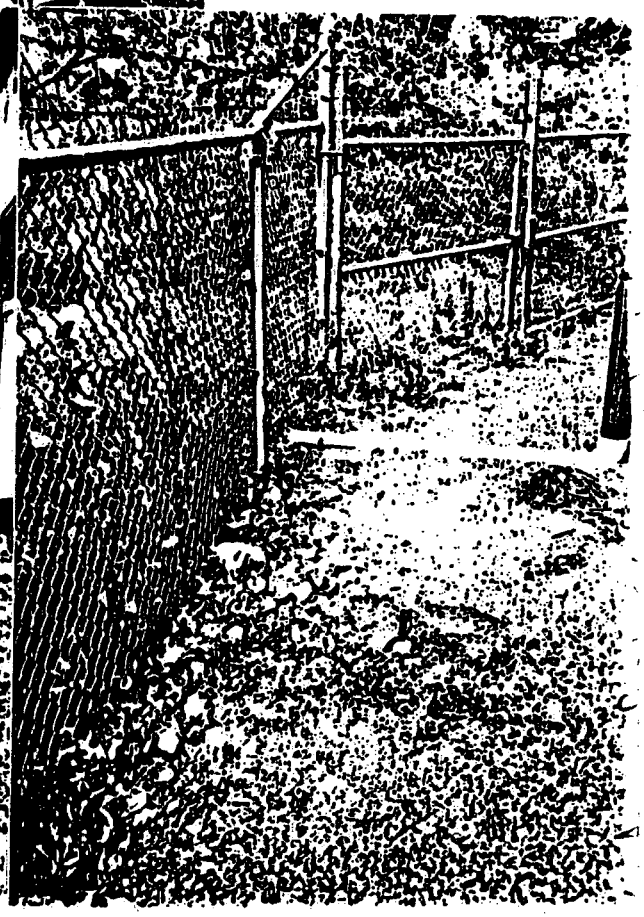
MAP-2

MW1

BSA 11020210

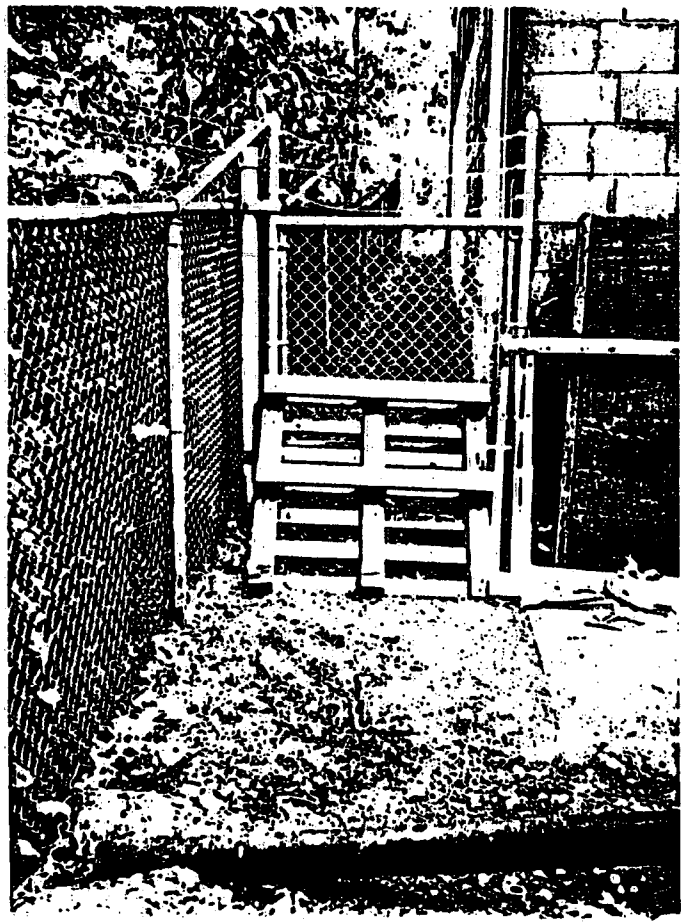
MW2 BSA11020211

MW3 BSA 11020212



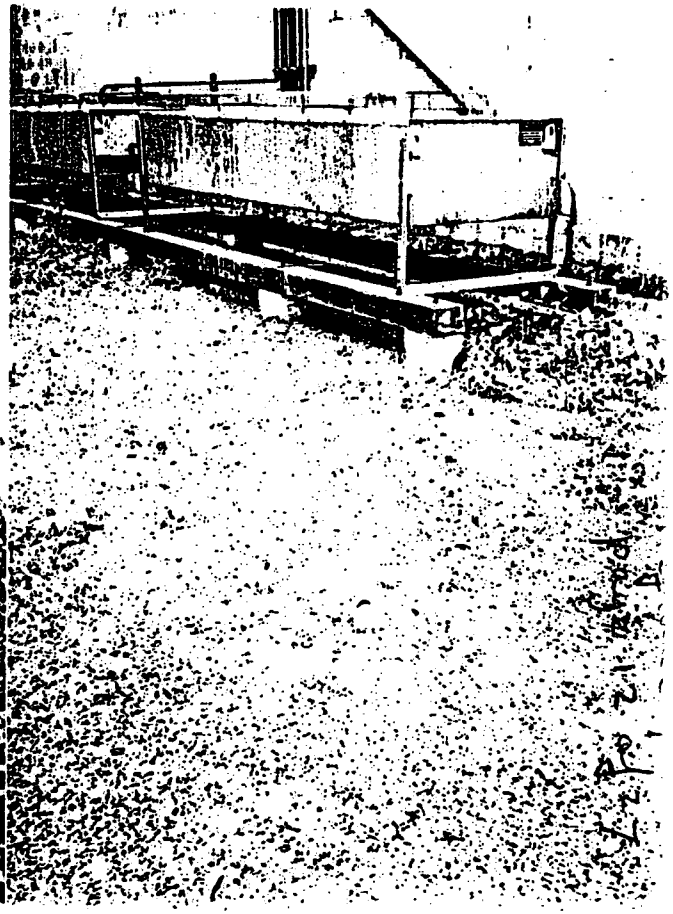
S1. BSA - 11020206

S 2
BSA 11020207



S - 3
BSA 11020208

S - 4
11020209



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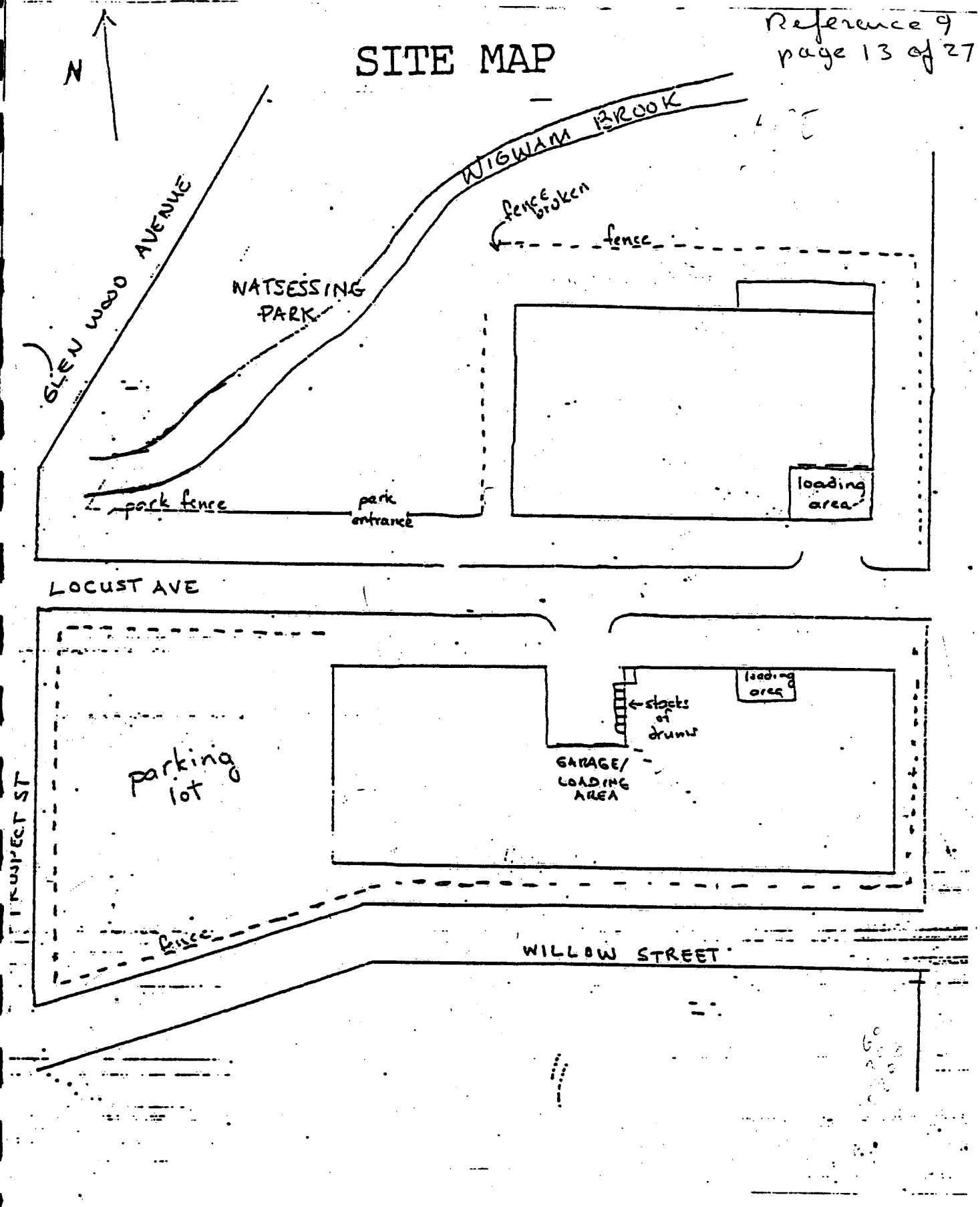
SITE MAP



NO SCALE

PEERLESS TUBE
58 LOCUST STREET
BLOOMFIELD, ESSEX COUNTY
LATITUDE: 40-47'-09"
LONGITUDE: 74-12'-06"

Reference 9
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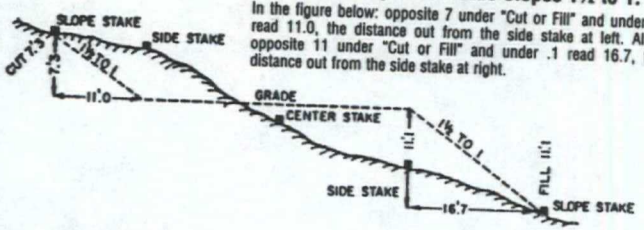
PEERLESS TUBE
58 LOCUST STREET
BLOOMFIELD, N.J. /ESSEX
NSD 002171122

"Rite in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	Cut or Fill
	Distance out from Side or Shoulder Stake										
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

"Rite in the Rain"
ALL-WEATHER WRITING PAPER ®

Name PEERLESS TUBE

Address 58 LOCUST STREET
BLOOMFIELD, N.J., ESSEX

Phone 201-743-5100

Project SAMPLING

"Rite in the Rain"—a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

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J. L. DARLING CORPORATION
TACOMA, WA 98421-3696 USA

Reference 9
page 15 of 27

CONTENTS

PAGE NO.	REFERENCE	DATE

11-2-90

TIME ARRIVED : 8:35

WEATHER : SUNNY

TEMP : 75°F

TIME DEPARTED : 1400

SAMPLERS

Frank Sorce
DAVE TRIGGS
JANET Smolenski

Reference 9
page 16 of 27

BSA 11020209 S-4

SAMPLERS:
FRANK SORCE
JANET SMOLENSKI

TIME:
START: 11:45
FINISH: 12:20

READINGS:
HNU: 6 ppm
OVA:

DESCRIPTION:
1'-2'
RED BROWN soil

Referenced page 17 of 27

BSA 11020208 S-3

SAMPLERS:
FRANK SORCE
SANDY SMOLENSKI

TIME:
START: 11:20
FINISH: 11:40

READINGS:
HNU: 7 PPM
OVA:

DESCRIPTION:
6"-12"
RED BROWN soil

Referred page 18 of 27

BSA 11020207 S-2

SAMPLERS: FRANK SORCE
JANET SMOLENSKI

TIME :

START: 10:45
FINISH: 11:15

READINGS :

HNU: 6 ppm
OVA: [redacted] ppm

DESCRIPTION:

6-12"

RED BROWN soil

Reference page 19 of 27

BSA 11020206 S-1 (MS/MSD)

SAMPLERS:

FRANK SORCE
JANET SMOLENSKI

TIME: START: 10:10
FINISH: 10:40

READINGS:
OVA —
HNU 2ppm

DESCRIPTION:

1-2 FT
DARK soil, RED BROWN clay

Reference 9
page 10 of 17

BSA 11020214 FIELD BLANK
BAILER

SAMPLERS:
FRANK SONE
JANET SMOLENSKI

TIME:

START: 9:30

FINISH: 9:50

Reference 9
page 21 of 27

BSA 11020213 FIELD BLANK TROWEL

SAMPLERS

Frank Sorce

Janet Smolenski

TIME

START: 9:30

FINISH: 9:50

Reference 9
page 27 of 27

BSA 11020215 TRIP BLANK

Reference 9
page 23 of 27

SAMPLERS:

TIME:

START:

FINISH:

Reference 9
page 23 of

BSA 11020210 MW1

SAMPLERS: HAYDEN CAMARGO
DAVE TRUSS

TIME:

START: 9:55
FINISH: 12:40

READINGS:

HNU : 4
OVA : 10

DESCRIPTION:

BROWNISH
FINE SEDIMENT
NO ODOR

Reference 9
page 24 of 27

BSA 1102021 MW2

SAMPLERS: DAVE TRIGGS
HAYDER CAMARGO

TIME:

START: 10:45
FINISH: 1315

READINGS:

HNU
OVA: 2

DESCRIPTION:

BROWNISH
ACOT OF SEDIMENT
NO ODOR

Reference 9
page 25 of 28

BSA 020012 MW3

SAMPLERS: HAYDEE CAMARGO
DAVE TRIGGS

TIME:

START: 11:00
FINISH: 12:25

READINGS:

HNu:
OVA: 30ppm
DID NOT FIX kept rising up to 90ppm

DESCRIPTION

BROWNISH
FEW SEDIMENT

Reference: page 26 of 27

BSA 11020214 FIELD BLANK
BAILER

SAMPLERS:
FRANK SORCE
JANET SMOLENSKI

TIME:

START: 9:30

FINISH: 9:50

Reference 9
page 27 of 27

REFERENCE 10

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVIS 4 OF HAZARDOUS WASTE MANAG. :NT
HAZARDOUS WASTE INSPECTION REPORT

Reference 10
page 1 of 3

DWM-029

GENERATOR INSPECTION REPORT

FACILITY INFORMATION

FACILITY NAME: Peerless Tube

FILE NUMBER: 07-02-11

VHT FACILITY FILE NUMBER:

PERMIT #:

REGION: Metro

INSPECTION DATE: 2-1-90

INCIDENT/CASE NUMBER:

INSPECTION TYPE: Gen/LB

RESPONSIBLE AGENCY CODE:

INSPECTOR'S NAME: Eddie L. Davis JR.

INSPECTOR'S AGENCY: NJDEP

INSPECTOR'S BUREAU: D+WM

EPA ID NUMBER: NJD002173122

ADDRESS:
58 Locust Ave
Bloomfield NJ

LOT: 10/60 BLOCK: 152/129

COUNTY: Essex

FACILITY PERSONNEL: Alan Fanuzzi
Bob Scheibe

TELEPHONE #: (201) 743-5100

OTHER STATE/EPA PERSONNEL:

REPORT PREPARED BY: Eddie L. Davis JR.

REVIEWED BY: [illegible]

DATE OF REVIEW: 3/26/90

REVISION: 3
01/88

ATTACHMENT B-1

SUMMARY OF FINDINGS

FACILITY DESCRIPTION AND OPERATIONS:

Thursday, February 1, 1990 a RCRA Generator inspection was conducted at Peerless Tube Co. located 58 Locust Ave in Bloomfield N.J. The Facility was represented by Project Engineer Alan J. Januzzi (201) 743-5954

Peerless has been at the present location since the early 1900's and presently employs 350 people who operate the facility on three -eight hour shifts five days a week. The Plants major operation consist of the manufacturing of aerosol cans and squeeze tubes for various companies such as Avon, Suave and Clairol just to name a few. This operation is conducted in two of Peerless Plants, both located on Locust Ave (see sketch) The operation begins with an aluminum slug extruded by air to form a hollow tube (can). The tube is then moved along a conveyor where it is threaded and cleaned with trichloroethane. After solvent cleaning it is heat dried and painted with solvent based or Non-solvent based paints. After the tubes are painted (coated) they are oven dried, then printed with the labels of the various companies which order the tubes. There are approximately 13 lines which produce these aerosol and squeeze tube

The hazardous waste associated with the manufacturing

SUMMARY OF FINDINGS

FACILITY DESCRIPTION AND OPERATIONS (continued):

of these tubes consist of:

D001 - Waste Paint generated from coating operation. After tubes are painted facility generates approximately 6-7 drums every 30 days (left over paint)

F001 - Waste Trichloroethane generated from tube degreasing and cleaning operation. Facility use tetrachloroethylene in the past but trichloroethylene was more successful. Facility generates approximately 6-12 drums per month

F002 - Waste paint, Waste 1,1,1 Trichloroethane and misc solvents used to clean coating (painting) area. Facility no longer generates F002.

*F003 - Waste paint with chlorinated solvents. This waste stream replaced F002 waste stream. Facility generate approximately 15-16 drums per month

X776 - Waste oil generated from compressor and general machine maintenance. Facility generates approximately 6-10 drums every 90 days

D002 - Lab Packs for lab clean out.

Permits:

Facility has air permits for drying ovens

* Chlorinated solvents are ~~added~~ used for cleaning purposes 0-15% MEK, Acetone, Xylene, & 0-10% 1,1,1 Tri, TCE, PCE; 20-30% Paint 50-60% Misc - Solids, See Manifest NJA 032 [illegible] (F003)

REFERENCE 11

Form DWR-053

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029, Trenton, N.J. 08625

DISCHARGE SURVEILLANCE REPORT

PERMIT # NJ0029335 NO. OF DISCHARGES 001,002,003 CLASS MIN/IND

DISCHARGER PEERLESS TUBE COMPANY, INCORPORATED

OWNER PEERLESS TUBE COMPANY

MUNICIPALITY BLOOMFIELD COUNTY ESSEX WATERSHED CODE P

LOCATION 58 LOCUST AVENUE -07003

RECEIVING WATERS LLOYD'S BROOK / WIGWAM BROOK STREAM CLASS FW2-NT

LICENSED OPERATOR & PLANT CLASS N/A

TRAINEE/ASSISTANT N/A OTHER INFO. (201) 743-5100

DEFICIENCIES OR COMMENTS

① THE FACILITY NEEDS TO OBTAIN A PHYSICAL CONNECTION PERMIT FOR TWO ON-SITE WELLS

OVERALL RATING ☑ Acceptable ☐ Conditionally Acceptable ☐ Unacceptable

EVALUATOR REBECCA J. MANIS TITLE ENVTL SPECIALIST

INFORMATION FURNISHED BY (Name) KRIS HOFFMAN

(Title) INDUSTRIAL HYGIENIST (Organization) PEERLESS TUBE COMPANY, INC.

DATE OF INSPECTION DECEMBER 8, 1989

ATTACHMENT C-2

Form DWR-053-A
3/78

N.J.D.E.P.
D.W.R.
DISCHARGE SURVEILLANCE REPORT

Permit #: NJ0024335
Date: 12/8/89

BERKLESS TUBE COMPANY, INC. INDUSTRIAL TREATMENT PROCESS EVALUATION

RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable

		RATING	COMMENTS
GENERAL	DISCHARGES #001, 002, 003	---	001-NOT IN USE (AIRCONDITIONERS) 002-NON CONTACT
	WASTEWATER SOURCE(S)	---	COMPRESSORS (2) 003-NON-(1) DEGREASER (1) STILL
	CONTINUITY OF OPERATION	---	24 HOURS/DAY 5-7 DAYS/WEEK
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	NA	
	ALARM SYSTEMS	NA	
	ALTERNATE POWER SUPPLY	NA	
TREATMENT PROCESSES			NO UNDERGROUND STORAGE
			12 TANKS (1) 20,000 / (1) 10,000 - CLOSURE IN GROUND)
		-	NONE
SLUDGE HANDLING	WASTE PAINT	-	BERKLESS TUBE COMPANY, INCORPORATED
	WASTE OILS	-	GEN ID # NJD002171122
	TRANSPORTER	-	NAPPI TRUCKING - NJD000813477
	DISPOSAL SITE	-	SAFETY KLEEN, LINDEN - EPA ID# NJD002182897
	SPENT TRICHLOROETHYENE	-	
	TRANSPORTER	-	GOLD SHIELD SOLVENTS - NJD047319043
	DISPOSAL SITE	-	GOLD SHIELD SOLVENTS - DIV. DETREX CORP CINNAMINSON, NJ - EPA ID# NJD047318043
INFORMATION	FLOW METER & RECORDER	S	METERED
	RECORDS	S	PERMIT/DMRS
	SAMPLING PROCEDURES	S	FACILITY PERSONNEL
	ANALYSES PERFORMED BY	S	GARDEN STATE LABORATORIES HILLSIDE, NJ CERT# 07049
	FACILITY MANUFACTURES EXTRUDED ALUMINUM AEROSOL CANS AND TUBES	-	
OTHER	2 ON-SITE WELLS (TEMPORARILY CAPPED)	-	WELL ALLOCATION PERMIT #2152P EXPIRES FEBRUARY 28, 1993
		U	PHYSICAL CONNECTION PERMIT REQUIRED
	FLOOR DRAINS	-	SEALED
	FINAL EFFLUENT APPEARENCE	S	001-NO DISCHARGE 002-CLEAR 003-CLEAR
	REC. WATERS APPEARENCE	-	LLOYDS & WIGWAM BROOKS

ATTACHMENT C-3

Reference 11
Page 3 of 3

Form DWR-053
3/81

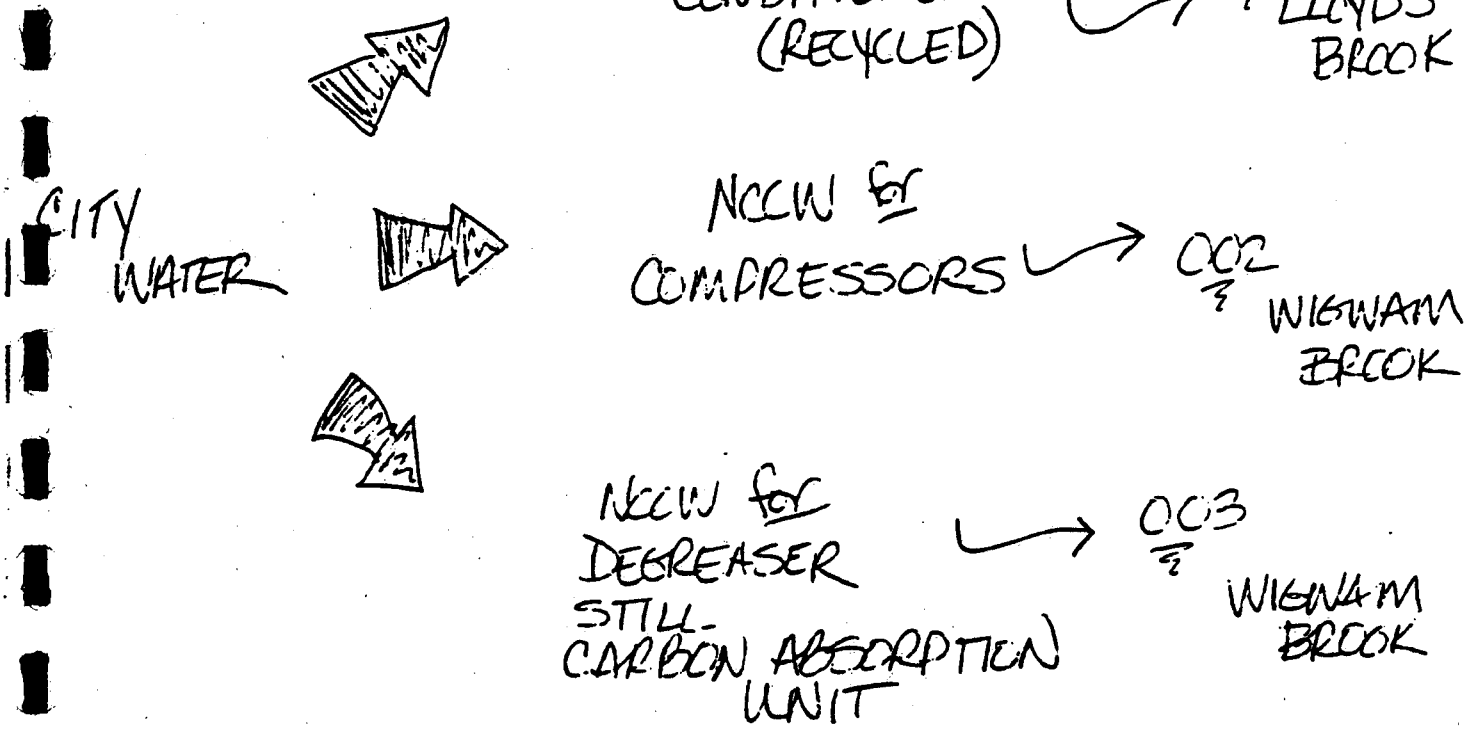
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029, Trenton, N.J. 08625

DISCHARGE SURVEILLANCE REPORT

Permit # NJ0029335
Date 12/8/89

FERLESS TUBE CO., INC.

NT DIAGRAM AND FLOW SEQUENCE:



-NO SAMPLES TAKEN-

DISCHARGE DATA

SOURCE: DMR's

PERIOD: DATED 11/88 - 10/89

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
			-NO						
			VIOLATIONS-						

MONITORING DEFICIENCIES: NONE

ATTACHMENT C-4

REFERENCE 12

Form VSC-005
4/85

NE[illegible]RSEY DEPARTMENT OF ENVIRONMENTAL PROT[illegible]ION : ~~[illegible]~~ Reference 12 - 1 of page 1 of 43

INCIDENT NOTIFICATION REPORT

☑ TRENTON DISPATCH ☐ DIV. OF WASTE MANAGEMENT ☐ DIV. OF ENVIR. QUALITY ☐ DIV. OF WATER RESOURCES
☐ HQ FIELD OFFICE: ☐ NORTHERN ☐ METRO ☐ CENTRAL ☐ SOUTHERN

DATE 09-17-86 TIME (Military) 1015 REC'D BY YACOUB PHONE NO. 669-3960

CASE NO. 86.09.17.01 M

INCIDENT REPORTED BY:

NAME Floyd Campell PHONE (201) 344-0316
STREET 293 Wilson Ave.
CITY Newark STATE N.J.
AFFILIATION Direct Environmental Co.

NATURE OF INCIDENT:
EMERGENCY: ☐ FIRE ☐ EXPLOSION ☐ DRUMS ☐ SPILL ☐ DERAILMENT ☐ MVA
COMPLAINT: ☐ SMOKE ☐ ODORS ☐ DUST ☐ SEWAGE ☐ NUISANCE ☐ ILLEGAL DUMPING
OTHER: ☐

INCIDENT LOCATION:
NAME (Site) Peerless Tube ☐ UNK PHONE (201) 743-5100
STREET 58 76 Locus Ave.
CITY Bloomfield COUNTY Essex STATE N.J. ZIP CODE

STATUS AT SCENE OF INCIDENT: Underground S. Tank was removed, ground was contaminated DATE OF INCIDENT: 09-17-86 TIME: 1015

ANYONE HOSPITALIZED ☐ YES ☑ NO
AREA EVACUATED ☐ YES ☐ NO
CONTAMINATION OF ☐ AIR ☑ LAND ☐ WATER
PUBLIC EXPOSURE ☐ YES ☐ NO
RECEIVING WATER
WIND DIRECTION
POLICE AT SCENE ☐ YES ☑ NO
FIREMAN AT SCENE ☐ YES ☑ NO
ASSISTANCE REQUIRED ☐ YES ☑ NO
POTABLE WATER SOURCE ☐ YES ☐ NO
LOCATION TYPE ☐ CITY ☐ INDUSTRIAL ☐ RURAL

SOURCE OF INCIDENT/PROBLEM: ☐ KNOWN ☐ UNKNOWN

COMPANY NAME as above PHONE
CONTACT Floyd Campell TITLE
STREET
CITY COUNTY STATE ZIP CODE

IDENTITY OF SPILLED AND/OR DISCHARGED SUBSTANCE: ☑ KNOWN ☑ UNKNOWN

NAME OF SUBSTANCE No #4 oil
AMT. Unknown A/P/E SUBSTANCE CONTAINED ☐ YES ☐ NO ☑ UNKNOWN

OFFICIALS NOTIFIED: (A-310)
HEALTH DEPT.: PERSON Meisner PHONE 743-~~[illegible]~~ 4400 DATE
LOCAL MUNIC.: PERSON PHONE DATE

INCIDENT REFERRED TO: ☐ BFO ☐ BERC ☐ DCJ ☐ DWR ☐ F&G ☐ BAPC ☐ HD
1. PERSON Pastuck 9/24/86 PL PHONE DATE
2. PERSON PHONE DATE

COMMENTS:
Soo gal under ground Tank. Tank was empty about 12 years ago excavation of Tank and found land is contaminated with fuel #4. ~~[illegible]~~
H.D. was informed to check., Mr. Campell will excavate the contaminated soil put it in a roll off

COPIES: White - File Yellow - Trenton Dispatch Pink - DWM Enforcement

ATTACHMENT E-1

NEW JERSEY DEPARTMENT
OF
ENVIRONMENTAL PROTECTION

Report of Phone Call

Case Name: Peerless Tube

Incident Notification Number: 86-09-17-0114

Date: 9/15/86 Referred to:

Time: 1050 hrs.

Bureau or Office: DWM/HFO File:

Person Contacted: Floyd Campbell Phone Number: 344-0516

Affiliation/Address: Direct Environmental Co.

Subject of Call:

Summary of Call: Mr Campbell called regarding clean-up. He said tank was removed from concrete ~~vault~~ vault. Contaminated soil was remove ~ 20 yds³. He will take soil samples from side area of tank and submit reported + analysis to this office. I told him it would also be O.K. to backfill excavation.

ACTION RECOMMENDED:

ATTACHMENT E-2

E. Klutz

NEW JERSEY DEPARTMENT
OF
ENVIRONMENTAL PROTECTION

Report of Phone Call

Case Name:

Incident Notification Number: 86-09-17-01M

Date: 9/23/86 Referred to:

Time: 1635

Bureau or Office: MFO File:

Person Contacted: Peter Fordy Phone Number: 201-344-0316

Affiliation/Address: Direct Environmental

Subject of Call: Peerless tube in Bloomfield

Summary of Call:

Mr. Fordy said that they have excavated the soil and analysis of a sample indicated contamination of less than 100 PPM THC. He would like to close the case and fill up the hole. I requested a copy of the analysis report from him.

He would like to have verbal approval from Robert Zoltner (Spill Supervisor/MFO) to close the case. -REG

ACTION RECOMMENDED:

Josephine Blow

ATTACHMENT E-4

Reference 12
Page 4 of 4

Peerless
TUBE COMPANY
58 Locust Avenue, Bloomfield, N.J. 07003 201-743-5100

October 8, 1986

N.J. Department of Environmental Protection
Metro Region Office
2 Babcock Place
West Orange, New Jersey 07052

Att: Ms. Andrea Pastuck

Re: 3000 Gal. Tank Removal

Dear Ms. Pastuck;

This will confirm our conversation today regarding the above mentioned project. I understand based on test results, reported to you by Mr. Peter Lordy of Direct Environmental, no further work is necessary and that we may backfill the excavation and pour a new concrete sidewalk.

Thank you for you attention to this matter.

Very truly yours,

Alan J. Ianuzzi
Project Engineer

AJI/pb

cc: Mr. Peter Lordy, Direct Environmental, Inc.

ATTACHMENT E-5

REFERENCE 13

Reference 13
Page 1 of 11

Scope of Work

for

Closure of Underground Storage Tanks

Prepared for:

Peerless Tube Company
58 Locust Avenue
Bloomfield, New Jersey 07003

Prepared by:

Metcalf & Eddy, Inc.
P.O. Box 1500
Somerville, New Jersey 08876

March 1990

ATTACHMENT V-1

Reference 13
Page 2 of 11

1.0 INTRODUCTION

In November 1989, four (4) underground storage tanks located at the Peerless Tube, Bloomfield facility were addressed by ENSI, Inc. Two (2) of these tanks were removed and two (2) tanks were closed in-place. Samples collected by ENSI in conjunction with the closure were analyzed by Nytest Environmental, Inc. With the exception of some of the samples collected around Tank B, all analytical results were below NJDEP action levels.

Metcalf & Eddy (M&E) has been contracted by Peerless Tube to provide services to insure proper closure requirements are met for these tanks. The scope of work contained within this report is based on a review of the procedures taken by ENSI during the closure and conversation with Mr. David Reubans of NJDEP, Bureau of Underground Storage Tanks regarding the conditions at the site.

ATTACHMENT V-2

Reference 13
Page 3 of 11

2.0 REVIEW OF ENSI ACTIVITIES

Four (4) underground storage tanks were addressed by ENSI from November 6 through 16, 1989. A sketch of the facility illustrating the locations of these tanks is included as Figure 1. All four (4) tanks have been registered, by Peerless Tube, with NJDEP. A copy of the registration is attached as Appendix 1. The activities taken at each of these tanks are described below. Copies of the analytical results collected by ENSI are included in Appendix 2.

2.1 Tank A

Tank A is located approximately 60 feet west of John F. Kennedy Drive. According to the tank registration form, this tank has a capacity of 20,000-gallons and contained #4 fuel oil. The tank is of steel construction and is 11 years old.

Due to the proximity of the tank to the building on one side and a 6-inch steel high pressure gas main on the other side of the tank, the decision was made to abandon this tank in-place. The tank was vacuumed, cleaned and filled with bank-run sand material. A copy of the certification of this material is enclosed as Appendix 3.

ENSI collected a total of four (4) samples from around this tank at a depth of five feet below grade level. Copies of the sampling location sheets provided are attached in Appendix 4. All samples were analyzed for total petroleum hydrocarbons. The sample results are outlined in Table 1. All results are below NJDEP action levels for total petroleum hydrocarbons. Only one (1) sample collected contained a low concentration of total petroleum hydrocarbons, all other samples were non-detectable.

Based on our review of ENSI sampling procedures and observations made by Peerless Tube personnel at the time, regarding the absence of visual contamination, M&E believes this singular low level hit is the result of the introduction of contaminated surface soils or asphalt to the sample collection point.

ATTACHMENT V-4

2.2 Tank B

Reference 13
page 4 of 11

Tank B is located approximately 110 feet west of John F. Kennedy Drive and adjacent to Tank A. According to the tank registration form, this tank has a capacity of 10,200-gallons and last contained trichloroethene. According to Peerless Tube personnel, this tank contained fuel oil until 1984, when it was emptied, cleaned and changed service to the storage of trichloroethene. This tank is of steel construction and is 19 years old.

As was the case with Tank A, the decision was made to close this tank in-place. The tank was vacuumed, cleaned and filled with the bank-run described previously.

ENSI collected a total of four (4) samples from around this tank at a depth of five feet below grade. Copies of the sampling location sheet provided are attached in Appendix 4. Samples at each location were analyzed for total petroleum hydrocarbons and volatile organics plus a forward library search. The sample results are outlined in Table 1.

2.3 Tank C

Tank C is located on the opposite side of Locust Avenue from Tanks A and B, approximately 100 feet west of John F. Kennedy Drive. According to the tank registration form, this tank has a capacity of 10,800-gallons and contained #4 fuel oil. This tank is of steel construction and is of unknown age.

Due to its location, this tank was able to be excavated and removed. Prior to removal, the tank was vacuumed and cleaned. After the tank was excavated, it was cut up and taken to Naporano Iron and Metal Company of Newark, New Jersey. Samples were collected as noted on the sketches included in Appendix 4. All samples were analyzed for total petroleum hydrocarbons and the results are outlined in Table 1. No detectable levels were found.

2.4 Tank D

Tank D is located on the northwest portion of the facility behind the former CECO building. This 1,500-gallon tank is of unknown age and contained #4 fuel oil to service the CECO building. The tank was of steel construction.

ATTACHMENT V-5

The tank was removed under the same conditions as Tank C. As was the case with Tank C, the excavation was backfilled with certified bank-run described previously.

Samples were collected as noted on the sketches in Appendix 4. All samples were analyzed for total petroleum hydrocarbons and the results are outlined in Table 1. All results were below NJDEP action levels for total petroleum hydrocarbons. Only one (1) sample contained a low level hit of total petroleum hydrocarbons.

Based on our review of ENSI sampling procedures and observation made by Peerless Tube that the tank was intact, with no stained soil observed, M&E believes that this singular low level hit is the result of the introduction of contaminated surface soils or asphalt to the sample collection point.

TABLE 1

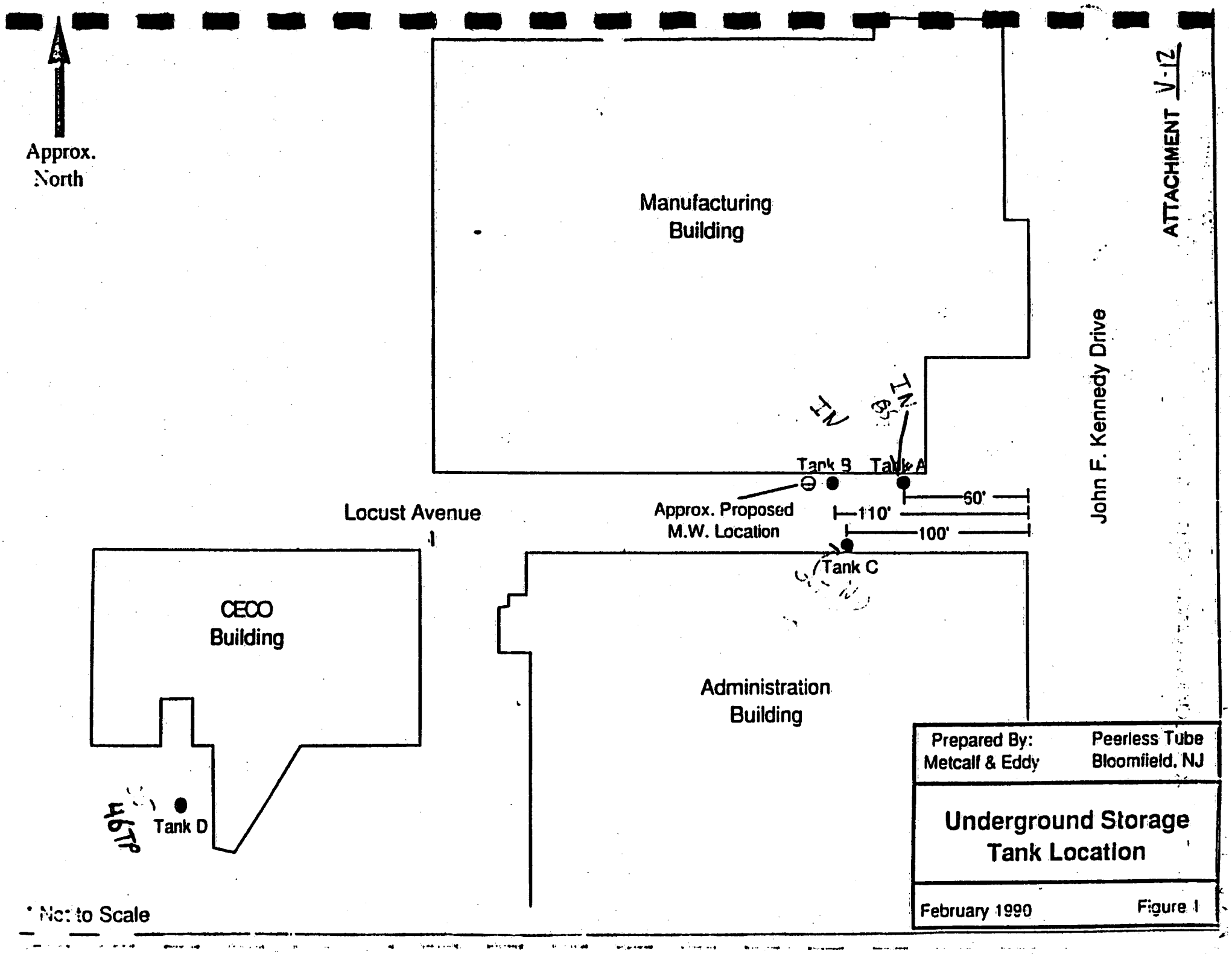
SUMMARY OF ANALYTICAL RESULTS
ENSI, INC. SAMPLES FOR UST CLOSURE
PEERLESS TUBE COMPANY BLOOMFIELD, NJ

SAMPLE DESIGNATION	COMPOUND	CONCENTRATION (ppm)
AT-1	TPHC *	84.9
AT-2	TPHC	<10
AT-3	TPHC	<10
AT-4	TPHC	<10
BT-1	TPHC	699
BV-1	TCE **	0.260
BT-2	TPHC	<10
BV-2	TCE	0.008
BT-3	TPHC	659
BV-3	TCE	0.150
BT-4	TPHC	66.7
BV-4	TCE	<0.001
CT-1	TPHC	<10
CT-2	TPHC	<10
CT-3	TPHC	<10
CT-4	TPHC	<10
CT-5	TPHC	<10
DT-1	TPHC	<10
DT-2	TPHC	<10
DT-3	TPHC	<10
DT-4	TPHC	<10
DT-5	TPHC	46.3

* Total Petroleum Hydrocarbons

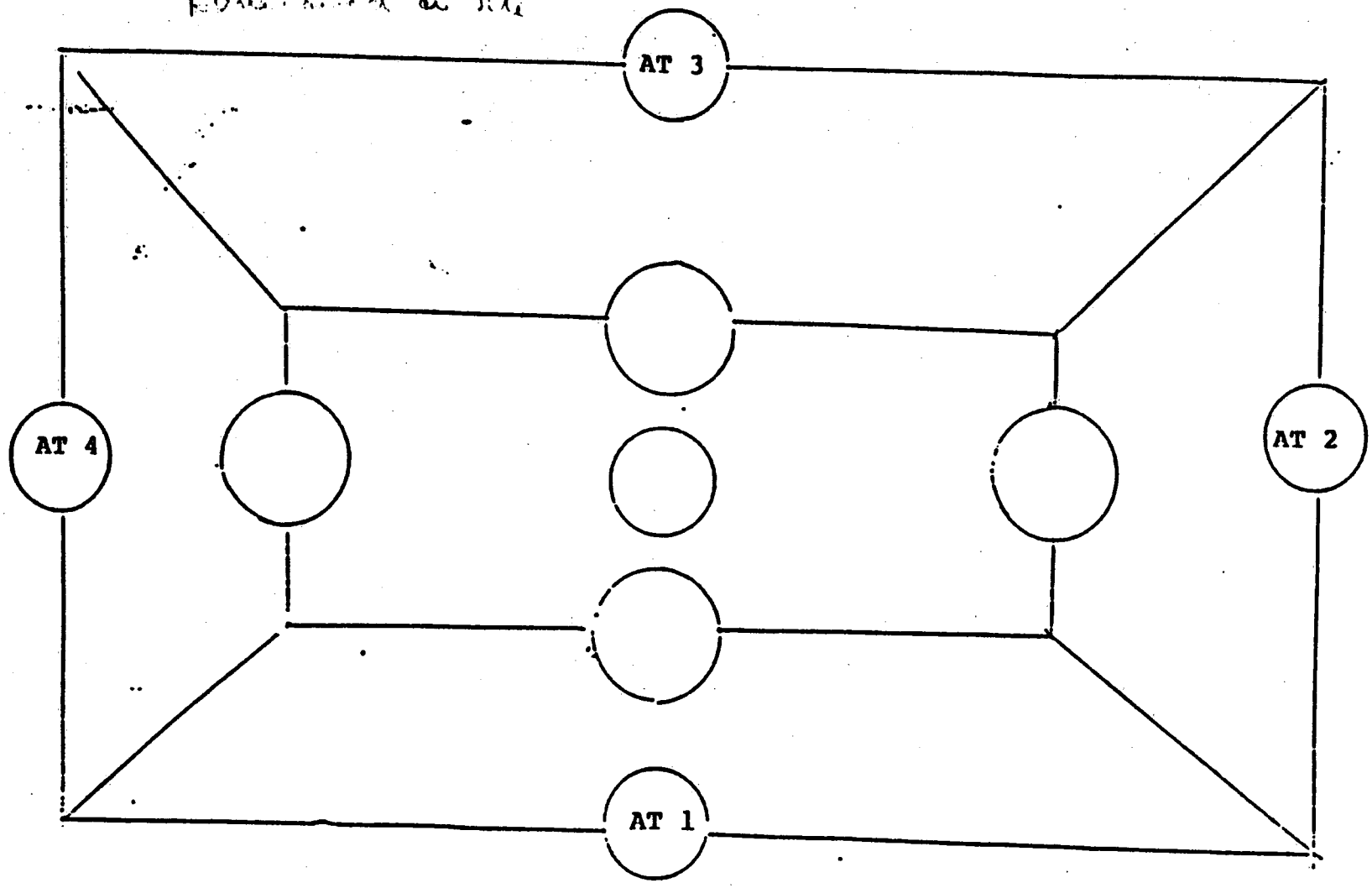
* Trichloroethene, as part of a VO + 15 scan

ATTACHMENT V-11



ATTACHMENT V-12

Abandoned on site



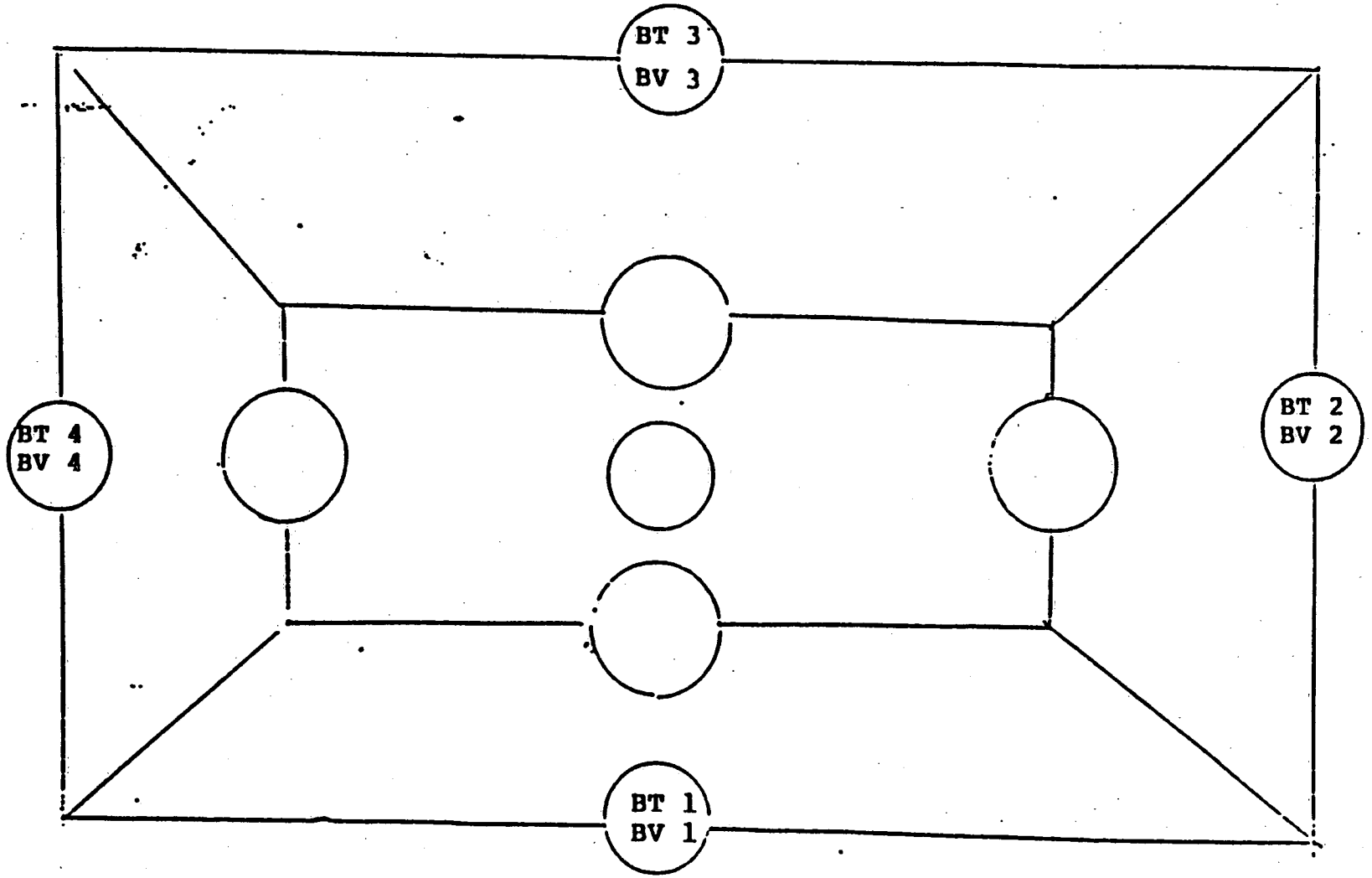
Site A 20,000 gallon Fuel Oil Tank
Samples AT-1 through AT-4 are
TPHC

Facing Excavation

Note: 20,000 Fuel Oil
Tank was filled in
Place. Samples wer
collected 5 feet f
grade level.

Reference 13
Page 8 of 11

ATTACHMENT V-15



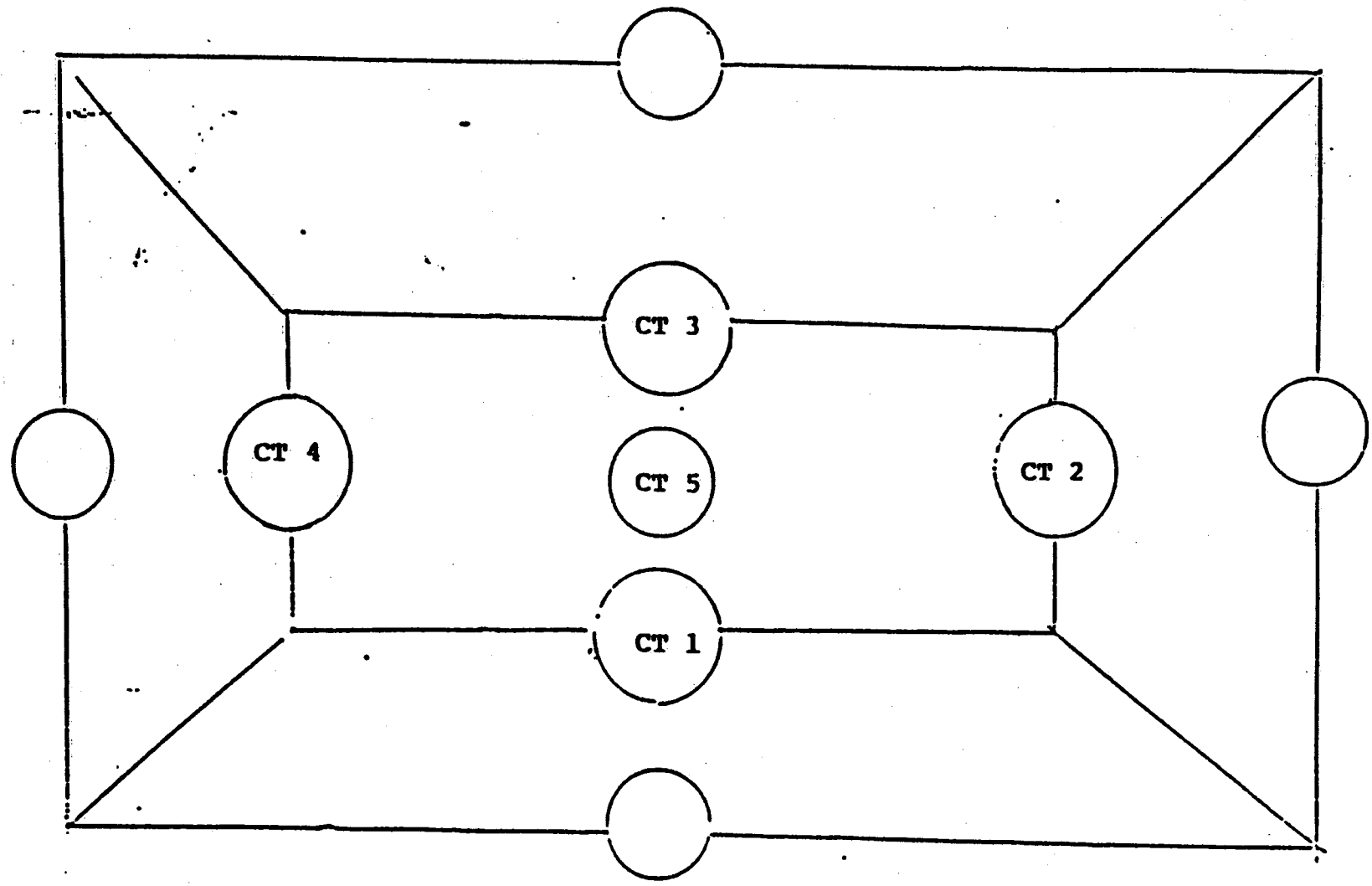
Site B 10,000 gallon TRI Tank
BT-1 through BT-4 are TPHC
BCS are a composite of BT-1 through BT-4
BV-1 through BV-4 are VO+15 analysis

Facing Excavation

Note: TRI, Tank was f
in place. Sampl
were collected
from grade leve

Page 8 of 11

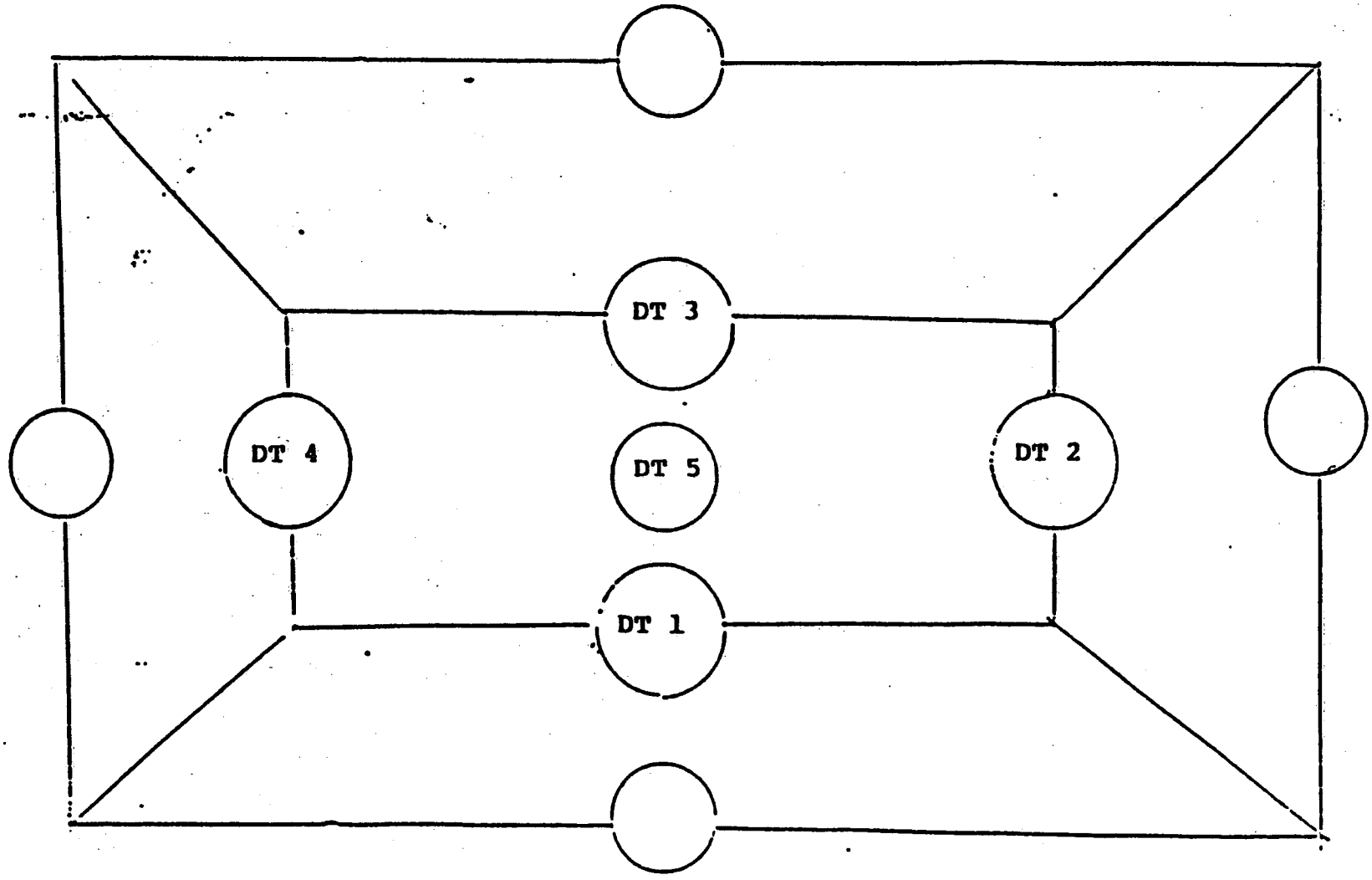
ATTACHMENT Y-16



Site C 10,000 gallon Fuel Oil Tank
Samples CT-1 through CT-5 are
TPHC

Facing Excavation

ATTACHMENT V-D



Site D 1,500 gallon Fuel Oil Tank
Samples DT-1 through DT-5
are TPHC

Facing Excavation

ATTACHMENT V.18

REFERENCE 14

Reference 14
Page 1 of 8

Project No.: 89-16327

Log in No: 3062

P.O. No.: Pending

Date: December 15, 1989

ANALYTICAL DATA REPORT PACKAGE
FOR

ENSI Incorporated

194 Avenue L

Newark, New Jersey 07105

Attn: Barry Oringer
Ref: Peerless Tube

SAMPLE IDENTIFICATION	LABORATORY NUMBER	TYPE OF SAMPLE	DATE AND TIME OF SAMPLE COLLECTION

SEE NEXT PAGE

REPORT PREPARED BY:
PARAG K. SHAH, Ph. D.
ORGANIC LAB. MANAGER

MARLIN McCRICKARD
INORGANIC LAB. MANAGER

DOUGLAS SHEELEY
LABORATORY DIRECTOR
N.J. Cert #73469

bf

WE CERTIFY THAT THIS REPORT IS A TRUE REPORT OF RESULTS OBTAINED FROM OUR TESTS OF THIS MATERIAL.

RESPECTFULLY SUBMITTED,
NYTEST ENVIRONMENTAL INC.

Reno Gigante

RENO GIGANTE
EXECUTIVE V.P.

Report on sample(s) furnished by client applies to sample(s). Report on sample(s) obtained by us applies only to lot sampled. Information contained herein is not to be used for reproduction except by special permission. Sample(s) will be retained for thirty days maximum after date of report unless specifically requested otherwise by client. In the event that there are portions or parts of sample(s) remaining after Nytest has completed the required tests, Nytest shall have the option of returning such sample(s) to the client at the client's expense.

ATTACHMENT V-19

Reference 14
Page 2 of 8

REPORT OF ANALYSIS

Project No.:89-16327
Log in No. : 3062

We find as follows:
Results in PPM
Dry Wt. Basis, Except where noted

Sample Identification		Parameter(s)
		TPHC
3062001	AT-1	84.9
3062002	AT-2	< 10
3062003	AT-3	< 10
3062004	AT-4	< 10
3062005	BT-1	699
3062006	BT-2	< 10
3062007	BT-3	659
3062008	BT-4	66.7
3062009	BCS	28.9
METHOD BLANK*		< 0.2

* Results are on an as received basis

Date Analyzed: 11/30/89

ATTACHMENT V-73

1A-P
NYTEST ENVIRONMENTAL INC.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:SOIL
CONC. LEVEL: LOW
ANALYSIS DATE:11/21/89

SAMPLE ID	BV-1
LAB ID	3062010
DIL FACTOR	1.00
% MOISTURE	15

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/KG (DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	7.0 TB
6	67-64-1	2-Propanone	10.0 U.
7	75-15-0	Carbon disulfide	6.0 U.
8	75-35-4	1,1-Dichloroethene	6.0 U.
9	75-34-3	1,1-Dichloroethane	6.0 U.
10	540-59-0	1,2-Dichloroethene (total)	3.0 J.
11	67-66-3	Chloroform	6.0 U.
12	107-06-2	1,2-Dichloroethane	6.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	6.0 U.
15	56-23-5	Carbon Tetrachloride	6.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	6.0 U.
18	78-87-5	1,2-Dichloropropane	6.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	6.0 U.
20	79-01-6	Trichloroethene	260.0 T.
21	124-48-1	Dibromochloromethane	6.0 U.
22	79-00-5	1,1,2-Trichloroethane	6.0 U.
23	71-43-2	Benzene	6.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	6.0 U.
25	75-25-2	Bromoform	6.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	6.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	6.0 U.
30	108-88-3	Toluene	6.0 U.
31	108-90-7	Chlorobenzene	6.0 U.
32	100-41-4	Ethylbenzene	6.0 U.
33	100-42-5	Styrene	6.0 U.
34	1330-20-7	Xylene (total)	6.0 U.
35	107-02-8	Acrolein	120.0 U.
36	107-13-1	Acrylonitrile	120.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	40.0 U.
40			
41			

ATTACHMENT V-24

Reference 14
page 4 of 8

1A-P
NYTEST ENVIRONMENTAL INC.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:SOIL
CONC. LEVEL: LOW
ANALYSIS DATE:11/21/89

SAMPLE ID : BV-2
LAB ID : 3062011
DIL FACTOR : 1.00
% MOISTURE : 14

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/KG (DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	8.0 TB
6	67-64-1	2-Propanone	10.0 U.
7	75-15-0	Carbon disulfide	6.0 U.
8	75-35-4	1,1-Dichloroethene	6.0 U.
9	75-34-3	1,1-Dichloroethane	6.0 U.
10	540-59-0	1,2-Dichloroethene (total)	6.0 U.
11	67-66-3	Chloroform	6.0 U.
12	107-06-2	1,2-Dichloroethane	6.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	6.0 U.
15	56-23-5	Carbon Tetrachloride	6.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	6.0 U.
18	78-87-5	1,2-Dichloropropane	6.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	6.0 U.
20	79-01-6	Trichloroethene	8.0 T.
21	124-48-1	Dibromochloromethane	6.0 U.
22	79-00-5	1,1,2-Trichloroethane	6.0 U.
23	71-43-2	Benzene	6.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	6.0 U.
25	75-25-2	Bromoform	6.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	6.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	6.0 U.
30	108-88-3	Toluene	6.0 U.
31	108-90-7	Chlorobenzene	6.0 U.
32	100-41-4	Ethylbenzene	6.0 U.
33	100-42-5	Styrene	6.0 U.
34	1330-20-7	Xylene (total)	6.0 U.
35	107-02-8	Acrolein	120.0 U.
36	107-13-1	Acrylonitrile	120.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
40			
41			

ATTACHMENT V-76

Page 5 of 8

1A-P

NYTEST ENVIRONMENTAL INC.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:SOIL
CONC. LEVEL: LOW
ANALYSIS DATE:11/22/89

SAMPLE ID : BV-3
LAB ID : 3062012
DIL FACTOR : 1.00
% MOISTURE : 14

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/KG (DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	1.0 J.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	5.0 JB
6	67-64-1	2-Propanone	10.0 U.
7	75-15-0	Carbon disulfide	6.0 U.
8	75-35-4	1,1-Dichloroethene	6.0 U.
9	75-34-3	1,1-Dichloroethane	6.0 U.
10	540-59-0	1,2-Dichloroethene (total)	7.0 T.
11	67-66-3	Chloroform	6.0 U.
12	107-06-2	1,2-Dichloroethane	6.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	6.0 U.
15	56-23-5	Carbon Tetrachloride	6.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	6.0 U.
18	78-87-5	1,2-Dichloropropane	6.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	6.0 U.
20	79-01-6	Trichloroethene	150.0 T.
21	124-48-1	Dibromochloromethane	6.0 U.
22	79-00-5	1,1,2-Trichloroethane	6.0 U.
23	71-43-2	Benzene	6.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	6.0 U.
25	75-25-2	Bromoform	6.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	6.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	6.0 U.
30	108-88-3	Toluene	6.0 U.
31	108-90-7	Chlorobenzene	6.0 U.
32	100-41-4	Ethylbenzene	6.0 U.
33	100-42-5	Styrene	6.0 U.
34	1330-20-7	Xylene (total)	6.0 U.
35	107-02-8	Acrolein	120.0 U.
36	107-13-1	Acrylonitrile	120.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
40			
41			

ATTACHMENT V-28

1A-P

NYTEST ENVIRONMENTAL INC.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:SOIL
CONC. LEVEL: LOW
ANALYSIS DATE:11/22/89

SAMPLE ID : BV-4
LAB ID : 3062013
DIL FACTOR : 1.00
% MOISTURE : 13

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/KG (DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	4.0 JB
6	67-64-1	2-Propanone	10.0 U.
7	75-15-0	Carbon disulfide	6.0 U.
8	75-35-4	1,1-Dichloroethene	6.0 U.
9	75-34-3	1,1-Dichloroethane	6.0 U.
10	540-59-0	1,2-Dichloroethene (total)	6.0 U.
11	67-66-3	Chloroform	6.0 U.
12	107-06-2	1,2-Dichloroethane	6.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	6.0 U.
15	56-23-5	Carbon Tetrachloride	6.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	6.0 U.
18	78-87-5	1,2-Dichloropropane	6.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	6.0 U.
20	79-01-6	Trichloroethene	1.0 J.
21	124-48-1	Dibromochloromethane	6.0 U.
22	79-00-5	1,1,2-Trichloroethane	6.0 U.
23	71-43-2	Benzene	6.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	6.0 U.
25	75-25-2	Bromoform	6.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	6.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	6.0 U.
30	108-88-3	Toluene	6.0 U.
31	108-90-7	Chlorobenzene	6.0 U.
32	100-41-4	Ethylbenzene	6.0 U.
33	100-42-5	Styrene	6.0 U.
34	1330-20-7	Xylene (total)	6.0 U.
35	107-02-8	Acrolein	110.0 U.
36	107-13-1	Acrylonitrile	110.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
40			
41			

ATTACHMENT V-30

1A-P
NYTEST ENVIRONMENTAL INC.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:SOIL
CONC. LEVEL: LOW
ANALYSIS DATE:11/22/89

SAMPLE ID : VBLKD4
LAB ID : D0036
DIL FACTOR : 1.00
% MOISTURE : 0

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/KG (DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	4.0 J.
6	67-64-1	2-Propanone	10.0 U.
7	75-15-0	Carbon disulfide	5.0 U.
8	75-35-4	1,1-Dichloroethene	5.0 U.
9	75-34-3	1,1-Dichloroethane	5.0 U.
10	540-59-0	1,2-Dichloroethene (total)	5.0 U.
11	67-66-3	Chloroform	5.0 U.
12	107-06-2	1,2-Dichloroethane	5.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	5.0 U.
15	56-23-5	Carbon Tetrachloride	5.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	5.0 U.
18	78-87-5	1,2-Dichloropropane	5.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	5.0 U.
20	79-01-6	Trichloroethene	5.0 U.
21	124-48-1	Dibromochloromethane	5.0 U.
22	79-00-5	1,1,2-Trichloroethane	5.0 U.
23	71-43-2	Benzene	5.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	5.0 U.
25	75-25-2	Bromoform	5.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	5.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U.
30	108-88-3	Toluene	5.0 U.
31	108-90-7	Chlorobenzene	5.0 U.
32	100-41-4	Ethylbenzene	5.0 U.
33	100-42-5	Styrene	5.0 U.
34	1330-20-7	Xylene (total)	5.0 U.
35	107-02-8	Acrolein	100.0 U.
36	107-13-1	Acrylonitrile	100.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
40			
41			

ATTACHMENT V-34

Page 8 of 8

1A-P
NYTEST ENVIRONMENTAL INC.

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX:SOIL
CONC. LEVEL: LOW
ANALYSIS DATE:11/21/89

SAMPLE ID : VBLK03
LAB ID : D0022
DIL FACTOR : 1.00
% MOISTURE : 0

CMPD #	CAS Number	VOLATILE COMPOUNDS	UG/KG (DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	7.0 T.
6	67-64-1	2-Propanone	10.0 U.
7	75-15-0	Carbon disulfide	5.0 U.
8	75-35-4	1,1-Dichloroethene	5.0 U.
9	75-34-3	1,1-Dichloroethane	5.0 U.
10	540-59-0	1,2-Dichloroethene (total)	5.0 U.
11	67-66-3	Chloroform	5.0 U.
12	107-06-2	1,2-Dichloroethane	5.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	5.0 U.
15	56-23-5	Carbon Tetrachloride	5.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	5.0 U.
18	78-87-5	1,2-Dichloropropane	5.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	5.0 U.
20	79-01-6	Trichloroethene	5.0 U.
21	124-48-1	Dibromochloromethane	5.0 U.
22	79-00-5	1,1,2-Trichloroethane	5.0 U.
23	71-43-2	Benzene	5.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	5.0 U.
25	75-25-2	Bromoform	5.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	5.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U.
30	108-88-3	Toluene	5.0 U.
31	108-90-7	Chlorobenzene	5.0 U.
32	100-41-4	Ethylbenzene	5.0 U.
33	100-42-5	Styrene	5.0 U.
34	1330-20-7	Xylene (total)	5.0 U.
35	107-02-8	Acrolein	100.0 U.
36	107-13-1	Acrylonitrile	100.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
40			
41			

00023

ATTACHMENT 1-32

REFERENCE 15

Mail to
Water Allocation
CN 029
Trenton, N.J. 08625

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N.J.

Permit No. 26-21052-5
26-21053-5

PERMIT TO DRILL WELL

Reference 15
Page 1 of 1

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD #: 26 .10 533

Owner PERRIESS TUBE
Address 58 LOCUST AVE.
BLOOMFIELD NJ. 07003

Driller ADVANCED ENVIRONMENTAL BORING
Address P.O. BOX 582
EAST HANOVER NJ 07936

Name of Facility
Address SAME AS ABOVE

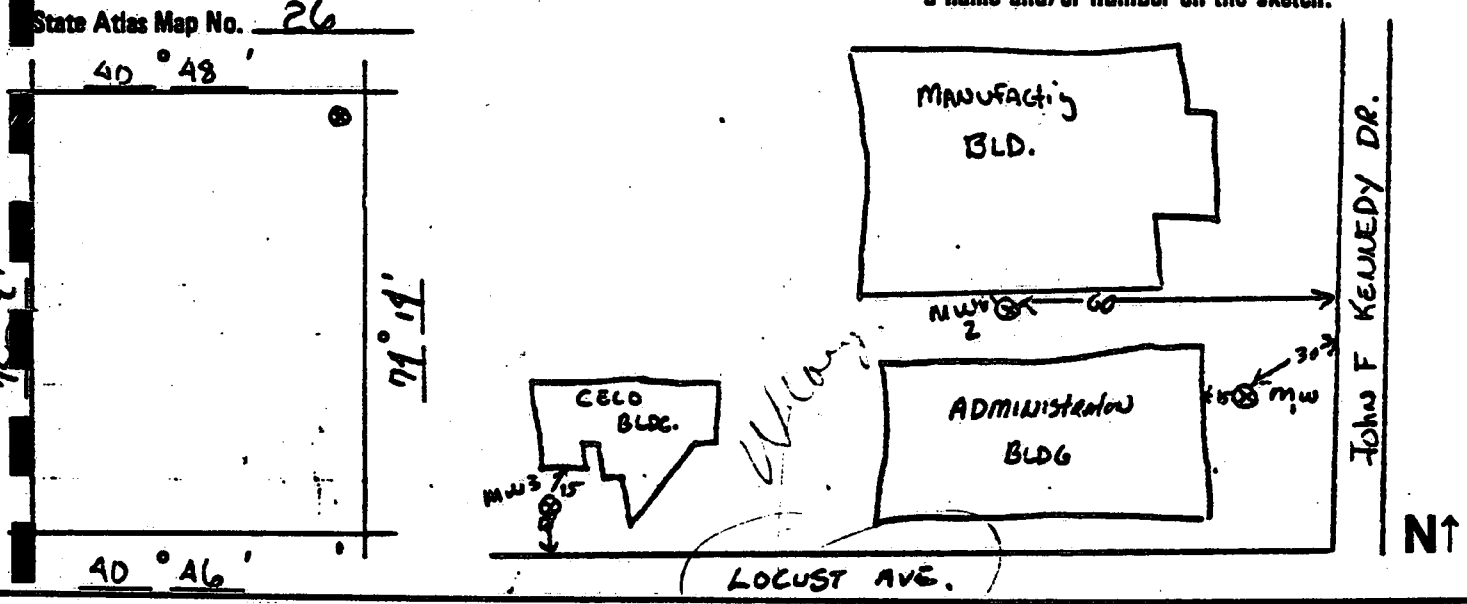
Diameter of Well(s)	4 Inches	Proposed Depth of Well(s)	20 Feet
# of Wells Applied for (max. 10)	3	Will pumping equipment be installed? YES ☒ NO ☐	
Type of Well (see reverse)	MONITORING	If yes, give pump capacity	— GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
60 10 70	129 152 129	BLOOMFIELD	ESSEX

State Atlas Map No. 26

Draw sketch of well(s) to nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



☐ Issuance of this permit is subject to the conditions attached. (see next page)
☐ For monitoring purposes only
☐ Only pure bentonite drilling muds are to be used for installation

This Space for Approval Stamp
JUL 03 1990

FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED
☐ Spill Fund Case
☐ ECRA Case
☐ CERCLA (Superfund) Site
☐ RCRA Site
☒ Underground Storage Tank
☐ NJPDES Municipal Discharge Permit
☐ NJPDES Industrial Discharge Permit
☐ Div. Hazardous Waste Mgmt. Enforcement Case
☐ Div. Water Resources Enforcement Case
☐ Aquifer Test Observation Well
☐ Other (explain)

Case I.D. Number: Not Assigned # yet.

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

ATTACHMENT U

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date 6/27/90
Signature of Driller J1358
Signature of Owner

COPIES: Water Allocation — White and Pink Health Dept. — Yellow Owner — Blue Driller — White

REFERENCE 16

Metcalf & Eddy

October 15, 1990

New Jersey Department of Environmental Protection
Division of Water Resources
Bureau of Underground Storage Tanks
Discharge Investigation Section
401 East State Street
Trenton, New Jersey 08625-0029

Attention: Doug Burry

Dear Mr. Burry:

Metcalf & Eddy is pleased to submit for your review two (2) copies of the DICAR report addressing four (4) underground storage tanks at Peerless Tube's Bloomfield facility.

If you have any questions, please contact either Clare Sullivan or myself at 201/685-4247.

Sincerely,

METCALF & EDDY, INC.

Robert J. Kunze
Project Manager

RJK:cel
Encl.

c: Barry Marell
Frederick Remington, Jr.
Bloomfield Health Department

RECEIVED
OCT 17 1 59 PM '90
BUREAU OF UNDERGROUND STORAGE TANKS

ATTACHMENT W-1

Ramsey St. & Racel Ave. Bridgewater, NJ 08807
Mailing Address: P.O. Box 1500, Somerville, NJ 08876
201-685-4762/4033 — FAX 201-685-4313

4.0 EVALUATION OF SUBSURFACE CONDITIONS

4.1 Monitoring Well Installation

M&E installed three (3) unconsolidated soil-type monitoring wells at the Peerless Tube facility on July 12 and 13, 1990. The newly installed monitoring well locations are shown in Figure 3. The three (3) monitoring wells were installed by Advanced Environmental Boring, Inc. (AEB) under the supervision of an M&E geologist. AEB's driller, Kevin Spronz is a New Jersey licensed driller. The following permit numbers were assigned by the NJDEP for the installation and identification of the three (3) wells:

Well Number	Well Permit Number
MW-1	26-21051-7
MW-2	26-21052-5
MW-3	26-21053-3

Due to the site's flat surface topography which occurs between the elevations of 116 and 123 feet above MSL and similar depth to the water table, all three (3) monitoring wells were installed with the same basic construction. As-built diagrams are enc'osed as Appendix F. Monitoring Well Certification Form A and Form B are enclosed as Appendix G. Table 7 provides a summary of the well construction used during the installation of the three (3) monitoring wells. The wells were installed using a B-57 Mobile Drill Rig equipped with hollow stem augers. Split spoon soil samples were collected from each monitoring well. The three (3) monitoring wells, designated MW-1, MW-2 and MW-3, as-built well construction are as follows:

1. **Total Well Depth** - The total completed depth of the three (3) wells averages 14.5 feet from grade (approximate average elevation +105.72 feet above MSL).

2. **Well Screen** - 10 to 13 feet of 4-inch schedule 40, 20 slot PVC well screen was set from 2 to 15 feet below grade (approximate average elevation +117.27 to +105.72 feet above MSL).

ATTACHMENT W-12

3. **Well Riser** - 1.80 to 3.84 feet of 4-inch schedule 40 PVC riser pipe was set from .36 feet to a maximum of 4.20 feet below grade (approximate average elevation +119.88 feet to +117.27 feet above MSL). The riser casing was connected to the well screen by a threaded flush joint coupling.

4. **Well Screen Gravel Packing** - Gravel packing consists of No. 1 Morie Sand from 2 to 15 feet below grade (approximate average elevation of +117.76 feet to +105.12 feet above MSL).

5. **Well Seal** - 3/8-inch bentonite pellets were placed from 1 to 2.5 feet below grade (approximate average elevation +118.76 to +117.76 feet above MSL).

6. **Grout** - A grouting slurry was used consisting of Portland Type I cement with 5% (by weight) powdered bentonite mixed with water from 2.5 feet to grade (approximate average elevation +118.76 to +120.26 feet above MSL).

7. **Well Covers** - A concrete pad was installed with watertight flush-mounted curb boxes with watertight caps. All well caps were equipped with locks which were similarly keyed.

4.2 Well Siting

The siting for the three (3) monitoring wells, one (1) upgradient and two (2) downgradient, was based on a review of site topography.

Monitoring well MW-1, identified in Figure 3, was placed within 10 feet downgradient of the former No. 4 fuel oil tank designated as "D". This well was placed to assess the groundwater quality in the immediate area of former tank "D" and assess the overall downgradient water quality at the Peerless Tube site.

As specified in the DICAR requirements, monitoring well MW-2 was placed within 10 feet and downgradient of the former trichloroethene tank, designated tank "B". This well will be used to access the impact to groundwater from the documented leak at this location. In addition, because former USTs designated "A" and"C" are in close proximity to tank "B" and monitoring well MW-2 is downgradient of tanks "A" and "C", the water quality results from this well also will be used to assess potential impacts from these tanks.

The monitoring well, identified in Figure 3 as MW-3, was placed upgradient of USTs designated as "A", "B" and "C". Water quality results from this well will be used to establish background water quality.

4.3 Regional Geology and Hydrogeology

Bloomfield, New Jersey is underlain by the Brunswick Formation and Watchung Basalt of the Newark Group of the Late Triassic Age. The Brunswick Formation consist mainly of shale and sandstone, with minor amounts of conglomerate. The Watchung Basalt consists of three (3) extensive sequences of lava flows containing the shale and sandstone of the Brunswick Formation. Above the Newark Group are unconsolidated clay, sand and gravel of the Pleistocene and Recent Epochs.

Groundwater is encountered in joints and fractures of consolidated rocks and in the voids of unconsolidated stratified drift deposits. The wells in the sandstone and shale of the Brunswick Formation of the Triassic Age yield from approximately 40 to 850-gallons per minute (gpm). The most productive water bearing zones of the Brunswick Formation are commonly between depths of 300 to 400 feet. Drawdown due to well pumping is greatest in the direction of strike of the Brunswick Formation (approximately N30°E), and smallest in the direction perpendicular to strike. Wells of the Watchung Basalt will usually contain small to moderate supplies of water but may occasionally yield up to 400 gpm.

4.4 Site Geology

Split spoon samples were collected from each monitoring well to a maximum depth from grade of 20.5 feet (+96.39 feet above MSL). The purpose of these split spoon samples was to provide detail of the subsurface stratigraphy. Geologic logs from the monitoring wells are enclosed in Appendix H. The following two (2) geologic units plus a layer of artificial fill were identified during the installation of the monitoring wells:

1. Fill Material - The fill material varied in thickness to a maximum of 5 feet in MW-3 (elevation +118.58 feet above MSL). The fill material consisted of yellowish-red 5YR 4/6 fine sand with some silt/clay and coarse gray shale gravel. (All color references such as 10YR and 10 YR 5/4 were obtained from the Munsell Color Chart, 1990 Revised Edition.)

2. Silty Fine Sand and Fine Sand - The second unit starts below the fill material and terminates at a depth of approximately 16 feet below the surface, or about elevation +104 feet above

ATTACHMENT W-14

MSL. This geologic unit consists of a reddish-brown (5YR 3/4) fine sand with varying amounts of silt and clay.

3. Red Shale Bedrock - The third unit was encountered at approximately 16 feet and is the bedrock surface (approximate elevation +104 feet above MSL). This unit consists of reddish-brown micaceous siltstone and shale. Based upon split spoon refusal of 50/3-inches, only 8-inches of weathered bedrock was encountered.

   The weathered bedrock interval appears thin with the underlying bedrock surface appears to consist of competent bedrock.

4.5 Groundwater Flow Direction and Hydraulic Gradient

Based on surface topography and the apparent relief of the bedrock surface, the anticipated groundwater flow was thought to be northwest towards Wigwam Brook. However, field water level measurements taken on July 27 and September 14, 1990, suggested a groundwater flow direction to the southeast. Upon further investigation, M&E believes that the water level in monitoring well MW-3 is artificially lowered due to the presence of a nearby sump pump in the basement of the administration building. The sump pump was installed for dewatering purposes and is exempt from permitting under NJAC 7:14A-1:2(c).

The water elevations indicate that there is an active drawdown of the water table created by the sump pump which effectively lowers the static water level in monitoring well MW-3. M&E contends that the natural unaltered groundwater flow direction is northwest towards Wigwam Brook based on observation of the topography and relief of the bedrock surface.

The field water level measurements taken on July 27 and September 14, 1990, show groundwater elevations between 110.79 and 112.70 feet above MSL. Groundwater contour maps generated from each event are shown in Figures 4 and 5. Table 8 provides a summary of the water level measurements.

No free-phase product was detected on July 27 or September 14, 1990.

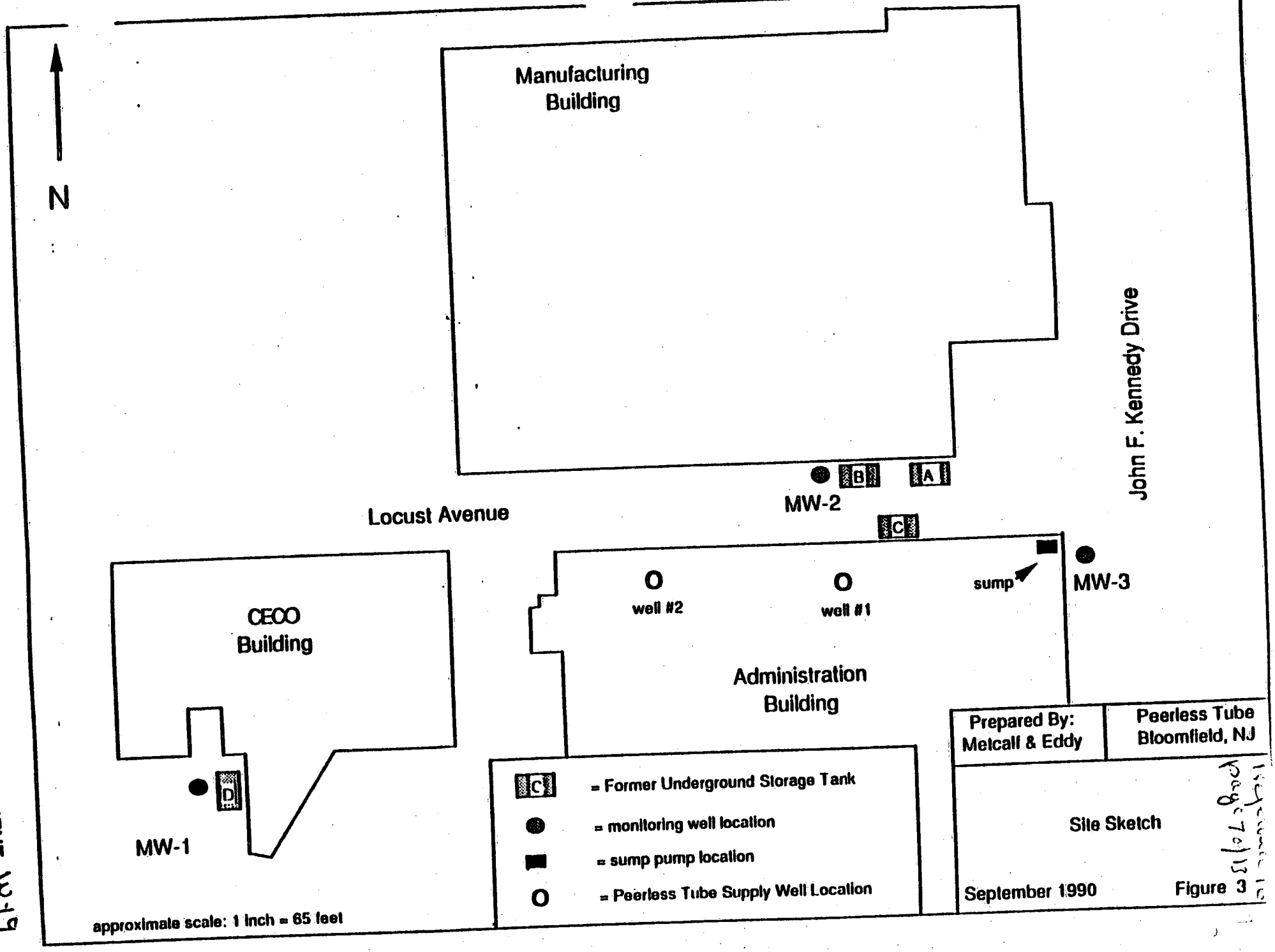
ATTACHMENT W-15

4.6 Groundwater Laboratory Sample Results

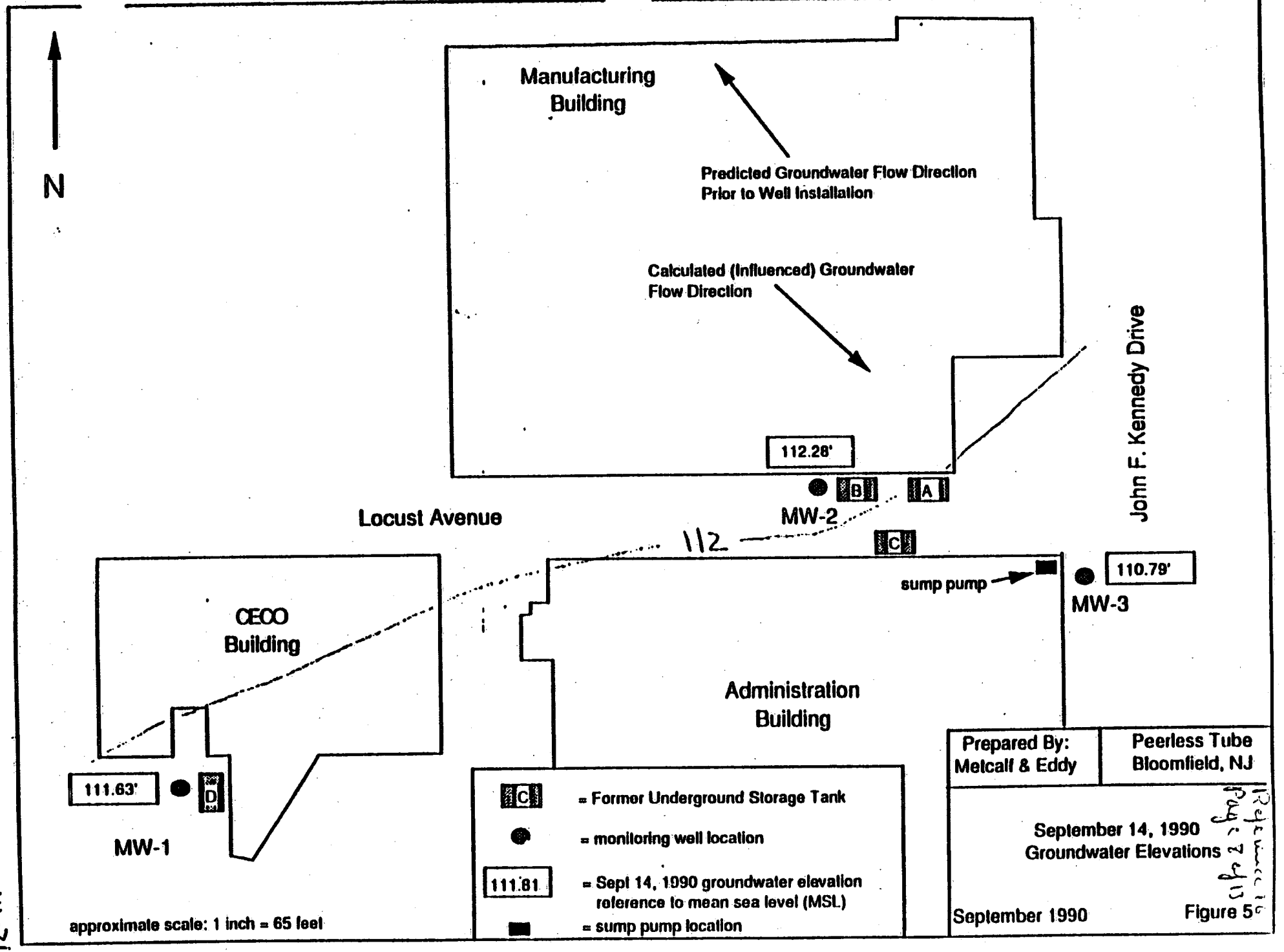
On July 27, 1990, laboratory samples were collected in accordance with NJDEP procedures for water quality sampling from the three (3) monitoring wells. The samples were analyzed by Accutest Laboratories, a NJDEP certified laboratory, with offices located in Dayton, New Jersey. The samples were analyzed for targeted volatile organic compounds plus fifteen tentatively identified compound peaks (VOC+15) in the forward library search, targeted base neutral compounds plus fifteen tentatively identified compound peaks (BN+15) in the forward library search, and TPHC. Laboratory reports are enclosed as Appendix I.

BN and TPHC laboratory results were all below laboratory detection limits for the three (3) monitoring wells. VOCs were detected in monitoring wells MW-1 and MW-2. The distribution of these compounds are shown in Figures 6 and 7, which are summarized on Tables 9, 10 and 11.

The detected total VOC concentrations ranged from 72 parts per billion (ppb) in MW-1 to 310 ppb in MW-2. The VOCs detected were trans-1,2-dichloroethylene and trichloroethene. No tentatively identified compounds (TICs) were detected.



ATTACHMENT W-19



ATTACHMENT W-21

Table 7
Peerless Tube, Bloomfield, New Jersey
Monitoring Well Construction Summary

Monitoring Well No.	NJDEP Permit No.	Ground Surface Elevation (MSL)	Casing Elevation Top/Bottom (MSL)	Well Seal Top/Bottom (MSL)	Gravel Pack Top/Bottom (MSL)	Screen Top/Bottom (MSL)	Well Depth Bottom (MSL)
MW-1	26-21051-7	116.89 '	116.47'/114.67'	115.89'/114.89'	114.89'/101.67'	114.67'/101.67'	101.67'
MW-2	26-21052-5	120.32'	119.96'/118.12'	119.32'/118.32'	118.32'/104.32'	118.12'/106.12'	104.32'
MW-3	26-21053-3	123.58'	123.22'/110.02'	121.08'/120.08'	120.08'/107.58	119.02'/109.38'	107.58'

ATTACHMENT W-30

Page 9 of 13

Table 8
Peerless Tube, Bloomfield, New Jersey
Groundwater Elevations

Well No.	Top of Casing Elevation (ft.)	Surface Elevation (ft.)	Product Thickness (ft.)	Field Measured Water Level (ft.)	Groundwater Elevation (ft.)
27-Jul-90					
MW-1	116.47	116.89	no product	4.66	111.81
MW-2	119.96	120.32	no product	7.26	112.70
MW-3	123.22	123.58	no product	12.40	110.82
14-Sep-90					
MW-1	116.47	116.89	no product	4.84	111.63
MW-2	119.96	120.32	no product	7.68	112.28
MW-3	123.22	123.58	no product	12.43	110.79

Elevations are referenced to mean sea level (MSL)

ATTACHMENT W-31

Page 10 of 13

Table 9
Peerless Tube, Bloomfield, New Jersey
Detected Volatile Organic Laboratory Results*

Target Compounds

M&E Well No. Laboratory Sample No.	MW-1 E020098	MW-2 E020097	MW-3 E020100	Trip Blank (TB) E020101	Field Blank (FB) E020099
trans-1,2-dichloroethylene	26	120	ND	ND	ND
trichloroethylene	46	190	ND	ND	ND
Total Target Compounds	72	310	ND	ND	ND

Tentatively Identified Compounds (TIC's)

M&E Well No. Laboratory Sample No.	MW-1 E020098	MW-2 E020097	MW-3 E020100	Trip Blank (TB) E020101	Field Blank (FB) E020099
	ND	ND	ND	ND	ND
Total TIC's	ND	ND	ND	ND	ND

* all results are in parts per billion (ppb)
ND = below laboratory detection limits
B = found in laboratory blank

ATTACHMENT W-37

Page 11 of 13

Table 10
Peerless Tube, Bloomfield, New Jersey
Detected Base Neutral Laboratory Results*

Target Compounds

M&E Well No. Laboratory Sample No.	MW-1 E020098	MW-2 E020097	MW-3 E020100	Trip Blank (TB) E020101	Field Blank (FB) E020099
	ND	ND	NT	NT	ND
Total Target Compounds	ND	ND	NT	NT	ND

Tentatively Identified Compounds (TIC's)

M&E Well No. Laboratory Sample No.	MW-1 E020098	MW-2 E020097	MW-3 E020100	Trip Blank (TB) E020101	Field Blank (FB) E020099
Unknown	ND	10B	NT	NT	ND
Total TIC's	ND	10B	NT	NT	ND

* all results are in parts per billion (ppb)
ND = below laboratory detection limits
B = found in laboratory blank
NT = not tested

ATTACHMENT W-33

Attachment
Page 12 of 13

Table 11
Peerless Tube, Bloomfield, New Jersey
Detected Total Petroleum Hydrocarbon Laboratory Results*

Total Petroleum Hydrocarbons

M&E Well No. Laboratory Sample No.	MW-1 E020098	MW-2 E020097	MW-3 E020100	Trip Blank (TB) E020101	Field Blank (FB) E020099
	<0.50	<0.50	<0.50	NT	<0.50
Total Petroleum Hydrocarbons	<0.50	<0.50	<0.50	NT	<0.50

* all results are in parts per million (ppm)
ND = below laboratory detection limits
B = found in laboratory blank
NT = not tested

ATTACHMENT W-34

Attachment 11
Page 13 of 13

REFERENCE 17

ETC

page 1 of 129

ANALYTICAL DATA REPORT PACKAGE
FOR
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NEW JERSEY 08625

Case Name: PEERLESS TUBE
Case Number: NA

Field Sample	Lab Sample #	Sample Location	Date & Time Collected	
BSA11020206	CA5221	SOIL 1	11/2/90	1000
BSA11020207	CA5222	SOIL 2	11/2/90	1045
BSA11020208	CA5223	SOIL 3	11/2/90	0930
BSA11020209	CA5224	SOIL 4	11/2/90	1145
BSA11020210	CA5226	MONITORING WELL 1	11/2/90	0955
BSA11020211	CA5227	MONITORING WELL 2	11/2/90	1045
BSA11020212	CA5225	MONITORING WELL 3	11/2/90	1100
BSA11020213	CA5229	FIELD BLANK	11/2/90	0930
BSA11020214	CA5228	FIELD BLANK	11/2/90	0930
BSA11020215	CA5230	TRIP BLANK	11/2/90	

ORGANICS PACKAGE

VOLUME I OF II

Laboratory Name: ETC Corporation

NJDEP Certification Number: 12257

Laboratory QA Officer: LEE ROUDYBUSH
(PRINT)
Laboratory QA Officer: Lee B. Roudybush 1/8/91
(SIGNATURE)
Laboratory Manager: GREGORY G. MORRISON
(PRINT)
Laboratory Manager: Gregory G. Morrison
(SIGNATURE)
Date Submitted: 1/8/91

ATTACHMENT V-1

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	NA
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	NA
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ATTACHMENT X-2

SDG NARRATIVE

This technical report submitted by ETC Corporation contains the analytical results and required deliverables for NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF FISCAL SUPPORT SERVICES Site DEPPTTSK4 (PEERLESS TUBE) samples as identified below:

ETC ID	CLIENT ID	ETC ID	CLIENT ID
CA5221	S-1	CA5226	MW-1
CA5222	S-2	CA5227	FB1
CA5223	S-3	CA5228	FB2
CA5224	S-4	CA5229	FB1
CA5225	MW-3	CA5230	TRIPBLANK

During the preparation and analysis of these samples, the following was observed:

VOLATILES: (OV70394 & OV70395): Problems were not observed during the analysis of these samples.

(OV70397): The intact sample or extract for samples CA5222 and CA5224 required dilution resulting in elevated method detection limits (MDL's).

SEMIVOLATILES: (OC70298): Problems were not observed during the preparation and analysis of these samples.

(OC70327): Internal standard area counts for sample CA5221, the matrix spike and the matrix spike duplicate were confirmed by the results of a replicate analysis.

PESTICIDES/PCBS: (OG70326): There was no apparent explanation for the matrix spike recoveries exceeding QC limits for compounds Heptachlor, Aldrin, Endrin and 4,4'-DDT or the matrix spike duplicate recoveries for gamma-BHC, Heptachlor, Aldrin, Dieldrin, Endrin and 4,4'-DDT. Due to QC limits being advisory, no further corrective action was taken.

(OG70327): Surrogate recoveries for samples CA5221 and CA5222 exceeded QC limits.

The matrix spike and matrix spike duplicate exceeded QC limits. Surrogate and spike recoveries are advisory only, therefore, no further corrective action was taken.

The Individual Standard Mix A check standard failed required limits for percent difference for the analyte Methoxychlor. The batch was accepted based on the fact that there was not Methoxychlor detected in any of the samples.

File # 000370

ATTACHMENT X-3

SAMPLE DATA

ATTACHMENT X-4

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A5221 SOIL 1

ab Name: ETCNJ Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5221V2

Sample wt/vol: 2.85 (g/mL) G Lab File ID: >D1935

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. 10 Date Analyzed: 11/10/90

Column: (pack/cap) PACK Dilution Factor: 2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	~~20~~ 22	U
74-83-9	Bromomethane	~~20~~ 22	U
75-01-4	Vinyl Chloride	~~20~~ 22	U
75-00-3	Chloroethane	~~20~~ 22	U
75-09-2	Methylene Chloride	~~32~~ 35	
67-64-1	Acetone	~~20~~ 22	U
75-15-0	Carbon Disulfide	~~10~~ 11	U
75-35-4	1,1-Dichloroethene	~~10~~ 11	U
75-34-3	1,1-Dichloroethane	~~10~~ 11	U
540-59-0	1,2-Dichlorethene (total)	~~140~~ 150	
67-66-3	Chloroform	~~10~~ 11	U
107-06-2	1,2-Dichloroethane	~~10~~ 11	U
78-93-3	2-Butanone	~~20~~ 22	U
71-55-6	1,1,1-Trichloroethane	~~10~~ 11	U
56-23-5	Carbon Tetrachloride	~~10~~ 11	U
108-05-4	Vinyl Acetate	~~20~~ 22	U
75-27-4	Bromodichloromethane	~~10~~ 11	U
78-87-5	1,2-Dichloropropane	~~10~~ 11	U
10061-01-5	cis-1,3-Dichloropropene	~~10~~ 11	U
79-01-6	Trichloroethene	~~190~~ 220	
124-48-1	Dibromochloromethane	~~10~~ 11	U
79-00-5	1,1,2-Trichloroethane	~~10~~ 11	U
71-43-2	Benzene	~~10~~ 11	U
10061-02-6	trans-1,3-Dichloropropene	~~10~~ 11	U
75-25-2	Bromoform	~~10~~ 11	U
108-10-1	4-Methyl-2-Pentanone	~~20~~ 22	U
591-78-6	2-Hexanone	~~20~~ 22	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	~~10~~ 11	U
108-88-3	Toluene	~~10~~ 11	U
108-90-7	Chlorobenzene	~~10~~ 11	U
100-41-4	Ethylbenzene	~~10~~ 11	U
100-42-5	Styrene	~~10~~ 11	U
1330-20-7	Xylene (total)	~~10~~ 11	U

65

1-9-91

ATTACHMENT X-5
1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

A5221 Soil-1

Lab Name: ETCNJ | Laboratory Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5221V2

Sample wt/vol: 2.5 (g/mL) G Lab File ID: >D1935

Level: (low/med) LOW 1-9-91 Date Received: 11/03/90

% Moisture: not dec. 10 Date Analyzed: 11/10/90

Column: (pack/cap) PACK Dilution Factor: 2 ~~1.0~~

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01.	Unknown Alkane	20.86	~~8~~ 9 1-9-91	BJ

FORM I VOA-TIC

1787 Rev.

ATTACHMENT X-6

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC
A5222 Soil-2

Lab Name: ETC Corp. Contract:

b Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5222V

Sample wt/vol: .1 (g/mL) G Lab File ID: >D1943

Level: (low/med) MED Date Received: 11/03/90

% Moisture: not dec. 88 Date Analyzed: 11/10/90

Column: (pack/cap) PACK Dilution Factor: 50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1540	U
74-83-9	Bromomethane	1540	U
75-01-4	Vinyl Chloride	1540	U
75-00-3	Chloroethane	1540	U
75-09-2	Methylene Chloride	1470	B
67-64-1	Acetone	1540	U
75-15-0	Carbon Disulfide	1270	U
75-35-4	1,1-Dichloroethene	1200	J
75-34-3	1,1-Dichloroethane	1270	U
540-59-0	1,2-Dichlorethene (total)	14700	
67-66-3	Chloroform	1270	U
107-06-2	1,2-Dichloroethane	1270	U
78-93-3	2-Butanone	1540	U
71-55-6	1,1,1-Trichloroethane	1270	U
56-23-5	Carbon Tetrachloride	1270	U
108-05-4	Vinyl Acetate	1540	U
75-27-4	Bromodichloromethane	1270	U
78-87-5	1,2-Dichloropropane	1270	U
10061-01-5	cis-1,3-Dichloropropene	1270	U
79-01-6	Trichloroethene	~~19000~~ 17000	E
124-48-1	Dibromochloromethane	1270	U
79-00-5	1,1,2-Trichloroethane	1270	U
71-43-2	Benzene	1270	U
10061-02-6	trans-1,3-Dichloropropene	1270	U
75-25-2	Bromoform	1270	U
108-10-1	4-Methyl-2-Pentanone	1540	U
591-78-6	2-Hexanone	1540	U
127-18-4	Tetrachloroethene	190	J
79-34-5	1,1,2,2-Tetrachloroethane	1270	U
108-88-3	Toluene	1270	U
108-90-7	Chlorobenzene	1270	U
100-41-4	Ethylbenzene	1270	U
100-42-5	Styrene	1270	U
1330-20-7	Xylene (total)	1270	U

FORM I VOA 1/87 Rev.

ATTACHMENT-X-7

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

A5222 Soil-2

Lab Name: ETC Corp. | Laboratory Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: CA5222V

Sample wt/vol: .1 (g/mL) G

Lab File ID: >D1943

Level: (low/med) MED

Date Received: 11/08/90

% Moisture: not dec. 8

Date Analyzed: 11/10/90

Column: (pack/cap) PACK

Dilution Factor: 50.0

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01.	Carbon dioxide	2.33	~~950~~ 1030	JB
02.	Unknown	20.88	~~270~~ 320 KB 11/27/90	J

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ATTACHMENT X-8

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ ETC SAMPLE NO.

A5222DL

Lab Name: ETC Corp Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: CA5222V

Sample wt/vol: .05 (g/mL) G Lab File ID: >D1949

Level: (low/med) MED Date Received: 11/03/90

% Moisture: not dec. 8 Date Analyzed: 11/11/90

Column: (pack/cap) PACK Dilution Factor: 100

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	1100	U D
74-83-9	Bromomethane	1100	U D
75-01-4	Vinyl Chloride	1100	U D
75-00-3	Chloroethane	1100	U D
75-09-2	Methylene Chloride	720	B D
67-64-1	Acetone	1100	U D
75-15-0	Carbon Disulfide	540	U D
75-35-4	1,1-Dichloroethene	240	J D
75-34-3	1,1-Dichloroethane	540	U D
540-59-0	1,2-Dichloroethene (total)	6200	D
67-66-3	Chloroform	540	U D
107-06-2	1,2-Dichloroethane	540	U D
78-93-3	2-Butanone	1100	U D
71-55-6	1,1,1-Trichloroethane	540	U D
56-23-5	Carbon Tetrachloride	540	U D
108-05-4	Vinyl Acetate	1100	U D
75-27-4	Bromodichloromethane	540	U D
78-87-5	1,2-Dichloropropane	540	U D
10061-01-5	cis-1,3-Dichloropropene	540	U D
79-01-6	Trichloroethene	19000	D
124-48-1	Dibromochloromethane	540	U D
79-00-5	1,1,2-Trichloroethane	540	U D
71-43-2	Benzene	540	U D
10061-02-6	trans-1,3-Dichloropropene	540	U D
75-25-2	Bromoform	540	U D
108-10-1	4-Methyl-2-Pentanone	1100	U D
591-78-6	2-Hexanone	1100	U D
127-18-4	Tetrachloroethene	130	J D
79-34-5	1,1,2,2-Tetrachloroethane	540	U D
108-88-3	Toluene	540	U D
108-90-7	Chlorobenzene	540	U D
100-41-4	Ethylbenzene	540	U D
100-42-5	Styrene	540	U D
1330-20-7	Xylene (total)	540	U D

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ATTACHMENT X-9

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A5223 Soil-3

Name: ETCNJ Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5223V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >D1929

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. 15 Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	~~10~~ 12	U
74-83-9	Bromomethane	~~10~~ 12	U
75-01-4	Vinyl Chloride	~~10~~ 12	U
75-00-3	Chloroethane	~~10~~ 12	U
75-09-2	Methylene Chloride	8	
67-64-1	Acetone	~~10~~ 12	U
75-15-0	Carbon Disulfide	~~5~~ 6	U
75-35-4	1,1-Dichloroethene	~~5~~ 6	U
75-34-3	1,1-Dichloroethane	~~5~~ 6	U
540-59-0	1,2-Dichloroethene (total)	~~5~~ 6	U
67-66-3	Chloroform	~~5~~ 6	U
107-06-2	1,2-Dichloroethane	~~5~~ 6	U
78-93-3	2-Butanone	~~10~~ 12	U
71-55-6	1,1,1-Trichloroethane	~~5~~ 6	U
56-23-5	Carbon Tetrachloride	~~5~~ 6	U
108-05-4	Vinyl Acetate	~~10~~ 12	U
75-27-4	Bromodichloromethane	~~5~~ 6	U
78-87-5	1,2-Dichloropropane	~~5~~ 6	U
10061-01-5	cis-1,3-Dichloropropene	~~5~~ 6	U
79-01-6	Trichloroethene	~~10~~ 12	
124-48-1	Dibromochloromethane	~~5~~ 6	U
79-00-5	1,1,2-Trichloroethane	~~5~~ 6	U
71-43-2	Benzene	~~5~~ 6	U
10061-02-6	trans-1,3-Dichloropropene	~~5~~ 6	U
75-25-2	Bromoform	~~5~~ 6	U
108-10-1	4-Methyl-2-Pentanone	~~10~~ 12	U
591-78-6	2-Hexanone	~~10~~ 12	U
127-18-4	Tetrachloroethene	13	J
79-34-5	1,1,2,2-Tetrachloroethane	~~5~~ 6	U
108-88-3	Toluene	~~5~~ 6	U
108-90-7	Chlorobenzene	~~5~~ 6	U
100-41-4	Ethylbenzene	~~5~~ 6	U
100-42-5	Styrene	~~5~~ 6	U
1330-20-7	Xylene (total)	~~5~~ 6	U

@ 1-4-91

@ 1-9-91

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ATTACHMENT X-10

FORM I VOA 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

A5223 Soil-3

Lab Name: ETCNJ | Laboratory Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5223V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: >D1929

Level: (low/med) LOW 1-4-91 Date Received: 11/03/~~0~~90

% Moisture: not dec. 15 Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1 ~~5~~ 1-4-91

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01.	Unknown Alkane	20.80	~~4~~5 1-4-91	BJ

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ATTACHMENT X-11

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A5224 Soil-4

Lab Name: ETC Corp. Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Reference 17 page 120 of 124

Matrix: (soil/water) SOIL Lab Sample ID: CA5224U

Sample wt/vol: .025 @ (g/mL) G Lab File ID: >D1942

Level: (low/med) MED 14.9 Date Received: 11/03/90

% Moisture: not dec. 82 Date Analyzed: 11/10/90

Column: (pack/cap) PACK Dilution Factor: 200 ~~252~~ @ 14.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12500	U
74-83-9	Bromomethane	12500	U
75-01-4	Vinyl Chloride	12500	U
75-00-3	Chloroethane	12500	U
75-09-2	Methylene Chloride	12100	B
67-64-1	Acetone	12500	U
75-15-0	Carbon Disulfide	11300	U
75-35-4	1,1-Dichloroethene	11300	U
75-34-3	1,1-Dichloroethane	11300	U
540-59-0	1,2-Dichlorethene (total)	11300	U
67-66-3	Chloroform	11300	U
107-06-2	1,2-Dichloroethane	11300	U
78-93-3	2-Butanone	12500	U
71-55-6	1,1,1-Trichloroethane	1870	J
56-23-5	Carbon Tetrachloride	11300	U
108-05-4	Vinyl Acetate	12500	U
75-27-4	Bromodichloromethane	11300	U
78-87-5	1,2-Dichloropropane	11300	U
10061-01-5	cis-1,3-Dichloropropene	11300	U
79-01-6	Trichloroethene	111000	I
124-48-1	Dibromochloromethane	11300	U
79-00-5	1,1,2-Trichloroethane	11300	U
71-43-2	Benzene	11300	U
10061-02-6	trans-1,3-Dichloropropene	11300	U
75-25-2	Bromoform	11300	U
108-10-1	4-Methyl-2-Pentanone	13300	I
591-78-6	2-Hexanone	12500	U
127-18-4	Tetrachloroethene	137000	I
79-34-5	1,1,2,2-Tetrachloroethane	11300	U
108-88-3	Toluene	11300	U
108-90-7	Chlorobenzene	11300	U
100-41-4	Ethylbenzene	11300	U
100-42-5	Styrene	11300	U
1330-20-7	Xylene (total)	11300	U

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ATTACHMENT 1.12

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
A5224
Soil-4

Lab Name: ETC Corp. | Laboratory Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5224V

Sample wt/vol: .025 (g/mL) G Lab File ID: >D1942

Level: (low/med) MED Date Received: 11/03/90

% Moisture: not dec. 21 Date Analyzed: 11/10/90

Column: (pack/cap) PACK Dilution Factor: 200.0

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01.	Carbon dioxide	2.35	~~3400~~ 4200	JB
02. 96-14-0	Pentane, 3-methyl-	20.78	~~1200~~ 1600	J
03.	Unknown	8.30	~~1600~~ 2100	J

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ATTACHMENT X-13

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.

A5226
MW-1

Lab Name: ETCNJ

Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: CA5226V2

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: >C1452

Level: (low/med) LOW

Date Received: 11/03/90

% Moisture: not dec.

Date Analyzed: 11/10/90

Column: (pack/cap) PACK

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	6	~~J~~ ✓ ok
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	8	~~J~~ ✓ ok
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-Dichlorethene (total)	77	
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	130	
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	2	~~J~~ ✓ ok
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	Xylene (total)	5	U

(13) 4/17/9

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ATTACHMENT X-74

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.

A5226
MW-1

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5226V2

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1452

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/10/90

Column: (pack/cap) PACK 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
	None found			

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ATTACHMENT X-15

ETC GLM 1/4/91

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.

A5227
MW-2

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5227U

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1441

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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
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-Dichlorethene (total)	6	
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	26	
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	18	
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	Xylene (total)	5	U

ATTACHMENT A-16

CGM 1/4/91
ETC

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
A5227
NW-2

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5227V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1441

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK 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
	None found			

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ATTACHMENT IX-17

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ ETC SAMPLE NO.

A5225
MW-3

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5225V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1439

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	
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)	44	
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	28	
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	Xylene (total)	5	U

ATTACHMENT X-18

ETC 11/4/91

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.

A5225
MW-3

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5225V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1439

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

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

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

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
	None Found			

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ATTACHMENT X-19

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GGM 1/4/91

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.

A5228
FIELD BLANK

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5228V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1442

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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
75-09-2	Methylene Chloride	2	J 2 vol
67-64-1	Acetone	11	
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-Dichlorethene (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	Xylene (total)	5	U

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ATTACHMENT X-20

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
A5228
FB

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5228U

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1442

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK 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
	None Found			

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ATTACHMENT X-21

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ETC ~~EPA~~ SAMPLE NO.

A5229 FB

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5229V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1443

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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
75-09-2	Methylene Chloride	3	J ~~J~~ Vor
67-64-1	Acetone	12	~~J~~
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-Dichlorethene (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	Xylene (total)	5	U

YB 11/17/90

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ATTACHMENT X-22

ETC GLM 1/4/91

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
A5229
EB

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5229U

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1443

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK 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
	None found			

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ATTACHMENT X-23

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ ETC SAMPLE NO.

A5230
Trip Blank

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5230V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1438

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	9	J ~~J~~ ✓ ok (13) 11/17/
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-Dichlorethene (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	Xylene (total)	5	U

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ATTACHMENT X-24

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ETC GCM 1/4/91

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
A5230
TB

Lab Name: ETCNJ Contract:

Lab Code: F2 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: CA5230V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: >C1438

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. Date Analyzed: 11/09/90

Column: (pack/cap) PACK 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
	None Found			

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ATTACHMENT X-25

ETC

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ANALYTICAL DATA REPORT PACKAGE
FOR
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NEW JERSEY 08625

Case Name: PEERLESS TUBE
Case Number: NA

Field Sample	Lab Sample #	Sample Location	Date & Time Collected	
BSA11020206	CA5221	SOIL 1	11/2/90	1000
BSA11020207	CA5222	SOIL 2	11/2/90	1045
BSA11020208	CA5223	SOIL 3	11/2/90	0930
BSA11020209	CA5224	SOIL 4	11/2/90	1145
BSA11020210	CA5226	MONITORING WELL 1	11/2/90	0955
BSA11020211	CA5227	MONITORING WELL 2	11/2/90	1045
BSA11020212	CA5225	MONITORING WELL 3	11/2/90	1100
BSA11020213	CA5229	FIELD BLANK	11/2/90	0930
BSA11020214	CA5228	FIELD BLANK	11/2/90	0930
BSA11020215	CA5230	TRIP BLANK	11/2/90	

ORGANICS PACKAGE

VOLUME II OF II

Laboratory Name: ETC Corporation

NJDEP Certification Number: 12257

Laboratory QA Officer: (PRINT) LEE ROUDYBUSH

Laboratory QA Officer: (SIGNATURE) Lee Roudybush (KY)

Laboratory Manager: (PRINT) GREGORY G. MORRISON

Laboratory Manager: (SIGNATURE) Gregory G. Morrison

Date Submitted: 1/8/91

ATTACHMENT X-26

SAMPLE DATA

ATTACHMENT X-27

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ ETC SAMPLE NO.
A5221

Name: ETCNJ
Contract:
Code:
Case No.:
SAS No.:
SDG No.:
Matrix: (soil/water) SOIL
Lab Sample ID: CA5221C
Sample wt/vol: ~~27.1~~ 30 (g/mL) G
Lab File ID: >G2700
Level: (low/med) LOW
Date Received: 11/03/90
Moisture: not dec. 10 dec. ~~20~~
Date Extracted: 11/~~14~~ 13/90
Extraction: (SepF/Cont/Sonc) SONC
Date Analyzed: 12/05/90
Cleanup: (Y/N) N
pH: 7.0
Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	13700	U
111-44-4	bis(2-Chloroethyl)ether	13700	U
95-57-8	2-Chlorophenol	13700	U
541-73-1	1,3-Dichlorobenzene	13700	U
106-46-7	1,4-Dichlorobenzene	13700	U
100-51-6	Benzyl alcohol	13700	U
95-50-1	1,2-Dichlorobenzene	13700	U
95-48-7	2-Methylphenol	13700	U
108-60-1	bis(2-Chloroisopropyl)ether	13700	U
106-44-5	4-Methylphenol	13700	U
621-64-7	N-Nitroso-di-n-propylamine	13700	U
67-72-1	Hexachloroethane	13700	U
98-95-3	Nitrobenzene	13700	U
78-59-1	Isophorone	13700	U
88-75-5	2-Nitrophenol	13700	U
105-67-9	2,4-Dimethylphenol	13700	U
65-85-0	Benzoic acid	18000	U
111-91-1	bis(2-Chloroethoxy)methane	13700	U
120-83-2	2,4-Dichlorophenol	13700	U
120-82-1	1,2,4-Trichlorobenzene	13700	U
91-20-3	Naphthalene	13700	U
106-47-8	4-Chloroaniline	13700	U
87-68-3	Hexachlorobutadiene	13700	U
59-50-7	4-Chloro-3-methylphenol	13700	U
91-57-6	2-Methylnaphthalene	13700	U
77-47-4	Hexachlorocyclopentadiene	13700	U
88-06-2	2,4,6-Trichlorophenol	13700	U
95-95-4	2,4,5-Trichlorophenol	18000	U
91-58-7	2-Chloronaphthalene	13700	U
88-74-4	2-Nitroaniline	18000	U
131-11-3	Dimethylphthalate	13700	U
208-96-8	Acenaphthylene	13700	U
606-20-2	2,6-Dinitrotoluene	13700	U

ATTACHMENT X-28

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC GGM 1/4/91

A5221

Name: ETCNJ Contract:

Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5221C

Sample wt/vol: ~~27.1~~ 30 (g/mL) G Lab File ID: >G2700

Level: (low/med) LOW @ 1-4-91 Date Received: 11/03/90

Moisture: not dec. 10 dec. ~~10~~ Date Extracted: 11/~~14~~ 13/90 @ 1-9-91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) ~~Y~~ N pH: 7.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	18000	U
83-32-9	Acenaphthene	3700	U
51-28-5	2,4-Dinitrophenol	18000	U
100-02-7	4-Nitrophenol	18000	U
132-64-9	Dibenzofuran	3700	U
121-14-2	2,4-Dinitrotoluene	3700	U
84-66-2	Diethylphthalate	3700	U
7005-72-3	4-Chlorophenyl-phenylether	3700	U
86-73-7	Fluorene	3700	U
100-01-6	4-Nitroaniline	18000	U
534-52-1	4,6-Dinitro-2-methylphenol	18000	U
86-30-6	N-Nitrosodiphenylamine (1)	3700	U
101-55-3	4-Bromophenyl-phenylether	3700	U
118-74-1	Hexachlorobenzene	3700	U
87-86-5	Pentachlorophenol	18000	U
85-01-8	Phenanthrene	4100	
120-12-7	Anthracene	1100	J
84-74-2	Di-n-butylphthalate	3700	U
206-44-0	Fluoranthene	6400	
129-00-0	Pyrene	5500	
85-68-7	Butylbenzylphthalate	3700	U
91-94-1	3,3'-Dichlorobenzidine	7400	U
56-55-3	Benzo(a)anthracene	2800	J
218-01-9	Chrysene	3500	J
117-81-7	bis(2-Ethylhexyl)phthalate	3700	U
117-84-0	Di-n-octylphthalate	3700	U
205-99-2	Benzo(b)fluoranthene	5100	
207-08-9	Benzo(k)fluoranthene	3700	U
50-32-8	Benzo(a)pyrene	3700	U
193-39-5	Indeno(1,2,3-cd)pyrene	3700	U
53-70-3	Dibenz(a,h)anthracene	3700	U
191-24-2	Benzo(g,h,i)perylene	3700	U

(1) - Cannot be separated from Diphenylamine

FORM I SV -2 1/87 Rev.

ATTACHMENT X-29

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
ETC 66m 1/4/91

A5221

Name: ETCNJ

Contract: _____

Code:

Case No.: _____ SAS No.: SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: CA5221C

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: >G2700

Level: (low/med) LOW

Date Received: 11/03/90

Moisture: not dec. 10 dec. 0

Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 12/05/90

Cleanup: (Y/N) XN pH: 7.0

Dilution Factor: 10.0 ED 1-4-91

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01. 123-79-5	Hexanedioic acid, dioctyl es	30.01	20000	JB
02.	Unknown	3.02	1700	J
03.	Unknown Alkane	4.20	1300	J

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ATTACHMENT-X-30

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ ETC SAMPLE NO.

A5222

Name: ETCNJ Contract: _____

Code: Case No.: _____ SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5222C

Sample wt/vol: ~~27.7~~ 30 (g/mL) G Lab File ID: >G2794

Soil: (low/med) LOW Date Received: 11/03/90

Moisture: not dec. 8 dec. 0 Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/12/90

Cleanup: (Y/N) Y/N pH: 7.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	13600	U
111-44-4	bis(2-Chloroethyl)ether	13600	U
95-57-8	2-Chlorophenol	13600	U
541-73-1	1,3-Dichlorobenzene	13600	U
106-46-7	1,4-Dichlorobenzene	13600	U
100-51-6	Benzyl alcohol	13600	U
95-50-1	1,2-Dichlorobenzene	13600	U
95-48-7	2-Methylphenol	13600	U
108-60-1	bis(2-Chloroisopropyl)ether	13600	U
106-44-5	4-Methylphenol	13600	U
621-64-7	N-Nitroso-di-n-propylamine	13600	U
67-72-1	Hexachloroethane	13600	U
98-95-3	Nitrobenzene	13600	U
78-59-1	Isophorone	13600	U
88-75-5	2-Nitrophenol	13600	U
105-67-9	2,4-Dimethylphenol	13600	U
65-85-0	Benzoic acid	118000	U
111-91-1	bis(2-Chloroethoxy)methane	13600	U
120-83-2	2,4-Dichlorophenol	13600	U
120-82-1	1,2,4-Trichlorobenzene	13600	U
91-20-3	Naphthalene	13600	U
106-47-8	4-Chloroaniline	13600	U
87-68-3	Hexachlorobutadiene	13600	U
59-50-7	4-Chloro-3-methylphenol	13600	U
91-57-6	2-Methylnaphthalene	13600	U
77-47-4	Hexachlorocyclopentadiene	13600	U
88-06-2	2,4,6-Trichlorophenol	13600	U
95-95-4	2,4,5-Trichlorophenol	118000	U
91-58-7	2-Chloronaphthalene	13600	U
88-74-4	2-Nitroaniline	118000	U
131-11-3	Dimethylphthalate	13600	U
208-96-8	Acenaphthylene	13600	U
606-20-2	2,6-Dinitrotoluene	13600	U

ATTACHMENT X-3

ETC GCM 1/4/91

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.

A5222

Name: ETCNJ

Contract:

Code:

Case No.:

SAS No.:

SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: CA5222C

Sample wt/vol: ~~27.7~~ 30 (g/mL) G

Lab File ID: >G2794

Level: (low/med) LOW

1-4-91

Date Received: 11/03/90

Moisture: not dec. 8 dec. 0

Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 12/12/90

1-4-91

Gel Cleanup: (Y/N) ~~Y~~ N

pH: 7.0

Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	18000	U
83-32-9	Acenaphthene	3600	U
51-28-5	2,4-Dinitrophenol	18000	U
100-02-7	4-Nitrophenol	18000	U
132-64-9	Dibenzofuran	3600	U
121-14-2	2,4-Dinitrotoluene	3600	U
84-66-2	Diethylphthalate	3600	U
7005-72-3	4-Chlorophenyl-phenylether	3600	U
86-73-7	Fluorene	3600	U
100-01-6	4-Nitroaniline	18000	U
534-52-1	4,6-Dinitro-2-methylphenol	18000	U
86-30-6	N-Nitrosodiphenylamine (1)	3600	U
101-55-3	4-Bromophenyl-phenylether	3600	U
118-74-1	Hexachlorobenzene	3600	U
87-86-5	Pentachlorophenol	18000	U
85-01-8	Phenanthrene	1600	J
120-12-7	Anthracene	320	J
84-74-2	Di-n-butylphthalate	3600	U
206-44-0	Fluoranthene	710	J
129-00-0	Pyrene	620	J
85-68-7	Butylbenzylphthalate	3600	U
91-94-1	3,3'-Dichlorobenzidine	7200	U
56-55-3	Benzo(a)anthracene	3600	U
218-01-9	Chrysene	3600	U
117-81-7	bis(2-Ethylhexyl)phthalate	3600	U
117-84-0	Di-n-octylphthalate	3600	U
205-99-2	Benzo(b)fluoranthene	3600	U
207-08-9	Benzo(k)fluoranthene	3600	U
50-32-8	Benzo(a)pyrene	3600	U
193-39-5	Indeno(1,2,3-cd)pyrene	3600	U
53-70-3	Dibenz(a,h)anthracene	3600	U
191-24-2	Benzo(g,h,i)perylene	3600	U

(1) - Cannot be separated from Diphenylamine

ATTACHMENT A-32

FORM I SV -2

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66 1/4/91

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ ETC SAMPLE NO.

A5222

Name: ETCNJ

Contract: _____

Code: Case No.: _____ SAS No.: SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: CA5222C

Sample wt/vol: ~~27.7~~30 (g/mL) G

Lab File ID: >G2794

Level: (low/med) LOW CD 1-4-91

Date Received: 11/03/90

Moisture: not dec. ~~0~~ 8 dec. ~~8~~

Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 12/12/90

GPC Cleanup: (Y/N) ~~Y~~N pH: 7.0

Dilution Factor: ~~10.0~~ 10 CD 1-9-91

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.

A5223

Name: ETCNJ Contract: _____

Code: Case No.: _____ SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5223C

Sample wt/vol: ~~25.6~~ 30 (g/mL) G Lab File ID: >G2696

Level: (low/med) LOW CD 1-4-91 Date Received: 11/03/90

Moisture: not dec. ~~8~~ 15 dec. ~~15~~ Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

Cleanup: (Y/N) XN pH: 6.0 Dilution Factor: 10 CD 1-9-91

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3900	U
111-44-4	bis(2-Chloroethyl)ether	3900	U
95-57-8	2-Chlorophenol	3900	U
541-73-1	1,3-Dichlorobenzene	3900	U
106-46-7	1,4-Dichlorobenzene	3900	U
100-51-6	Benzyl alcohol	3900	U
95-50-1	1,2-Dichlorobenzene	3900	U
95-48-7	2-Methylphenol	3900	U
108-60-1	bis(2-Chloroisopropyl)ether	3900	U
106-44-5	4-Methylphenol	3900	U
621-64-7	N-Nitroso-di-n-propylamine	3900	U
67-72-1	Hexachloroethane	3900	U
98-95-3	Nitrobenzene	3900	U
78-59-1	Isophorone	3900	U
88-75-5	2-Nitrophenol	3900	U
105-67-9	2,4-Dimethylphenol	3900	U
65-85-0	Benzoic acid	20000	U
111-91-1	bis(2-Chloroethoxy)methane	3900	U
120-83-2	2,4-Dichlorophenol	3900	U
120-82-1	1,2,4-Trichlorobenzene	3900	U
91-20-3	Naphthalene	3900	U
106-47-8	4-Chloroaniline	3900	U
87-68-3	Hexachlorobutadiene	3900	U
59-50-7	4-Chloro-3-methylphenol	3900	U
91-57-6	2-Methylnaphthalene	3900	U
77-47-4	Hexachlorocyclopentadiene	3900	U
88-06-2	2,4,6-Trichlorophenol	3900	U
95-95-4	2,4,5-Trichlorophenol	20000	U
91-58-7	2-Chloronaphthalene	3900	U
88-74-4	2-Nitroaniline	20000	U
131-11-3	Dimethylphthalate	3900	U
208-96-8	Acenaphthylene	3900	U
606-20-2	2,6-Dinitrotoluene	3900	U

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ATTACHMENT X-34

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ETC GGM 1/4/91
~~EPA~~ SAMPLE NO.

A5223

Name: ETCNJ Contract:

Code: Case No.: SAS No.: SDG No.:

Reference 17 page 35 of 129

Matrix: (soil/water) SOIL Lab Sample ID: CA5223C

Sample wt/vol: ~~25.0~~ 30 (g/mL) G Lab File ID: >G2696

Level: (low/med) LOW GM 1-4-91 Date Received: 11/03/90

Moisture: not dec. 815 dec. ~~25~~ Date Extracted: 11/~~14~~ 13/90 @ 1991

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) ~~Y~~N pH: 6.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	120000	U
83-32-9	Acenaphthene	13900	U
51-28-5	2,4-Dinitrophenol	120000	U
100-02-7	4-Nitrophenol	120000	U
132-64-9	Dibenzofuran	13900	U
121-14-2	2,4-Dinitrotoluene	13900	U
84-66-2	Diethylphthalate	13900	U
7005-72-3	4-Chlorophenyl-phenylether	13900	U
86-73-7	Fluorene	13900	U
100-01-6	4-Nitroaniline	120000	U
534-52-1	4,6-Dinitro-2-methylphenol	120000	U
86-30-6	N-Nitrosodiphenylamine (1)	13900	U
101-55-3	4-Bromophenyl-phenylether	13900	U
118-74-1	Hexachlorobenzene	13900	U
87-86-5	Pentachlorophenol	120000	U
85-01-8	Phenanthrene	11500	J
120-12-7	Anthracene	13900	U
84-74-2	Di-n-butylphthalate	13900	U
206-44-0	Fluoranthene	11600	J
129-00-0	Pyrene	11400	J
85-68-7	Butylbenzylphthalate	13900	U
91-94-1	3,3'-Dichlorobenzidine	17800	U
56-55-3	Benzo(a)anthracene	1750	J
218-01-9	Chrysene	1900	J
117-81-7	bis(2-Ethylhexyl)phthalate	13900	U
117-84-0	Di-n-octylphthalate	13900	U
205-99-2	Benzo(b)fluoranthene	11300	J
207-08-9	Benzo(k)fluoranthene	13900	U
50-32-8	Benzo(a)pyrene	13900	U
193-39-5	Indeno(1,2,3-cd)pyrene	13900	U
53-70-3	Dibenz(a,h)anthracene	13900	U
191-24-2	Benzo(g,h,i)perylene	13900	U

(1) - Cannot be separated from Diphenylamine

ETC 66m 1/4/91

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
A5223

Name: ETCNJ Contract: _____

Code: Case No.: _____ SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: CA5223C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: >G2696

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. 15 dec. 0 Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

GPC Cleanup: (Y/N) ~~Y~~ N pH: 6.0 Dilution Factor: 10.0 GD 1-4-91

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01. 123-79-5	Hexanedioic acid, dioctyl es	30.01	18000	JB
02.	Unknown Alkane	5.25	4900	JB
~~03.~~	~~Unknown Alkane~~	~~9.15~~	~~4300~~	~~J~~ EAL 12/14/91

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ETC 66m 1/4/91

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.

A5224

Name: ETCNJ Contract: _____

Code: Case No.: _____ SAS No.: SDG No.:

Ex: (soil/water) SOIL Lab Sample ID: CA5224C

Wt/vol: ~~23.7~~ 30 (g/mL) G Lab File ID: >G2699

(low/med) LOW 1-4-91 Date Received: 11/03/90

Moisture: not dec. 0.21 dec. 21 Date Extracted: 11/~~14~~ 13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90 1-4-91

Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	4200	U
111-44-4	bis(2-Chloroethyl)ether	4200	U
95-57-8	2-Chlorophenol	4200	U
541-73-1	1,3-Dichlorobenzene	4200	U
106-46-7	1,4-Dichlorobenzene	4200	U
100-51-6	Benzyl alcohol	4200	U
95-50-1	1,2-Dichlorobenzene	4200	U
95-48-7	2-Methylphenol	4200	U
108-60-1	bis(2-Chloroisopropyl)ether	4200	U
106-44-5	4-Methylphenol	4200	U
621-64-7	N-Nitroso-di-n-propylamine	4200	U
67-72-1	Hexachloroethane	4200	U
98-95-3	Nitrobenzene	4200	U
78-59-1	Isophorone	4200	U
88-75-5	2-Nitrophenol	4200	U
105-67-9	2,4-Dimethylphenol	4200	U
65-85-0	Benzoic acid	21000	U
111-91-1	bis(2-Chloroethoxy)methane	4200	U
120-83-2	2,4-Dichlorophenol	4200	U
120-82-1	1,2,4-Trichlorobenzene	4200	U
91-20-3	Naphthalene	4200	U
106-47-8	4-Chloroaniline	4200	U
87-68-3	Hexachlorobutadiene	4200	U
59-50-7	4-Chloro-3-methylphenol	4200	U
91-57-6	2-Methylnaphthalene	4200	U
77-47-4	Hexachlorocyclopentadiene	4200	U
88-06-2	2,4,6-Trichlorophenol	4200	U
95-95-4	2,4,5-Trichlorophenol	21000	U
91-58-7	2-Chloronaphthalene	4200	U
88-74-4	2-Nitroaniline	21000	U
131-11-3	Dimethylphthalate	4200	U
208-96-8	Acenaphthylene	4200	U
606-20-2	2,6-Dinitrotoluene	4200	U

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FORM I SV -1

ATTACHMENT X-37
1/87 Rev.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ETC 66M 1/4/91

~~EPA~~ SAMPLE NO.

A5224

Reference 17

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: ETCNJ Contract:

de: Case No.: SAS No.: SDG No.:

(soil/water) SOIL Lab Sample ID: CA5224C

wt/vol: ~~23.7~~ 30 (g/mL) G Lab File ID: >G2699

(low/med) LOW @ 1-4-91 Date Received: 11/03/90

ture: not dec. ~~8~~ 21 dec. ~~21~~ Date Extracted: 11/~~14~~ 13/90 @ 1-9-91

tion: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

eanup: (Y/N) Y pH: 7.0 Dilution Factor: 10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	21000	U
83-32-9	Acenaphthene	4200	U
51-28-5	2,4-Dinitrophenol	21000	U
100-02-7	4-Nitrophenol	21000	U
132-64-9	Dibenzofuran	4200	U
121-14-2	2,4-Dinitrotoluene	4200	U
84-66-2	Diethylphthalate	4200	U
7005-72-3	4-Chlorophenyl-phenylether	4200	U
86-73-7	Fluorene	4200	U
100-01-6	4-Nitroaniline	21000	U
534-52-1	4,6-Dinitro-2-methylphenol	21000	U
86-30-6	N-Nitrosodiphenylamine (1)	4200	U
101-55-3	4-Bromophenyl-phenylether	4200	U
118-74-1	Hexachlorobenzene	4200	U
87-86-5	Pentachlorophenol	21000	U
85-01-8	Phenanthrene	4200	U
120-12-7	Anthracene	4200	U
84-74-2	Di-n-butylphthalate	4200	U
206-44-0	Fluoranthene	4200	U
129-00-0	Pyrene	4200	U
85-68-7	Butylbenzylphthalate	4200	U
91-94-1	3,3'-Dichlorobenzidine	8400	U
56-55-3	Benzo(a)anthracene	4200	U
218-01-9	Chrysene	4200	U
117-81-7	bis(2-Ethylhexyl)phthalate	4200	U
117-84-0	Di-n-octylphthalate	4200	U
205-99-2	Benzo(b)fluoranthene	4200	U
207-08-9	Benzo(k)fluoranthene	4200	U
50-32-8	Benzo(a)pyrene	4200	U
193-39-5	Indeno(1,2,3-cd)pyrene	4200	U
53-70-3	Dibenz(a,h)anthracene	4200	U
191-24-2	Benzo(g,h,i)perylene	4200	U

(1) - Cannot be separated from Diphenylamine

FORM I SV -2

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1/87 Rev.

ATTACHMENT X-38

ETC GCM 1/4/91

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
A5224

:ETCNJ Contract:

: Case No.: SAS No.: SDG No.:

(soil/water) SOIL Lab Sample ID: CA5224C

t/vol: 30.0 (g/mL) G Lab File ID: >G2699

(low/med) LOW Date Received: 11/03/90

ure: not dec. 21 dec. 0 Date Extracted: 11/~~14~~ 13/90

ion: (SepF/Cont/Sonc) SONC Date Analyzed: 12/05/90

eanup: (Y/N) ~~Y~~N pH: 7.0 Dilution Factor: 10.0 @ 1-4-91

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
123-79-5	Hexanedioic acid, dioctyl es	30.08	19000	JB
	Unknown Alkane	5.27	4600	JB

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ETC 9/4/91
~~EPA~~ SAMPLE NO.

A5225

Name: ETCNJ

Contract:

Code:

Case No.:

SAS No.:

SDG No.: Reference 17 page 40 of 189

(soil/water) WATER

Lab Sample ID: CA5225C

wt/vol: 990.0 (g/mL) ML

Lab File ID: >P3174

(low/med) LOW

Date Received: 11/03/90 GCM 12/13/9

ture: not dec. dec.

Date Extracted: 11/08/90

tion: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

leanup: (Y/N) N

pH: ~~2.0~~ CH 1-9-91

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	10	U
111-91-1	bis(2-Chloroethoxy)methane	51	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	10	U
91-58-7	2-Chloronaphthalene	51	U
88-74-4	2-Nitroaniline	10	U
131-11-3	Dimethylphthalate	51	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
ETC Gloom 11/4/91

A5225

: ETCNJ

Contract:

de:

Case No.:

SAS No.:

SDG No.:

Reference 17
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(soil/water) WATER

Lab Sample ID: CA5225C

wt/vol: 990.0 (g/mL) ML

Lab File ID: >P3174

(low/med) LOW

Date Received: 11/03/90

ture: not dec. dec.

Date Extracted: 11/08/90

ion: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

anup: (Y/N) N pH: ~~7.8~~ 1-9-91

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	51	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	51	U
100-02-7	4-Nitrophenol	51	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	51	U
534-52-1	4,6-Dinitro-2-methylphenol	51	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	51	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-octylphthalate	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

FORM I SV -2

1/87 Rev.

ATTACHMENT A-41

Reference 17
Page 42 of 189

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
ETC Colum 1/4/91
A5225

:ETCNJ

Contract: _____

Case No.: _____ SAS No.: SDG No.:

(soil/water) WATER

Lab Sample ID: CA5225C

wt/vol: 990.0 (g/mL) ML

Lab File ID: >P3174

(low/med) LOW

Date Received: 11/03/90

ure: not dec. dec.

Date Extracted: 11/~~12~~ 08/90 1-4-91

ion: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

leanup: (Y/N) N pH:

Dilution Factor: 1.0

er TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
141-78-6	Acetic acid, ethyl ester	3.22	550	J
	Unknown Alkene	7.02	41	J

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ATTACHMENT X-42

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC Idm 1/4/91

A5226

Reference 17
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me: ETCNJ Contract:

de: Case No.: SAS No.: SDG No.:

(soil/water) WATER Lab Sample ID: CA5226C

wt/vol: 800.0 (g/mL) ML Lab File ID: >P3178

(low/med) LOW Date Received: 11/03/90

ture: not dec. dec. Date Extracted: 11/08/90

tion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/90

leanup: (Y/N) N pH: ~~7.0~~ 1-9-91 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	13	U
111-44-4	bis(2-Chloroethyl)ether	13	U
95-57-8	2-Chlorophenol	13	U
541-73-1	1,3-Dichlorobenzene	13	U
106-46-7	1,4-Dichlorobenzene	13	U
100-51-6	Benzyl alcohol	13	U
95-50-1	1,2-Dichlorobenzene	13	U
95-48-7	2-Methylphenol	13	U
108-60-1	bis(2-Chloroisopropyl)ether	13	U
106-44-5	4-Methylphenol	13	U
621-64-7	N-Nitroso-di-n-propylamine	13	U
67-72-1	Hexachloroethane	13	U
98-95-3	Nitrobenzene	13	U
78-59-1	Isophorone	13	U
88-75-5	2-Nitrophenol	13	U
105-67-9	2,4-Dimethylphenol	13	U
65-85-0	Benzoic acid	63	U
111-91-1	bis(2-Chloroethoxy)methane	13	U
120-83-2	2,4-Dichlorophenol	13	U
120-82-1	1,2,4-Trichlorobenzene	13	U
91-20-3	Naphthalene	13	U
106-47-8	4-Chloroaniline	13	U
87-68-3	Hexachlorobutadiene	13	U
59-50-7	4-Chloro-3-methylphenol	13	U
91-57-6	2-Methylnaphthalene	13	U
77-47-4	Hexachlorocyclopentadiene	13	U
88-06-2	2,4,6-Trichlorophenol	13	U
95-95-4	2,4,5-Trichlorophenol	63	U
91-58-7	2-Chloronaphthalene	13	U
88-74-4	2-Nitroaniline	63	U
131-11-3	Dimethylphthalate	13	U
208-96-8	Acenaphthylene	13	U
606-20-2	2,6-Dinitrotoluene	13	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ETC 66m 1/4/91

A5226

Reference 17
Page 44 of 129

...e: ETCNJ Contract:

...de: Case No.: SAS No.: SDG No.:

...(soil/water) WATER Lab Sample ID: CA5226C

...wt/vol: 800.0 (g/mL) ML Lab File ID: >P3178

...(low/med) LOW Date Received: 11/03/90

...ture: not dec. dec. Date Extracted: 11/08/90

...tion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/90

...leanup: (Y/N) N pH: ~~7.0~~ 1-9-91 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	63	U
83-32-9	Acenaphthene	13	U
51-28-5	2,4-Dinitrophenol	63	U
100-02-7	4-Nitrophenol	63	U
132-64-9	Dibenzofuran	13	U
121-14-2	2,4-Dinitrotoluene	13	U
84-66-2	Diethylphthalate	13	U
7005-72-3	4-Chlorophenyl-phenylether	13	U
86-73-7	Fluorene	13	U
100-01-6	4-Nitroaniline	63	U
534-52-1	4,6-Dinitro-2-methylphenol	63	U
86-30-6	N-Nitrosodiphenylamine (1)	13	U
101-55-3	4-Bromophenyl-phenylether	13	U
118-74-1	Hexachlorobenzene	13	U
87-86-5	Pentachlorophenol	63	U
85-01-8	Phenanthrene	13	U
120-12-7	Anthracene	13	U
84-74-2	Di-n-butylphthalate	13	U
206-44-0	Fluoranthene	13	U
129-00-0	Pyrene	13	U
85-68-7	Butylbenzylphthalate	13	U
91-94-1	3,3'-Dichlorobenzidine	25	U
56-55-3	Benzo(a)anthracene	13	U
218-01-9	Chrysene	13	U
117-81-7	bis(2-Ethylhexyl)phthalate	13	U
117-84-0	Di-n-octylphthalate	13	U
205-99-2	Benzo(b)fluoranthene	13	U
207-08-9	Benzo(k)fluoranthene	13	U
50-32-8	Benzo(a)pyrene	13	U
193-39-5	Indeno(1,2,3-cd)pyrene	13	U
53-70-3	Dibenz(a,h)anthracene	13	U
191-24-2	Benzo(g,h,i)perylene	13	U

(1) - Cannot be separated from Diphenylamine

FORM I SV -2 1/87 Rev.

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ATTACHMENT X-44

Reference 17
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1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
ETC 66M 1/4/91

A5226

Name: ETCNJ

Contract: _____

Code: Case No.: _____ SAS No.: SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: CA5226C

Sample wt/vol: 800.0 (g/mL) ML

Lab File ID: >P3178

(low/med) LOW

Date Received: 11/03/90

Moisture: not dec. dec.

Date Extracted: 11/~~12~~ 08/90 [initials] 1-4-91

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

Cleanup: (Y/N) N pH:

Dilution Factor: 1.0

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
01. 141-78-6	Acetic acid, ethyl ester	3.29	650	J
02.	Unknown Alkene	7.03	59	J
03.	Unknown Alkane	3.47	53	J
04.	Unknown Alkane	4.37	32	J

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ETC ~~EPA~~ SAMPLE NO.

A5227

...e: ETCNJ Contract: _____

...de: Case No.: _____ SAS No.: SDG No.:

...t (soil/water) WATER Lab Sample ID: CA5227C

...wt/vol: 690.0 (g/mL) ML Lab File ID: >G2498

... (low/med) LOW Date Received: 11/03/90

...ture: not dec. dec. Date Extracted: 11/~~12~~/90 08 66m 12/13/90

...tion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

...eanup: (Y/N) YN pH: ~~7.0~~ Dilution Factor: 1

CD 1-4-91

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	14	U
111-44-4	bis(2-Chloroethyl)ether	14	U
95-57-8	2-Chlorophenol	14	U
541-73-1	1,3-Dichlorobenzene	14	U
106-46-7	1,4-Dichlorobenzene	14	U
100-51-6	Benzyl alcohol	14	U
95-50-1	1,2-Dichlorobenzene	14	U
95-48-7	2-Methylphenol	14	U
108-60-1	bis(2-Chloroisopropyl)ether	14	U
106-44-5	4-Methylphenol	14	U
621-64-7	N-Nitroso-di-n-propylamine	14	U
67-72-1	Hexachloroethane	14	U
98-95-3	Nitrobenzene	14	U
78-59-1	Isophorone	14	U
88-75-5	2-Nitrophenol	14	U
105-67-9	2,4-Dimethylphenol	14	U
65-85-0	Benzoic acid	72	U
111-91-1	bis(2-Chloroethoxy)methane	14	U
120-83-2	2,4-Dichlorophenol	14	U
120-82-1	1,2,4-Trichlorobenzene	14	U
91-20-3	Naphthalene	14	U
106-47-8	4-Chloroaniline	14	U
87-68-3	Hexachlorobutadiene	14	U
59-50-7	4-Chloro-3-methylphenol	14	U
91-57-6	2-Methylnaphthalene	14	U
77-47-4	Hexachlorocyclopentadiene	14	U
88-06-2	2,4,6-Trichlorophenol	14	U
95-95-4	2,4,5-Trichlorophenol	72	U
91-58-7	2-Chloronaphthalene	14	U
88-74-4	2-Nitroaniline	72	U
131-11-3	Dimethylphthalate	14	U
208-96-8	Acenaphthylene	14	U
606-20-2	2,6-Dinitrotoluene	14	U

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ATTACHMENT X-46

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
A5227

Lab Name: ETCNJ
Contract:
Lab Code:
Case No.:
SAS No.:
SDG No.:
Matrix (soil/water) WATER
Lab Sample ID: CA5227C
Sample wt/vol: 690.0 (g/mL) ML
Lab File ID: >G2498
Level (low/med) LOW
Date Received: 11/03/90
% Moisture: not dec. dec.
Date Extracted: 11/~~12~~08/90
Extraction: (SepF/Cont/Sonc) CONT
Date Analyzed: 11/22/90
GPC Cleanup: (Y/N) ~~Y~~N
pH: ~~7.0~~ 1-9-91
Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	72	U
83-32-9	Acenaphthene	14	U
51-28-5	2,4-Dinitrophenol	72	U
100-02-7	4-Nitrophenol	72	U
132-64-9	Dibenzofuran	14	U
121-14-2	2,4-Dinitrotoluene	14	U
84-66-2	Diethylphthalate	14	U
7005-72-3	4-Chlorophenyl-phenylether	14	U
86-73-7	Fluorene	14	U
100-01-6	4-Nitroaniline	72	U
534-52-1	4,6-Dinitro-2-methylphenol	72	U
86-30-6	N-Nitrosodiphenylamine (1)	14	U
101-55-3	4-Bromophenyl-phenylether	14	U
118-74-1	Hexachlorobenzene	14	U
87-86-5	Pentachlorophenol	72	U
85-01-8	Phenanthrene	14	U
120-12-7	Anthracene	14	U
84-74-2	Di-n-butylphthalate	14	U
206-44-0	Fluoranthene	14	U
129-00-0	Pyrene	14	U
85-68-7	Butylbenzylphthalate	14	U
91-94-1	3,3'-Dichlorobenzidine	29	U
56-55-3	Benzo(a)anthracene	14	U
218-01-9	Chrysene	14	U
117-81-7	bis(2-Ethylhexyl)phthalate	14	U
117-84-0	Di-n-octylphthalate	14	U
205-99-2	Benzo(b)fluoranthene	14	U
207-08-9	Benzo(k)fluoranthene	14	U
50-32-8	Benzo(a)pyrene	14	U
193-39-5	Indeno(1,2,3-cd)pyrene	14	U
53-70-3	Dibenz(a,h)anthracene	14	U
191-24-2	Benzo(g,h,i)perylene	14	U

(1) - Cannot be separated from Diphenylamine

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ATTACHMENT X-47

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
ETC 66m 1/4/91

A5227

...me: ETCNJ Contract: _____

...Code: Case No.: _____ SAS No.: SDG No.:

...x: (soil/water) WATER Lab Sample ID: CA5227C

...wt/vol: 690.0 (g/mL) ML Lab File ID: >G2498

... (low/med) LOW Date Received: 11/03/90

...sture: not dec. dec. Date Extracted: 11/~~12~~ 08/90 (A) 1-4-91

...ction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

...leanup: (Y/N) ~~Y~~N pH: Dilution Factor: 1.0

...er TICs found: ~~10~~ CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

...AS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
141-78-6	Acetic acid, ethyl ester	4.70	1000	J
	Unknown Alkene	8.42	190	J
	~~Unknown~~	~~9.74~~	~~72~~	~~J~~ (A) 12-13-90
	Unknown	2.44	42	J
44970-05-0	Pentanoic acid, 2,2-dimethyl	7.44	25	J
	Unknown	5.23	23	J
2233-00-3	1-Propene, 3,3,3-trichloro-	8.58	20	J
79-01-6	Ethene, trichloro-	2.56	13	J
	Unknown	8.26	12	J
113-00-8	Guanidine	6.89	12	J

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FORM I SV-TIC

ATTACHMENT X-48

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
~~ETC~~ Gem 1/4/91

A5228

...e: ETCNJ

Contract: _____

...de: Case No.: SAS No.: SDG No.:

...(soil/water) WATER

Lab Sample ID: CA5228C

...wt/vol: 990.0 (g/mL) ML

Lab File ID: >P3180

...(low/med) LOW

Date Received: 11/03/90

...ture: not dec. dec.

Date Extracted: 11/08/90

...tion: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

...eanup: (Y/N) N pH: ~~7.0~~ @ 1-9-91

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	51	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	51	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	51	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC 66m 1/4/91

A5228

Reference 17
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: ETCNJ

Contract:

e: Case No.: SAS No.: SDG No.:

(soil/water) WATER

Lab Sample ID: CA5228C

wt/vol: 990.0 (g/mL) ML

Lab File ID: >P3180

(low/med) LOW

Date Received: 11/03/90

ture: not dec. dec.

Date Extracted: 11/08/90

tion: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

anup: (Y/N) N pH: ~~7.0~~ 1-9-91

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	51	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	51	U
100-02-7	4-Nitrophenol	51	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	51	U
534-52-1	4,6-Dinitro-2-methylphenol	51	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	51	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-octylphthalate	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

FORM I SV -2

1/87 Rev.

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ATTACHMENT X.50

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
ETC 66a 1/4/91

A5228

...e:ETCNJ Contract:

...ode: Case No.: SAS No.: SDG No.:

...: (soil/water) WATER Lab Sample ID: CA5228C

...wt/vol: 990.0 (g/mL) ML Lab File ID: >P3180

... (low/med) LOW Date Received: 11/03/90

...ture: not dec. dec. Date Extracted: 11/~~12~~ 08/90 @ 1-4-91

...ction: (SepF/Cont/Sonc) CONC Date Analyzed: 11/13/90

...Cleanup: (Y/N) N pH: ~~7~~ @ 1-9-91 Dilution Factor: 1.0

...ber TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
1. 141-78-6	Acetic acid, ethyl ester	3.20	430	J
2.	Unknown Alkene	7.04	160	J
3.	Unknown Alkene	7.22	16	J

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ATTACHMENT XI-51

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO. ETC 66M 1/4/91

A5229

ETCNJ

Contract:

Case No.:

SAS No.:

SDG No.:

Reference 17 Page 52 of 129

(soil/water) WATER

Lab Sample ID: CA5229C

t/vol: 980.0 (g/mL) ML

Lab File ID: >P3181

(low/med) LOW

Date Received: 11/03/90

ure: not dec. dec.

Date Extracted: 11/08/90

on: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/90

anup: (Y/N) N pH: ~~7.8~~ 1-9-91

Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	51	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	51	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	51	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

A5229

ETCNJ Contract:

Case No.: SAS No.: SDG No.: Reference 17 Page 53 of 129

(soil/water) WATER Lab Sample ID: CA5229C

t/vol: 980.0 (g/mL) ML Lab File ID: >P3181

(low/med) LOW Date Received: 11/03/90

ure: not dec. dec. Date Extracted: 11/08/90

ion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/90

anup: (Y/N) N pH: ~~7.0~~ 1-9-91 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	51	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	51	U
100-02-7	4-Nitrophenol	51	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	51	U
534-52-1	4,6-Dinitro-2-methylphenol	51	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	51	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	27	
117-84-0	Di-n-octylphthalate	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

FORM I SV -2 1/87 Rev.

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ATTACHMENT X-53

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

~~EPA~~ SAMPLE NO.
ETC 66m 1/4/91

A5229

ETCNJ Contract: _____

Case No.: _____ SAS No.: SDG No.:

(soil/water) WATER Lab Sample ID: CA5229C

wt/vol: 980.0 (g/mL) ML Lab File ID: >P3181

(low/med) LOW Date Received: 11/03/90

ure: not dec. dec. Date Extracted: 11/~~12~~ 08/90 1-4-91

tion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/90

eanup: (Y/N) N pH: Dilution Factor: 1.0

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

er TICs found: 3

AS NUMBER	COMPOUND NAME	RT	EST. CONC	Q
141-78-6	Acetic acid, ethyl ester	3.19	360	J
	Unknown Alkene	7.06	230	J
	Unknown Alkene	7.24	25	J

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FORM I SV-TIC

ATTACHMENT X-54

PESTICIDE/PCB DATA

SAMPLE DATA

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N
ETC JBK 1/14

CA5221

e: ETC/EDISON Contract:

e: ETCEDIS Case No.: 70327 SAS No.: SDG No.: 00370

(soil/water) SOIL Lab Sample ID: CA5221

t/vol: 30.0 (g/mL) G Lab File ID: KA254

(low/med) LOW Date Received: 11/03/90

ure: not dec. 10 dec. Date Extracted: 11/13/90

ion: (SepF/Cont/Sonc) SONC Date Analyzed: 12/11/90

anup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.9	U
319-85-7	beta-BHC	8.9	U
319-86-8	delta-BHC	8.9	U
58-89-9	Lindane	8.9	U
76-44-8	Heptachlor	8.9	U
309-00-2	Aldrin	8.9	U
1024-57-3	Heptachlor epoxide	8.9	U
959-98-8	Endosulfan I	8.9	U
60-57-1	Dieldrin	8.9	U
72-55-9	4,4'-DDE	18	U
72-20-8	Endrin	18	U
33213-65-9	Endosulfan II	18	U
72-54-8	4,4'-DDD	18	U
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	89	U
5103-71-9	alpha-Chlordane	18	U
5103-74-2	gamma-Chlordane	89	U
8001-35-2	Toxaphene	89	U
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	89	U
11141-16-5	Aroclor-1232	89	U
53469-21-9	Aroclor-1242	89	U
12672-29-6	Aroclor-1248	89	U
11097-69-1	Aroclor-1254	89	U
11096-82-5	Aroclor-1260	180	U

ATTACHMENT X-57

FORM I PEST

1/87 Rev.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
ETC JBK 1/14/91

CA5222

ETC/EDISON Contract: _____

ETCEDIS Case No.: 70327 SAS No.: _____ SDG No.: 00370

(soil/water) SOIL Lab Sample ID: CA5222

/vol: 30.0 (g/mL) G Lab File ID: KA255

(low/med) LOW Date Received: 11/03/90

re: not dec. 8 dec. __ Date Extracted: 11/13/90

on: (SepF/Cont/Sonc) SONC Date Analyzed: 12/11/90

nup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.7	U
319-85-7	beta-BHC	8.7	U
319-86-8	delta-BHC	8.7	U
58-89-9	Lindane	8.7	U
76-44-8	Heptachlor	8.7	U
309-00-2	Aldrin	8.7	U
1024-57-3	Heptachlor epoxide	8.7	U
959-98-8	Endosulfan I	8.7	U
60-57-1	Dieldrin	17	U
72-55-9	4,4'-DDE	17	U
72-20-8	Endrin	17	U
33213-65-9	Endosulfan II	17	U
72-54-8	4,4'-DDD	17	U
1031-07-8	Endosulfan sulfate	17	U
50-29-3	4,4'-DDT	17	U
72-43-5	Methoxychlor	87	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	87	U
5103-74-2	gamma-Chlordane	87	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	87	U
11104-28-2	Aroclor-1221	87	U
11141-16-5	Aroclor-1232	87	U
53469-21-9	Aroclor-1242	87	U
12672-29-6	Aroclor-1248	87	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

ATTACHMENT X-58

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ ETC SAMPLE NO. 1/14/91

CA5223

e: ETC/EDISON Contract: _____

de: ETCEDIS Case No.: 70327 SAS No.: _____ SDG No.: 00370

(soil/water) SOIL Lab Sample ID: CA5223

wt/vol: 30.0 (g/mL) G Lab File ID: KA256

(low/med) LOW Date Received: 11/03/90

ture: not dec. 15 dec. __ Date Extracted: 11/13/90

tion: (SepF/Cont/Sonc) SONC Date Analyzed: 12/11/90

eanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	9.4	U
319-85-7	beta-BHC	9.4	U
319-86-8	delta-BHC	9.4	U
58-89-9	Lindane	9.4	U
76-44-8	Heptachlor	9.4	U
309-00-2	Aldrin	9.4	U
1024-57-3	Heptachlor epoxide	9.4	U
959-98-8	Endosulfan I	9.4	U
60-57-1	Dieldrin	9.4	U
72-55-9	4,4'-DDE	19	U
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4,4'-DDD	19	U
1031-07-8	Endosulfan sulfate	19	U
50-29-3	4,4'-DDT	19	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	94	U
5103-71-9	alpha-Chlordane	19	U
5103-74-2	gamma-Chlordane	94	U
8001-35-2	Toxaphene	94	U
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	94	U
11141-16-5	Aroclor-1232	94	U
53469-21-9	Aroclor-1242	94	U
12672-29-6	Aroclor-1248	94	U
11097-69-1	Aroclor-1254	94	U
11096-82-5	Aroclor-1260	190	U
		190	U

ATTACHMENT X-59

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO
ETC BK 1/14/9

CA5224

: ETC/EDISON Contract: _____

: ETCEDIS Case No.: 70327 SAS No.: _____ SDG No.: 00370

(soil/water) SOIL Lab Sample ID: CA5224

t/vol: 30.0 (g/mL) G Lab File ID: KA257

(low/med) LOW Date Received: 11/03/90

re: not dec. 21 dec. __ Date Extracted: 11/13/90

ion: (SepF/Cont/Sonc) SONC Date Analyzed: 12/11/90

anup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	10	U
319-85-7	beta-BHC	10	U
319-86-8	delta-BHC	10	U
58-89-9	Lindane	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	10	U
72-55-9	4,4'-DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	100	U
5103-71-9	alpha-Chlordane	20	U
5103-74-2	gamma-Chlordane	100	U
8001-35-2	Toxaphene	100	U
12674-11-2	Aroclor-1016	200	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	200	U
		200	U

ATTACHMENT Y.6

FORM I PEST 1/87 Rev.

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC ~~JBK~~ 1/14/91

CA5225

ETC/EDISON Contract: _____

ETCEDIS Case No.: 70326 SAS No.: _____ SDG No.: 70326

(soil/water) WATER Lab Sample ID: CA5225

t/vol: 980.0 (g/mL) ML Lab File ID: KA794

(low/med) LOW Date Received: 11/03/90

re: not dec. __ dec. __ Date Extracted: 11/08/90

ion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

anup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta-BHC	0.051	U
319-86-8	delta-BHC	0.051	U
58-89-9	Lindane	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	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	0.51	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.51	U
5103-74-2	gamma-Chlordane	0.51	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.51	U
11104-28-2	Aroclor-1221	0.51	U
11141-16-5	Aroclor-1232	0.51	U
53469-21-9	Aroclor-1242	0.51	U
12672-29-6	Aroclor-1248	0.51	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

ATTACHMENT X-61

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
ETC JBK 1/14/91
CA5226

: ETC/EDISON Contract: _____

: ETCEDIS Case No.: 70326 SAS No.: _____ SDG No.: 70326

(soil/water) WATER Lab Sample ID: CA5226

wt/vol: 990.0 (g/mL) ML Lab File ID: KA795

(low/med) LOW Date Received: 11/03/90

ure: not dec. __ dec. __ Date Extracted: 11/08/90

ion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

anup: (Y/N) N pH: ____ 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

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO
ETC JBK 11/14/91
CA5227

ETC/EDISON Contract: _____

ETCEDIS Case No.: 70326 SAS No.: _____ SDG No.: 70326

(soil/water) WATER Lab Sample ID: CA5227

t/vol: 730.0 (g/mL) ML Lab File ID: KA796

(low/med) LOW Date Received: 11/03/90

re: not dec. __ dec. __ Date Extracted: 11/08/90

ion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

anup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.068	U
319-85-7	beta-BHC	0.068	U
319-86-8	delta-BHC	0.068	U
58-89-9	Lindane	0.068	U
76-44-8	Heptachlor	0.068	U
309-00-2	Aldrin	0.068	U
1024-57-3	Heptachlor epoxide	0.068	U
959-98-8	Endosulfan I	0.068	U
60-57-1	Dieldrin	0.068	U
72-55-9	4,4'-DDE	0.14	U
72-20-8	Endrin	0.14	U
33213-65-9	Endosulfan II	0.14	U
72-54-8	4,4'-DDD	0.14	U
1031-07-8	Endosulfan sulfate	0.14	U
50-29-3	4,4'-DDT	0.14	U
72-43-5	Methoxychlor	0.14	U
53494-70-5	Endrin ketone	0.68	U
5103-71-9	alpha-Chlordane	0.14	U
5103-74-2	gamma-Chlordane	0.68	U
8001-35-2	Toxaphene	0.68	U
12674-11-2	Aroclor-1016	1.4	U
11104-28-2	Aroclor-1221	0.68	U
11141-16-5	Aroclor-1232	0.68	U
53469-21-9	Aroclor-1242	0.68	U
12672-29-6	Aroclor-1248	0.68	U
11097-69-1	Aroclor-1254	0.68	U
11096-82-5	Aroclor-1260	1.4	U

ATTACHMENT X-63

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC ~~ABK~~ 1/14/91

CA5228

: ETC/EDISON Contract: _____

: ETCEDIS Case No.: 70326 SAS No.: _____ SDG No.: 70326

(soil/water) WATER Lab Sample ID: CA5228

wt/vol: 980.0 (g/mL) ML Lab File ID: KA797

(low/med) LOW Date Received: 11/03/90

ure: not dec. __ dec. __ Date Extracted: 11/08/90

ion: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

anup: (Y/N) N pH: ____ Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.051	U
319-85-7	beta-BHC	0.051	U
319-86-8	delta-BHC	0.051	U
58-89-9	Lindane	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	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	0.51	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.51	U
5103-74-2	gamma-Chlordane	0.51	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.51	U
11104-28-2	Aroclor-1221	0.51	U
11141-16-5	Aroclor-1232	0.51	U
53469-21-9	Aroclor-1242	0.51	U
12672-29-6	Aroclor-1248	0.51	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

ATTACHMENT X-64

FORM I PEST 1/87 Rev.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

~~EPA~~ SAMPLE NO.
ETC JBK 1/4/91
CA5229

Name: ETC/EDISON Contract: _____

Code: ETCEDIS Case No.: 70326 SAS No.: _____ SDG No.: 70326

Matrix: (soil/water) WATER Lab Sample ID: CA5229

Sample wt/vol: 1000 (g/mL) ML Lab File ID: KA799

Level: (low/med) LOW Date Received: 11/03/90

% Moisture: not dec. ___ dec. ___ Date Extracted: 11/08/90

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/22/90

GPC Cleanup: (Y/N) N pH: ____ 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	0.050	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	0.10	U
53494-70-5	Endrin ketone	0.50	U
5103-71-9	alpha-Chlordane	0.10	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	0.50	U
12674-11-2	Aroclor-1016	1.0	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	0.50	U
11096-82-5	Aroclor-1260	1.0	U
		1.0	U

ATTACHMENT V-65

FORM I PEST 1/87 Rev.

ETC

ANALYTICAL DATA REPORT PACKAGE
FOR
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NEW JERSEY 08625

Case Name: PEERLESS TUBE
Case Number: NA

Field Sample	Lab Sample #	Sample Location	Date & Time Collected	
BSA11020206	CA5221	SOIL 1	11/2/90	1000
BSA11020207	CA5222	SOIL 2	11/2/90	1045
BSA11020208	CA5223	SOIL 3	11/2/90	0930
BSA11020209	CA5224	SOIL 4	11/2/90	1145

INORGANICS PACKAGE

Laboratory Name: ETC Corporation

NJDEP Certification Number: 12257

Laboratory QA Officer: (PRINT) LEE ROUDYBUSH

Laboratory QA Officer: (SIGNATURE) Lee B. Roudybush 1/15/91

Laboratory Manager: (PRINT) GREGORY G. MORRISON

Laboratory Manager: (SIGNATURE) Gregory G. Morrison

Date Submitted: 1/8/91

ATTACHMENT X-66

ETC

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LABELLING CODES FOR ICP ANALYSIS

CBBLK - Calibration Verification blank
SXBLK - Standard Blank
SASI514A - Standard 1
SBSI514B - Standard 2
SCSI514C - Standard 3
CSSI514E - Standard 4
CSSI514D - Standard 5
DW - Rinsewater
CSMIDCHK - Initial/Continuing Calibration Verification Solution
CSX85INT - Interference Check Sample
CSLABCON/CSLABCN2 - Laboratory Control Sample
RSQXXXXX - Method Blank
KKIFBPX - Method Blank Spike
RSXXXXXX - Sample
KSIFBPX - Matrix Spike
QSXXXXXX - Duplicate Sample
DSXXXXXX - Serial Dilution

LABELLING CODES FOR FLAME AA ANALYSIS

SXBLK - Standard Blank
SASI121A - Standard 1
SBSI121B - Standard 2
SCSI121C - Standard 3
SMSI121E - Stnadard 4
SDSI121D - Standard 5
CSBLK/CBBLK - Calibration Verification Blank
CSFFLMCON - Initial/Continuing Calibration Verification Solution
RSQXXXXX - Method Blank
KKIFBPX - Method Blank Spike
RSQXXXXXX - Dilution of Method Blank (used for spike recovery determination)
RSXXXXXX - Sample
KSIFBPX - Matrix Spike
RSXXXXXD - Dilution of Matrix Spiked Sample (used for spike recovery determination)
QSXXXXXX - Duplicate Sample

LABELLING CODES FOR GRAPHITE FURNACE AA ANALYSIS

BLANK	-	Standard Blank
STANDARD 1	-	STD 1
STANDARD 2	-	STD 2
STANDARD 3	-	STD 3
STANDARD 4	-	STD 4
CSBLK/CBBLK	-	Calibration/Verification Blank
CSSTRCON	-	Initial/Continuing Calibration Verification Solution
CSFNLAB/CSFNLAB2	-	Laboratory Control Sample
RSQXXXXX	-	Method Blank
KKIFBPX	-	Method Blank Spike
RSXXXXXX	-	Sample
KSIFBPX	-	Matrix Spike
QSXXXXXX	-	Duplicate Sample

LABELLING CODES FOR MERCURY ANALYSIS

QC-EPA	-	Initial Calibration Verification Solution
BLK	-	Blank
CONTROL	-	Continuing Calibration Verification Solution
QXXX -1,2	-	Method Blank in Duplicate
-A1	-	Method Blank Spike
XXXXXX-1,2	-	Sample in Duplicate
-A1	-	Matrix Spike

KEYS TO ETC REPORTING

ND	-	Concentration Below IDL
BMDL	-	Concentration Greater than IDL but less than MDL

CLP DATA QUALIFIERS

E	-	Indicates the reported value is estimated due tothe presence of interference.
S	-	Indicates the reported value was determined by Method of Standard Additions (MSA).
N	-	Indicated spiked sample recovery is not within control limits.
*	-	Indicates duplicate analysis is not within control limits.

ETC

CASE NARRATIVE

ATTACHMENT V-7

ETC

SDG NARRATIVE

This technical report submitted by ETC Corporation contains the analytical results and required deliverables for NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF FISCAL SUPPORT SERVICES Site DEPPTTSK4 (PEERLESS TUBE) samples as identified below:

ETC ID	CLIENT ID	ETC ID	CLIENT ID
CA5221	S-1	CA5223	S-3
CA5222	S-2	CA5224	S-4

During the preparation and analysis of these samples, the following was observed:

METALS: (OM70208): Problems were not observed during the preparation and analysis of these samples.

CYANIDES: (OW70325): Problems were not observed during the preparation and analysis of these samples.

File # 000370

METALS ANALYSIS DATA

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-1

Lab Name: ETC CORP.
Lab Code:
Case No.:
Contract:
SAS No.:
SDG No.: M208S

Matrix (soil/water): SOIL

Lab Sample ID: CA5221

Level (low/med): LOW

Date Received: 11/03/90

% Solids: 89.8

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	7020.0		P	
7440-36-0	Antimony	4.5	U	P	N
7440-38-2	Arsenic	7.7		F	
7440-39-3	Barium	76.5		P	
7440-41-7	Beryllium	.2	B	P	
7440-43-9	Cadmium	1.9		P	
7440-70-2	Calcium	9590.0		P	
7440-47-3	Chromium	23.5		P	
7440-48-4	Cobalt	4.4	B	P	
7440-50-8	Copper	142.0		P	
7439-89-6	Iron	13500.0		P	
7439-92-1	Lead	260.0		P	
7439-95-4	Magnesium	2400.0		P	
7439-96-5	Manganese	304.0		P	
7439-97-6	Mercury	2.0		CV	
7440-02-0	Nickel	29.9		P	
7440-09-7	Potassium	500.0	B	P	
7782-49-4	Selenium	.6	U	F	N
7440-22-4	Silver	1.2	U	P	
7440-23-5	Sodium	104.0	B	P	
7440-28-0	Thallium	.4	U	F	
7440-62-2	Vanadium	52.8		P	
7440-66-6	Zinc	277.0		P	
	Cyanide	.6		CN	N

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

7/87

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-2

Lab Name: ETC CORP.
Lab Code: Case No.: Contract: SAS No.: SDG No.: M208S

Matrix (soil/water): SOIL Lab Sample ID: CA5222

Level (low/med): LOW Date Received: 11/03/90

% Solids: 91.2

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	19200.0		P	
7440-36-0	Antimony	4.5	U	P	N
7440-38-2	Arsenic	8.0		F	
7440-39-3	Barium	167.0		P	
7440-41-7	Beryllium	1.4		P	
7440-43-9	Cadmium	4.7		P	
7440-70-2	Calcium	66400.0		P	
7440-47-3	Chromium	182.0		P	
7440-48-4	Cobalt	5.6	B	P	
7440-50-8	Copper	1080.0		P	
7439-89-6	Iron	20000.0		P	
7439-92-1	Lead	563.0		P	
7439-95-4	Magnesium	19600.0		P	
7439-96-5	Manganese	1190.0		P	
7439-97-6	Mercury	3.5		CV	
7440-02-0	Nickel	169.0		P	
7440-09-7	Potassium	901.0	B	P	N
7782-49-4	Selenium	1.3		F	
7440-22-4	Silver	7.1		P	
7440-23-5	Sodium	572.0	B	P	
7440-28-0	Thallium	.4	B	F	
7440-62-2	Vanadium	45.4		P	
7440-66-6	Zinc	633.0		P	
	Cyanide	.4	B	AS	N

R.A. 11/21/91

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-3

Lab Name: ETC CORP. Contract:
Lab Code: Case No.: SAS No.: SDG No.: M208S

Matrix (soil/water): SOIL Lab Sample ID: CA5223

Level (low/med): LOW Date Received: 11/03/90

% Solids: 84.2

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	9840.0		P	
7440-36-0	Antimony	4.5	U	P	N
7440-38-2	Arsenic	5.3		F	
7440-39-3	Barium	88.1		P	
7440-41-7	Beryllium	.3	B	P	
7440-43-9	Cadmium	3.9		P	
7440-70-2	Calcium	3230.0		P	
7440-47-3	Chromium	248.0		P	
7440-48-4	Cobalt	8.9	B	P	
7440-50-8	Copper	916.0		P	
7439-89-6	Iron	34800.0		P	
7439-92-1	Lead	354.0		P	
7439-95-4	Magnesium	1940.0		P	
7439-96-5	Manganese	536.0		P	
7439-97-6	Mercury	.2		CV	
7440-02-0	Nickel	235.0		P	
7440-09-7	Potassium	615.0	B	P	N
7782-49-4	Selenium	.6	U	F	
7440-22-4	Silver	4.1		P	
7440-23-5	Sodium	123.0	B	P	
7440-28-0	Thallium	1.0	B	F	
7440-62-2	Vanadium	28.4		P	
7440-66-6	Zinc	609.0		P	
	Cyanide	.5	B	AS	N

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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ATTACHMENT X-75

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-4

Lab Name: ETC CORP.
Lab Code:
Case No.:
Contract:
SAS No.:
SDG No.: M208S

Matrix (soil/water): SOIL

Lab Sample ID: CA5224

Level (low/med): LOW

Date Received: 11/03/90

% Solids: 78.7

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	9240.0		P	
7440-36-0	Antimony	4.5	U	P	N
7440-38-2	Arsenic	6.1		F	
7440-39-3	Barium	163.0		P	
7440-41-7	Beryllium	.3	B	P	
7440-43-9	Cadmium	7.3		P	
7440-70-2	Calcium	3190.0		P	
7440-47-3	Chromium	461.0		P	
7440-48-4	Cobalt	8.7	B	P	
7440-50-8	Copper	1120.0		P	
7439-89-6	Iron	29400.0		P	
7439-92-1	Lead	1030.0		P	
7439-95-4	Magnesium	1660.0		P	
7439-96-5	Manganese	467.0		P	
7439-97-6	Mercury	.7		CV	
7440-02-0	Nickel	422.0		P	
7440-09-7	Potassium	580.0	B	P	N
7782-49-4	Selenium	.6	U	F	
7440-22-4	Silver	7.9		P	
7440-23-5	Sodium	75.6	B	P	
7440-28-0	Thallium	1.3	B	F	W
7440-62-2	Vanadium	25.1		P	
7440-66-6	Zinc	1130.0		P	
	Cyanide	.7		AS	N

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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ETC

ANALYTICAL DATA REPORT PACKAGE
FOR
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NEW JERSEY 08625

Case Name: PEERLESS TUBE
Case Number: NA

Field Sample	Lab Sample #	Sample Location	Date & Time Collected	
BSA11020210	CA5226	MONITORING WELL 1	11/2/90	0955
BSA11020211	CA5227	MONITORING WELL 2	11/2/90	1045
BSA11020212	CA5225	MONITORING WELL 3	11/2/90	1100
BSA11020213	CA5229	FIELD BLANK	11/2/90	0930
BSA11020214	CA5228	FIELD BLANK	11/2/90	0930

INORGANICS PACKAGE

Laboratory Name: ETC Corporation

NJDEP Certification Number: 12257

Laboratory QA Officer: (PRINT) LEE ROUDYBUSH

Laboratory QA Officer: (SIGNATURE) Lee D. Roudybush 1/15/91

Laboratory Manager: (PRINT) GREGORY G. MORRISON

Laboratory Manager: (SIGNATURE) Gregory G. Morrison

Date Submitted: 1/8/91

ATTACHMENT X-27

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ETC

SDG NARRATIVE

This technical report submitted by ETC Corporation contains the analytical results and required deliverables for NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF FISCAL SUPPORT SERVICES Site DEPPTTSK4 (PEERLESS TUBE) samples as identified below:

ETC ID	CLIENT ID	ETC ID	CLIENT ID
CA5225	MW-3	CA5228	FB2
CA5226	MW-1	CA5229	FB1
CA5227	FB1		

During the preparation and analysis of these samples, the following was observed:

METALS: (OM70209): The estimated values for Copper and Potassium are due to the ICP serial dilution not within control limits.

CYANIDES: (OW70325): Problems were not observed during the preparation and analysis of these samples.

ETC

METALS ANALYSIS DATA

ATTACHMENT X-80

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-1

Lab Name: ETC CORP.
Lab Code:
Case No.:
Contract:
SAS No.:
SDG No.: M209W

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids: 0

Lab Sample ID: CA5229

Date Received: 11/03/90

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	37.1	B	P	
7440-36-0	Antimony	22.3	U	P	
7440-38-2	Arsenic	1.1	U	F	
7440-39-3	Barium	1.1	U	P	
7440-41-7	Beryllium	.2	U	P	
7440-43-9	Cadmium	1.0	U	P	
7440-70-2	Calcium	85.8	B	P	
7440-47-3	Chromium	4.3	U	P	
7440-48-4	Cobalt	4.1	U	P	
7440-50-8	Copper	4.9	U	P	
7439-89-6	Iron	25.8	B	P	
7439-92-1	Lead	2.0	U	F	W
7439-95-4	Magnesium	25.7	U	P	
7439-96-5	Manganese	1.2	U	P	
7439-97-6	Mercury	.1	U	CV	
7440-02-0	Nickel	9.9	U	P	
7440-09-7	Potassium	135.0	U	P	
7782-49-4	Selenium	3.2	U	F	
7440-22-4	Silver	5.8	U	P	
7440-23-5	Sodium	70.0	U	P	
7440-28-0	Thallium	10.2		F	
7440-62-2	Vanadium	4.7	U	P	
7440-66-6	Zinc	6.8	B	P	
*	Cyanide	29	B	AS	

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

* the value of the sample is 29 ug/l - AT the IDL [illegible] 12/13/90.

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-2

Lab Name: ETC CORP.
Lab Code:
Case No.:
Contract:
SAS No.:
SDG No.: M209W

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids: 0

Lab Sample ID: CA5228

Date Received: 11/03/90

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	93.2	B	P	
7440-36-0	Antimony	22.3	U	P	
7440-38-2	Arsenic	1.1	U	F	
7440-39-3	Barium	1.1	U	P	
7440-41-7	Beryllium	.2	U	P	
7440-43-9	Cadmium	1.0	U	P	
7440-70-2	Calcium	108.0	B	P	
7440-47-3	Chromium	4.3	U	P	
7440-48-4	Cobalt	4.1	U	P	
7440-50-8	Copper	4.9	U	P	
7439-89-6	Iron	66.7	B	P	
7439-92-1	Lead	2.0	U	F	
7439-95-4	Magnesium	25.7	U	P	
7439-96-5	Manganese	1.2	U	P	
7439-97-6	Mercury	.1	U	CV	
7440-02-0	Nickel	9.9	U	P	
7440-09-7	Potassium	135.0	U	P	
7782-49-4	Selenium	3.2	U	F	
7440-22-4	Silver	5.8	U	P	
7440-23-5	Sodium	70.0	U	P	
7440-28-0	Thallium	1.9	U	F	
7440-62-2	Vanadium	4.7	U	P	
7440-66-6	Zinc	7.6	B	P	
	Cyanide	3.9	B	AS	

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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ATTACHMENT X-82

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2

Lab Name: ETC CORP.
Lab Code: Case No.: Contract:
SAS No.: SDG No.: M209W

Matrix (soil/water): WATER Lab Sample ID: CA5227

Level (low/med): LOW Date Received: 11/03/90

% Solids: 0

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	217000.0		P	
7440-36-0	Antimony	22.3	U	P	
7440-38-2	Arsenic	18.1		F	
7440-39-3	Barium	2100.0		P	
7440-41-7	Beryllium	15.3		P	
7440-43-9	Cadmium	31.0		P	
7440-70-2	Calcium	188000.0		P	
7440-47-3	Chromium	432.0		P	
7440-48-4	Cobalt	180.0		P	
7440-50-8	Copper	742.0		P	
7439-89-6	Iron	402000.0		P	
7439-92-1	Lead	276.0		P	
7439-95-4	Magnesium	76600.0		P	
7439-96-5	Manganese	18900.0		P	
7439-97-6	Mercury	.2	B	CV	
7440-02-0	Nickel	386.0		P	
7440-09-7	Potassium	23400.0		P	
7782-49-4	Selenium	3.2	U	F	W
7440-22-4	Silver	18.7		P	
7440-23-5	Sodium	46200.0		P	
7440-28-0	Thallium	3.4	B	F	W
7440-62-2	Vanadium	463.0		P	
7440-66-6	Zinc	846.0		P	
	Cyanide	5.0	B	AS	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1

Lab Name: ETC CORP.
Lab Code:
Case No.:
Contract:
SAS No.:
SDG No.: M209W

Matrix (soil/water): WATER

Level (low/med): LOW

Lab Sample ID: CA5226

% Solids: 0

Date Received: 11/03/90

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	9720.0		P	
7440-36-0	Antimony	22.3	U	P	
7440-38-2	Arsenic	4.2	B	F	
7440-39-3	Barium	228.0		P	
7440-41-7	Beryllium	.2	U	P	
7440-43-9	Cadmium	25.5		P	
7440-70-2	Calcium	87400.0		P	
7440-47-3	Chromium	15.0		P	
7440-48-4	Cobalt	4.7	B	P	
7440-50-8	Copper	58.9		P	
7439-89-6	Iron	14300.0		P	
7439-92-1	Lead	327.0		P	
7439-95-4	Magnesium	7730.0		P	
7439-96-5	Manganese	1910.0		P	
7439-97-6	Mercury				
7440-02-0	Nickel	.1	U	P	
7440-09-7	Potassium	13.9	B	P	
7782-49-4	Selenium	3200.0	B	P	
7440-22-4	Silver	3.2	U	F	W
7440-23-5	Sodium	5.8	U	P	
7440-28-0	Thallium	15700.0		P	
7440-62-2	Vanadium	4.1	B	F	
7440-66-6	Zinc	19.5	B	P	
	Cyanide	534.0		P	
		3.8	B	P	

Color Before:
Clarity Before:
Texture:
Color After:
Clarity After:
Artifacts:
Comments:

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ATTACHMENT V-84

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3

Lab Name: ETC CORP. Contract:

Lab Code: Case No.: SAS No.: SDG No.: M209W

Matrix (soil/water): WATER Lab Sample ID: CA5225

Level (low/med): LOW Date Received: 11/03/90

% Solids: 0

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

CAS No.	Analyte	Concentration	C	M	Q
7429-90-5	Aluminum	18700.0		P	
7440-36-0	Antimony	22.3	U	P	
7440-38-2	Arsenic	14.1		F	
7440-39-3	Barium	497.0		P	
7440-41-7	Beryllium	.9	B	P	
7440-43-9	Cadmium	4.1	B	P	
7440-70-2	Calcium	107000.0		P	
7440-47-3	Chromium	38.3		P	
7440-48-4	Cobalt	12.5	B	P	
7440-50-8	Copper	94.2		P	
7439-89-6	Iron	31200.0		P	
7439-92-1	Lead	40.1		F	
7439-95-4	Magnesium	12000.0		P	
7439-96-5	Manganese	1090.0		P	
7439-97-6	Mercury	1.8		CV	
7440-02-0	Nickel	29.9	B	P	
7440-09-7	Potassium	6020.0		P	
7782-49-4	Selenium	60.3		F	
7440-22-4	Silver	6.0	B	P	
7440-23-5	Sodium	4900.0	B	P	
7440-28-0	Thallium	1.9	U	F	
7440-62-2	Vanadium	55.6		P	
7440-66-6	Zinc	161.0		P	
	Cyanide	3.5	B	AS	

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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ATTACHMENT X-8C

WESTON
MANAGERS DESIGNERS/CONSULTANTS
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE, PA 19341-1313
PHONE: (215) 524-7360
TELEX: 83-5348

QUALITY ASSURANCE REVIEW
PEERLESS TUBE

February 27, 1991

PREPARED FOR
NJDEP
DIVISION OF HAZARDOUS SITE MITIGATION
401 EAST STATE STREET
TRENTON, NJ 08625-0413

PREPARED BY
WESTON ANALYTICAL LABORATORY
A DIVISION OF
ROY F. WESTON, INC.

ATTACHMENT V-1

WESTON

NJDEP
PEERLESS TUBE

INTRODUCTION

This quality assurance review is based upon a review of all data generated from four soil samples, three water samples, two field blanks, and one trip blank collected on 11/02/90. The samples were analyzed according to criteria set forth in the Contract Laboratory Program (CLP) Method for TCL Volatile, Semivolatile and Pesticide/PCB target compounds.

This review has been performed in accordance with the confirmation method. The reported analytical results are presented as a summary of the data in Section 2. All of the analytical data were examined to determine the usability of the analytical results and also to determine the contractual compliance relative to the analytical requirements and deliverables specified for NJDEP-CLP method. The applicable qualifier codes have been placed next to the results in the data summary to assess the qualitative and/or quantitative reliability of any results. Details of this evaluation review are presented in the narrative section of this report under each specific function.

All data have been validated with regard to usability according to the quality assurance guidelines set forth in the Standard Operating Procedure for the completion of the Data Validation Report Forms and preparation of the final data validation report issued on 04-16-90 (SOP No.: 5.A.4, 5.A.3). If you have any questions or comments on this data review, please call Zohreh Hamid or Kelly M. Spittler at (215) 524-6100.

QUALITY ASSURANCE REVIEW

The analysis of the samples was performed by ETC, Corporation.

The findings offered in this report are based upon a rigorous review of holding times, blank analysis results, surrogate, spike and standard recoveries, GC/MS tuning, target compound confirmation quality, calibration system performance, peak results, and mass spectra quality.

The laboratory reported the date received as 11-03-90 throughout the data package. The receipt date on the chains-of-custody is 11-05-90. The validation forms are based on the received date of 11-05-90. The laboratory should correct this inconsistency.

Overall, the data quality was satisfactory and all are accepted with the applied qualifier codes.

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EVALUATION BY FRACTION

I. Volatiles

____ Holding Time
____ Surrogate Recovery
_X_ MS/MSD
_X_ Blank
____ GC/MS Tuning
_X_ Initial Calibration
_X_ Continuing Calibration
____ Compound ID (HSL, TIC)
____ Standards
____ Spectra Quality
____ Chromatography
_X_ Data Completeness

OVERVIEW

This portion of the case consisted of four soil samples, three water samples, two field blanks, and one trip blank. These samples were analyzed for volatile target compounds within the holding time specified by NJDEP.

All surrogate recovery, internal standard area, and calibration data met the criteria.

ISSUES

The method blanks contained common contaminants methylene chloride and acetone at levels less than 3x the CRQL. The field blank and trip blank contained similar contamination. The reported results in the samples are qualified accordingly.

The RRF for 2-butanone was below the 0.05 QC limit in all initial and continuing calibrations. All quantitation limits for this compound are rejected.

Several %RSD and/or %D were greater than the 30% and 25% QC limits in the initial and continuing calibrations. All associated positive results are qualified estimated and flagged "J" in the target and non-target analyte summary.

The trichloroethene matrix spike/spike duplicate recoveries in sample A5221 were below QC limits. This compound was detected in

WESTON

the original sample analysis. The sample result may be biased low; however, no qualification is applied. The medium soil and water matrix spike recoveries were within QC limits

Up to three compounds were reported as tentatively identified compounds in the samples. The blanks also contained TIC contamination. Blank VBLK01 (Medium-level) contained carbon dioxide, sample A5224 and A5222 also contained this compound. These results are considered estimated due to the associated blank contamination.

Sample CA5222 was originally analyzed at a 50-fold dilution; however, the level of trichloroethene exceeded the calibration range. The sample was reanalyzed at medium level and 100-fold dilution and the trichloroethene result was within range. The medium level result is to be used for this compound only since other positive results may be biased low at this level.

The "EPA Sample No" column on the Form V needed to be completed on pages 56, 57, 58, 59, 62, and 63. The laboratory has been contacted for resubmission. (See Attachment IV).

The analysis level on the Form V page 59 and Form IV page 173 need to be clarified so that both forms coincide. (See Attachment IV).

Sample A5222 was missing the reference standard spectrum and the result reported by the laboratory does not agree with the evaluator's calibration. Resubmission has been requested from the laboratory. (See Attachment IV).

For all analyses and calibrations, the internal standard used were 250ng rather than the normal 50mg. The data usability is not affected; however a factor of 5 is used in all calculations to obtain the correct result.

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EVALUATION BY FRACTION

II. Base/Neutral/Acids

____ Holding Time
____ Extraction Time
____ Surrogate Recovery
_X_ Blank
_X_ MS/MSD
____ GC/MS Tuning
____ Initial Calibration
_X_ Continuing Calibration
____ Compound ID (HSL, TIC)
_X_ Standards
____ Spectra Quality
____ Chromatography
____ Data Completeness

OVERVIEW

This portion of the case consisted of four soil samples, three water samples, and two field blanks analyzed for TCL Semivolatile target compounds.

All surrogate recovery and calibration data met criteria. Also, the method blanks were free of target compound contamination.

ISSUES

The following internal standard areas were outside QC criteria:

Sample	Standard	Internal Standard Area
A5221	Acenaphthene	Low
	Phenanthrene	Low
	Chrysene	Low
	Perylene	Low
A5221RE	Acenaphthene	Low
	Phenanthrene	Low
	Chrysene	Low
	Perylene	Low

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Sample	Standard	Internal Standard Area
A5223MS	Phenanthrene	Low
	Chrysene	Low
	Perylene	Low
A5223MSRE	Phenanthrene	Low
	Chrysene	Low
	Perylene	Low
A5223MSD	Phenanthrene	Low
A5223MSDRE	Phenanthrene	Low
	Chrysene	Low
	Perylene	Low

Samples A5221, A5223MS, and A5223MSD were all reanalyzed. In all cases, similar outliers were obtained. These samples are exhibiting matrix effects. The original analyses are to be used as the representative sample results. Since the areas are less than -50% of the EICP area of the calibration standard, all data associated with these internal standards are classified estimated and flagged "J" and "UJ".

The %D for surrogate compounds 2,4,6-tribromophenol, and terphenyl-d_4 exceeded the 25% QC limit in the continuing calibrations analyzed on 12/05/90 and 12/12/90. The surrogate recovery concentrations are considered estimated values. Therefore, the effected surrogate compound percent recovery values are estimated. As such, all associated positive results are quantitatively qualified, "J". Several other compounds had %RSD and/or %D exceed the 30% and 25% QC limits. These compounds were not detected in the samples, no additional qualification is applied.

The field blank contained common contaminant bis(2-ethylhexyl)phthalate at a level less than 3x the CRQL. This compound was not detected in any remaining samples. Therefore, no qualification is applied.

Up to nine compounds were reported in the samples as tentatively identified compounds. The blanks contained similar TIC contamination. These compounds are believed to be a laboratory artifact and are considered estimated. Refer to the target and non-target analyte summary for specific sample references.

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All soil samples were analyzed at 10-fold dilutions. Most positive target compound results were below the CRQL. Sample results may be slightly biased low. These sample results have already been qualified due to internal standard outliers and calibration deficiencies. No additional qualification is applied.

Six soil matrix spike/spike duplicate recoveries, two soil %RPD and four water matrix spike recoveries were outside QC limits. These compounds were not detected in the original sample analyses and since spike recoveries have advisory limits, no qualification is applied.

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EVALUATION BY FRACTION

III. Pesticides/PCB

____ Holding Time
____ Extraction Time
_X_ Surrogate Recovery
_X_ MS/MSD
____ Blank
____ Linearity Calibration
____ DDT/Endrin Degradation
____ Analytical Sequence
____ DBC Retention Time
_X_ Continuing Calibration
____ Retention Time Window
____ Standards
____ Chromatography
____ HSL Compounds
____ Data Completeness

OVERVIEW

This portion of the case consisted of four soil samples, three water samples, and two field blanks analyzed for TCL Pesticide/PCB target compounds.

All holding time and retention time criteria were met. Also, the samples, field blanks, and method blanks were free of target compound contamination.

ISSUES

The following dibutylchlorendate surrogate recoveries exceeded the QC limits.

Sample	Surrogate Recovery
CA5221	174
CA5222	195

No specific action is required due to surrogate outliers. Since positive target compounds were not detected, no qualification is applied.

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Several compounds had %D exceed the 15% QC limits for the quantitation column on 12/11/90 to 12/13/90. The affected individual mixes were either analyzed at the end of the analytical sequence or samples were not associated with these outliers. No qualification is applied.

Most water and soil matrix spike/spike duplicate recoveries exceeded the QC limits. Positive target compound results were not found in the original analyses. No action is taken on matrix spike/spike duplicate data alone to qualify or reject an entire group of samples.

The original data package submission was missing the standard concentrations. The resubmitted page is attached. (See Attachment IV).

ATTACHMENT IV

WESTON

FOOTNOTES FOR TARGET AND NON-TARGET ANALYTE SUMMARY

1. The reported concentration is quantitatively qualified because the concentration is below the CRQL.

2. The value reported is less than 3x the value in the method blank. It is the policy of NJDEP-DHSM to negate the reported value due to probable foreign contamination unrelated to the actual sample. The end-user, however, is alerted that a reportable quantity of the analyte/compound was detected.

3. The value reported is greater than five (5) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte/compound in the method blank.

4. The value reported is less than 3x the value in the trip/field blank. It is the policy of NJDEP-DHSM to negate the reported value as due to probable foreign contamination unrelated to the actual sample. The end-user, however, is alerted that a reportable quantity of the analyte/compound was detected.

5. The non-detected value is rejected because the calibration response factor for the analyte is less than 0.05.

6. One or more internal standard areas in the sample did not meet the QC criteria. Therefore, all compound results using this internal standard for quantitation are quantitatively estimated.

7. The %RSD and/or %D for one or more surrogates were above the control limit, therefore, all of the positive results are qualified estimated.

8. The reported concentration is quantitatively qualified due to calibration deficiencies.

GLOSSARY OF DATA QUALIFIERS

WESTON

CODES RELATING TO IDENTIFICATION

(confidence concerning presence or absence of compounds):

U = NOT DETECTED, SUBSTANTIALLY ABOVE THE LEVEL REPORTED IN LABORATORY OR FIELD BLANKS.

R = UNRELIABLE RESULT. ANALYTE MAY OR MAY NOT BE PRESENT IN THE SAMPLE. SUPPORTING DATA NECESSARY TO CONFIRM RESULT.

N = NEGATED COMPOUND WAS CONSIDERED AS NOT PRESENT IN THE SAMPLE.

(NO CODE) = CONFIRMED IDENTIFICATION

CODES RELATING TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = ANALYTE PRESENT. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

L = ANALYTE PRESENT. REPORTED VALUE MAY BE BIASED LOW. ACTUAL VALUE IS EXPECTED TO BE HIGHER.

UJ = THE REPORTED QUANTITATION LIMITS ARE QUALIFIED ESTIMATED.

UL = NOT DETECTED. QUANTITATION LIMIT MAY BE HIGHER.

OTHER CODES

Q = NO ANALYTICAL RESULT.

ATTACHMENT Y-11

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP.

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/2.0	CAS221	METHYLENE CHLORIDE	2 J	35	35 JB	QUALIFIED	3,8
	(BSA11020206)	1,2-DICHLOROETHENE	5 U	150	150		
		TRICHLOROETHENE	5 U	220	220		
		TETRACHLOROETHENE	5 U	3	3		
		2-BUTANONE	10 U	22 U	22 R	REJECTED	5
		1 TIC					
BNA/10.0	*CAS221	PHENANTHRENE	330 U	4100	4100 J	QUALIFIED	6,7
		ANTHRACENE	330 U	1100 J	1100 J	QUALIFIED	1,6,7
		FLUORANTHENE	330 U	6400	6400 J	QUALIFIED	6,7
		PYRENE	330 U	5500	5500 J	QUALIFIED	6,7
		BENZO(A)ANTHRACENE	330 U	2800 J	2800 J	QUALIFIED	1,6,7
		CHRYSENE	330 U	3500 J	3500 J	QUALIFIED	1,6,7
		BENZO(B)FLUORANTHENE	330 U	5100	5100 J	QUALIFIED	6,7
		**3 TIC'S					
PEST/1.0	CAS221	NONE					

* ALL QUANTITATION LIMITS ASSOCIATED WITH INTERNAL STANDARDS ACENAPHTHENE, PHENANTHRENE, CHRYSENE, AND PERYLENE ARE QUALIFIED ESTIMATED DUE TO INTERNAL STANDARD AREA OUTLIERS.

** TIC WITH RT = 30.01 IS CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

ATTACHMENT Y-12

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP.

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/50.0	CA5222	METHYLENE CHLORIDE	12	470 B	470 B	NEGATED	2,8
	(BSA110207)	1,1-DICHLOROETHENE	5 U	200 J	200 J	QUALIFIED	1
		1,2-DICHLOROETHENE	5 U	4700	4700		
		TRICHLOROETHENE	5 U	19000 D	19000 D		
		TETRACHLOROETHENE	5 U	90 J	90 J	QUALIFIED	1
		2-BUTANONE	5 U	540 U	540 R	REJECTED	5
		*2 TIC'S					
BNA/10.0	CA5222	PHENANTHRENE	330 U	1600 J	1600 J	QUALIFIED	1,7
		ANTHRACENE	330 U	320 J	320 J	QUALIFIED	1,7
		FLUORANTHENE	330 U	710 J	710 J	QUALIFIED	1,7
		PYRENE	330 U	620 J	620 J	QUALIFIED	1,7
		NO TIC'S					
PEST/1.0	CA5222	NONE					

* TIC WITH RT = 2.33 IS QUALIFIED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

D = REPORTED FROM THE MEDIUM LEVEL, 100-FOLD DILUTION ANALYSIS

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP.

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CA5223	METHYLENE CHLORIDE	3 J	8	8 JB	NEGATED	4,8
	(BSA11020208)	TRICHLOROETHENE	5 U	12	12		
		TETRACHLOROETHENE	5 U	3 J	3 J	QUALIFIED	1
		2-BUTANONE	5 U	12 U	12 R	REJECTED	5
		1 TIC					
BNA/10	CA5223	PHENANTHRENE	330 U	1500 J	1500 J	QUALIFIED	1,7
		FLUORANTHENE	330 U	1600 J	1600 J	QUALIFIED	1,7
		PYRENE	330 U	1400 J	1400 J	QUALIFIED	1,7
		BENZO(A)ANTHRACENE	330 U	750 J	750 J	QUALIFIED	1,7
		CHRYSENE	330 U	900 J	900 J	QUALIFIED	1,7
		BENZO(B)FLUORANTHENE	330 U	1300 J	1300 J	QUALIFIED	1,7
		*2 TIC'S					
PEST/1.0	CA5223	NONE					

* BOTH TIC'S ARE CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

ATTACHMENT 1-14

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP.

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/200	CA5224	METHYLENE CHLORIDE	12	2100 B	2100 JB	NEGATED	2,8
	(BSA11020209)	1,1,1-TRICHLOROETHANE	5 U	870 J	870 J	QUALIFIED	1
		TRICHLOROETHENE	5 U	11000	11000		
		4-METHYL-2-PENTANONE	10 U	3300	3300 J	QUALIFIED	8
		TETRACHLOROETHENE	5 U	37000	3700		
		2-BUTANONE	5 U	2500 U	2500 R	REJECTED	5
		*3 TIC'S					
BNA/10.0	CA5224	NONE					
		**2 TIC'S					
PEST/1.0	CA5224	NONE					

* TIC WITH RT = 2.35 IS QUALIFIED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

** BOTH TIC'S ARE CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____ SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP. SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CA5225	ACETONE	12	10	10 JB	NEGATED	4
	(BSA11020212)	1,1-DICHLOROETHENE	5 U	44	44		
		TRICHLOROETHENE	5 U	28	28		
		2-BUTANONE	5 U	10 U	10 R	REJECTED	5
		NO TIC'S					
BNA/1.0	CA5225	NONE					
		*2 TIC'S					
PEST/1.0	CA5225	NONE					

* BOTH TIC'S ARE CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

ATTACHMENT V-16

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP.

SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CAS226	VINYL CHLORIDE	10 U	6 J	6 J	QUALIFIED	1
	(BSA11020210)	ACETONE	12	8 J	8 JB	NEGATED	4
		1,2-DICHLOROETHENE	5 U	77	77		
		TRICHLOROETHENE	5 U	130	130		
		TETRACHLOROETHENE	5 U	2 J	2 J	QUALIFIED	1
		2-BUTANONE	5 U	10 U	10 R	REJECTED	5
		NO TIC'S					
BNA/1.0	CAS226	NONE					
		*4 TIC'S					
PEST/1.0	CAS226	NONE					

* TIC WITH RT = 3.29 and 7.03 ARE CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATIONS.

ATTACHMENT V-17

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____ SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP. SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CA5227	1,2-DICHLOROETHENE	5 U	6	6		
	(BSA11020211)	TRICHLOROETHENE	5 U	26	26		
		TETRACHLOROETHENE	5 U	18	18		
		2-BUTANONE	5 U	10 U	10 R	REJECTED	5
		NO TIC'S					
BNA/1.0	CA5227	NONE					
		*9 TIC'S					
PEST/1.0	CA5227	NONE					

* TIC WITH RT = 4.70 IS CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

ATTACHMENT Y-18

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP.

SAMPLE MATRIX: WATER (FIELD BLANK)

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CA5228	METHYLENE CHLORIDE	6	2 J	2 JB	NEGATED	1,2
	(BSA11020214)	ACETONE	10 U	11	11		
		2-BUTANONE	5 U	10 U	10 R	REJECTED	5
		NO TIC'S					
BNA/1.0	CA5228	NONE					
		*3 TIC'S					
PEST/1.0	CA5228	NONE					

* TIC'S WITH RT = 3.20 and 7.04 ARE CONSIDERED ESTIMATED DUE TO SIMILAR BLANK CONTAMINATION.

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TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____ SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP. SAMPLE MATRIX: WATER (FIELD BLANK)

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CAS229	METHYLENE CHLORIDE	6	3 J	3 JB	NEGATED	1,2
	(BSA11020213)	ACETONE	10 U	12	12		
		2-BUTANONE	5 U	10 U	10 R	REJECTED	5
		NO TIC'S					
BNA/1.0	CAS229	BIS(2-ETHYLHEXYL) PHTHALATE	10 U	27	27		
		*3 TIC'S					
PEST/1.0	CAS229	NONE					

* TIC'S WITH RT = 3.19 and 7.06 ARE CONSIDERED ESTIMATED DUE TO BLANK CONTAMINATION.

ATTACHMENT Y-20

TARGET & NON-TARGET ANAYLTE DATA SUMMARY

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC. CORP.

SAMPLE MATRIX: WATER (TRIP BLANK)

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.	LAB REPORT CONC.	QA REPORT CONC.	QA DECISIONS	FOOTNOTE
VOA/1.0	CA5230	ACETONE	10 U	9 J	9 J	QUALIFIED	1
	(BSA1102015)	2-BUTANONE	5 U	10 U	10 R	REJECTED	5
		NO TIC'S					

ATTACHMENT Y-2023

WESTON

NJDEP
SDG #M208S and M209W

Site Name: Peerless Tube
Laboratory: ETC Corporation
Data Reviewer: Douglas Godfrey
Data Supervisor: Zohreh Hamid, Ph.D.

The laboratory's portion of SDG #M208S and M209W consisted of nine samples (four soil and five water) analyzed for inorganic target analyte list (TAL) parameters by ETC Corporation.

The laboratory reported no problems with the receipt and analysis of the samples received on 11/05/90.

The laboratory performed the analyses according to the procedures set forth in the NJDEP CLP method. Analysis of the soil preparation blank indicated contamination for Pb and the water preparation blank indicated contamination for Al, Ca, Fe, and Zn. Initial and continuing calibration verification samples were within acceptable control limits. The most significant problems affecting the data usability are associated with the QC performance requirements and are addressed in the following section.

Minor Issues

The water post-digestion spike percent recovery for Se was significantly below the CLP control limits after the sample reanalysis. The associated sample result is highly qualified due to severe matrix interferences (Ca5227).

The CCV was not analyzed at the proper frequency for Ca, Al, Fe, and Cu (Ca5224), and Ca (Ca5225).

The beginning CCV was not analyzed before analytical samples. All samples run prior to the first CCV are qualified as estimated (ICP analytes Ca5221; As, Tl, Se, Hg = all samples; CN (Ca5221, 5222).

The CRDL sample percent recoveries for Cd (125.7), Se (120.6), Pb by ICP (123.5) and furnace (125.8) and Ag (136.9) were above the CLP validation control limits for water. All associated water samples >IDL are qualified as estimated and are considered to be biased high due to poor linearity near the CRDL for ICP and the establishment of a poor analytical curve for GFAA (Cd, Pb, Ag = Ca5227; Cd, Pb = Ca5226; Cd, Pb, Ag, Se = Ca5225).

ATTACHMENT Y-22
001

WESTON

The CRDL sample percent recoveries for Pb (76.7) and As not listed on Form 2B (53.0) were below the CLP validation control limits for soil. All associated sample results are qualified as estimated and are considered to be biased low due to poor linearity near the CRDL for ICP and the establishment of a poor analytical curve for GFAA (Pb = all soil samples; As = Ca5221).

The water preparation blank contained Al, Ca, Fe, and Zn. All associated sample results >5x the preparation blank value are considered to be real, but are quantitatively qualified (Fe = Ca5228; Al, Ca, Fe, Zn = Ca5225, Ca5226, Ca5227). All associated sample results between 3 and 5x the preparation blank may be considered to be real, but are quantitatively qualified and resampling and reanalysis is recommended (Al = Ca5228). All associated sample results <3x the preparation blank value are considered to be negated due to laboratory contamination (Al, Ca, Fe = Ca5229, Zn = C5228, CA5229; Ca = Ca5228).

The soil preparation blank contained Pb. All associated sample results were >5x the preparation blank and are considered to be real, but are quantitatively qualified.

The water preparation blank values for Be and Mg were below the negative IDL. All associated sample results are qualified as estimated and are considered to be biased low.

The soil preparation blank value for Be, Mg, and Na were below the negative IDL. All associated sample results are qualified as estimated and are considered to be biased low.

The ICSA sample was not analyzed. All associated sample are qualified as estimated and are considered to be non-compliant.

The ICSAB sample results for Na (629) for the water sample, Sb (52.9), Na (592), and K (136) for the soil samples were above the IDL. The associated sample results >5x the ICS value are considered to be real, but are quantitatively qualified (Na = Ca5225, Ca5226, Ca5227; K = Ca5222, Ca5223, Ca5224). The associated sample results <5x the ICS value are considered to be a false positive (Na = all soil samples; K = Ca5221). All associated sample results are considered to be biased high.

The ICSAB sample results for Sb (-83.9) was greater than 3x the IDL. All associated water sample results are qualified as estimated and are considered to be biased low.

The soil matrix spike percent recovery for Se, Hg, and CN was above the CLP control limit. All associated sample results >IDL are qualified as estimated and are considered to be biased high (Se = Ca5222; Hg, CN - all samples).

ATTACHMENT Y-23

WESTON

The soil matrix spike was not performed at the proper concentration for Mn, Ni, and Zn. All associated sample results are qualified as estimated.

The water matrix spike and duplicate digestion samples were not performed for Pb by ICP. All associated sample results are rejected (Ca5226, Ca5227).

The soil serial dilution percent difference for K was above the CLP validation control limits. All associated sample results are qualified as estimated.

The water serial dilution percent difference for Cu and K was above the CLP validation control limits. All associated sample results are qualified as estimated.

The water post-digestion spike percent recoveries for Se and Tl were below the CLP control limits. All associated sample results are qualified as estimated and are considered to be biased low (Se = Ca5226; Tl = Ca5226, Ca5227).

The soil post-digestion spike percent recovery for Tl was below the CLP control limits. All associated sample results are qualified as estimated and are considered to be biased low (Tl = Ca5224).

The soil field blank (Ca5229) contained Al, Ca, Fe, Tl, Zn, and CN above the IDL. All associated sample results >5x the field blank value are considered to be real, but are quantitatively qualified due to field blank contamination (Al, Ca, Fe, Zn = all soil samples). All associated sample results between 3 and 5x the field blank value may be considered to be real, but are quantitatively qualified due to possible field contamination (CN = Ca5221, Ca5224). All associated sample results <3x the field blank value are considered to be negated due to field blank contamination (Tl = Ca5223, Ca5224, CN = 5222, 5223).

The water field blank (Ca5228) contained Al, Ca, Fe, Zn, and CN above the IDL. All associated sample results >5x the field blank value are considered to be real, but are quantitatively qualified due to field blank contamination (Al, Ca, Fe, Zn = all water samples). All associated sample results <3x the field blank value are considered to be negated due to field blank contamination (CN = all water samples).

All associated sample results between the IDL and CRDL are qualified as estimated for all associated analytes since the value obtained is at the low end of the instruments performance.

WESTON

Notes

The data package does not contain verification samples in the correct location on the forms. This is considered to be non-compliant and should be corrected.

All CRDL sample results after the first analytical run were not reported. The review was conducted based on the raw data. The Form 2B's should be submitted.

The final ICSAB sample results were run after the final CCV/CCB samples. This is considered to be contractually non-compliant, but acceptable.

Calculated % recoveries for Hg does not match the values obtained by the reviewer. The correct values should be corrected.

The "W" flag for Pb should be removed for sample Ca5229.

The date of receipt is questionable (package = 11-3-90, chain of custody = 11-5-90). Since no holding times were affected, no action was taken.

Reference 17
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GLOSSARY OF DATA QUALIFIERS

WESTON

CODES RELATING TO IDENTIFICATION

(confidence concerning presence or absence of compounds):

U = NOT DETECTED, SUBSTANTIALLY ABOVE THE LEVEL REPORTED IN LABORATORY OR FIELD BLANKS.

R = UNRELIABLE RESULT. ANALYTE MAY OR MAY NOT BE PRESENT IN THE SAMPLE. SUPPORTING DATA NECESSARY TO CONFIRM RESULT.

N = NEGATED COMPOUND WAS CONSIDERED AS NOT PRESENT IN THE SAMPLE.

(NO CODE) = CONFIRMED IDENTIFICATION

CODES RELATING TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = ANALYTE PRESENT. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

L = ANALYTE PRESENT. REPORTED VALUE MAY BE BIASED LOW. ACTUAL VALUE IS EXPECTED TO BE HIGHER.

UJ = THE REPORTED QUANTITATION LIMITS ARE QUALIFIED ESTIMATED.

UL = NOT DETECTED. QUANTITATION LIMIT MAY BE HIGHER.

OTHER CODES

Q = NO ANALYTICAL RESULT.

ATTACHMENT Y-15

Reference 17
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INORGANIC TARGET ANALYTE SUMMARY LIST

'ASE NO: _____ SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP. SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020206 SOIL 1	CA5221	ALUMINUM		7020	7020 J	QUALIFIED	11,98,111.
		ANTIMONY			4.5 UJ	QUALIFIED	98,111
		ARSENIC		7.7	7.7 J	QUALIFIED	88,98
		BARIUM		76.5	76.5 J	QUALIFIED	98,111
		BERYLLIUM	-0.118	0.2 B	0.2 J	QUALIFIED	43,98,99,111
		CADMIUM		1.9	1.9 J	QUALIFIED	98,111
		CALCIUM		9590	9590 J	QUALIFIED	11,98,111
		CHROMIUM		23.5	23.5 J	QUALIFIED	98,111
		COBALT		4.4 B	4.4 J	QUALIFIED	43,98,111
		COPPER		142	142 J	QUALIFIED	98,111
		IRON		13500	13500 J	QUALIFIED	11,98,111
		LEAD	0.921	260	260 BJ	QUALIFIED	8,88,98,111
		MAGNESIUM	-5.45	2400	2400 J	QUALIFIED	98,99,111
		MANGANESE		304	304 J	QUALIFIED	98,111,112
		MERCURY		2.0	2.0 J	QUALIFIED	54,98
		NICKEL		29.9	29.9 J	QUALIFIED	98,111,112
		POTASSIUM		500 B	500 J	QUALIFIED	43,61,90,98,111
		SELENIUM			0.6 UJ	QUALIFIED	98
		SILVER			1.2 UJ	QUALIFIED	98,111
		SODIUM	-14.65	104 B	104 J	QUALIFIED	43,90,98,99,111
		THALLIUM			0.4 UJ	QUALIFIED	98
		VANADIUM		52.8	52.8 J	QUALIFIED	98,111
		ZINC		277.0	277.0 J	QUALIFIED	11,98,111,112
		CYANIDE		0.6	0.6 J	QUALIFIED	10,54,98

* mg/kg

ATTACHMENT Y-B 003

INORGANIC TARGET ANALYTE SUMMARY LIST

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA110207 SOIL 2	CAS222	ALUMINUM		19200	19200 J	QUALIFIED	11,111
		ANTIMONY			4.5 UJ	QUALIFIED	111
		ARSENIC		8.0	8.0 U	QUALIFIED	98
		BARIUM		167	167 J	QUALIFIED	111
		BERYLLIUM	-0.118	1.4	1.4 J	QUALIFIED	99,111
		CADMIUM		4.7	4.7 J	QUALIFIED	111
		CALCIUM		66400	66400 J	QUALIFIED	11,111
		CHROMIUM		182	182 J	QUALIFIED	111
		COBALT		5.6 B	5.6 J	QUALIFIED	43,111
		COPPER		1080	1080 J	QUALIFIED	111
		IRON		20000	20000 J	QUALIFIED	11,111
		LEAD	0.921	563	563 BJ	QUALIFIED	8,88,111
		MAGNESIUM	-5.45	19600	19600 J	QUALIFIED	99,111
		MANGANESE		1190	1190 J	QUALIFIED	111,112
		MERCURY		3.5	3.5 J	QUALIFIED	54,98
		NICKEL		169	169 J	QUALIFIED	111,112
		POTASSIUM		901 B	901 J	QUALIFIED	43,61,89,111
		SELENIUM		1.3	1.3 J	QUALIFIED	54,98
		SILVER		7.1	7.1 J	QUALIFIED	111
		SODIUM	-14.65	572 B	572 J	QUALIFIED	43,90,99,111
		THALLIUM		0.4 B	0.4 J	QUALIFIED	43,98
		VANADIUM		45.4	45.4 J	QUALIFIED	111
		ZINC		633	633 J	QUALIFIED	11,111,112
		CYANIDE		0.4 B	0.4 J	NEGATED	9,43,54,98

* mg/kg

ATTACHMENT Y-28

INORGANIC TARGET ANALYTE SUMMARY LIST

CASE NO: _____

LAB NAME: ETC CORP

SITE NAME: PEERLESS TUBE

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020208 SOIL 3	CA5223	ALUMINUM		9840	9840 J	QUALIFIED	11,111
		ANTIMONY			4.5 UJ	QUALIFIED	111
		ARSENIC		5.3	5.3 J	QUALIFIED	98
		BARIUM		88.1	88.1 J	QUALIFIED	111
		BERYLLIUM	-0.118	0.3 B	0.3 J	QUALIFIED	43,99,111
		CADMIUM		3.9	3.9 J	QUALIFIED	111
		CALCIUM		3230	3230 J	QUALIFIED	11,111
		CHROMIUM		248	248 J	QUALIFIED	111
		COBALT		8.9 B	8.9 J	QUALIFIED	43,111
		COPPER		916	916 J	QUALIFIED	111
		IRON		34800	34800 J	QUALIFIED	11,111
		LEAD	0.921	354	354 BJ	QUALIFIED	8,88,111
		MAGNESIUM	-5.45	1940	1940 J	QUALIFIED	99,111
		MANGANESE		536	536 J	QUALIFIED	111,112
		MERCURY		0.2	0.2 J	QUALIFIED	54,98
		NICKEL		235	235 J	QUALIFIED	111,112
		POTASSIUM		615 B	615 J	QUALIFIED	43,61,98,111
		SELENIUM			0.6 UJ	QUALIFIED	98
		SILVER		4.1	4.1 J	QUALIFIED	111
		SODIUM	-14.65	123 B	123 J	QUALIFIED	43,90,99,111
		THALLIUM		1.0 B	1.0 J	NEGATED	9,43,98
		VANADIUM		28.4	J	QUALIFIED	111
		ZINC		609	J	QUALIFIED	11,111,112
		CYANIDE		0.5 B	0.5 J	NEGATED	9,43,54

* mg/kg

ATTACHMENT Y-89010

INORGANIC TARGET ANALYTE SUMMARY LIST

CASE NO: _____

SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP

SAMPLE MATRIX: SOIL

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020209 SOIL 4	CA5224	ALUMINUM		9240	9240 J	QUALIFIED	11,110,111
		ANTIMONY			4.5 UJ	QUALIFIED	111
		ARSENIC		6.1	6.1 J	QUALIFIED	98
		BARIUM		163	163 J	QUALIFIED	111
		BERYLLIUM	-0.118	0.3 B	0.3 J	QUALIFIED	43,99,111
		CADMIUM		7.3	7.3 J	QUALIFIED	111
		CALCIUM		3190	3190 J	QUALIFIED	11,110,111
		CHROMIUM		461	461 J	QUALIFIED	111
		COBALT		8.7 B	8.7 J	QUALIFIED	43,111
		COPPER		1120	1120 J	QUALIFIED	110.111
		IRON		29400	29400 J	QUALIFIED	11.110,111
		LEAD	0.921	1030	1030 BJ	QUALIFIED	8.88.111
		MAGNESIUM	-5.45	1660	1660 J	QUALIFIED	99.111
		MANGANESE		467	467 J	QUALIFIED	111,112
		MERCURY		0.7	0.7 J	QUALIFIED	54,98
		NICKEL		422	422 J	QUALIFIED	111,112
		POTASSIUM		580 B	580 J	QUALIFIED	43,61,89,111
		SELENIUM			0.6 UJ	QUALIFIED	98
		SILVER		7.9	7.9 J	QUALIFIED	111
		SODIUM	-14.65	75.6 B	75.6 J	QUALIFIED	43,90,99,111
		THALLIUM		1.3 B	1.3 J	NEGATED	9,43,74,98
		VANADIUM		25.1	25.1 J	QUALIFIED	111
		ZINC		1130	1130 J	QUALIFIED	11.111.112
		CYANIDE		0.7	0.7 J	QUALIFIED	10,54

* mg/kg

ATTACHMENT Y-90011

Reference 17
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INORGANIC TARGET ANALYTE SUMMARY LIST

ASE NO: _____

SITE NAME: PEERLESS TUBE

AB NAME: ETC CORP

SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020212 WELL 3	CA5225	ALUMINUM	23.1	18700	18700 BJ	QUALIFIED	8,11,111
		ANTIMONY			22.3 UJ	QUALIFIED	83,111
		ARSENIC		14.1	14.1 J	QUALIFIED	98
		BARIUM		497	497 J	QUALIFIED	111
		BERYLLIUM	-0.4	0.9 B	0.9 J	QUALIFIED	43,99,111
		CADMIUM		4.1 B	4.1 J	QUALIFIED	43,86,111
		CALCIUM	75.3	107000	107000 BJ	QUALIFIED	8,11,110,111
		CHROMIUM		38.3	38.3 J	QUALIFIED	111
		COBALT		12.5 B	12.5 J	QUALIFIED	43,111
		COPPER		94.2	94.2 J	QUALIFIED	61,111
		IRON	8.9	31200	31200 BJ	QUALIFIED	8,11,111
		LEAD		40.1	40.1 J	QUALIFIED	86
		MAGNESIUM	-34.4	12000	12000 J	QUALIFIED	99,111
		MANGANESE		1090	1090 J	QUALIFIED	111
		MERCURY		1.8	1.8 J	QUALIFIED	98
		NICKEL		29.9 B	29.9 J	QUALIFIED	43,111
		POTASSIUM		6020	6020 J	QUALIFIED	61,111
		SELENIUM		60.3	60.3 J	QUALIFIED	86,98
		SILVER		6.0 B	6.0 J	QUALIFIED	43,86,111
		SODIUM		4900 B	4900	QUALIFIED	43,89,111
		THALLIUM			1.9 UJ	QUALIFIED	98
		VANADIUM		55.6	55.6 J	QUALIFIED	111
		ZINC	5.3	161	161 BJ	QUALIFIED	8,11,111
		CYANIDE		3.5 B	3.5 J	NEGATED	9,43

* ug/L

ATTACHMENT Y31

012

Reference 17
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INORGANIC TARGET ANALYTE SUMMARY LIST

SE NO: _____

B NAME: ETC CORP

SITE NAME: PEERLESS TUBE

SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020210 WELL 1	CA5226	ALUMINUM	23.1	9720	9720 BJ	QUALIFIED	8,11,111
		ANTIMONY			22.3 UJ	QUALIFIED	83,111
		ARSENIC		4.2 B	4.2 J	QUALIFIED	43,98
		BARIUM		228	228 J	QUALIFIED	111
		BERYLLIUM	-0.4		0.2 UJ	QUALIFIED	99,111
		CADMIUM		25.5	25.5 J	QUALIFIED	86,111
		CALCIUM	75.3	87400	87400 BJ	QUALIFIED	8,11,111
		CHROMIUM		15.0	15.0 J	QUALIFIED	111
		COBALT		4.7 B	4.7 J	QUALIFIED	43,111
		COPPER		58.9	58.9 J	QUALIFIED	61,111
		IRON	8.9	14300	14300 BJ	QUALIFIED	8,11,111
		LEAD		327	327 J	QUALIFIED	86,104,109,111
		MAGNESIUM	-34.4	7730	7730 J	QUALIFIED	99,111
		MANGANESE		1910	1910 J	QUALIFIED	111
		MERCURY			0.1 UJ	QUALIFIED	98
		NICKEL		13.9 B	13.9 J	QUALIFIED	43,111
		POTASSIUM		3200 B	3200 J	QUALIFIED	43,61,111
		SELENIUM			3.2 UJ	QUALIFIED	74,98
		SILVER			5.8 UJ	QUALIFIED	111
		SODIUM		15700	15700 J	QUALIFIED	89,111
		THALLIUM		4.1 B	4.1 J	QUALIFIED	43,74,98
		VANADIUM		19.5 B	19.5 J	QUALIFIED	43,111
		ZINC	5.3	534	534 BJ	QUALIFIED	8,11,111
		CYANIDE		3.8 B	3.8 J	NEGATED	9,43

* ug/L

ATTACHMENT Y-32

INORGANIC TARGET ANALYTE SUMMARY LIST

CASE NO: _____ SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020211 WELL 2	CA5227	ALUMINUM	23.1	21700	21700 BJ	QUALIFIED	8,11,111
		ANTIMONY			22.3 UJ	QUALIFIED	83,111
		ARSENIC		18.1	18.1 J	QUALIFIED	98
		BARIUM		2100	2100	QUALIFIED	111
		BERYLLIUM	-0.4	15.3	15.3 J	QUALIFIED	99,111
		CADMIUM		31.0	31.0 J	QUALIFIED	86,111
		CALCIUM	75.3	188000	188000 BJ	QUALIFIED	8,11,111
		CHROMIUM		432	432 J	QUALIFIED	111
		COBALT		180	180 J	QUALIFIED	111
		COPPER		742	742 J	QUALIFIED	61,111
		IRON	8.9	40200	402000 BJ	QUALIFIED	8,11,111
		LEAD		276	276 J	QUALIFIED	86,104,105,111
		MAGNESIUM	-34.4	76600	76600 J	QUALIFIED	99,111
		MANGANESE		18900	18900 J	QUALIFIED	111
		MERCURY		0.2 B	0.2 J	QUALIFIED	43,98
		NICKEL		386	386 J	QUALIFIED	111
		POTASSIUM		23400	23400 J	QUALIFIED	61,111
		SELENIUM			6.4 UJ	QUALIFIED	91,98
		SILVER		18.7	18.7 J	QUALIFIED	86,111
		SODIUM		46200	46200 J	QUALIFIED	89,111
		THALLIUM		3.4 B	3.4 J	QUALIFIED	43,74,98
		VANADIUM		463	463 J	QUALIFIED	111
		ZINC	5.3	846	846 BJ	QUALIFIED	8,11,111
		CYANIDE		5.0 B	5.0 J	NEGATED	9,43

* ug/L

ATTACHMENT Y33 014

INORGANIC TARGET ANALYTE SUMMARY LIST

CASE NO: _____ SITE NAME: PEERLESS TUBE

LAB NAME: ETC CORP SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020214 FIELD BLANK (WATER)	CA5528	ALUMINUM	23.1	93.2 B	93.2 BJ	QUALIFIED	7,43,111
		ANTIMONY			22.3 UJ	QUALIFIED	83,111
		ARSENIC			1.1 UJ	QUALIFIED	98
		BARIUM			1.1 UJ	QUALIFIED	111
		BERYLLIUM	-0.4		0.2 UJ	QUALIFIED	99,111
		CADMIUM			1.0 UJ	QUALIFIED	111
		CALCIUM	75.3	108 B	108 BJ	NEGATED	6,43,111
		CHROMIUM			4.3 UJ	QUALIFIED	111
		COBALT			4.1 UJ	QUALIFIED	111
		COPPER			4.9 UJ	QUALIFIED	61,111
		IRON	8.9	66.7 B	66.7 BJ	QUALIFIED	8,43,111
		LEAD			2.0 UJ	QUALIFIED	
		MAGNESIUM	-34.4		25.7 UJ	QUALIFIED	99,111
		MANGANESE			1.2 UJ	QUALIFIED	111
		MERCURY			0.1 UJ	QUALIFIED	98
		NICKEL			9.9 UJ	QUALIFIED	111
		POTASSIUM			135 UJ	QUALIFIED	61,111
		SELENIUM			3.2 UJ	QUALIFIED	98
		SILVER			5.8 UJ	QUALIFIED	111
		SODIUM			70.0 UJ	QUALIFIED	111
		THALLIUM			1.9 UJ	QUALIFIED	98
		VANADIUM			4.7 UJ	QUALIFIED	111
		ZINC	5.3	7.6 B	7.6 BJ	NEGATED	6,43,111
		CYANIDE		3.9 B	3.9 J	QUALIFIED	43

* ug/L

ATTACHMENT Y-34 015

INORGANIC TARGET ANALYTE SUMMARY LIST

SE NO: _____ SITE NAME: PEERLESS TUBE

B NAME: ETC CORP SAMPLE MATRIX: WATER

SAMPLE ID	LAB ID	ANALYTE	METHOD BLANK CONC.*	LAB REPORT CONC.*	QA REPORT CONC.*	QA DECISIONS	FOOTNOTE
BSA11020213 FIELD BLANK (SOIL)	CA5229	ALUMINUM	23.1	37.1 B	37.1 BJ	NEGATED	6,43,111
		ANTIMONY			22.3 UJ	QUALIFIED	83,111
		ARSENIC			1.1 UJ	QUALIFIED	98
		BARIUM			1.1 UJ	QUALIFIED	111
		BERYLLIUM	-0.4		0.2 UJ	QUALIFIED	99,111
		CADMIUM			1.0 UJ	QUALIFIED	111
		CALCIUM	75.3	85.8 B	85.8 BJ	NEGATED	6,43,111
		CHROMIUM			4.3 UJ	QUALIFIED	111
		COBALT			4.1 UJ	QUALIFIED	111
		COPPER			4.9 UJ	QUALIFIED	61,111
		IRON	8.9	25.8 B	25.8 BJ	NEGATED	6,43,111
		MAGNESIUM	-34.4		25.7 UJ	QUALIFIED	99,111
		MANGANESE			1.2 UJ	QUALIFIED	111
		MERCURY			0.1 UJ	QUALIFIED	98
		NICKEL			9.9 UJ	QUALIFIED	111
		POTASSIUM			135 UJ	QUALIFIED	61,111
		SELENIUM			3.2 UJ	QUALIFIED	98
		SILVER			5.8 UJ	QUALIFIED	111
		SODIUM			70.0 UJ	QUALIFIED	111
		THALLIUM		10.2	10.2 UJ	QUALIFIED	98
		VANADIUM			4.7 UJ	QUALIFIED	111
		ZINC	5.3	6.8 B	6.8 BJ	NEGATED	6,43,111
		CYANIDE		2.9 B	2.9 J	QUALIFIED	43

* ug/L

ATTACHMENT V35 016

iv. Footnotes for Target and non Target Analyte Summary

Listed below are the footnotes and footnote numbers that shall be used on the Summary. These footnotes shall not be revised or renumbered. If the contractor must develop a new footnote, the number is to be sequentially added to the end of the footnote listing.

1. The reported concentration is quantitatively qualified due to calibration deficiencies.

2. The reported concentration is quantitatively qualified due to surrogate recovery outliers.

3. The reported concentration is quantitatively qualified because the concentration is below the CRQL.

4. The non-detected value is rejected because the calibration response factor for the analyte is less than 0.05.

5. The sample holding time to reextraction and/or reanalysis was exceeded. All positive results including the tentatively identified compounds are highly qualified.

6. The value reported is less than 3x the value in the method blank. It is the policy of NJDEP-DHSM to negate the reported value due to probable foreign contamination unrelated to the actual sample. The end-user, however, is alerted that a reportable quantity of the analyte/compound was detected.

7. The value reported is between 3x and 5x the value in the method blank. The presence of that analyte/compound may be due to its "real presence" in the sample, and/or laboratory contamination. However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte/compound in the method blank. The presence of this analyte/compound in the sample may be due to its "real presence" in the sample and/or possible foreign laboratory/field contamination unrelated to the actual sample. Resampling and reanalysis is recommended.

8. The value reported is greater than five (5) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to the method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte/compound in the method blank.

ATTACHMENT Y-35

017

9. The value reported is less than 3x the value in the trip/field blank. It is the policy of NJDEP-DHSM to negate the reported value as due to probable foreign contamination unrelated to the actual sample. The end-user, however, is alerted that a reportable quantity of the analyte/compound was detected.

10. The value reported is between 3x and 5x the value in the field/trip blank and may be due to possible foreign laboratory/field contamination unrelated to the actual sample. The value reported is <u>not negated.</u> However, the reported value must be quantitatively qualified "J" due to trip/field blank contamination.

11. The value reported is greater than 5x the value in the trip/field blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to trip/field blank contamination.

12. The % RSD and/or % Difference for one or more surrogates were above the control limit, therefore, all of the positive results for the fraction are qualified.

13. One CCC compound for either the VOA, AE or BN fraction is above the maximum allowable level for the initial calibration or the continuing calibration. The entire fraction is highly qualified and all results are considered to be estimated values.

14. Two or more CCC compounds for either the VOA, AE or BN fraction are above the maximum allowable level for the initial calibration or the continuing calibration. The entire fraction is rejected and all sample results are rejected.

15. The concentration reported by the laboratory is incorrectly calculated.

16. The laboratory failed to report the presence of the analyte in the sample.

17. The mass spectral identification has not been confirmed and the identification of this compound has been rejected. This compound should now be considered an unknown and the reported concentration is considered an estimated value.

19. The laboratory didn't provide the mass spectral proof for the analyte although the quantitation report indicates the presence of the analyte. The presence of this analyte in the sample is considered tentative.

20. The non target compound is qualified "J" and considered an estimated value because relative response factors are not determined for non-target compounds.

ATTACHMENT V-37

21. The laboratory call on the non target compound did not match the mass spectra of the compound at the approximate scan number in the blank. The laboratory call is incorrect.

22. The laboratory failed to report this analyte on the Organic Analysis Data Sheet (OADS) Form even though the TIC, quantitation report and library search indicates a hit for the analyte.

23. The laboratory reported this analyte in the OADS form. However, this analyte was negated in the quantitation report. QA reviewer agrees the mass spectrum is not a good match and therefore, negates the presence of this analyte in the sample.

24. No library search was submitted for this unknown.

25. One internal standard area in the sample did not meet the QC criteria. Therefore, all compound results using this internal standard for quantitation are quantitatively estimated.

26. Two or more internal standard areas in the sample did not meet the QC criteria. The entire fraction for that sample is rejected.

27. The RIC in the raw data indicates a non-target(s) is present. The lab failed to report and provide library search(s) for the non-target(s).

28. The laboratory did not quantify the pesticides present in the sample. The pesticide was confirmed on a second column. Quantification of the peaks revealed that the value is above the CRQL.

29. The lab failed to report this analyte even though it was found in both the primary and confirming columns.

30. DBC time shift is greater than the maximum allowed for the column used for the analysis of the sample. The sample results are rejected.

31. This analyte was found in the primary column but not in the confirming column. Therefore, the laboratory call for this analyte's presence is negated.

32. The retention time window for this analyte overlaps with the retention time window of another analyte. The identity is indistinguishable and therefore tentative.

33. The laboratory reported concentration does not agree with QA reviewer's calculated concentration. The laboratory does not indicate which peak(s) were integrated to arrive at their concentration.

ATTACHMENT 1/98

34. The compound exceeds the calibration range of the instrument and is indicated with the "E" qualifier.

35. The compound is a suspected Aldol condensation product and is flagged with the "A" qualifier.

36. The laboratory was required to dilute the samples to bring the peaks onto scale. The CLP methodology requires dilutions to be indicated with the "D" qualifier.

37. This sample was diluted prior to analysis. The value reported prior to the dilution correction is between 3 and 5 times the value in the method blank and may be due to possible foreign laboratory/field contamination unrelated to the actual sample. The value reported is <u>not negated.</u> However, the reported value must be quantitatively qualified "J" due to method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.

38. This sample was diluted prior to analysis. The value reported prior to the dilution correction is less than 3x the value in the method blank. It is the policy of NJDEP-DHSM to negate the reported value due to probable foreign laboratory contamination unrelated to the actual sample. The end-user is alerted that a reportable quantity of the analyte was detected.

39. This non-target compound was detected as a target compound in another analytical fraction. Therefore, the presence of this compound as a non-target analyte is negated.

40. This sample was diluted prior to analysis. The value reported prior to the dilution correction is greater than five (5) times the value in the method blank and is considered "real". However, the reported value must be quantitatively qualified "J" due to method blank contamination. The "B" qualifier alerts the end-user to the presence of this analyte in the method blank.

41. The reported metal value was qualified because the Initial/Continuing Calibration Standard was not within the recovery range (90-110 percent).

42. No CRDL Standard for AA or ICP analysis was performed. Therefore, the analyte affected was rejected.

43. The reported concentration was quantitatively qualified because the concentration was below the CRDL but greater than the IDL. The concentration is considered estimated since the value obtain is at the low end of the instrument performance.

ATTACHMENT 1/38

44. The reported metal value was qualified because the ICP Interference Check Sample was outside the recovery range (80-120 percent).

45. The non-detect metal value was qualified because the ICP Interference Check Sample was within the range of 30 and 79%; hence a possibility of false negatives exists and therefore, is flagged estimated "UJ".

46. The metal value reported was less than 3x the value in the preparation blank. Therefore, the reported value is negated due to the probable foreign laboratory contamination.

47. This non-detected metal analyte had Laboratory Control Sample recovery that fell within the range of 50-79%. The end-user should be aware of the possibility of false negatives; therefore, this analyte is flagged as estimated (UJ).

48. The reported metal value was qualified because the Laboratory Control Sample recovery fell within the range of 50-79 %. The end-user should be aware of results that may be biased low.

49. The reported metal value was qualified because Laboratory Control Sample recovery was greater than 120%. The end-user should be aware of results that may be biased high.

50. This metal analyte is rejected because the Laboratory Control Sample recovery was less than 50%.

51. In the Duplicate Sample Analysis for metals, the analyte fell outside the control limits of ± 20 percent or ± CRDL. Therefore, result for the metal was qualified.

52. This analyte was rejected because the laboratory performed the Duplicate Analysis on a field blank.

53. The laboratory incorrectly flagged this analyte with the '*' to denote Duplicate Analysis results did not meet the QC limit.

54. The reported metal value was qualified because the spike recovery was greater than 125 percent.

55. The reported metal value was qualified because the spike recovery was between 31 and 74 percent.

56. The reported metal value was qualified because the spike recovery was less than 30 percent. The reported value actually indicated the minimum concentration at which the metal was present.

ATTACHMENT 1-40

57. The non-detected metal value was qualified (UJ) because the spike recovery was between 31 and 74 percent. The possibility of a false negative exists.

58. The non-detected metal value was rejected because the spike recovery was less than 30.0 percent.

59. The reported metal value was rejected because the laboratory used a field blank for the Sample Spike Analysis.

60. There was no Post-Digestion Spike Sample Recovery analysis performed. Therefore, the analyte was rejected.

61. The reported metal value was qualified because the Serial Dilution was not within ten percent of sample concentration.

62. The reported metal value was rejected because the laboratory used a field blank for the Serial Dilution analysis.

63. The laboratory failed to flag this analyte with the 'E' qualifier to denote Serial Dilution result did not meet the QC limit.

64. This metal analyte is rejected because the preparation blank concentration of this analyte is greater than the CRDL and the reported sample concentration is less than ten (10) times the preparation blank concentration.

65. The laboratory incorrectly transcribed the raw data onto the Inorganic Analysis Data Sheet (IADS) form.

66. The reported metal analyte was rejected because the CRDL standard fell less than 50% or was greater than 150% and is indicative of severe analytical deficiencies.

67. The non-detected metal value was rejected because the post-digestion spike recovery was less than 30 percent.

68. The reported metal analyte was rejected because the associated Continuing Calibration Blank result was greater than the CRDL.

69. The reported metal analyte was rejected because this sample is not associated with a Laboratory Control Sample.

70. The laboratory made a transcription error. No hits were found in the raw data.

71. The laboratory used an incorrectly associated Method Blank. This targeted compound was not found in the Method Blank and therefore, does not need the "B" qualifier.

ATTACHMENT V-14

72. This analyte is rejected because the laboratory exceeded the holding time for digestion and analysis.

73. The laboratory subtracted the method blank from the sample result. QA Reviewer's calculation puts the method blank back into the result.

74. The reported metal analyte is quantitatively qualified because the post-digestion spike analysis result was outside the QC limits.

75. The xeroxing is unreadable. Therefore, the QA reviewer cannot read the laboratory's reported concentration result on the OADS form.

76. This non-detect metal value was qualified because the CRDL standard was not within the recovery range (80-120 %).

ATTACHMENT Y-41

ADDENDUM TO NJDEP TARGET ANALYTE SUMMARY FOOTNOTES

77. The reported IDL and linear range information was not from the correct quarter. The results are rejected pending receipt of the updated information.

78. The raw data does not contain duplicate exposure information. Results are qualified as estimated until the proper documentation is submitted.

79. Times of analyses were not recorded on the raw data. Results are estimated pending the receipt of the run time information.

80. The percent solids raw data was not present in the package. Acceptance of the data is based upon the submission of this raw data.

81. The raw data is not present in the package. The results are rejected until the data is submitted.

82. The MSA correlation coefficient was less than 0.995 after the sample reanalysis.

83. The ICS result was greater than three times the IDL. The associated results are qualified as biased low.

84. The MSA correlation coefficient was less than 0.995 after the sample reanalysis.

85. The LCS soil result is outside of the established control limits. All associated soil samples are rejected.

86. The CRDL sample was above the CLP control limit. All positive sample results are qualified as estimated and considered to be biased high.

87. The calibration blank was analyzed before the calibration verification. All associated sample results are qualified as estimated.

88. The CRDL sample percent recovery was below the CLP control limit. All positive sample results are qualified as estimated and considered to be biased low.

89. A positive ICS result was observed for non-ICS analytes. All associated sample results >5x the ICS value are qualified as estimated.

90. A positive ICS result was observed for non-ICS analytes . All associated sample results <5x the ICS value are qualified as estimated, and could be a false positive.

91. The Post-Digestion spike recovery and subsequent reanalysis was <40%. The associated sample result is qualified as estimated due to a matrix effect.

92. The reported metal value was rejected because no Post-Digestion spike was performed on the preparation blank sample.

93. The sample result is quantitatively qualified because a solid LCS was not analyzed.

94. The sample result is quantitatively qualified because a solid preparation blank was not analyzed.

95. The sample result is qualified as estimated because the element was restandardized in the middle of an analytical run.

96. The sample holding time was exceeded by less then 10 days, all associated sample results are qualified as estimated.

97. The final QC was not analyzed during the same analytical run as the samples. All associated sample results are considered to be estimated.

98. A beginning CCV was not analyzed prior to the analytical samples. All samples up to the first CCV are qualified as estimated.

99. The sample result is qualified as estimated and could be biased low because of the negative drift in the method blank.

100. The CCB was run before the CCV, all associated sample results are qualified as estimated.

101. The serial dilution percent difference is > 100%, all associated sample results are rejected.

102. The preparation blank post digestion spike was outside the control limits. All associated sample results are rejected.

103. The post-digestion spike was not performed at the correct concentration. The associated sample results are qualified as estimated.

104. The matrix spike was not performed for all methods of analysis. All associated sample results are rejected for the method lacking a matrix spike analysis.

105. The duplicate digestion was not performed for all methods of analysis. All associated sample results are rejected for the method lacking a duplicate digestion analysis.

106. The sample analysis result was above the highest standard. All associated sample results are rejected.

107. This analyte is qualified because the laboratory exceeded the holding time for digestion and analysis.

108. The analyte is rejected because the instrument calibration standards did not include a standard at the CRDL.

109. The analyte above the CRDL for the preparation blank. All associated sample results >10x the preparation blank value are qualified.

110. The CCV was not analyzed at the correct frequency. All samples run after the tenth sample are qualified as estimated.

111. The ICSA sample was not analyzed. All associated sample results are qualified as estimated.

112. The matrix spike was performed at the wrong concentration. All associated sample results are qualified as estimated.

Reference 17
Page 124 of 129

Let's protect our earth

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS SITE MITIGATION
CN 413, Trenton, N.J. 08625-0413
(609) 984-2902
Fax # (609) 633-2360

Anthony J. Farro
Director

JUL 10 1991

MEMORANDUM

To: Frank Sorce, HSMS III
Bureau of Planning & Assessment

Through: Greg Toffoli, Acting Section Chief 7/10/91
Quality Assurance Section
Bureau of Environmental Measurements & Quality Assurance

From: Dorothy Lin, HSMS II 7/10/91
Quality Assurance Section
Bureau of Environmental Measurements & Quality Assurance

Subject: Quality Assurance Review of the Weston Validation submitted for the Peerless Tube Site, samples collected November 2, 1990. Laboratory analyses performed by Environmental Testing Center for TCL and TAL under Contract X-408 Task IV. Samples Reviewed by QAS were:

Field ID	Lab ID	Sampling Date	Parameters
BSA11020208	CA5223	11/02/90	TCL & TAL
BSA11020213	CA5229	11/02/90	TCL & TAL

The Quality Assurance Section, Bureau of Environmental Measurements and Quality Assurance, Division of Hazardous Site Mitigation has reviewed the subject datacon package according to Contract X-408 Task IV deliverable requirements.

The datacon submitted for the Peerless Tube Site by Weston is found to be acceptable.

If there are any questions concerning this review, please contact this office at 3-0752.

c. William Lowry, BEMQA
J.Sanguiliano, BEMQA

New Jersey is an Equal Opportunity Employer
Recycled Paper

REFERENCE 18

Form VSC-005
6/82

361 4050

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT

Reference 18
page 1 of 2

INCIDENT REPORT

D.W.M. ASSIGNED CASE NUMBER 85-05-17-05C		HOT LINE ☐	INDEXED ☐
DATE 85-05-17	TIME (Military) 1330	D.W.M. ID NO. 2195	

INCIDENT REPORTED BY:

NAME THOMAS SOLECKI	PHONE (212) 264-5130	
AFFILIATION FEDERAL ENV. PROT AGENCY		CODE
STREET 26 FED PLAZA RM 1023		
CITY NEW YORK	STATE NY	ZIP CODE 10278

INCIDENT LOCATION:

NAME PEERLESS TUBE COMPANY		PHONE	
STREET 58-76 LOCOST AVE		UTM VERT	UTM HORIZ
CITY BLOOMFIELD	COUNTY 0708	STATE NJ	ZIP CODE

SOURCE OF SPILLED AND/OR DISCHARGED SUBSTANCE: Confirmed ☐ Alleged ☐ More Than 1 Source ☐

COMPANY NAME PEERLESS TUBE COMPANY		PHONE (201) 743-5100	
CONTACT RICHARD POTTS	TITLE VICE PRESIDENT		
STREET 58-76 LOCOST ST		DEP COMPANY NO.	
CITY BLOOMFIELD	COUNTY ESSEX	STATE NJ	ZIP CODE 07003

SUSPECTED SPILLED AND/OR DISCHARGED SUBSTANCE: Confirmed ☑ Alleged ☐ More Than 2 Substances ☐

1. THINNERS			SUBSTANCE NO.
AMOUNT SPILLED UNK	UNITS GAL	A/P/E	S/L/G/M
2. LAQUERS			SUBSTANCE NO.
AMOUNT SPILLED UNK	UNITS GAL	A/P/E	S/L/G/M

DATE OF INCIDENT 04-28-85	TIME (Military) 1640	TEMP. 50	WEATHER CLEAR	WIND (Dir. & Vel.) VARI
SPILL ORIGIN BEHIND PLANT INTO PIT.				CODE
CAUSE DELIBERATE				CODE
WATER BODY AFFECTED				CODE
ASSOCIATED FIRE AND/OR HAZARDS				

INCIDENT REFERRED TO:

AGENCY	PHONE
CONTACT	AGENCY CODE

PRIMARY D.W.M. INVESTIGATOR E2211 5/20/85	FOLLOWUP
NO FURTHER ACTION 1	DATE

COMMENTS:

RECIEVED CALL FROM USEPA (NY) THAT A MR JEREMIAF FROM OSHA (201) 361-4045 OBSERVED THE MANAGEMENT AND PERSONNEL FROM PEERLESS TUBE DELIBERATELY DUMP LAQUERS AND THINNERS INTO A PIT BEHIND THEIR PLANT.
CALLED BLOOMFIELD HEALTH DEPT SPOKE TO

ATTACHMENT D-1

Reference 18
Page 2 of 2

Form DWM-001
6/82

NEW JE EY DEPARTMENT OF ENVIRONMENTAL OTECTION
DIVISION OF WASTE MANAGEMENT

D.W.M. ASSIGNED CASE NUMBER 85-05-17-05		Page 2 of ___
DATE 85-05-17	TIME 1330	D.W.M. ID NO. 2175

RICHARD PROCTOR (201) 743-4400 AND ADVISED
HIM OF THE SITUATION. THEY WILL RESPOND
RECIEVED CALL FROM R. PROCTOR THAT THEY
COULD NOT FIND SOURCE OF CONTAMINATION 2175

ATTACHMENT D-2

REFERENCE 19

ADM-012

Page 2 of 2

MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO Spill File

FROM Frank Gagliano through Bruce Comfort DATE August 6, 1985

SUBJECT Peerless Tube Company, Locust Street, Bloomfield, Essex County
DWM #85-05-17-05C - SP 07-02

Conclusion:

The report of deliberate dumping of thinners into a pit behind the subject facility could not be substantiated by inspections conducted by two separate officials.

Recommendations:

Due to the lack of substantial evidence, it is recommended that this case be closed.

FOC5:dg

ATTACHMENT D-4

REFERENCE 20

MALCOLM PIRNIE

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

Peerless Tube	316
Site Name	**Site ID Number**
58-76 Locust Street	Bloomfield, Essex Co., NJ
Address	**City, State**

Date of Off-Site Reconnaissance April 23, 1986

SITE DESCRIPTION

Peerless Tube manufactures aerosol cans and is located in a residential area. The site is surrounded by paved parking lots and streets. In April, 1985, dumping of laquers and thinners in a pit behind the plant was reported. Inspections by the NJDEP and the Bloomfield Health Dept. at the time found no evidence of dumping.
The plant has a NJPDES permit to discharge wastewater to Lloyd's and Wigwam Brooks and to the Passaic River. Compliance evaluation inspections by NJDEP/DWR in 1984, 1985 and 1986 resulted in "acceptable" ratings.
Occupational health hazards have existed at the plant due to the use of chlorinated and aromatic hydrocarbons in the aerosol can manufacturing process. Between 1980 and 1984, the company was cited for numerous noise and safety violations.
In June, 1984, a trichloroethylene reclaiming system was installed.

PRIORITY FOR FURTHER ACTION: High ___ Medium x Low ___ None ___

RECOMMENDATIONS

No further action is recommended at this site. No evidence was found of the alleged dumping, and the case was subsequently closed. Although occupational health hazards have been present at the site, OSHA is involved and is monitoring the situation.

Prepared by: Teresa M. Kennel **Date:** April 29, 1986

Of: Malcolm Pirnie, Inc.

ATTACHMENT A-1

Reference 20
Page 2 of 8

EPA

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

I. IDENTIFICATION
01 STATE: NJ
02 SITE NUMBER: 316

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site): Peerless Tube
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: 58-76 Locust Street
03 CITY: Bloomfield
04 STATE: NJ
05 ZIP CODE: 07003
06 COUNTY: Essex
07 COUNTY CODE:
08 CONG. DIST.:
09 COORDINATES LATITUDE: 40-47-09.0
LONGITUDE: 74-12-06.0
BLOCK 129 (152) LOT 60,70 (8,10)
10 DIRECTIONS TO SITE (Starting from nearest public road): Garden State Parkway to Bloomfield exit. John F. Kennedy Drive to Locust Avenue, make right.

III. RESPONSIBLE PARTIES

01 OWNER (if known): Peerless Tube Co.
02 STREET (Business, mailing, residential): 58 Locust Avenue
03 CITY: Bloomfield
04 STATE: NJ
05 ZIP CODE: 07003
06 TELEPHONE NUMBER: ( )
07 OPERATOR (if known and different from owner): Richard Potts, V.P.
08 STREET (Business, mailing, residential): 58 Locust Avenue
09 CITY: Bloomfield
10 STATE: NJ
11 ZIP CODE: 07003
12 TELEPHONE NUMBER: (201)743-5100.
13 TYPE OF OWNERSHIP (Check one)
[X] A. PRIVATE [ ] B. FEDERAL _____ (Agency name) [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL
[ ] F. OTHER _____ (Specify) [ ] G. UNKNOWN
14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
[ ] A. RCRA 3001 DATE RECEIVED: _____ MONTH DAY YEAR [ ] B. UNCONTROLLED WASTE (CERCLA 103c) DATE RECEIVED: _____ MONTH DAY YEAR [X] C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
[X] YES DATE 07-11-85 MONTH DAY YEAR
[ ] NO
BY (Check all that apply)
[ ] A. EPA [ ] B. EPA CONTRACTOR [X] C. STATE [ ] D. OTHER CONTRACTOR
[ ] E. LOCAL HEALTH OFFICIAL [ ] F. OTHER _____ (Specify)
CONTRACTOR NAME (S)
02 SITE STATUS (Check one)
[X] A. ACTIVE [ ] B. INACTIVE [ ] C. UNKNOWN
03 YEARS OF OPERATION
_____ BEGINNING YEAR _____ ENDING YEAR [X] UNKNOWN
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
Lacquers and thinners are used on site. Substances identified include alkanes, chlorinated alkanes, aromatic hydrocarbons, butyl alcohol, 2-ethoxyethyl acetate, 2-butoxyethanol, and glycol ethers. (Attachment B)
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Dumping of lacquers and thinners on-site was alleged but no evidence of such dumping was found. The use of aromatic and chlorinated hydrocarbons has caused occupational hazards.

V. PRIORITY ASSESSMENT

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

VI. INFORMATION AVAILABLE FROM

01 CONTACT: Robert Hayton
02 OF (Agency/Organization): NJDEP - HSMA.BEERA
03 TELEPHONE NUMBER: (609)633-2219
04 PERSON RESPONSIBLE FOR ASSESSMENT: Teresa M. Kennel
05 AGENCY:
06 ORGANIZATION: M.Pirnie, Inc
07 TELEPHONE NUMBER: (201-845040
08 DATE: 04-29-86 MONTH DAY YEAR

EPA FORM 2070-12 (7-81)

ATTACHMENT A-2

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	316

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

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

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

TONS Unknown
CUBIC YARDS Unknown
NO. OF DRUMS Unknown

03 WASTE CHARACTERISTICS (Check all that apply)

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

III. WASTE TYPE

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

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	alkanes	999			
OCC	chlorinated alkanes	999			
OCC	aromatic hydrocarbons	999			
OCC	butyl alcohol	71-36-3			
OCC	2-ethoxyethyl acetate	111-15-9			
OCC	2-butoxyethanol	111-76-2			
SOL	cellosolve solvent	110-80-5			
SLU	paint sludge	999			
OLW	waste oil	999			
	(Attachments B,C)				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

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

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

Bloomfield Health Dept. files; NJDEP/DWR,DWM files; USEPA files : Attachments A-D

EPA FORM 2070-12 (7-81)

ATTACHMENT A-3

Reference 2c
Page 4 of 8

EPA

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

I. IDENTIFICATION
01 STATE: NJ
02 SITE NUMBER: 316

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ____) [X] POTENTIAL [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ 04 NARRATIVE DESCRIPTION
The potential exists due to the alleged dumping of lacquers and thinners on-site, but no evidence of dumping was found. (Attachment D)

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ____) [X] POTENTIAL [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ 04 NARRATIVE DESCRIPTION
The potential exists due discharges to Lloyd's and Wigwam Brooks, but the plant is in compliance with it's NJPDES permit. (Attachments A,C)

01 [X] C. CONTAMINATION OF AIR — 02 [X] OBSERVED (DATE: 04-23-86) [ ] POTENTIAL [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ 04 NARRATIVE DESCRIPTION
Detected odor in air during OSR.

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

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: ____) [ ] POTENTIAL [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ____ 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE: ____) [ ] POTENTIAL [X] ALLEGED
03 AREA POTENTIALLY AFFECTED: ____ (Acres) 04 NARRATIVE DESCRIPTION
Illegal dumping of lacquers and thinners was alleged, but inspections by NJDEP and the Bloomfield Health Dept. revealed no evidence of dumping. (Attachment D)

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

01 [X] H. WORKER EXPOSURE/INJURY — 02 [X] OBSERVED (DATE: 1984) [ ] POTENTIAL [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: ____ 04 NARRATIVE DESCRIPTION
The Bloomfield Health Dept. determined that workers were exposed to hazardous levels of glycol ethers and chlorinated and aromatic hydrocarbons. OSHA is involved in this problem. (Attachment B)

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

EPA FORM 2070-12 (7-81)

ATTACHMENT A-4

Reference 2c
Page 5 of 8

EPA

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

I. IDENTIFICATION
01 STATE: NJ | 02 SITE NUMBER: 316

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

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

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

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

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

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

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

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

Illegal dumping of lacquers and thinners was alleged, but no evidence of dumping was found during inspections by NJDEP and the Bloomfield Health Dept. (Attachment D)

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

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

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

Bloomfield Health Dept. files; NJDEP/DWM,DWR files; USEPA files : Attachments A-D

EPA FORM 2070-12 (7-81)

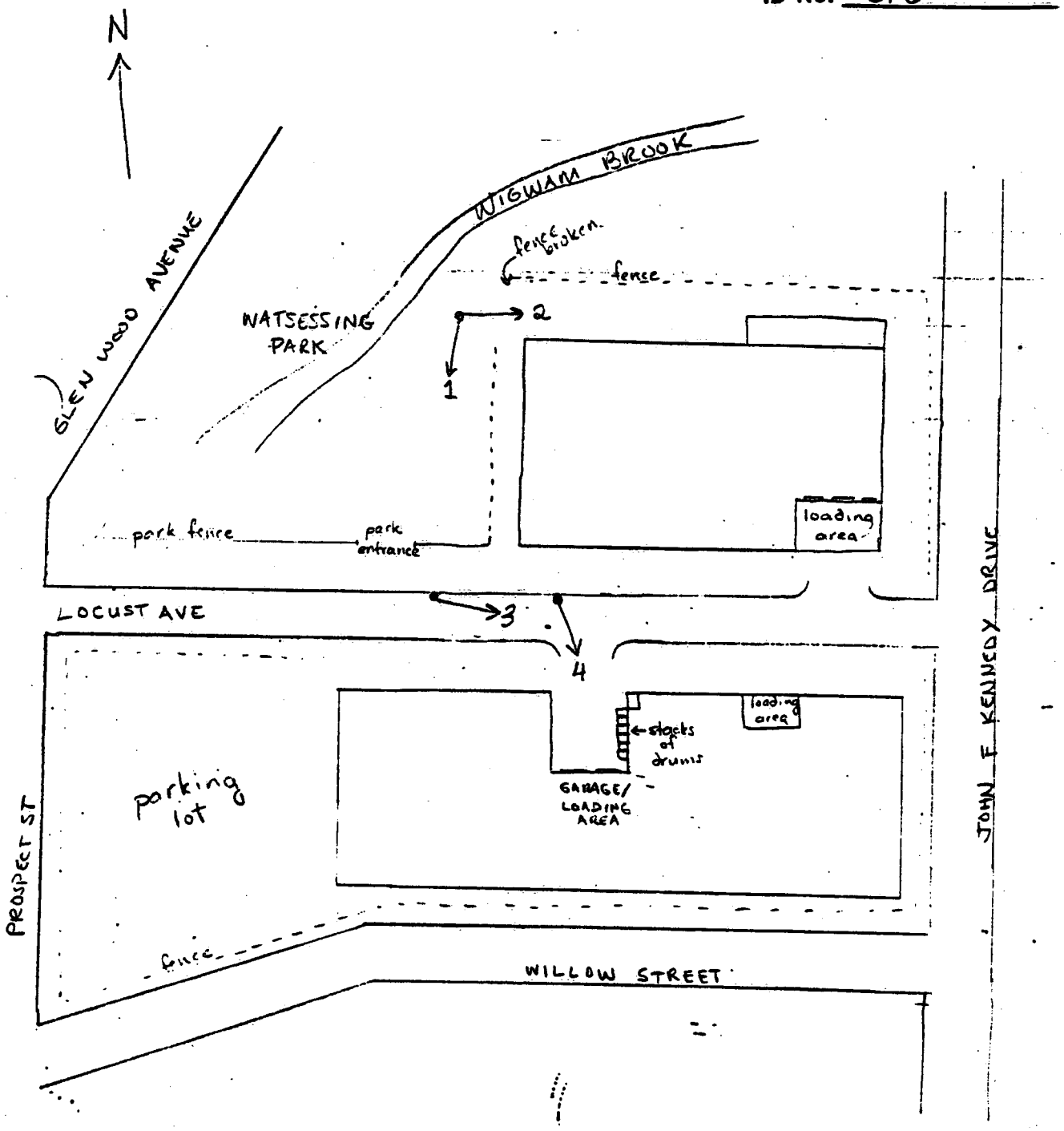
ATTACHMENT A-5

MALCOLM PIRNIE

MAPS AND SKETCHES

Site: Peerless Tube

ID No. 316



Signature: Teresa M. Kennel

Date: 4/23/86

Witness:

Date:

MALCOLM PIRNIE

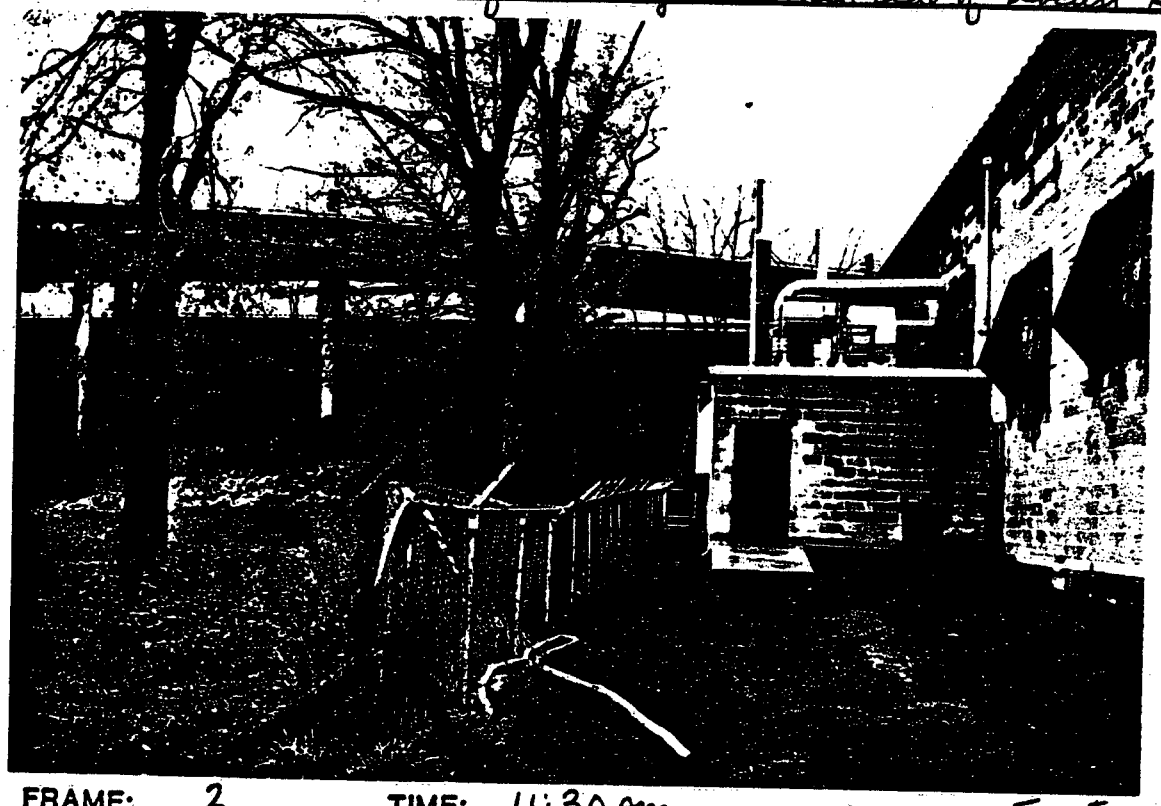
Preliminary Assessment Photo Log

SITE: Peerless Tube

I.D. 316
4/23/86

FRAME: 1 TIME: 11:30 Am DIRECTION: South

DESCRIPTION: View from Watsessing Park, of side of building on North side of Locust A and Front of building on South side of Locust Ave.



FRAME: 2 TIME: 11:30 Am DIRECTION: East

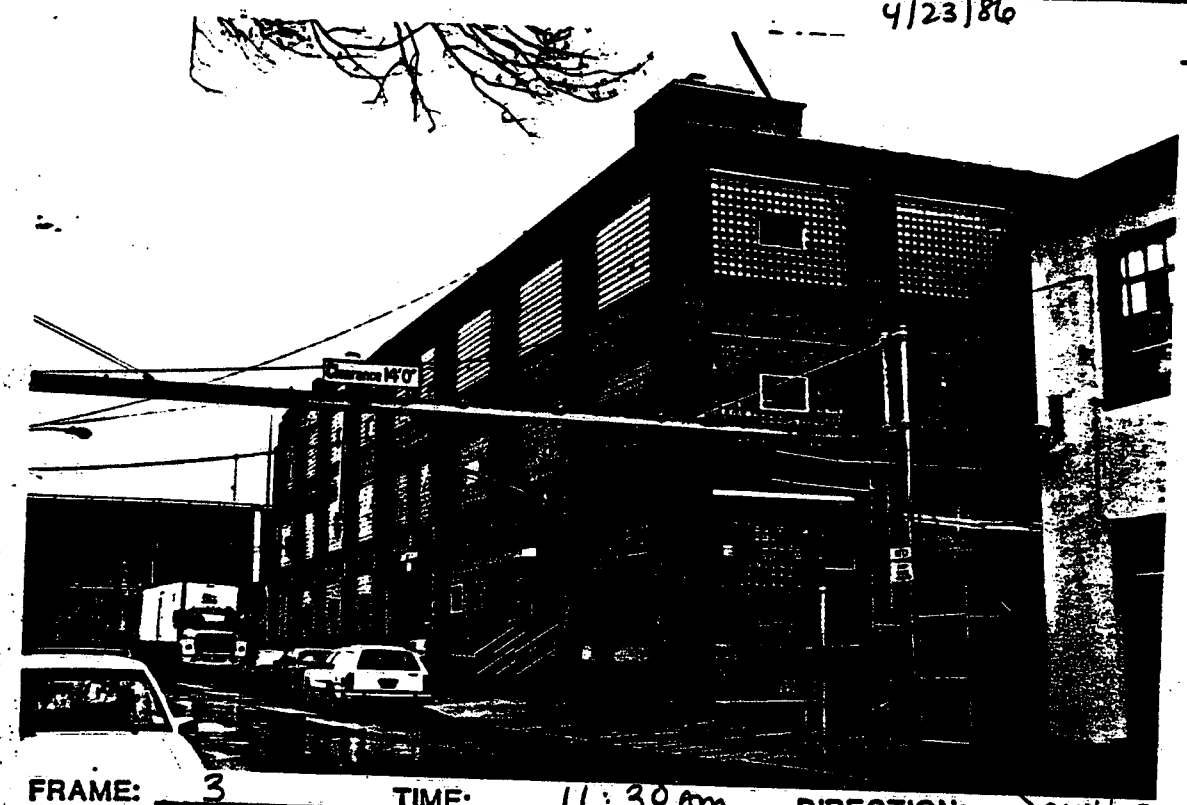
DESCRIPTION: Rear of building on North side of Locust Avenue.

MALCOLM PIRNIE

Preliminary Assessment Photo Log

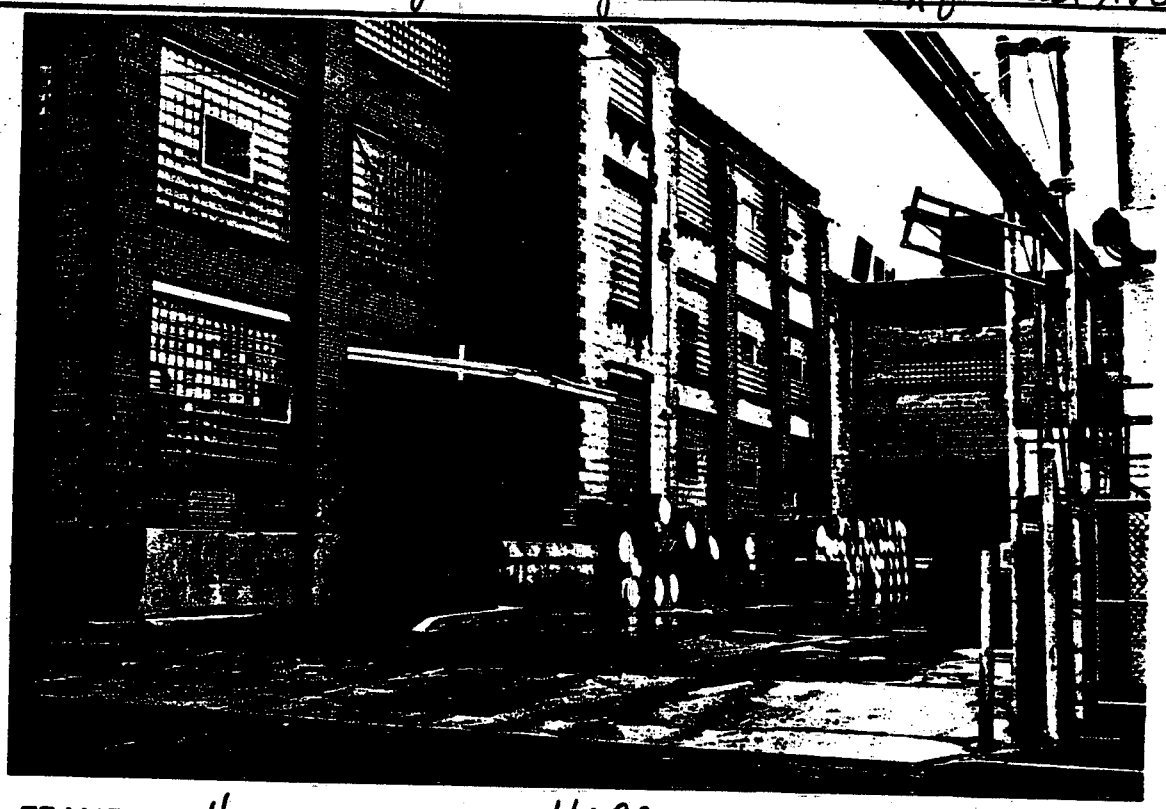
SITE: Peerless Tube

I.D. 316
4/23/86



FRAME: 3 TIME: 11:30 Am DIRECTION: Southeast

DESCRIPTION: Front of building located on South side of Locust Avenue.



FRAME: 4 TIME: 11:30 Am DIRECTION: South

DESCRIPTION: Truck Entrance / Loading Area and Stacks of drums at

REFERENCE 21

'87 09/29 22:03 ☎9-9 5536 TRENTON DISPA 02-05-50-02m 21 002

Form DEQ-023 A
3/87

TD LOG# 6638

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIV. OF ENVIRONMENTAL QUALITY – BUR. OF COMMUNICATIONS AND SUPPORT SERVICES
Phone: 609-292-7172

0702-11
Reference 2
page 1 of 1

RECEIVED-
TRENTON DISPATCH
09 29 P 7 13
BUR. OF COMMUNICATIONS AND SUPPORT SERVICES

COMMUNICATIONS CENTER NOTIFICATION REPORT

CASE NO. 87 (Yr) - 09 (Mo) - 29 (Day) - 19:13 (Time)

DATE 09 (Mo) - 29 (Day) - 87 (Yr) REC'D BY C.McAFEE / C.M. (Initials) REVIEWED BY FRANK GAGLIANO

INCIDENT REPORT BY:
Name DEPUTY CHIEF McGOWAN Phone 201-743-4400 EXT 264
Street
City BLOOMFIELD State NEW JERSEY
Affiliation/Title BLOOMFIELD FIRE DEPT.

INCIDENT LOCATION: ___ Transportation ___ Facility X Other
Name (Site): WATESSING PARK STREAM Phone
Street GLENNWOOD AVE.
City BLOOMFIELD County ESSEX State N.J. Zip Code

Date of Incident: 09 (Mo) - 29 (Day) - 87 Time: 19:00

IDENTITY OF SUBSTANCE(S) SPILLED, RELEASED, ETC.: ___ Known ___ Suspected X Unknown
Name of Substance(s) (Gas, Liquid, Solid): MILKY WHITE SUBSTANCE
CAS Number:
Amount Released/Spilled UNKNOWN ___ Actual ___ Potential ___ Estimated
Substance Contained (Y/N/U)
Type of Release/Spill: ___ Terminated X Continuous ___ Intermittent

Hazardous Material (Y/N) U

NATURE OF INCIDENT: ___ Complaint X Munic. Notification ___ Emergency ___ Sub. 28

INCIDENT DESCRIPTION:
___ Fire ___ Explosion ___ Air Rel ___ Spill ___ MVA ___ Derailment ___ Smoke/Dust
___ Odors ___ Sewage ___ NJPDES ___ Noise ___ Illegal Dumping X Wildlife
___ Equip Start-up/Shutdown, Equip Fail/Upset, etc.
XX Other (specify) POSSIBLE ILLEGAL DUMPING
Injuries (Y/N/U) Public Exposure (Y/N/U)
Facility Evacuation (Y/N/U) Police at Scene (Y/N/U)
Contamination of ___ Air ___ Land X Water Assistance Requested (Y/N/U)
Potable Water Source (Y/N/U) Wind Direction/Speed ? / ?
Receiving Water STREAM Precipitation (rain/snow) ?
Location Type: ___ Residential ___ Industrial X Rural ___ Sensitive Population (Hosp., School, Nurs. Home)

STATUS AT INCIDENT SCENE FIRE DEPT CONFIRMS INCIDENT REPORT; BLOOMFIELD HEALTH DEPT WILL RESPOND THIS EVENING AND ONCE AGAIN ON THE MORNING OF 09-30-87.

RESPONSIBLE PARTY: ___ Known X Suspected ___ Unknown
Company Name INDUSTRIAL BLDG. ON BANK OF PARK. Phone
Contact Title
Street
City County State Zip Code

OFFICIALS NOTIFIED (Name/Title):
NJSP: / Phone Date/Time / (T/M)
Local Health MR. PANZITTA H.O/BLOOMFIELD Phone ANSW. PAGE Date/Time 09-29 / 19:27 (T/M)
Local Munic: BLOOMFIELD P.D. / Phone 201-743-4400 Date/Time 09-29 / 19:19 (T/M)
USEPA: / Phone Date/Time / (T/M)

INCIDENT REFERRED TO:
X DEQ ___ DWR ___ DSWM ___ DHSM ___ DHWM ___ DOH X DFG ___ DPF ___ DCJ ___ DCR
Region: ___ Northern ___ Metro ___ Central ___ Southern ___ ER1 ___ ER2
1. Name/Affil FRANK GAGLIANO / ER.#2 Phone AT T.D. Date/Time 09-29 / 19:16 (T/M)
2. Name/Affil JOHN MIHATOV / L-5 Phone HOME Date/Time 09-29 / 19:27 (T/M)
3. Name/Affil / Phone Date/Time / (T/M)

IMMEDIATE DEP RESPONSE (Y/N) [Emergency (Y/N) Enforcement (Y/N)]

COMMENTS Refer D Hurm - Metro Enforcement.
Telefax State Police
Telefax Fish + Game

ATTACHMENT H-3

REFERENCE 22

Form DWM-051
1/86

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT

INVESTIGATION

CASE #: 87-09-30-02M

DWM FILE #: 07-02-11

TIME ARRIVED: 1115 hrs

INVESTIGATOR: Eddie L. Davis

DATE: 10-05-87

TIME DEPARTED: 1140 hrs

LOCATION: Watessing Park Stream

PROPERTY OWNER: City of Bloomfield

ADDRESS: Glenwood Ave
Bloomfield County - Essex

MAILING ADDRESS:

BLOCK:

LOT:

RESPONSIBLE PARTY: Possibly Peerless Co

LOCATION TELEPHONE #:

ADDRESS: Locust St.
Bloomfield

EPA ID #:

LOCAL HEALTH DEPT. REP. Mr. Panzitta

TELEPHONE #:

ORIGIN OF COMPLAINT: Deputy Chief McGowan

TELEPHONE #: (201) 734-4400 X264

NATURE OF COMPLAINT: Milky White Substances in Stream

PHOTOGRAPHS TAKEN:

SAMPLE #:

FINDINGS: 1115 hrs, Monday October 5, 1987 Eddie Davis with Phil Coty responded to above incident location to investigate a milky white substance discharging into the Watessing Park stream.

Watessing Park Dept. Foreman Angelo Piccillo stated that he'd noticed a grey substance in the stream many times before. He also stated that the substance had a fuel oil odor. Mr. Piccillo informed DEP that the responsible party manufacturing company by the name of Peerless, located on Locust St and Bloomfield Ave. in Bloomfield.

Upon investigation of Peerless Co. we observed no apparent dumping of any substances into the Watessing Park on 10/05/87.

Conclusion:

Peerless maybe or may have been the source of the discharge. It is a tributary to the stream. But there was no obvious discharge from Peerless into the stream 10-05-87 and overall water quality appeared normal.

Recommendation:

Due to the fact the discharges are incidental in nature no further investigation is warranted. Therefore, I recommend no further action from this office.

Ed - On next report - we will investigate Peerless

D. Beem
Supervisor Signature

Eddie L. Davis
Investigator Signature

COPIES: White - DWM File Yellow - Local Health Dept. Pink - Investigator

ATTACHMENT H-1

REFERENCE 23

Ref 23, p1 of 1

EBASCO SERVICES INCORPORATED — PROJECT NOTES

TO: Pearlea Tube File — DATE: 6/8/95

FROM: John Rieckhoff — PROJECT NUMBER: 8310 0076 0000 50127

SUBJECT: Wetland Acreage within 4-mile vicinity of Site - Air Pathway — SITE NAME: Pearlea Tube

A counting of all accessible wetlands (see Table A-8 and A-9) of Appendix A - HRS Guidance within a 4 mile vicinity yielded 3 separate wetland areas which were measured directly on the National Wetlands Inventory map (Ref 29) with a mylar overlay containing a grid with 1 acre squares for 1:24,000 map scale

Ring		
0-.25	—	
.25-.50	—	
.50-1.0	—	
1.0-2.0	2 acres PFO1	Palustrine Forested wetland
2.0-3.0	6 acres PFO1	" " "
3.0-4.0	—	

REFERENCE 24

Reference 24
Page 1 of 30

STATE OF NEW JERSEY
DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

DIVISION OF WATER POLICY
AND SUPPLY

SPECIAL REPORT NO. 28

GROUND-WATER RESOURCES OF ESSEX COUNTY, NEW JERSEY

Prepared in cooperation with
United States Department of the Interior
Geological Survey

1968

STATE OF NEW JERSEY

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT

ROBERT A. ROE, *Commissioner*

DIVISION OF WATER POLICY AND SUPPLY
GEORGE R. SHANKLIN, *Director and Chief Engineer*

WATER POLICY AND SUPPLY COUNCIL

MRS. LILLIAN M. SCHWARTZ, *Chairman* .... Highland Park
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MRS. HERMIA LECHNER ..... Clinton
J. DUNCAN PITNEY ..... Mendham
PAUL J. RITTER ..... Bridgeton
AUGUST C. SCHULTES, SR. ..... Woodbury
DAVID I. STEPACOFF ..... Perth Amboy
MARTHA H. BRENNA, *Secretary*

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LETTER OF TRANSMITTAL

HONORABLE ROBERT A. ROE, *Commissioner*
Department of Conservation and
Economic Development
John Fitch Plaza
Trenton, New Jersey

Dear Sir:

I am transmitting a report entitled "Ground Water Resources of Essex County, New Jersey," which was completed by the Ground Water Branch, Water Resources Division, U. S. Geological Survey, in cooperation with the New Jersey Division of Water Policy and Supply, as part of the state-wide program authorized by the 1958 Water Supply Law.

The report evaluates the relative importance of the aquifers of Essex County as to their present use and suitability for future development. It indicates which areas are being overpumped and those areas where further ground water exploration would be profitable.

The information in this report is of vital interest and importance to the growth of the county and provides a basis for the protection and safe development of the ground water resources essential for such growth. I, therefore, recommend that this report be published as a Special Report of the Division of Water Policy and Supply.

Respectfully submitted,
George R. Shanklin
Director and Chief Engineer

September 9, 1968

GROUND-WATER RESOURCES OF ESSEX COUNTY, NEW JERSEY

By William D. Nichols

ABSTRACT

Ground water in Essex County occurs in joints and fractures in consolidated rocks and in the voids of unconsolidated statified drift deposits. Wells in sandstone and shale of the Brunswick Formation of Triassic age yield from 35 to 820 gpm; the most productive water-bearing zones are commonly between depths of 300 to 400 feet. Drawdown due to pumping is greatest in the direction of strike of the formation (about N 30° E in Essex County) and least in the direction perpendicular to strike. Wells in the Watchung basalt, which is intercalated with rocks of the Brunswick Formation commonly yield small to moderate supplies but may occasionally yield up to 400 gpm. Large yields, ranging from 410 to 1,593 gpm, are common from wells tapping the stratified drift deposits in the western part of the county.

Quality of ground water is acceptable for most uses throughout the county. However, heavy pumpage in the Newark area has lowered water levels to more than 100 feet below sea level. The low water levels have reversed the natural gradient and induced the flow of salt water into the bedrock aquifer, seriously impairing ground-water quality there. Recent analyses of ground-water samples from Newark indicate that the chloride concentration in the aquifer has increased since the preliminary study of the problem by Herpers and Barksdale in 1951.

Highly productive stratified drift deposits are found primarily in that part of the county west of Second Watchung Mountain. They occur as valley-fill material in stream valleys cut into the underlying bedrock before the last glaciation. These deposits in Essex County are part of an extensive valley-fill aquifer system underlying the eastern Morris-western Essex County area. Water levels in these deposits in western Millburn Township have declined 36 feet since 1950, probably as a result of below normal rainfall for most of the period 1953 to 1966 together with constantly increasing pumpage throughout the area.

Withdrawals of ground water from all aquifers in Essex County for public supply averaged about 26 mgd (million gallons per day) in 1966. Pumpage for public supply from aquifers in unconsolidated sediments averaged 20.9 mgd, about 81 percent of the total from all aquifers.

Most of the productive aquifers in Essex County are currently being developed. Although the optimum potential of the stratified drift aquifers

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in western Essex County and the Brunswick Formation in the northeastern part of the county probably has not been realized, development of these resources must be undertaken with care if anticipated increase in water needs of the county are to be met.

INTRODUCTION

PURPOSE AND SCOPE

This study was made as part of a statewide program of investigation of the ground-water resources of New Jersey, authorized by the New Jersey Water Supply Act of 1958 and its companion, Water Bond Act. The purpose and scope of these studies are to assemble the available data on geologic and hydrologic factors relating to the occurrence, movement, availability, and chemical quality of ground water in New Jersey; to evaluate and interpret the data; and to make the results of the investigation available to the public. This report represents the results of the ground-water investigation of Essex County made by the U. S. Geological Survey in cooperation with the New Jersey State Department of Conservation and Economic Development, Division of Water Policy and Supply. The work was under the general supervision of Allen Sinnott, formerly District Geologist.

LOCATION AND EXTENT OF AREA

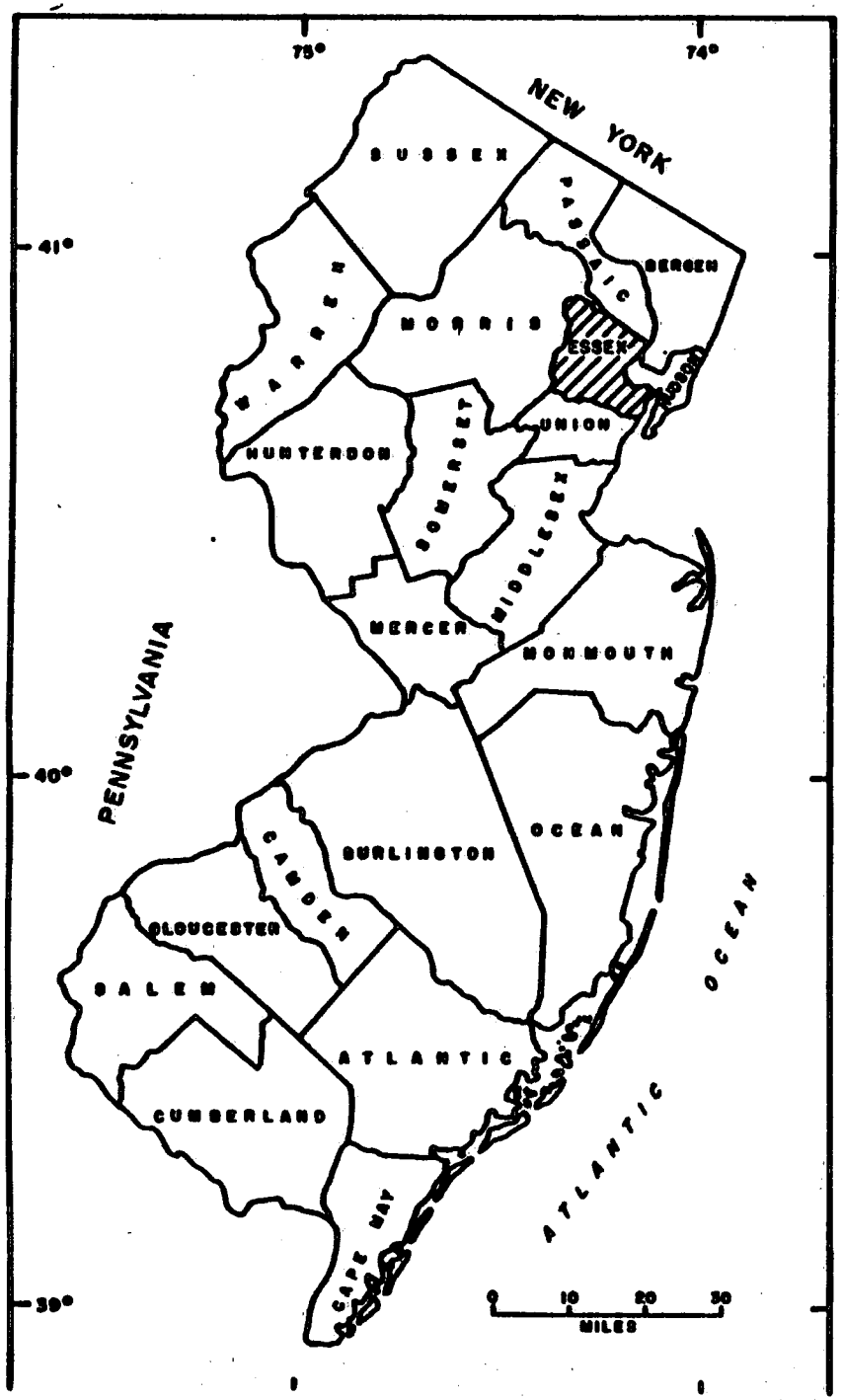
Essex County is located in northeastern New Jersey between longitudes 74°05′W and 74°25′W, and latitudes 40°40′N and 40°55′N. It is bounded on the north by Passaic County; on the east by Bergen County, Hudson County, and Newark Bay; on the south by Union County and on the west by Morris County (fig. 1). The county is 127.44 square miles in area. Newark is the county seat. Other major communities include Orange, East Orange, South Orange, West Orange, Irvington, Belleville, Nutley, Montclair, and Bloomfield.

PREVIOUS INVESTIGATIONS

The geology of Essex County is described in detail by Darton and others (1908) in the Passaic folio. Salisbury (1894) discussed the surficial geology of the county as part of a regional investigation. Rogers and others (1951) described the engineering characteristics of the soils and glacial deposits in the county. Ground-water conditions in the extreme southwestern part of the county were described by Thompson (1932). Herpers and Barksdale (1951) discussed ground-water conditions in the Newark area.

ACKNOWLEDGMENTS

The author wishes to thank the numerous well drillers, State, municipal, and industrial officials and private individuals who supplied data on which this report is based. Acknowledgment is made for the records and logs of wells that were furnished from the files of the New Jersey Bureau of Geology and Topography. The cooperation of those who permitted use of their wells for water-level observation, collection of water samples, and pumping tests is gratefully acknowledged. Most of the well inventory for this report was made by the late O. J. Coskery of the U. S. Geological Survey.



GEOGRAPHY

TOPOGRAPHY

Essex County is situated entirely on the Triassic lowlands of the Piedmont Province, one of six physiographic provinces included in the Appalachian Highland physiographic division. The province consists primarily of lowland and gently rolling hills above which rise the ridges of the Watchung Mountains. Altitudes in Essex County range from sea level in the southeastern part of the county to 650 feet along the ridges of the Watchung Mountains. The escarpment of the First Watchung Mountain, trending from northeast to southwest across the middle part of the county, rises 400 feet above the gently rolling plain to the east; the breadth of the First and Second Watchung Mountains varies from 1 to 2 miles. The major streams draining Essex county are the Passaic, Rahway, and Elizabeth Rivers.

CLIMATE

The climate of Essex County, like that of much of New Jersey, is mainly continental because of the predominance of winds from the continental interior. The prevailing wind is from the northwest from October to April and from the southwest for the remaining months. As a consequence, winter weather is controlled by cold continental air masses and summer by tropical air masses. Precipitation in the county averages more than 48 inches annually, and is commonly well distributed throughout the year. Part of the precipitation is received from storms which cross the Great Lakes region and pass down the St. Lawrence Valley. However, the heaviest general rains are produced by coastal storms of tropical origin. The centers of these storms usually pass some distance offshore, with rainfall heaviest and winds strongest near their center (U. S. Department of Agriculture, page 1010, 1941). The average January temperature for the eastern part of the county is 39°F and that of the western part of the county about 28°F. Average temperatures in July range from about 74°F in the eastern part of the county to about 72°F in the western part of the county.

POPULATION AND ECONOMY

Compared with the other counties in New Jersey, Essex County ranks only nineteenth in area, but ranks first in population as of the 1960 census. The population increased from 905,949 in 1950 to 923,545 in 1960—an increase of 1.9 percent; less than in any preceding 10 year period since 1900, except for 1930-40.

Population of Essex County 1900-60

1900	359,053
1910	512,886
1920	652,089
1930	833,513
1940	837,340
1950	905,949
1960	923,545

Nearly 90 percent of the county's population is located in the 71.5 square miles (55.6 percent of total area) east of the Watchung Mountains.

The economy of Essex County is primarily industrial. The principal manufactured products include food products, electrical goods and machinery, chemicals, machinery (excluding electrical machinery), fabricated metal products, and apparel. In 1960, only about 5 percent of the total land area of the county was utilized as farmland.

GEOLOGY

INTRODUCTION

The Brunswick Formation and Watchung Basalt of the Newark Group of Late Triassic age underlie all of Essex County. The Brunswick Formation is dominantly shale and sandstone, but also includes minor amounts of conglomerate. The Watchung Basalt consists of three extensive sequences of lava flows intercalated with the shale and sandstone of the Brunswick Formation. The generalized bedrock geologic map (fig. 2) shows the areal extent of the rocks of Triassic age underlying Essex County. Overlying the rocks of the Newark Group are unconsolidated clay, sand, and gravel deposited during the Pleistocene and Recent Epochs. Pleistocene deposits are the most widespread and are found throughout the county. Deposits of Recent age are confined to the present-day stream valleys. Figure 3 shows the general distribution of the unconsolidated Pleistocene deposits.

Parts of Fairfield and Millburn Townships and Newark are underlain by valleys cut (fig. 3) in bedrock by streams that drained the area before the last glaciation. The valley were subsequently filled in and buried by glacial debris and have little present-day surface expression.

DISTRIBUTION AND LITHOLOGY OF ROCK UNITS

Consolidated Rocks

Rocks of the Brunswick Formation, the uppermost unit of the Newark Group, underlie most of Essex County. The formation consists dominantly of interbedded brown, reddish-brown, and gray shale, sandy shale, sandstone, and some conglomerate. Three sheets of gray to black basalt are intercalated with sandstone and shale beds of the Brunswick Formation. The total thickness of the Brunswick Formation is not known, but probably exceeds 6,000 feet (Kümmel 1940, p. 102).

In the southern part of the county east of the Watchung Mountains, the Brunswick Formation is predominantly a soft red shale. These rocks become coarser grained toward the north. In the northern part of the county the rocks are mostly sandstone and some interbedded shale; conglomerate is found in the extreme northern part of the county. This change from soft, easily weathered, shale to more resistant sandstone is reflected in the change of topography from the rather flat low-lying plain with few hills in southern Newark to hills of low relief in the northern part of the county.

Between First and Second Watchung Mountains, the Brunswick Formation is dominantly sandstone. West of Second Watchung Mountain, the formation is covered with thick deposits of unconsolidated sediments

of glacial origin and few outcrops can be found. As indicated from records of wells drilled in this area, the rocks are mainly shale and some interbedded sandstone.

Two prominent ridges, First and Second Watchung Mountains, extend from northeast to southwest across the county (fig. 2). These are the two lowest sequences of basalt flows of the Watchung Basalt. The third, uppermost, sequence of flows is represented by Ricker Hill in Livingston Township. These basalt sheets were formed by lava which was extruded at three different times during the accumulation of the sedimentary rocks of the formation. Each of these sheets is made up of several lava flows. Scoriaceous zones occur at the top of many of the individual flows. In some places, thin beds of shale occur between successive flows. The lower part of the Watchung Basalt, which comprises First Watchung Mountain, is from 600 to 650 feet thick; the Watchung Basalt in Second Watchung Mountain varies from 750 to 900 feet in thickness; the uppermost Watchung Basalt ranges from 225 to 350 feet in thickness (Darton and others, 1908, p. 10).

First and Second Watchung Mountains are parallel, and in places have double-crested ridges reflecting the presence of interbedded sedimentary rocks; the ridges generally rise between 300 and 400 feet above the adjacent country. The trend of the ridges reflect the general strike of the sedimentary rocks of the Brunswick Formation. The beds dip about 10 degrees toward the northwest.

Pleistocene and Recent Deposits

Unconsolidated sediments deposited by glaciers or by glacial meltwater during the Pleistocene Epoch cover most areas of Essex County. These deposits can be divided roughly into several types. Unstratified drift called till or ground moraine is a heterogeneous mixture of clay, silt, sand, gravel, cobbles, and boulders which was deposited by the ice. Unstratified drift that has accumulated in a ridgelike deposit along the margin of a glacier is called an end moraine. Stratified drift is deposited by glacial meltwater in streams (glaciofluvial deposits) and lakes (glaciolacustrine deposits). Glaciofluvial deposits are generally stratified sand, and sand and gravel, and glaciolacustrine deposits are usually bedded or laminated silt and clay. Figure 3 is a map showing the generalized distribution of the Pleistocene deposits in Essex County.

Streams and rivers draining the Essex County area before the last glaciation cut deep valleys into the Triassic rocks (fig. 3). These valleys were subsequently buried by glacial debris, and the thickness of the glacial deposits is largely controlled by the underlying bedrock topography. The

altitude of the floor of the buried bedrock valley under the Newark area is as much as 280 feet below sea level (fig. 4), and the glacial drift is as much as 300 feet thick. In the southwestern corner of Essex County in Millburn Township, the altitude of the valley floor is 17 feet above sea level and the drift averages 150 feet in thickness. In the northwestern part of the county in Fairfield Township, the floor of the valley is as much as 35 feet below sea level and the drift has a maximum thickness of about 200 feet. In the areas between the valleys, where the bedrock surface is high, the drift ranges from 0 to 70 feet thick.

East of the Watchung Mountains and west of the buried valley under the Newark area, the glacial deposits consist dominantly of till. The valley under the Newark area, however, is filled largely with stratified drift and interbedded lenses of till. In the central and southern part of Newark the main valley (fig. 4) is filled with as much as 200 feet of lacustrine clay and sandy clay, which is overlain by 50 to 100 feet of other stratified or unstratified glacial drift. In the northern part of Newark, where the valley (fig. 4) parallels the Passaic River, the valley contains several deposits of sand and gravel interbedded with clay and till. The sand and gravel ranges from 1 to 19 feet in thickness and is encountered mostly at depths of less than 50 feet and depths of more than 220 feet below land surface.

The present-day valley between First and Second Watchung Mountains is underlain by approximately 100 feet of stratified drift in both Cedar Grove in the north and Millburn Township in the south. These deposits consist mostly of stratified sand and gravel. Their maximum thickness appears to occur under that part of the valley west of the Rahway and Peckman Rivers; east of the rivers, the bedrock surface is shallow (30 to 50 feet below the valley floor), and the unconsolidated deposits are thin. There are not enough data to define the thickness and character of the subsurface glacial deposits in the valley in Verona and most of West Orange.

West of Second Watchung Mountain, the stratigraphy of the glacial deposits is moderately complex, especially in the buried valleys. The drift in the main buried valley in Livingston and Millburn Townships (fig. 3) has a maximum thickness of about 170 feet and consists of interbedded sand, sand and gravel, clay and till. Thicknesses of sand and gravel outwash range from 20 to 80 feet. Farther north, in north-western Fairfield, the main buried valley (fig. 3) is filled with as much as 200 feet of drift consisting almost exclusively of 140 to 170 feet of laminated silt and clay underlain by 10 to 30 feet of till. Deposits of fine- to medium-grained sand ranging in thickness from 0 to 20 feet occur on the surface.

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The tributary buried valleys in Fairfield Township (fig. 3) contain from 30 to 50 feet of silty sand, sand, and gravel overlain by clay and till near the confluence with the main buried valley. Where the bedrock surface is high, between buried valleys, the glacial deposits consist dominantly of till. However, some stratified sand and gravel are found in the subsurface in eastern Roseland and Essex Fells which do not occur as valley-fill deposits.

Unconsolidated sediments of Recent age are confined to areas adjacent to present-day streams. These deposits consist of clay, silt, and fine sand with gravel. (Rogers and others, 1957, p. 7).

GROUND-WATER HYDROLOGY

INTRODUCTION

Ground water is derived from that part of precipitation that does not run off the surface of the land to streams or return to the atmosphere through evaporation and transpiration. Factors which determine the amount of water that infiltrates to the ground-water reservoir include (1) the porosity and permeability of the surficial material, (2) the slope of the land, (3) the amount and kind of natural and artificial cover, and (4) the intensity and amount of precipitation.

The permeability of a rock, or its ability to transmit water, depends on its porosity, that is, on the number and size of the interstices and on the extent to which the interstices are interconnected. The porosity of a rock, in turn, depends largely on: "the shape and arrangement of its constituent particles, the degree of assortment of its particles, the cementation and compacting to which it has been subjected since its deposition, the removal of mineral matter through solution by percolating waters, and the fracturing of the rock, resulting in joints and other openings" (Meinzer, 1923, p. 3). Porosity is expressed quantitatively as the ratio between the volume of void to the total volume of the rock, that is, as the percentage of the total volume of rock occupied by interstices.

On the basis of the type of openings in which ground water may occur, the geologic formations in Essex County may be divided into two groups: (1) consolidated rocks of Triassic age, and (2) unconsolidated sediments of Pleistocene age.

The primary pore spaces in consolidated rocks of the Brunswick Formation in Essex County are commonly so small that an insignificant quantity of water, if any, moves through them under the natural hydraulic gradients or those established by pumping. However, a joint and fracture system that has developed in the consolidated rocks provides secondary porosity and it is largely in and through these openings that the storage and movement of ground water takes place. In addition, vesicles and scoriaceous zones in the basalt add to the porosity in these rocks. Limited interconnected void space occurs in sandstone beds where cementing material is lacking. The volume of all of these openings constitute only a very small percentage of the total volume of the Brunswick Formation and, consequently, their capacity to store and transmit water is limited.

In unconsolidated sediments, water occurs in the pore spaces between the constituent grains. The capacity of unconsolidated sand and gravel deposits to store and transmit water is commonly much greater than that of the consolidated rocks. The reason for this is that the ratio of the

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volume of void to the total volume of unconsolidated sediment is considerably greater than the ratio of the volume of fracture openings to the total volume of rock. The interstitial openings in clays and silts are so small, however, that they restrict the movement of water, even though the percentage of void space may be great.

WATER-BEARING PROPERTIES OF MAJOR GEOLOGIC UNITS

Consolidated Rocks

Rocks of the Brunswick Formation are the main source of ground water in Essex County. The shales and sandstones are generally capable of sustaining moderate to large yields to wells. The Watchung basalt commonly is capable of yielding only small to moderate quantities of water.

Water in these rocks occurs under both unconfined and confined conditions. Unconfined ground water occurs mainly in the upland areas where overlying unconsolidated deposits are thin or absent. Confined and semiconfined ground water conditions exist in lowland areas in Newark, parts of Fairfield, and along the Passaic River where clay beds in the unconsolidated Quaternary deposits mantle the underlying rocks. Wherever such confinement occurs, water beneath the relatively impermeable confining layers is commonly under artesian pressure. In many areas, such as parts of Fairfield and in the northern part of the county, water in wells tapping the confined aquifers will rise above the top of the aquifer and sometimes near or above land surface. In areas subjected to heavy pumping, such as the Newark area and western Millburn Township, the artesian pressure may be considerably reduced. Parts of the confined aquifer may even become dewatered as has happened in part of Newark, in which case the water remaining in the aquifer is no longer confined.

Confined ground water is also encountered in the shales and sandstone directly beneath the basalt flows in the western part of the county downdip from the outcrop area. Confined or semiconfined ground-water conditions may occur in some areas because of differences in permeability within the rock layers resulting from variations in fracturing or weathering or a combination of both.

Some of the various systems of joints and fractures in the consolidated rocks intersect so that water can move vertically as well as horizontally and zones of high secondary porosity are then interconnected. Most wells tapping these rocks draw water from more than one water-bearing zone. However, these zones in the Brunswick Formation have not yet been accurately defined. They are certainly within the first 600 feet below land surface, and for most practical purposes are probably within the first 400 feet. The best producing wells in the Brunswick Formation in

Essex County are for the most part between 300 and 400 feet deep. Nevertheless, the lack of any precise known boundaries makes it difficult to determine the optimum depth to which a well should be drilled in any given location. Also it is impossible to predict the yield of a proposed well except in very general terms based on the average yield of other wells in the area.

Two pumping tests, both at the same locality, were conducted by the U. S. Geological Survey in January 1949 on wells tapping the Brunswick Formation in Essex County. The wells (owned by P. Ballantine and Sons, Newark), shown on figure 5, were selected to provide the best possible spread of observation wells in as many directions as possible. As the results of the tests have been reported by Herpers and Barksdale (1951, p. 28-31) they will be only summarized here.

In the first test, the centrally located well I-1 was pumped and water levels were observed in the seven surrounding wells indicated on figure 5. Well II-9 was pumped during the second test and the same wells were used to observe water levels. In both tests, observation wells lying along the strike of the Brunswick Formation with respect to the pumping well showed the greatest drawdown. When well I-1 was pumped, there was a prompt and distinct decline of the water level in observation well II-8. When well II-9 was pumped, the water level in observation well II-10 responded promptly and distinctly. No significant response was seen in observation wells aligned in directions other than along the strike during either test.

In these tests, as well as in several others conducted, it is invariably noted that aquifers in the sedimentary rocks of Triassic age of northern New Jersey are anisotropic, that is, they do not transmit water equally in all directions (Vecchioli, 1967). The greatest drawdowns are observed in those wells aligned along the strike of the sedimentary layers with respect to the pumping well. The least amount of drawdown is observed in observation wells that are located transverse to the strike. These observations have been interpreted to indicate that water moves more readily along joints and fractures which strike parallel to the strike of the bedding than along joints and fractures which strike in other directions. It is useful, when planning future well locations, to know the direction in which wells will interfere most with each other and with existing wells. In general, wells should be spaced far apart along the direction of strike (approximately N 30° E for most of Essex County) because it is in this direction that the greatest interference occurs. They may be placed closer together perpendicular to the strike since interference is less in that direction.

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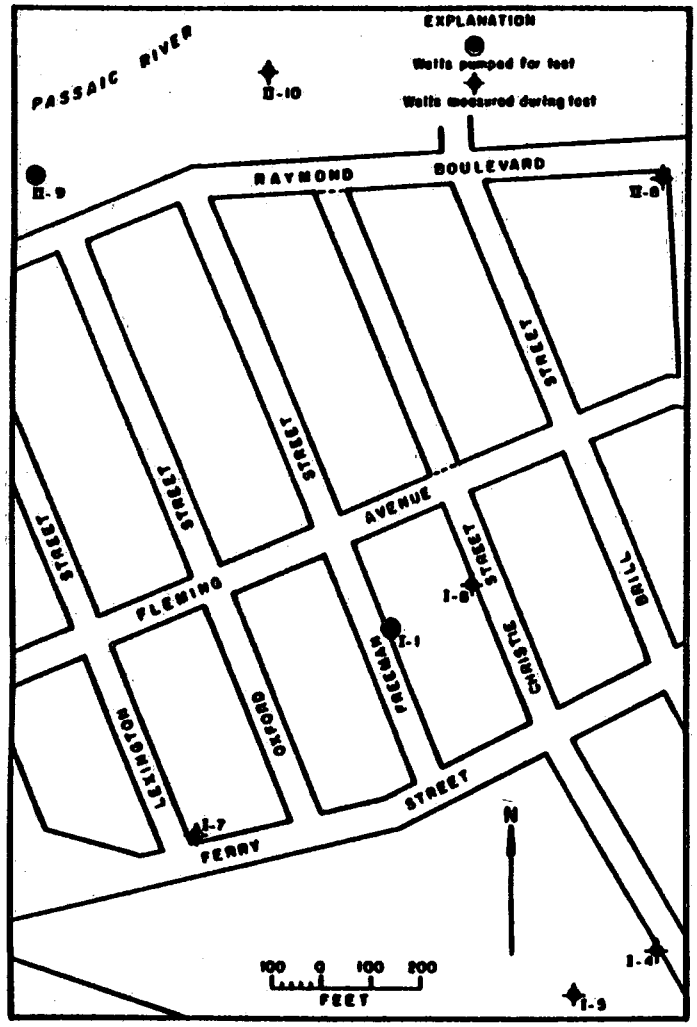

Figure 5.—Location of wells at plants of P. Ballantine and Sons, Newark, N. J., used during pumping tests in January 1949 (after Herpers and Barksdale, 1951, fig. 3, p. 30).

Well Yield and Specific Capacity

Yields of 35 large diameter public-supply, industrial, and commercial wells tapping the Brunswick Formation range from 35 to 820 gpm (gallons per minute) (Table 2) and average 364 gpm. The distribution of the yields is as follows:

Yields	*No. of wells*
0-150	4
151-300	12
301-500	12
>500	7

Depths of the same wells in the Brunswick Formation range from 115 to 856 feet; the average depth is 381 feet. Specific capacities of the 35 wells range from 0.21 to 70.00 gpm per foot of drawdown and average 11.07 gpm per foot of drawdown.

Wells tapping the Watchung Basalt commonly produce small to moderate quantities of water. Yields of 26 wells range from 7 to 400 gpm (Table 2) and average 116 gpm. The distribution of the yields is as follows:

Yields	*No. of wells*
0-100	15
100-199	5
200-300	5
>300	1

Specific capacities of wells in the basalt range from 0.05 to 5.66 gpm per foot of drawdown and average 1.74 gpm per foot of drawdown. Several moderate to high yielding public supply and industrial wells have been developed in the Essex Fells-West Caldwell-Fairfield area. These higher yields may be the result of increased fracturing of the basalt which has been slightly folded in this area.

Figures 6, 7, and 8 are specific capacity cumulative frequency distribution graphs for wells in the Brunswick Formation in Essex County. In figure 6, specific capacities are grouped on the basis of well depth. Wells drilled between 300 and 399 feet deep appear to have consistently higher specific capacities than wells of other depths (fig. 6). This relationship suggests that the best water-bearing zones in the Brunswick Formation will be

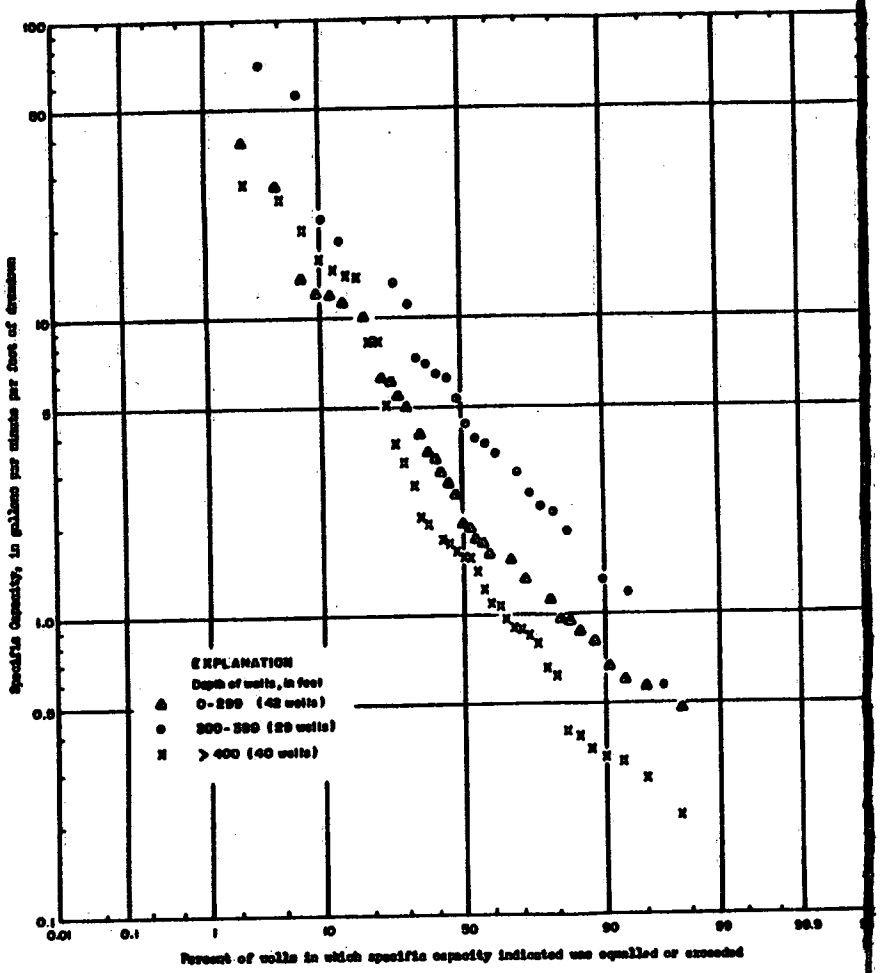

Figure 6.—Cumulative frequency distribution of specific capacities of wells penetrating the Brunswick Formation grouped according to depth.

encountered between depths of 300 and 400 feet and that significantly greater quantities of water generally will not be obtained by drilling below 400 feet. The specific capacities of wells grouped according to geographic area are shown in figure 7. These areas divide Essex County into three strips which are approximately parallel to the strike of the Brunswick Formation. The eastern strip is further divided into a northern part covering Belleville, Bloomfield, Glen Ridge, and Nutley, and a southern part covering East Orange, Irvington, and Newark. From this graph it readily can be seen that wells in Maplewood, Montclair, Orange, South Orange, and West Orange, have generally higher specific capacities than wells in other parts of Essex County. The wells in these communities are located in the area immediately east of First Watchung Mountain. In figure 8, specific capacities are related to well diameter. As should be expected, larger diameter wells have higher specific capacities.

Quality of Water

Except for hardness-forming constituents and local salt-water contamination, water from the Triassic rocks commonly does not contain objectional concentrations of any chemical constituents throughout most of the county (Table 3). The hardness of water ranges from 104 ppm (parts per million) to 273 ppm. In the Newark area, salt-water contamination has seriously impaired the quality of ground water and chloride concentration are as high as 1,900 ppm.

Ground water has high chloride concentrations in areas of relatively heavy pumpage in eastern Newark adjacent to Newark Bay and the Passaic River. By 1900, water levels in these areas, notably in the southeastern section, were considerably below sea level (fig. 9). The major pattern of ground-water development had changed slightly by 1960. More significant however is the extent to which water levels had been lowered below sea level and the incerase in the size of the area affected by 1960 (fig. 10). Heavy ground-water withdrawals have lowered the general water level in these areas (fig. 10), reversing the natural gradient between the ground- and surface-water bodies, and have induced a flow of salt water from the river and bay into the underlying water-bearing formations A water sample collected in 1879 from a well owned by the Celluloid Works, located in this part of Newark, contained only 6.2 ppm chloride. In 1948, water with 1,900 ppm chloride was collected from a well in the same area owned by P. Ballantine and Sons. A probable contributing factor in salt-water intrusion is the dredging of ship canals in Newark Bay and the Passaic River. In deepening these canals, semi-pervious Recent and Pleistocene sediments were removed which had acted as an imperfect barrier to the infiltration of salt water.

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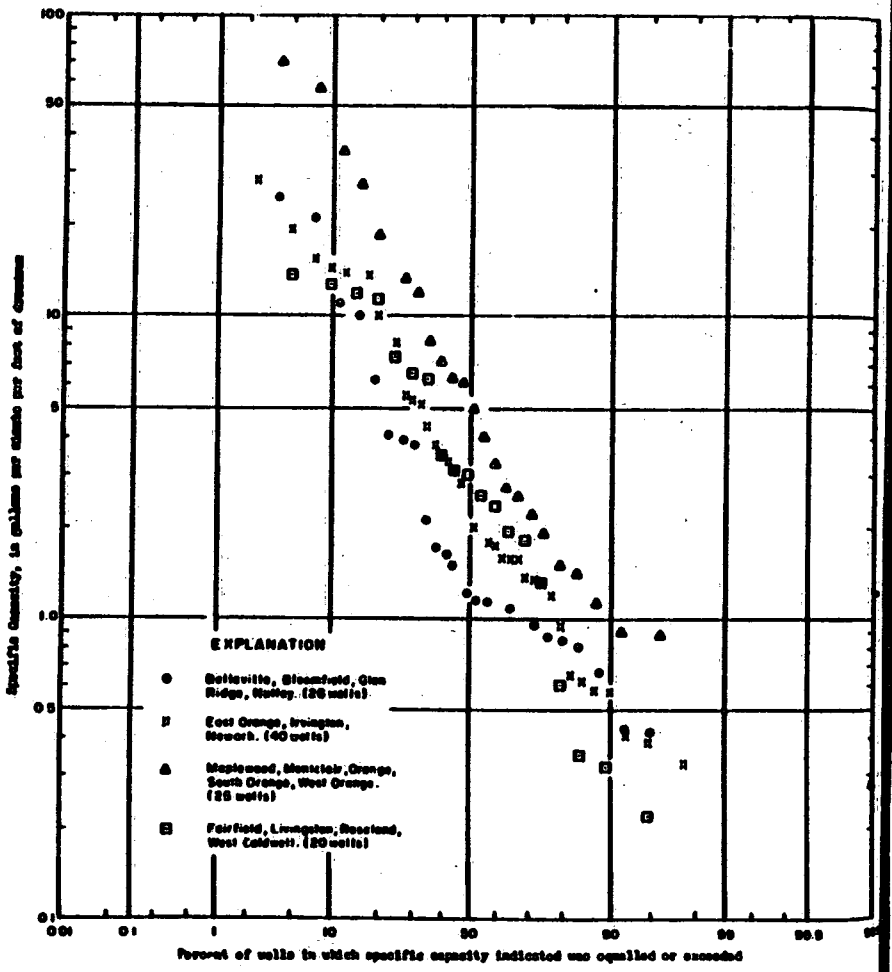

Figure 7.—Cumulative frequency distribution of specific capacities of wells penetrating the Brunswick Formation grouped according to geographic area.

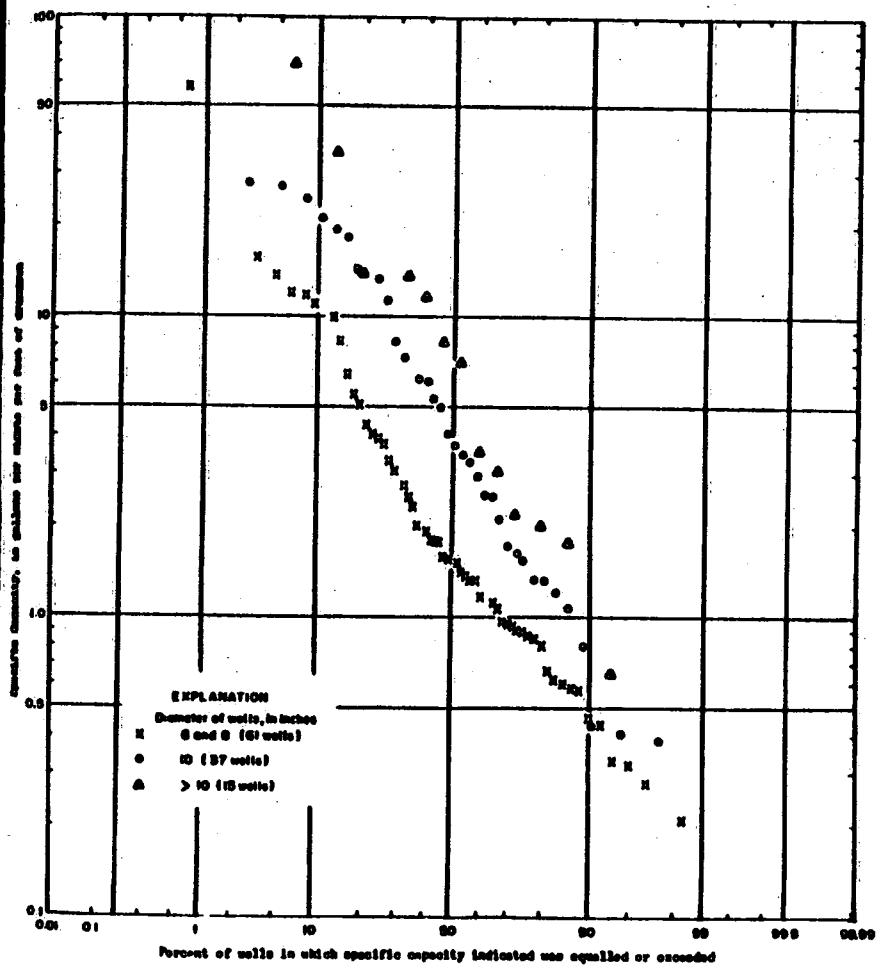

Figure 8.—Cumulative frequency distribution of specific capacities of w penetrating the Brunswick Formation grouped according to well diameter

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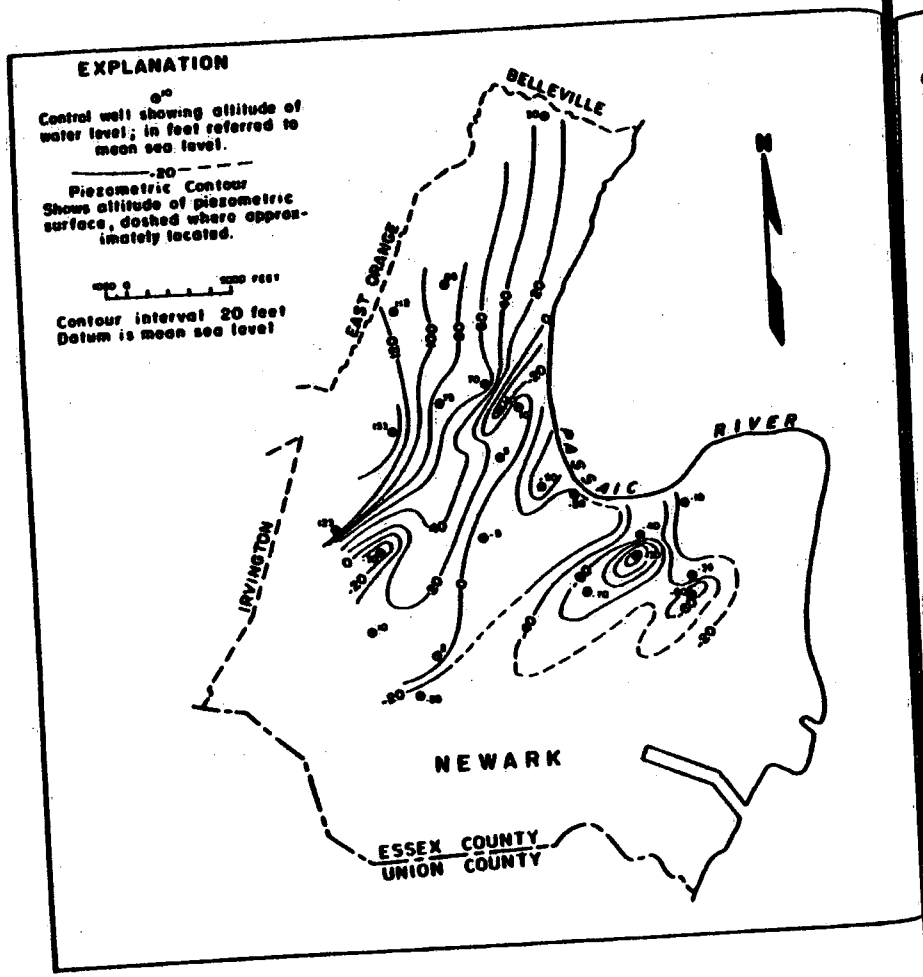

Figure 9.—Generalized piezometric contours for the Brunswick Formation in the Newark area based on water levels in wells drilled between 1890 and 1900.

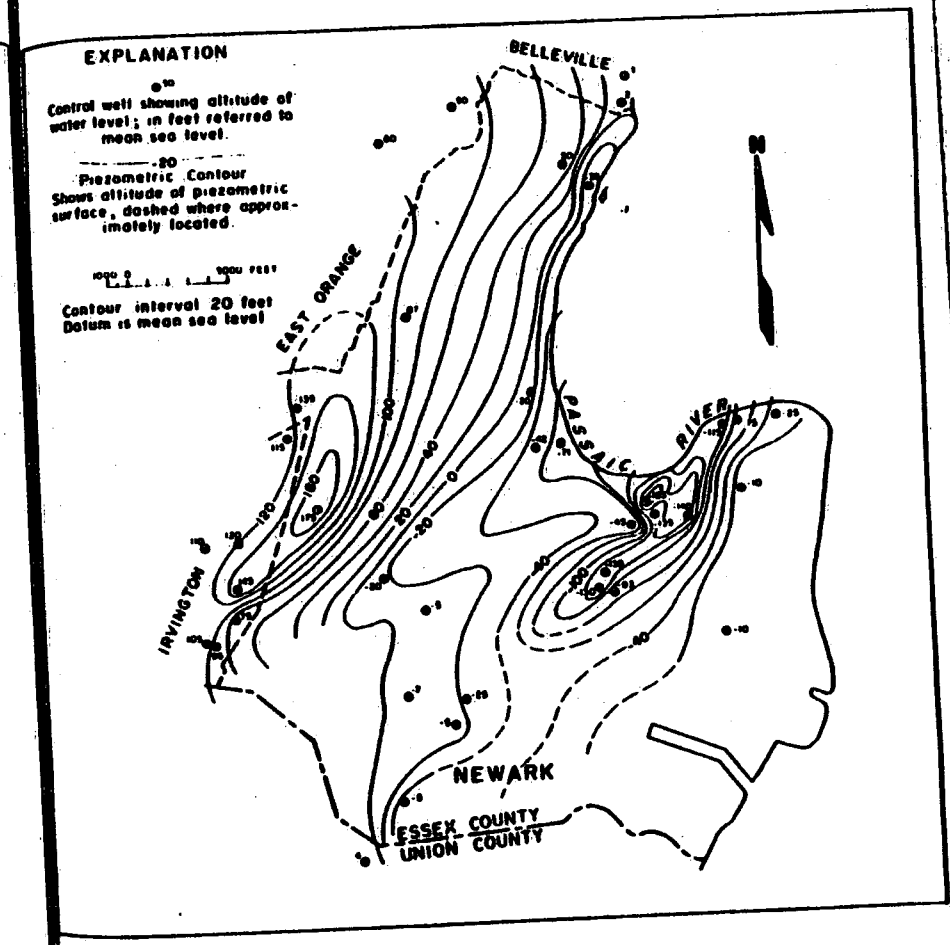

Figure 10.—Generalized piezometric contours for the Brunswick Formation in the Newark area based on water levels in wells drilled between 1950 and 1960.

questionable for the following reasons: (1) the aquifers are not areally extensive; (2) it is impossible to control or eliminate outside interference; (3) it is seldom possible to establish pre-test water-level

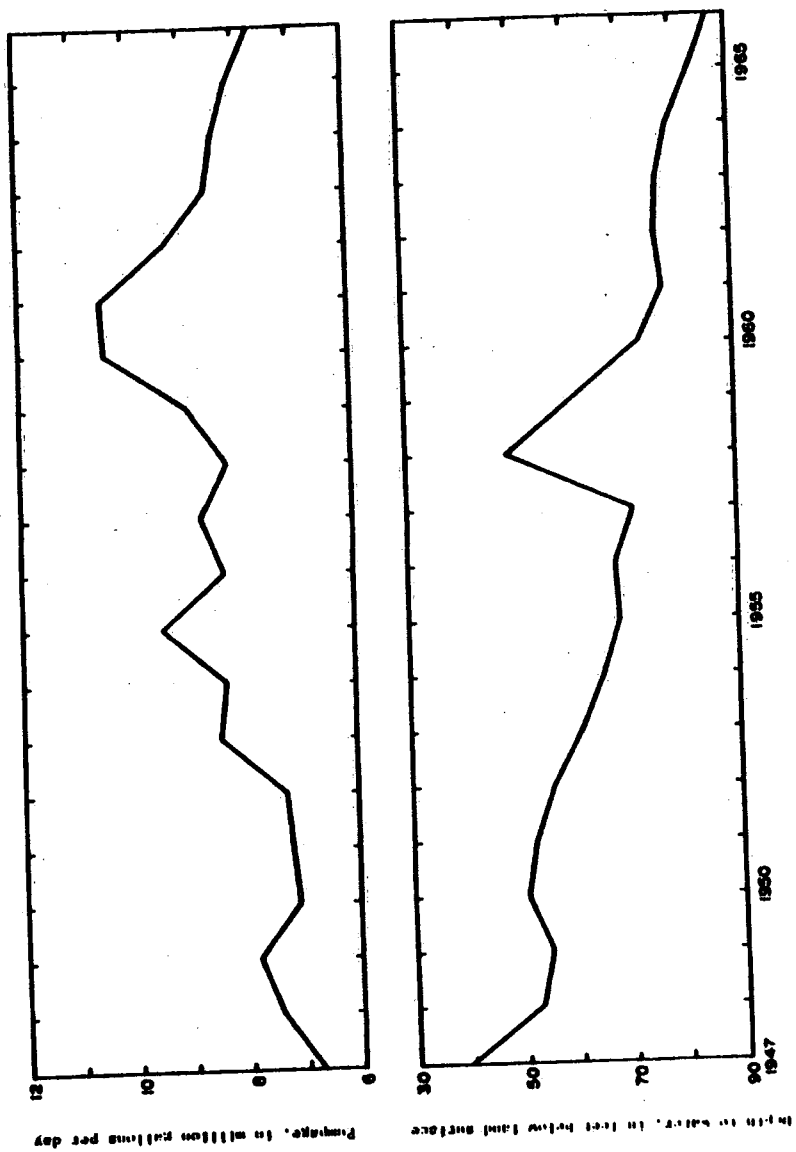

Figure 12.—Depth to water in the Commonwealth Water Company Canoe Brook well field and ground-water pumpage from the Commonwealth Water Company and East Orange Water Dept. Canoe Brook fields, 1947-66.

trends; and (4) observation wells commonly are insufficient in number or not properly located. It is therefore difficult to apply average figures for permeability, transmissivity, and the coefficient of storage to the valley fill aquifer and then use these figures to determine long-range effects of pumpage throughout the aquifer system Each area must be evaluated in context with the numerous variables by which it is affected.

Stratified drift deposits are the most productive aquifers in Essex County. Yields of 27 large-diameter wells tapping these deposits range from 410 gpm to 1,593 gpm (table 2) and average 908 gpm. The distribution of the well yields is as follows:

Yields	*No. of wells*
<500-gpm	3
501- 800 gpm	11
801-1,200 gpm	9
>1,200 gpm	4

Water from the stratified drift deposits ranges in hardness from 104 ppm to 212 ppm (table 3). Most of the samples analyzed had sulfate concentrations of 40 ppm or less, chloride concentrations of less than 11 ppm, and nitrate concentrations of 3 ppm or less. However, water from one well in Essex Fells had chloride and nitrate concentrations of 28 ppm and 6.4 ppm, respectively, and water from two wells in Millburn had sulfate concentrations of 67 ppm and 77 ppm. The higher concentrations of these constituents suggests a low-grade pollution problem, probably resulting from either sewage or the use of chemical fertilizers in the area. Manganese concentrations slightly in excess of the Public Health Service's recommended maximum limit of 0.05 ppm occur locally in the Commonwealth well field.

... have to come from surface sources.

Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					BELLVILLE (TOWN)									
1	Federal Leather Co.	Rinbrand Well Drilling Co.	8-26-51	40	802	10	30	none	TRb	65	60	135	0.44	O.W.4
2	Van Ness Plastic Moulding	F. J. Bott	8-18-58	60	144	6	22	none	TRb	69	27	18	1.5	O.W.1
3	Fada Radio & Elec. Co.	Rinbrand Well Drilling Co.	Aug. 1952	10	400	10	69	none	TRb	8	493	130	3.8	O.W.3
4	Mansel Ceramics Co.	Burrows Well Drilling Co.	2-10-54	70	250	8	27	none	TRb	45	100	115	.87	
5	Amer. Dyewood Co.	----------	1961	10	420	10	62	none	TRb	6	820	33	24.85	
6	Eastwood-Neally Co.	----------	1936	12	350	8	71	none	TRb	13	220	56	3.93	
7	Eastern Tool & Mfg. Co.	Rinbrand Well Drilling Co.	Aug. 1950	105	400	10	23	none	TRb	35	188	115	1.63	O.W.2
8	Miller and Son	Algeier Bros.	9- 4-51	18	206	6	67	none	TRb	13	60	17	1.76	
9	A. J. Crowburst & Sons	Wm. Stothoff Co., Inc.	11-21-50	15	83	10	67	67-82	Qsd	12	325	53	6.13	O.W.2
10	Jack Frost Dairy	Rinbrand Well Drilling Co.	5- 3-56	120	185	8	60	none	TRb	25	50	75	.66	O.W.1
					BLOOMFIELD (TOWN)									
1	Brookdale Beverage Co.	F. J. Bott	11-18-57	---	430	8	48	none	TRb	50	85	100	.85	O.W.2
2	J. Talmidge	Burrows Well Drilling Co.	11- 2-56	185	201	6	46	none	TRb	15	60	135	.44	
3	Glen Ridge Country Club	H. A. Keiffer	9-15-58	---	353	10	52	none	TRb	17	300	14	21.40	O.W.2
4	Triplex Auto Laundry, Inc.	Burrows Well Drilling Co.	12-16-57	115	185	6	23	none	TRb	22	60	---	---	
5	Leonora Corp.	F. J. Bott	6-21-57	---	200	8	33	none	TRb	6	70	74	.95	
6	Maurice H. Cooper	Burrows Well Drilling Co.	11-28-56	120	205	8	69	none	TRb	11	180	89	1.12	
7	Schering Corp.	Wm. Stothoff Co., Inc.	10- 2-54	120	478	10	29	none	TRb	30	127	124	1.21	O.W.1
8	MGM Record Div.	F.J.Bott	1-20-58	140	404	8	20	none	TRb	60	160	150	1.07	O.W.3
9	MGM Record Div.	F. J. Bott	11-12-59	130	211	8	23	none	TRb	58	115	102	1.13	O.W.4
10	MGM Record Div.	F. J. Bott	2-11-60	130	579	8	36	none	TRb	50	120	150	.80	O.W.5
11	Warner Mfg. Co.	Algeier Bros.	5-19-57	---	395	8	35	none	TRb	25	220	20	11.	

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					CALDWELL BOROUGH									
1	Mt. St. Dominic Acad.	.....	.....	420	876	---	100	none	TRb	---	25	---	---	
					CEDAR GROVE TOWNSHIP									
1	Rich-Tex, Inc.	Burrows Well Drilling Co.	8- 4-51	250	300	6	97	none	TRwb	47	11	58	.18	O.W.1
2	Rich-Tex, Inc.	Burrows Well Drilling Co.	11- 5-52	250	105	6	89	75-99	Qsd	43	80	32	2.5	O.W.2
3	Brindell Goat Dairy	Algeier Bros.	6-24-58	---	110	6	28	none	TRwb	6	10	84	.13	
6	Board of Freeholders	Rinbrand Well Drilling Co.	12- 3-57	---	125	6	117	none	TRwb	70	198	35	5.66	
					EAST ORANGE (CITY)									
1	Colonial Life Ins. Co.	Artesian Well & Equip. Co.	5-10-49	180	357	10	34	none	TRb	26	323	93	3.47	
2	Michael Stein & Co.	Parkhurst Well & Pump Co.	6- 3-49	180	150	8	45	none	TRb	75	50	25	2.0	
3	F. H. Taylor & Sons, Inc.	Burrows Well Drilling Co.	June, 1956	190	254	8	37	none	TRb	38	160	122	1.31	
4	Food Fair Stores, Inc.	Burrows Well Drilling Co.	1956	180	210	8	44	none	TRb	24	---	21	---	
5	New Mann Apts	Rinbrand Well Drilling Co.	6-10-55	---	200	8	39	none	TRb	20	80	60	1.33	
					ESSEX FELLS BOROUGH									
1	Borough of Essex Fells	Artesian Well & Equip. Co.	2-28-42	243	423	10	110	none	TRwb	48	300	108	2.8	O.W.8
2	Borough of Essex Fells	Artesian Well & Equip. Co.	March, 1959	280	92	17	61	61-88	Qsd	13	457	55	8.31	O.W.14
3	Borough of Essex Fells	Artesian Well & Equip. Co.	10-18-41	285	93	10	72	72-92	Qsd	+3	410	50	8.2	O.W.7
4	Borough of Essex Fells	Artesian Well & Equip. Co.	6-14-46	310	354	10	85	none	TRwb	10	230	114	2.19	O.W.9
5	Borough of Essex Fells	American Water Co.	Sept. 1927	345	97	24 16	45 68-81	45-68 81-97	Qsd	10	627	45	13.9	O.W.1A
6	Borough of Essex Fells	.....	1933	325	565	10	65	none	TRwb	49	145	151	.97	O.W.6
7	Borough of Essex Fells	.....	1929	225	295	8	---	none	TRwb	8	400	92	4.35	O.W.5
8	A. Howard	H. A. Kiefler	4-15-56	---	250	6	92	none	TRwb	72	30	54	.56	
9	E. Stearns, Inc.	.....	1959	---	196	6	100	none	TRwb	63	40	43	.93	
10	Essex Fells Country Club	H. A. Kiefler	8-15-56	500	300	8	38	none	TRwb	7	55	108	.50	

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					FAIRFIELD BOROUGH									
1	Fairfield Borough	W. Beatty	1962	---	90	8	79	79-90	Qsd	---	350	---		
2	Republic Tool & Mfg. Co.	Algeier Bros.	7-30-52	170	53	6	53	---	Qsd	2	40	8	5.00	
3	Curtiss Wright Corp.	Artesian Well & Equip. Co.	1941	170	560	10	---	none	TRwb	11	155	136	1.14	O.W. 1
4	Fairfield Borough	H. A. Kieffer	12-26-53	170	185	6	83	none	TRb	20	36	20	1.80	O.W. 1
5	Fairfield Borough	Burrows Well Drilling Co.	7- 9-64	167	350	10	85	none	TRb	-4	500	64	7.85	
6	De Witt Rubber Mfg. Co.	Algeier Bros.	7-16-54	170	142	6	86	none	TRb	2	25	13	1.92	
7	Curtiss Wright Corp.	Artesian Well & Equip. Co.	4- 5-43	175	490	10	---	none	TRwb	32	275	85	3.24	O.W. 6
8	Industry Publications	Algeier Bros.	9-15-54	180	100	6	57	none	TRwb	15	15	10	1.5	
9	Williamson & Co., Inc.	H. A. Kieffer	5-15-53	190	510	6	74	none	TRwb	13	25	55	.45	
10	Green Brook Country Club	H. A. Kieffer	1958	---	300	8	53	none	TRb & TRwb	20	335	28	11.96	O.W. 4
					GLEN RIDGE BOROUGH									
1	S. Mendelsohn	Wm. Stothoff Co., Inc.	1-12-51	240	166	6	22	none	TRb	45	30	3	10.00	
2	Chicle Products Co.	----------	1920	---	757	6	110	none	TRb	16	50	52	.96	
					IRVINGTON (TOWN)									
1	Fesem Memorial Home	Wm. Stothoff Co., Inc.	5-19-52	185	304	8	66	none	TRb	75	78	25	3.1	
2	Kiss Diner, Inc.	Parkhurst Well & Pump Co.	3-10-55	---	250	8	47	none	TRb	31	65	69	.94	
3	American Stores	Parkhurst Well & Pump Co.	7-17-51	160	402	8	45	none	TRb	40	126	80	1.57	O.W. 1
4	Olympic Park	A. J. Connally, Inc.	1928	158	300	10	---	none	TRb	52	420	78	5.38	
5	Irvington Smelting & Refining Works	Wm. Stothoff Co., Inc.	3-25-53	---	304	10	62	none	TRb	40	300	22	13.6	
6	Jersey Plastic & Die Casting Co.	Wm. Stothoff Co., Inc.	3-26-54	155	400	10	38	none	TRb	94	183	106	1.74	
7	Gallo Asphalt Co.	F. J. Bott	6- 9-61	150	201	6	107	none	TRb	46	200	24	8.3	
8	Palmer Co.	Parkhurst Well & Pump Co.	1-27-50	170	229	8	80	none	TRb	45	60	6	10.0	

Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.--RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.--Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					LIVINGSTON TOWNSHIP									
1	Livingston Township	Artesian Well & Equip. Co.	7- 5-55	114	83	36	43	43-83	Qsd	3	706	27	25.7	O.W. 3
2	G. V. Control Co.	Rinbrand Well Drilling Co.	4- 7-58	---	300	10	96	none	TRb	10	186	134	1.34	O.W. 1
3	Chatham Electronics Corp.	Wm. Stothoff Co., Inc.	10- 2-52	175	202	12	68	none	TRb	9	346	25	13.6	O.W. 3
4	Chatham Electronics Corp.	Wm. Stothoff Co., Inc.	5-28-52	180	200	8	68	none	TRb	9	250	22	11.8	O.W. 1
5	Livingston Township	Artesian Well & Equip. Co.	5-21-65	---	301	12	70	none	TRb	6	395	31	12.74	O.W. 7
6	The Daven Co.	Wm. Stothoff Co., Inc.	3-16-55	---	450	12	175	none	TRb	31	2	169	.21	O.W. 1
7	The Daven Co.	Wm. Stothoff Co., Inc.	4-30-55	---	68	8	44	40-60	Qsd	+	212	60+	---	O.W. 3 Flowed 10 gpm at Surface
8	Livingston Township	Artesian Well & Equip. Co.	April, 1964	200	181	6	177	----	---	---	---	---	---	Test hole
9	Livingston Township	Artesian Well & Equip. Co.	May 1966	---	100	17	72	72-100	Qsd	40	450	45	10.00	O.W. 6
10	Livingston Township	Artesian Well & Equip. Co.	Nov. 1958	302	372	10	72	none	TRb	13	175	68	2.57	O.W. 1
11	Livingston Township	Wm. Stothoff Co., Inc.	5-21-55	---	442	10	67	none	TRb	20	97	275	.35	
12	Livingston Township	Wm. Stothoff Co., Inc.	7-16-55	---	313	10	89	none	TRb	16	230	174	1.32	
13	Livingston Township	Wm. Stothoff Co., Inc.	3- 2-55	311	384	10	69	none	TRb	62	290	97	2.99	O.W. 2
14	Livingston Township	Wm. Stothoff Co., Inc.	9-26-55	279	291	10	38	none	TRb	70	412	66	6.24	O.W. 4
15	City of East Orange	Layne-New York Co.	4-17-59	173	130	16-14	88	88-130	Qsd	41	1000	20	50	
16	City of East Orange	Layne-New York Co.	5-22-59	173	120	16-14	89	89-120	Qsd	35	1000	36	27.7	
17	City of East Orange	Layne-New York Co.	3-24-59	174	133	16-14	81	81-133	Qsd	40	1000	18	55.6	
18	City of East Orange	----------	1927	181	360	7	100	none	TRb	---	---	---	---	Slough Brook Field Middle Well
19	City of East Orange	----------	1927	182	---	8	125	none	TRb	---	---	---	---	Slough Brook Field North Well
20	Leemac Construction Co.	H. A. Kieffer	3-10-54	230	284	10	128	none	TRb	56	218	19	11.3	

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					LIVINGSTON TOWNSHIP - Continued									
21	Wynne's Press Clipping Co.	Parkhurst Well & Pump Co.	11- 1-54	---	275	8	110	none	TRwb & TRb	40	150	60	2.5	
22	E. Wilherton	----------	1950	380	153	6	46	none	TRwb	0	25	8	3.01	
23	City of East Orange	Layne-New York Co.	1958	213	103	16-14	71	71-102	Qsd	35	700	4.5	155	
24	City of East Orange	Layne-New York Co.	1958	196	110	16-14	79	79-110	Qsd	33	700	8	87.5	
					MAPLEWOOD TOWNSHIP									
1	Village of South Orange	Artesian Well & Equip. Co.	Nov. 1950	133	156	10	46	none	TRb	20	225	55	4.09	O.W. 5A
2	Village of South Orange	Artesian Well & Equip. Co.	1950	132	299	10	42	none	TRb	22	340	56	6.07	O.W. 7A
3	Maplewood Theater	Burrows Well Drilling Co.	1-31-53	150	230	8	57	none	TRb	43	120	107	1.12	
4	H. O. Boetzner	Algeier Bros.	8- 2-54	215	140	6	22	none	TRb	15	15	10	1.50	
5	Plura-Plastics	Algeier Bros.	8- 9-60	---	200	6	50	none	TRb	45	60	5	12.00	
					MILLBURN TOWNSHIP									
1	Commonwealth Water Co.	A. C. Schultes & Sons	---	175	124	12	84	84-121	Qsd	29	1034	24	42	O.W. 51
2	Commonwealth Water Co.	A. C. Schultes & Sons	8-18-55	175	123	12	88	88-118	Qsd	34	1018	20	50.90	O.W. 50
3	Commonwealth Water Co.	Wm. Stoehoff Co., Inc.	---	179	148	12	104	104-144	Qsd	23	1000	10.5	95	O.W. 49
4	Commonwealth Water Co.	Kelly Well Co.	Dec. 1925	167	135	25	59	59-134	Qsd	23	1481	32	46.3	O.W. Kelly 81
5	Commonwealth Water Co.	----------	---	---	105	25	---	---	---	---	---	---	---	O.W. 43
6			1954	---	130	12	---	---	---	---	---	---	---	O.W. 45
7			---	---	309	8	---	---	TRwb	---	---	---	---	O.W. 38
8	Commonwealth Water Co.	Kelly Well Co.	11-21-38	---	133	25	---	---	Qsd	33	---	---	---	O.W. Kelly 84
9	Commonwealth Water Co.	Kelly Well Co.	1932	---	134	25	---	---	Qsd		1200	38	31.6	O.W. Kelly 85
10	Commonwealth Water Co.	Layne-New York Co.	11- 6-46	170	128	20-12	108	108-128	Qsd	49	---	---	---	O.W. D

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					MILLBURN TOWNSHIP - Continued									
11	Commonwealth Water Co.	Layne-New York Co.	1-17-47	173	139	20-12	129	129-139	Qsd	20	596	103	5.8	O.W.E
12	Commonwealth Water Co.	Kelly Well Co.	1932	---	134	25	---	-------	Qsd	---	1200	38	31.6	O.W. Kelly #6
13	Commonwealth Water Co.	Wm Stothoff Co., Inc.	8-14-54	---	163	12	119	117-153	Qsd	70	200	---	---	O.W.46
14	Commonwealth Water Co.	Wm Stothoff Co., Inc.	Nov. 1954	---	165	---	---	---	Qsd	---	---	---	65	O.W.47
15	Commonwealth Water Co.	Wm. Stothoff Co., Inc.	6-20-53	---	154	12	120	119-154	Qsd	55	690	19	36.3	O.W.44
16	Commonwealth Water Co.	Wm Stothoff Co., Inc.	---	---	---	---	---	---	Qsd	---	---	---	---	O.W.48
17	Commonwealth Water Co.	Kelly Well Co.	5-15-25	192	135	25	25-120	---	Qsd	24	1593	22	72.4	O.W. Kelly #2
18	City of East Orange	----------	1927	176	257	10	107	---	TRb	---	---	---	---	Slough Brook Field, South Well
19	City of East Orange	Artesian Well & Equip. Co.	1958	199	130	16	82	82-112	Qsd	43	775	10	77.50	
20	City of East Orange	Artesian Well & Equip. Co.	1958	195	130	16	80	80-120	Qsd	54	760	21	36.19	
21	A. E. Jones	H. A. Kieffer	8- 1-56	380	400	6	301	none	TRwb	265	30	55	.54	
22	City of Orange	Artesian Well & Equip. Co.	1949	255	100	36-18	89	89-99	Qsd	46	1480	35	42.28	O.W.4
23	City of Orange	Harris-Harmon Long Island Well Co.	10- 9-41	226	76	36-18	46	51-76	Qsd	5	1400	15	93.33	O.W.1
24	City of Orange	Sprague & Henwood	Feb. 1933	253	113	24-18	83	83-113	Qsd	40	1090	15	72.67	O.W.2
25	City of Orange	Artesian Well & Equip. Co.	7-15-60	---	106	16	74	74-104	Qsd	25	700	20	35.0	O.W.5
26	City of Orange	Layne-New York Co.	April, 1932	199	50	24-16	27	27-47	Qsd	3	700	29	24.14	O.W.1
27	Elizabethtown Water Co.	Artesian Well & Equip. Co.	1949	85	71	20	55	55-65	Qsd	18	760	30	25.33	O.W.53
28	Elizabethtown Water Co.	Artesian Well & Equip. Co.	8-10-49	86	70	12	46	46-66	Qsd	17	717	32	22.4	O.W.54
29	Elizabethtown Water Co.	Artesian Well & Equip. Co.	9-28-49	82	68	12	48	48-68	Qsd	25	440	26	16.92	O.W.55

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					MONTCLAIR (TOWN)									
1	Rapt & Ruden	Parkhurst Well & Pump Co.	4-29-48	360	250	10	23	none	TRb	5	145	180	.81	
2	Bond's Ice Cream, Inc.	Parkhurst Well & Pump Co.	2-10-50	510	157	8	21	none	TRb	15	150	55	2.73	
3	Town of Montclair	----------	1966	---	300	10	41	none	TRb	24	950	51	18.62	
4	Hahne & Co.	Parkhurst Well & Pump Co.	8- 9-49	280	350	8	31	none	TRb	18	350	182	1.92	O.W. 2
5	M. Quadrel	Burrows Well Drilling Co.	June, 1955	260	151	6	18	none	TRb	33	75	---	----	
6	Montclair Auto Minit Man	Rinbrand Well Drilling Co.	1-10-50	---	200	6	18	none	TRb	40	60	---	----	
					NEWARK (CITY)									
1	Aluminum Finishing Co.	J. Foster	7-20-53	50	150	6	55	none	TRb	30	100	30	3.33	
2	Wilbur B. Driver Co.	Rinbrand Well Drilling Co.	7- 2-53	15	400	10	93	none	TRb	45	240	155	1.55	O.W. 5
3	Pittsburgh Plate Glass Co.	Lauman & Co.	1940	12	---	12	90	none	TRb	9	390	---	----	
4	McEvoy Court Apartments	Parkhurst Well & Pump Co.	Oct. 1939	200	206	6	35	none	TRb	84	60	106	.57	
5	Columbia Theaters, Inc.	Wm. Stothoff Co., Inc.	6- 9-53	---	312	8	26	none	TRb	20	140	32	4.38	
6	Pabst Brewing Co., Inc.	Artesian Well & Equip. Co.	3-14-49	190	685	14	39	none	TRb	59	557	67	8.31	O.W. 4
7	Pabst Brewing Co., Inc.	Artesian Well & Equip. Co.	7-17-50	185	687	14	55	none	TRb	108	240	120	2.00	O.W. 5
8	Newark Milk & Cream Co.	Rinbrand Well Drilling Co.	Feb. 1949	25	700	10	80	none	TRb	60	75	190	.39	
9	Continental Ins. Co.	S. P. D'Alessio	July 1965	---	300	8	58	none	TRb	77	85	72	1.18	
10	Newark Center Corp.	Garden State Artesian Well & Pump Co.	2-18-55	---	700	10-6	150	none	TRb	81	89	144	.62	O.W. 1
11	Kolker Chemical Works	Wm. Stothoff Co., Inc.	12-11-51	12	802	12	127	none	TRb	117	600	43	13.95	O.W. 2
12	Kolker Chemical Works	Wm. Stothoff Co., Inc.	4-27-49	8	359	10	98	none	TRb	76	300	22	13.63	O.W. 1
13	Eureka Construction Co.	Rinbrand Well Drilling Co.	1-23-59	10	500	8	90	none	TRb	25	75	225	.33	
14	P. Ballentine & Sons	----------	1937	12	875	16	95	none	TRb	227	375	153	1.79	O.W. 8, Plant #2

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					NEWARK (CITY) - Continued									
15	Celanese Corp. of Amer.	P. H. & J. Colan	1924	12	805	16-10	95	none	TRb	176	400	28	14.29	O.W. 26
16	Celanese Corp. of Amer.	Layne-New York Co.	5-16-47	14	856	16-10	75	none	TRb	147	778	40	19.45	O.W. 27
17	J. Hemler Brewing Co.	P. Cheffitelli	12-14-49	12	700	10-8	57	none	TRb	60	450	240	1.79	O.W. 4
18	Synthetic Plastics Co.	Industrial Well & Pump Co.	1-15-53	14	600	8	145	none	TRb	150	300	110	2.73	O.W. 1
19	Albion Finishes, Inc.	Frank Bott	7-12-60	15	500	8	66	none	TRb	30	350	70	5.14	
20	Cotan Corporation	-------	1930	10	290	8	---	none	TRb	140	160	95	1.59	
21	Universal Grain Co.	Wm. Stoehoff Co., Inc.	10-18-51	10	303	8	79	none	TRb	143	200	53	3.77	
22	Mother's Food Products, Inc.	---------	1959	11	400	8	107	none	TRb	94	125	8	15.62	
23	Kar Auto Service Co.	P. Cheffitelli	2- 8-50	200	300	6	35	none	TRb	23	60	104	.58	
24	Food Fair Stores	Duncan Well Drilling Co.	April, 1955	100	290	8	35	none	TRb	105	250	45	5.56	
25	S. & S. Super Service Corp.	Rinbrand Well Drilling Co.	2-18-50	50	190	6	94	none	TRb	45	20	---	----	
26	Rutherford & Delaney Holding Co.	Garden State Artesian Well & Pump Co.	7-21-56	---	220	8-6	42	none	TRb	22	100	73	1.37	O.W. 1
27	Linde Air Products Co.	Artesian Well & Equip. Co.	July, 1954	10	500	12	44	none	TRb	17	126	190	.65	
28	C-O Two Fire Equipment Co.	Parkhurst Well & Pump Co.	4-27-50	10	603	10	127	none	TRb	35	89	215	.41	
29	Suburban Motor Lodge, Inc.	Rinbrand Well Drilling Co.	June, 1950	10	555	8	126	none	TRb	15	20	235	.08	
30	S. S. Pemich & Co.	Wm. Stoehoff Co., Inc.	6- 7-61	---	400	10	75	none	TRb	60	644	23	28.00	O.W. 2
					NORTH CALDWELL BOROUGH									
1	Green Brook Country Club	H. A. Kiefler	July, 1951	310	300	8	33	none	TRwb	2 flowing	25	81	.31	O.W. 3
2	Green Brook Country Club	H. A. Kiefler	March, 1925	290	301	8	---	none	TRb & TRwb	25 gpm	60	---	----	O.W. 1. Redrilled 1962
3	A. Strum	H. A. Kiefler	8-16-55	---	182	6	42	none	TRwb	65	25	5	5.00	
4	A. P. Leitner	Algeier Bros.	5-26-58	---	195	6	25	none	TRwb	25	7	125	.05	

Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					NUTLEY (TOWN)									
1	Hoffman-La Roche, Inc.	----------	1940	---	600	10	32	none	TRb	35	180	85	2.12	O.W. 4
2	Food Fair Stores, Inc.	Burrows Well Drilling Co.	6-25-53	75	350	8	23	none	TRb	22	60	120	.46	O.W. 2
3	Federal Telecommunications Laboratory	----------	1958	---	500	10	39	none	TRb	27	145	133	1.09	
4	H. Coopersmith	Rinbrand Well Drilling Co.	8-29-55	85	250	6	36	none	TRb	53	110	27	4.07	
					ORANGE (CITY)									
1	Carl. Del Spino & Co.	----------	1958	---	400	10	25	none	TRb	22	330	40	8.25	
2	Monroe Calculating Machine Co., Inc.	----------	1948	170	350	10	40	none	TRb	12	400	64	6.25	
3	City of Orange	----------	1958	---	551	6	35	none	TRb	22	300	22	13.64	
4	Orange Products	----------	March, 1960	---	500	10	35	none	TRb	15	257	78	3.29	
					ROSELAND BOROUGH									
1	Borough of Essex Fells	Artesian Well & Equip. Co.	6-15-52	195	195	18-12	58	none	TRb	+12	755	155	4.87	Flowed 90 gpm O.W. 10 when drilled
2	Borough of Essex Fells	Artesian Well & Equip. Co.	10-20-53	213	220	18-12	73	none	TRb	11	450	127	3.54	O.W. 12
3	Borough of Essex Fells	Artesian Well & Equip. Co.	3- 6-54	222	205	18-12	83	none	TRb	+13	400	133	3.08	Flowed 20 gpm O.W. 11 when drilled
4	Kidde Precision Tool Corp.	H. A. Kieffer	5-15-54	---	350	8	88	none	TRb	8	65	28	2.32	O.W. 2
5	Kidde Precision Tool Corp.	H. A. Kieffer	3-15-54	---	405	8	101	none	TRb	18	30	92	.32	O.W. 1
6	Harold Cowan	Algeier Bros.	10- 2-54	---	183	6	128	none	TRb	40	15	25	.60	
7	Richard Ebenbach	Algeier Bros.	10-22-56	---	167	6	42	none	TRb	40	10	45	.22	

Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm ft)	Remarks
					SOUTH ORANGE (VILLAGE)									
1	Village of South Orange	----------	1913	132	274	8	---	none	TRb	---	200	---	----	O.W. 1
2	Village of South Orange	Artesian Well & Equip. Co.	1950	133	182	10	40	none	TRb	25	170	67	2.54	O.W. 2
3	Village of South Orange	Artesian Well & Equip. Co.	1950	134	115	10	40	none	TRb	28	300	11	27.27	O.W. 3
4	Village of South Orange	Artesian Well & Equip. Co.	1950	132	122	10	49	none	TRb	28	250	50	5.00	O.W. 8
5	Village of South Orange	----------	1947	132	355	14	---	none	TRb	---	190	---	----	O.W. 14
6	Village of South Orange	Burrows Well Drilling Co.	6- 1-56	148	350	12	45	none	TRb	9	560	41	13.66	O.W. 16
7	Village of South Orange	Burrows Well Drilling Co.	3-11-63	148	200	18-12	36	none	TRb	14	847	24	35.29	O.W. 1[illegible]
8	Village of South Orange	J. P. Harris	1929	134	301	8	35	none	TRb	1	520	9	57.78	O.W. 11
9	Village of South Orange	J. P. Harris	1931	137	382	16-12	52	none	TRb	20	200	90	2.22	O.W. 12
10	Village of South Orange	J. P. Harris	6-20-30	138	319	16-12	48	none	TRb	7	490	7	70.00	O.W. 13
11	Village of South Orange	Burrows Well Drilling Co.	5- 1-56	209	313	12	26	none	TRb	+3	550	78	7.05	O.W. 17
					VERONA BOROUGH									
1	C. E. Drehman	H. A. Kieffer	10- 1-57	---	200	6	38	none	---	45	18	39	.46	
2	Montclair Golf Club	Rinbrand Well Drilling Co.	1-10-64	---	500	10-8	16	none	---	20	138	210	.66	
3	Claremont Diner, Inc.	Algeier Bros.	5-14-54	500	400	8	15	none	TRb & bs	15	45	135	.33	

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Aquifer name:
Qsd, Stratified drift
TRb, Brunswick Formation
TRwb, Watchung Basalt

TABLE 2.—RECORDS OF SELECTED WELLS IN ESSEX COUNTY, N. J.—Continued

Remarks:
O.W., Owners well number

Well	Owner or Tenant	Driller	Date Drilled	Altitude above mean sea level (ft)	Total depth drilled below land surface (ft)	Diameter of well (inches)	Depth to which well is cased (ft)	Screen setting (ft)	Aquifer	Static level below land surface (feet)	Yield (gpm)	Drawdown (ft)	Specific capacity (gpm/ft)	Remarks
					WEST CALDWELL BOROUGH									
1	Mal Bros. Contracting Co.	Algeier Bros	11-15-51	180	135	6	32	none	TRwb	4	30	81	.37	
2	Mt. Ridge Country Club	Parkhurst Well & Pump Co.	1933	- - -	252	6	119	none	TRwb	42	85	44	1.93	
3	Fernclift Golf Club	H. A. Kieffer	2-28-55	180	305	8	79	none	TRb	14	90	14	6.43	
4	Elm-Tree Pool & Club	H. A. Kieffer	1926	260	170	---	---	none	TRb	---	60	---	----	
5	Caldwell Enterprises	Burrows Well Drilling Co.	3- 9-56	190	100	8	61	none	TRwb	+3	110	63	1.75	Flowed 30 gpm at +3
6	Borough of Essex Fells	Artesian Well & Equip. Co.	1957	335	254	10-12	100	none	TRwb	13	262	164	1.59	O.W. 13
7	Borough of Essex Fells	Rinbrand Well Drilling Co.	1927	240	360	12-8	80	none	TRwb	+	175	- - -	- - -	O.W. 4B Flowed 40 gpm
8	Borough of Essex Fells	Rinbrand Well Drilling Co.	1924	240	185	---	---	none	TRwb	0	225	80	2.81	O.W. 4A
9	S. Crane	H. A. Kieffer	12-10-51	- - -	250	8	67	none	TRwb	8	90	43	2.09	
					WEST ORANGE									
1	Borough of Essex Fells	- - - - - - - - - - - - - -	1940	495	37	52-24	28	27-37	Qsd	8	190	27	7.03	O.W. 2
2	Bow & Arrow Manor, Inc.	H. A. Kieffer	11-20-58	540	128	8	22	none	TRwb	28	50	37	1.35	O.W. 3
3	Essex County Country Club	Parkhurst Well & Pump Co.	9- 8-54	560	115	8	21	none	TRb & TRwb	+2	100	102	.98	O.W. 1
4	Nichle Alkaline Battery	Rinbrand Well Drilling Co.	3-21-62	- - -	505	8	58	none	TRb	12	190	213	.89	O.W. 2
5	Nichle Alkaline Battery	Rinbrand Well Drilling Co.	9-28-61	- - -	520	8	46	none	TRb	15	190	210	.90	O.W. 1
6	Rock Spring Country Club	H. A. Kieffer	2-28-56	510	406	8	20	none	TRb	110	25	90	.28	O.W. 1
7	Rock Spring Country Club		1957	- - -	750	8	22	none	TRb	273	35	25	1.40	O.W. 2

Aquifer names:
Qsd, Stratified drift
Trb, Brunswick Formation
Trbrb, Watchung Basalt

TABLE 3.—CHEMICAL ANALYSES OF WATER FROM SELECTED WELLS IN ESSEX COUNTY

(Results in parts per million except as indicated)

(1) I, industrial
P.S., public supply

Location no. on map	Owner and well number	Water-bearing formation	Date of collection	Temperature (°F)	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color	Source of analysis	Use
											ESSEX FELLS BOROUGH													
3	Boro. of Essex Fells, No. 6	Trbrb	9- 1-66	53	25	.00	.00	32	6.9	14	.3	84	36	19	.0	6.3	192	109	40	281	7.6	2	U.S.G.S.	P.S.
4	Boro. of Essex Fells, No. 1	Qsd	9- 1-66	53	27	.02	.00	42	16	7.2	.5	122	40	28	.0	6.4	265	171	71	358	8.1	3	U.S.G.S.	P.S.
											LIVINGSTON TOWNSHIP													
6	Livingston Twp. No. 1	Trb	2-25-59	---	---	---	---	--	---	6.7	---	127	26	8.5	---	9.6	---	104	32	299	7.9	2	U.S.G.S.	P.S.
15	Livingston Twp. No. 4	Trb	6-21-66	55	23	.00	.00	32	14	8.7	.7	194	31	13	.0	8.4	220	138	36	305	7.8	2	U.S.G.S.	P.S.
18	City of East Orange	Qsd	8-18-66	---	19	.14	.00	52	20	13	.8	186	7.8	9.4	.1	6.1	309	212	76	433	7.5	2	U.S.G.S.	P.S.
22	City of East Orange	Trb	8-18-66	---	24	.10	.00	34	13	8.7	.7	140	25	6.7	.0	3.8	191	128	24	288	7.3	---	U.S.G.S.	P.S.
											MILLBURN TOWNSHIP													
2	Commonwealth Wtr. Co. No. 40	Qsd	8-19-66	53	20	.00	.00	53	14	13	.8	186	57	13	.0	6.1	296	190	63	407	8.1	2	U.S.G.S	P.S.
9	Commonwealth Wtr. Co. No. 5	Qsd	8-19-66	54	21	.10	.00	44	15	12	.8	184	40	10	.0	6.1	260	172	37	356	7.6	2	U.S.G.S.	P.S.
11	Commonwealth Wtr. Co., 8	Qsd	9-26-59	53	22	.00	.00	40	13	19	.8	156	19	7.7	.0	1.2	256	104	52	242	7.9	3	U.S.G.S.	P.S.
13	Commonwealth Wtr. Co. No. 46	Qsd	8-19-66	53	20	.04	.10	40	10	23	.4	158	47	11	.1	6.6	240	161	12	368	7.6	3	U.S.G.S.	P.S.
19	City of East Orange	Qsd	8-18-66	---	25	.03	.00	50	13	3.6	1.8	158	22	15	.0	2.5	256	170	49	347	8.0	2	U.S.G.S.	P.S.
20	City of Orange, No. 1	Qsd	2-26-59	---	---	---	---	--	---	8.2		86	33	11	---	1.1	---	45	39	203	6.9	2	U.S.G.S.	P.S.
											NEWARK (CITY)													
14	P. Ballantine & Sons	Trb	1- 9-48	59	31	.15	---	865	173	447	7.0	210	911	1900	.0	6.2	4780	--	--	6960	7.3	0	U.S.G.S.	I
17	Hensler Brewing Co.	Trb	10-10-27	---	---	---	---	152	31	---	---	162	240	12	---	---	---	---	--	---	---	---	U.S.G.S.	I
											SOUTH ORANGE (VILLAGE)													
5	City of South Orange, No. 2	Trb	2-26-59	---	19	.08	.00	80	7.4	23	2.0	198	16	35	.0	6.6	343	162	68	546	7.0	3	U.S.G.S.	P.S.
8	City of South Orange, No. 3	Trb	9- 2-66	54	17	.08	.00	93	10	40	2.6	204	51	72	.0	4.9	489	273	106	708	7.0	2	U.S.G.S.	P.S.

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REFERENCE 25

EBASCO

BY Q. Maihe DATE 12/28/95 SHEET ____ OF ____

CHKD. BY ____ DATE ____ OFS NO. ____ DEPT. NO. ____

CLIENT EPA

PROJECT Peerless Tube

SUBJECT Permeability Computations

Brunswick formation.

according to Ref. 21 p 12 specific capacities of wells range from 0.21 to 70.00 gpm and average 11.07 gpm per foot of drawdown

For an average range of depth of 381 feet the equivalent permeability will be

$$Sp \text{ (Specific capacity)} = \frac{T}{1500} \text{ (Transmissibility gpd/ft)}$$

Using the empirical equation. (See Ref. 23. p. 3)

$$T = Sp * 1500.$$

$$T = 11.07 * 1500 = 16605 \text{ gpd/ft}$$

$$s = \text{aquifer depth} = 381 \text{ feet}$$

$$K \text{ (Permeability)} = \frac{T}{s} = 5.82 \text{ ft/day}$$

$$K = 0.002 \text{ cm/sec. or } 2 \cdot 10^{-3} \text{ cm/sec}$$

glacial drift:

composed of sandy silt and fine sand
Permeability according to Ref. 1, Table 3-6 ples estimated at 10^{-2} cm/sec.

Reference 25
Page 2 of 3

Groundwater and Wells

Second Edition

Fletcher G. Driscoll, Ph.D.
Principal Author and Editor

Published by Johnson Filtration Systems Inc., St.Paul, Minnesota 55112

Reference 25
Page 3 of 3

APPENDIX 16.D.
Empirical Equations Used to Estimate Specific Capacity and Transmissivity

Two empirical equations have been developed from the modified nonequilibrium (Jacob) equation to estimate the potential specific capacity and transmissivity of a well. These equations are derived by assuming an average well diameter, average duration of pumping, and typical values for the applicable storage coefficient. The equations are useful for quickly checking the accuracy of values obtained for transmissivity and specific capacity during pumping tests.

Recall Jacob's equation (9.6):

$$s = \frac{264Q}{T} \log \frac{0.3Tt}{r^2S}$$

where

s = drawdown in the well, in ft
Q = yield of the well, in gpm
T = transmissivity of the well, in gpd/ft
t = time of pumping, in days
r = radius of the well, in ft
S = storage coefficient of the aquifer

This equation is based on the simplifying assumptions listed on page 218.

By rearranging terms, the specific capacity is:

$$\frac{Q}{s} = \frac{T}{264 \log \frac{0.3Tt}{r^2S}} \qquad (1)$$

If typical values are assumed for the variables in the log function of the equation such as $t = 1$ day, $r = 0.5$ ft, $T = 30{,}000$ gpd/ft, and $S = 1 \times 10^{-3}$ for a confined aquifer and $S = 7.5 \times 10^{-2}$ for an unconfined aquifer, the specific capacity of the confined aquifer is given by:

$$\frac{Q}{s} = \frac{T}{2000} \qquad (2)$$

The specific capacity for an unconfined aquifer is given by:

$$\frac{Q}{s} = \frac{T}{1500} \qquad (3)$$

These empirical equations can be used to check the transmissivity of wells where the specific capacity is known, or the specific capacity where the transmissivity is known.

It may appear to be presumptuous to use an average transmissivity value or even to assume a transmissivity value at all before one is known. However, because it appears in the log term of Equation 1, its affect on the value of the divisor in either derivation is minimal. For example, if a transmissivity of 120,000 gpd/ft is assumed, the divisor increases from 2,000 to 2,133, a difference of less than 7 percent.

Estimates of Q/s using Equation 3 for unconfined aquifers will nearly always be optimistic because part of the aquifer is dewatered during pumping, resulting in a lower transmissivity as the saturated thickness decreases. Therefore, some estimates for unconfined aquifers may be more accurate if Equation 2 is used.

REFERENCE 26

EBASCO SERVICES INCORPORATED | PROJECT NOTES

TO: Peerless Tube File | DATE: 6/6/95

FROM: J. Rickhoff, Senior Scientist | PROJECT NUMBER: 8310 0076 000 50127

SUBJECT: Groundwater Target Apportionment | SITE NAME: Peerless Tube

Information regarding the usage of potable groundwater within the 4-mile vicinity of the Peerless Tube site was obtained for this evaluation. It was determined that (in total) sixteen municipalities can be found in the site vicinity, however, thirteen municipalities derive their potable supplies from either reservoirs, groundwater sources, or a combination of the two, that exist at distances greater than 4 miles from the site, and are not associated with the surface water pathway presented in this site evaluation. These municipalities are: Belleville, Bloomfield, Harrison, Irvington, Kearny, Lyndhurst, Newark, Nutley, East Orange, West Orange, South Orange, North Arlington, and Verona (Refer to attached telecons in this reference for specific details). Glen Ridge and Montclair share a supply system, and Orange has its own system. These two systems occur within the 4 mile distance and apportionment calculations are also incorporated into this reference. Well locations, depths, interconnectivity, etc. are discussed as well

ENSERCH ENVIRONMENTAL CORPORATION

BY J. Reilshoff DATE 6/8/95 SHEET 1 OF 1

CHKD. BY _____ DATE _____ OFS NO. _____ DEPT. NO. _____

CLIENT _____

PROJECT Peerless Tube site

SUBJECT Groundwater Target Apportionment

Glen Ridge/Montclair Water Department

Wellfield Name	Well No.	Pumpage (mgd)	Status	Depth	Aquifer	Population	mile Ring	4-mile Radius Map No.
Maple Avenue	1	—	Active	Unk.	—	3830	1.0-2.0	1
N. Fullerton Avenue	2	—	A	Unk	—	3830	2.0-3.0	2
N. Mountain	3	—	A	Unk	—	3830	3.0-4.0	3

75% Surface Water : 25% Groundwater SW - outside 4 mile radius GW within 4 mile radius
Assume interconnectivity and equal contribution by wells 38000 Montclair Residents + 8000 Glen Ridge Residents = 46000 pop on system X .25 (% GW) = 11,500 pop X .333 (3 equal wells) = 3830/well

Orange Water Department

Highland Ave. East	1	0.5	A	550	Brunswick	11,700	1.0-2.0	4
Gist Place	2	0.8	A	450	Bruns,	18,300	2.0-3.0	5

3.3 MGD system 2.0 million gal/day from outside 4 mile radius and 1.3 MGD within 4 mile radius Assume interconnection and then distribute population by well capacity 30,000 Orange Residents X [(1.3 MGD Groundwater / 3.3 MGD total = 39% of System)] = 11,700 $\frac{0.5 \text{ Well 1}}{1.3 \text{ total}} = 39\%$ $\frac{0.8 \text{ Well 2}}{1.3 \text{ total}} = 61\%$

11,700 x .39 = 4563 pop 11,700 X .61 = 7137 pop

Summation of Montclair and Orange persons/well/aquifer/target Ring

Ring	Montclair	Orange	Total
0.0-0.25	—	—	—
0.25-0.50	—	—	—
0.50-1.0	—	—	—
1.0-2.0	3830	4563	8393
2.0-3.0	3830	7137	10,967
3.0-4.0	3830	—	3830
Total	11,490 (11,500)	11,700	23,190

ENS 581/2-94

14/26 3of26

RECORD OF TELEPHONE CONVERSATION

DATE 11/14/94

TO Belleville Water Department 201-450 3339
NAME/FILE NO.

FROM Daniel Maitre

CLIENT/PROJECT EPA Peerless Tube

SUBJECT Source of water.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Ms Rosemarie. (billing dpt)

The Town residents are supplied by Newark water dpt.
Number of (household) (bill) supplied by Belleville Water Dpt
7300.
Resident population approx. 11000.
Some residents bill their water directly from Newark Water dpt

COMMENTS

BY D. Maitre — NAME
Senior Geologist — TITLE
EC — DEPT. NO.

CC:

RECORD OF TELEPHONE CONVERSATION

DATE 11/7/1994

TO Bloomfield Town. Water dpt 201-680400451
NAME/FILE NO.

FROM Dan Maitu

CLIENT/PROJECT EPA PEERLESS Tube

SUBJECT Supply of Drinking Water

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH unknown.

General water supply source for Bloomfield Town is from the Pequannock Reservoir. The purveyor is Newark Water dpt.
No groundwater is used.
More information can be obtained from the Technical services.
tel 201 680 4009

COMMENTS

BY D. Maitu — NAME; Senior Geologist — TITLE; EC — DEPT. NO.

CC:

RECORD OF TELEPHONE CONVERSATION

DATE May 22 - 95

TO Newark Water dpt 201 256 4967

FROM Dan Maitre

CLIENT/PROJECT EPA Peerless Tube

SUBJECT Water Resources.

DISCUSSION with Mr Toni Delamos.

Newark Water dpt has two sources of drinking water:

1. The Pequannock System including 5 reservoirs, Oakridge, Echo lake Canistear Clinton and Charlottesburg reservoir which is the Intake Reservoir

2 - Wanaque reservoir.

COMMENTS

Wanaque reservoir and Charlottesburg reservoir are located outside the 4 mile radius N.N.W. from the site

BY Daniel Martin (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

Newark

Sharpe James
Mayor

Department of Water and Sewer Utilities

Luiggi Campaña
Director

Division of Sewers and Water Supply

Daniel Berardinelli, P.E.
Manager

1294 McBride Avenue
Little Falls, New Jersey 07424
201-256-4965

TELECOPIER COVER LETTER

DATE: 5/19/95

TIME SENT 10:40

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: Daniel Maitre

COMPANY/FIRM Foster Wheeler

TELECOPIER #: 842-752

FROM: Anthony DeBarros
DIVISION OF SEWERS AND WATER SUPPLY

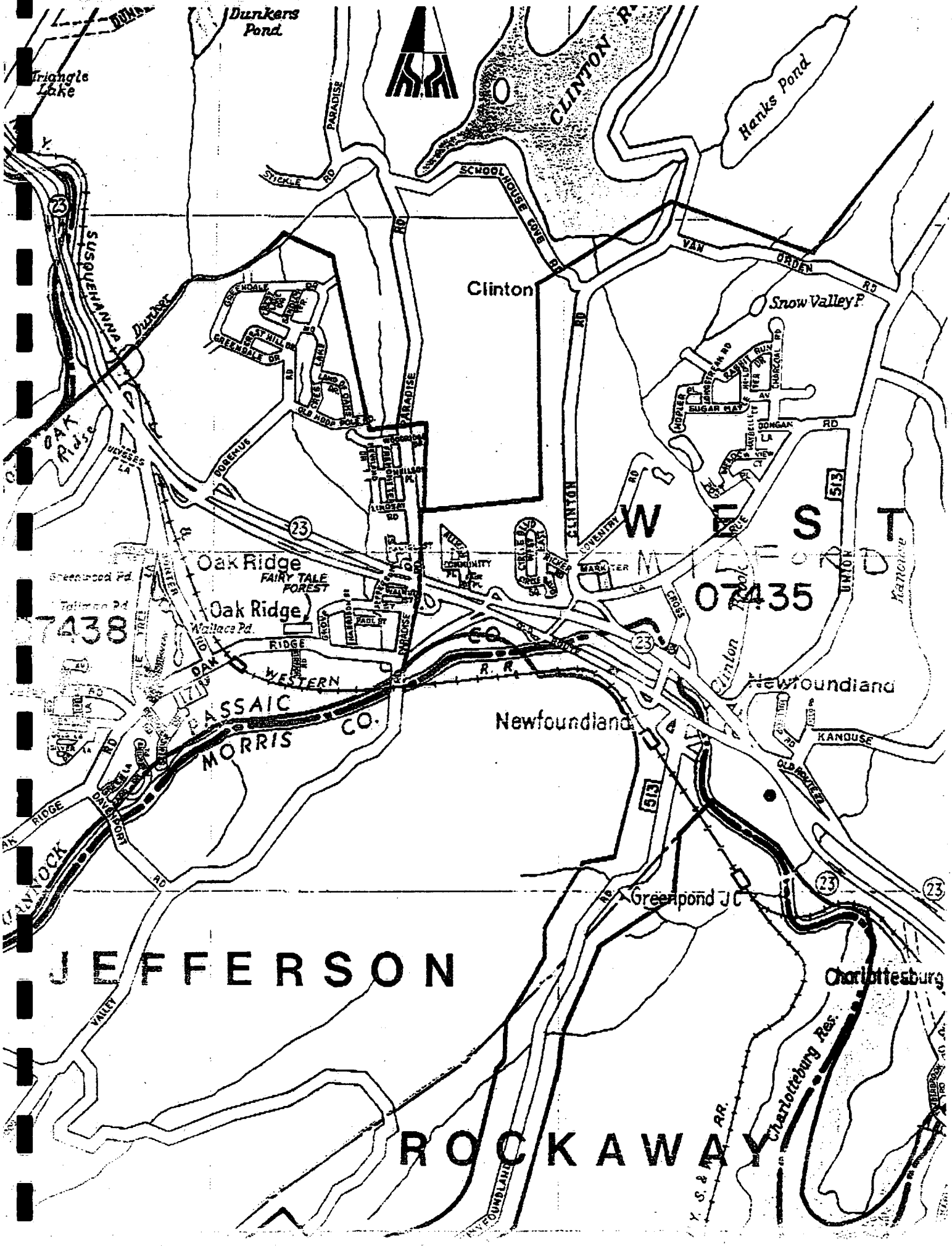
COMMENTS: As per our discussion, enclosed is a map of the Water Supply System of Newark. The Pequannock Watershed covers Morris, Passaic and Sussex Counties.

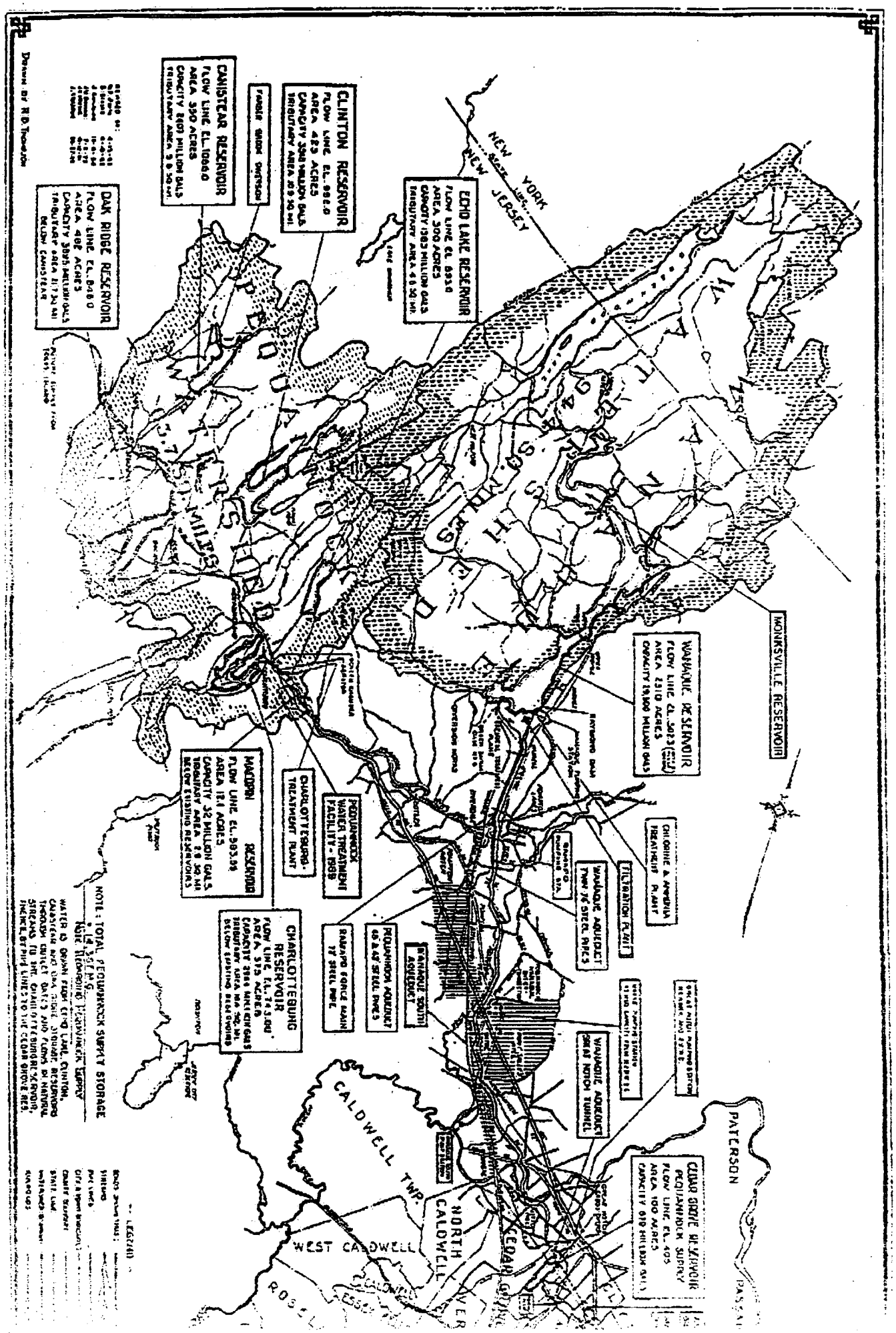
The City is served by two surface water supplys: the Wanaque and the Pequannock.

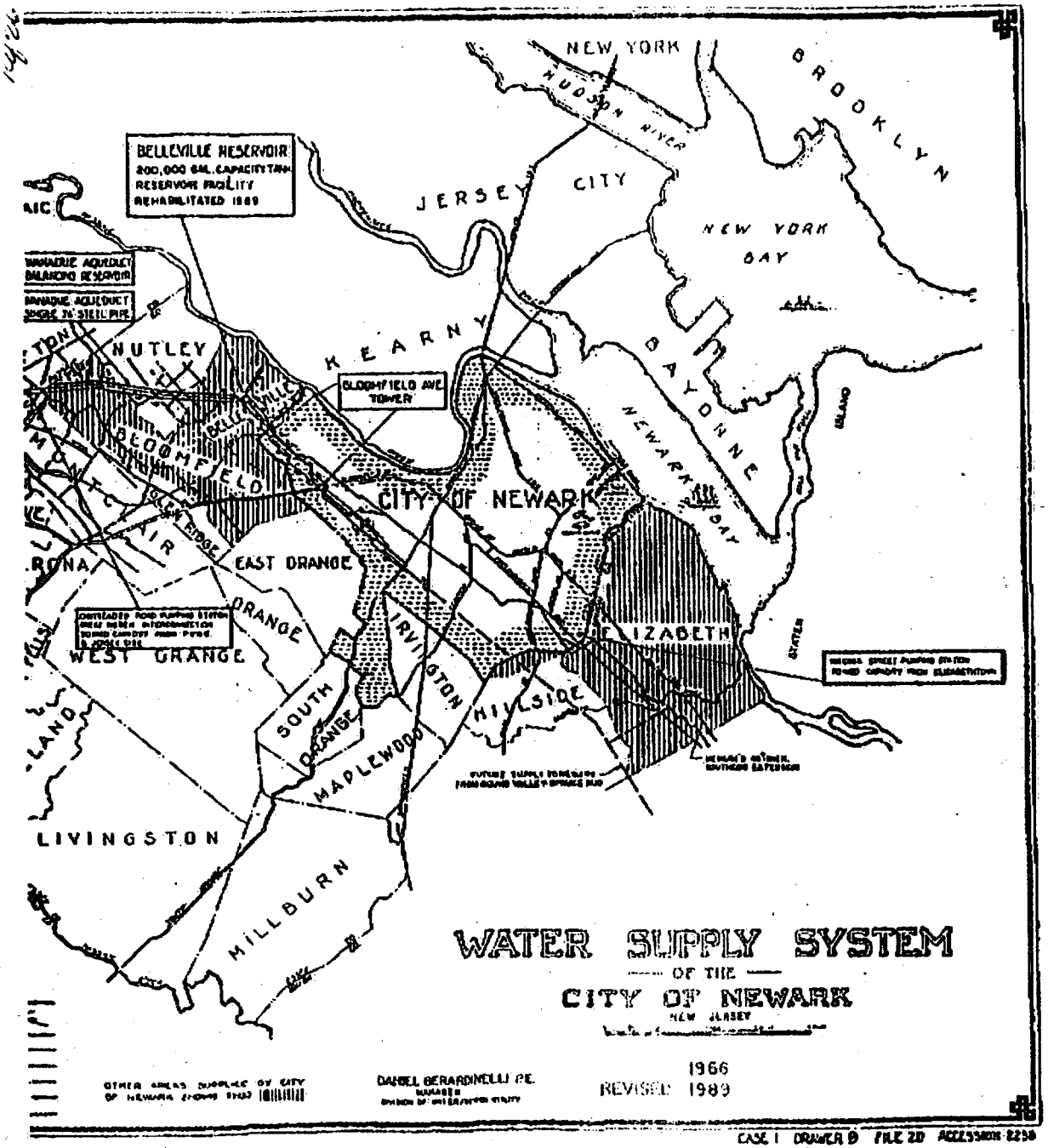
The Pequannock Water Supply serves the western half of the City (west of M.L King Blvd)

The Pequannock Watershed has 5 reservoirs: Oak Ridge, Echo Lake, Canistear, Clinton and Charlotteburg

The Charlotteburg Reservoir is the Intake Reservoir to the Pequannock Water Treatment Plant


Dunkers Pond
Triangle Lake
CLINTON R
Hanks Pond
PARADISE
STICKLE RD
SCHOOL HOUSE COVE RD
VAN ORDEN RD
Clinton
Snow Valley P.
SUSQUEHANNA
Dunbar
OAK Ridge
GREENDALE DR
OLD HOOP POLE RD
DOREMUS
ULYSSES LA
CLINTON RD
COVENTRY RD
SUGAR MAY
DONGAN RD
WEST
MILFORD
07435
Oak Ridge
FAIRY TALE FOREST
Oak Ridge
Wallace Pd.
7438
OAK RIDGE
WESTERN R.R.
PASSAIC
MORRIS CO.
Newfoundland
Newfoundland
Clinton Brook
KANOUSE
UNION
Kanouse
513
23
Greenpond JC
JEFFERSON
Charlottesburg
Charlotteburg Res.
ROCKAWAY
VALLEY
DAVENPORT RD
Y. S. & W. RR.


NEW YORK
NEW JERSEY
ECHO LAKE RESERVOIR
CLINTON RESERVOIR
CANISTEAR RESERVOIR
OAK RIDGE RESERVOIR
MONKSVILLE RESERVOIR
WANAQUE RESERVOIR
MACOPIN RESERVOIR
CHARLOTTEBURG RESERVOIR
PEQUANNOCK WATER TREATMENT FACILITY - 1989
CHARLOTTEBURG TREATMENT PLANT
CHLORINE & AMMONIA TREATMENT PLANT
FILTRATION PLANT
WANAQUE AQUEDUCT
WANAQUE SOUTH AQUEDUCT
PEQUANNOCK AQUEDUCT
WANAQUE AQUEDUCT GREAT NOTCH TUNNEL
CEDAR GROVE RESERVOIR
PEQUANNOCK SUPPLY
PATERSON
CALDWELL TWP.
NORTH CALDWELL
WEST CALDWELL
ROSELL
NOTE: TOTAL PEQUANNOCK SUPPLY STORAGE
Drawn by R.D. Thompson



CASE 1 DRAWER 9 FILE 20 ACCESSION 2250

TOTAL P.03

RECORD OF TELEPHONE CONVERSATION

DATE 11/18/84

TO MONTCLAIR Water Dpt 201 7444600
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA - Peerless tube

SUBJECT Water Supply

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Mrs Oberg

Montclair resident are supplied by the Montclair Water Dpt. The sources of water are for 75% the Wanaque Reservoir and for 25% three wells located:

1 - 5 Mapple Avenue
2 - 190 North Fullton Avenue and at the
3 - Intersection of North Mountain and Lorraine Avenue.

COMMENTS

The total number of residents is approximately 38000.

More information can be obtained from Tom Sauchelli, Inginer in charge.

BY Dan Maitre — NAME
Senior geologist — TITLE
EC — DEPT. NO.

CC:

Ref. 26 11 of 26

RECORD OF TELEPHONE CONVERSATION

DATE 05/16/95

TO Montclair Water Dp 201 7444600

FROM Dan Maitre

CLIENT/PROJECT EPA - Peerless Tube

SUBJECT Water Supply

DISCUSSION with Mr Tom Sanchelli

The sources of water are the Wanaque Reservoir and three wells.
Wanaque Reservoir water and water from the wells are blended before distribution.

COMMENTS

Wanaque Reservoir water intake is more than 25 miles NNW of the site

BY Daniel Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

14 of 26 14 of 26

RECORD OF TELEPHONE CONVERSATION

DATE 11/7/1994

TO Town of Glen Ridge, Water Dpt. 201-7488400
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA - PEERLESS Tube Project

SUBJECT Supply of drinking water

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH M. Modina - Engineer in charge of Water & Health department -

Drinking Water is purchased from outside in particular from Montclair public water supply.

No ~~wells~~ private wells are used for Potable Water.

The only exceptions is the well used by Mountain Side Hospital.

COMMENTS The number of people served in potable water is between 7800 and 8000.

Note: Mountain Side Hospital is 1.7 miles North of the Site.

BY Daniel Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

RECORD OF TELEPHONE CONVERSATION

DATE 11/10/94

TO Orange Water Department 201-266 4030

FROM Dan Maitre

CLIENT/PROJECT EPA Pearless Tube SIP.

SUBJECT Water supply

DISCUSSION with Superintendant Mr. David Kirkhan
Approximately 30,000 people are served by the department
Sources of drinking water

Drinking water is supplied by the Orange reservoir, two wells located close to the dam and two wells located in the city.
The overall system supplies approx. $3.5\ 10^6$ gpd.

1. 2×10^6 gpd are supplied by the reservoir and the two adjacent wells.
2. 1.3×10^6 gpd are supplied by the two city wells.
   - 500,000 gpd by the well (1) located at Highland Ave. East and Orange Park (550 ft deep) E 4/6/95
   - 800,000 gpd by the well (2) located at intersection of Gist Place and Cleveland Street (450 ft)

COMMENTS

The two wells supplied water to the system after treatment (Chlorination, coagulation, Air stripper) - their water is injected into the system and automatically mixed up with other sources.

Note: The Orange reservoir and its two wells are 4 and 1/2 miles West South West from the site.
Although their water is treated for VOC, the people served by the two wells were conservatively taken into account for the Pressure.

BY Dan Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

11046/8-74

RECORD OF TELEPHONE CONVERSATION

DATE 11/10/94

TO East Orange Water Department 201, 2668869
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT

SUBJECT

CHARGE: DEPT. NO. CLIENT SYMBOL OFS NO.

DISCUSSION WITH Mrs Brenda Church.

The Water Engineer Antony Scillia is absent and will not be in the office before Nov. 20. Information given was only partial.

The Town is supplied from three well fields: Livingston, Millburn and Florham Park.

The total connections are more than 10,000.

More information can be obtained by writing.

COMMENTS

(Livingston, Millburn and Florham Park are outside the East Orange Area.)
(They are outside 4 mile zone)

Confirmation of data by discussion with Mr Devico. - on 11/21/94 - appr. 80,000 residents are served by the Water Supply dpt - Some private wells exist in the Town Area - mainly for ~~not~~ industrial purposes.

BY D. Maitre
NAME

Senior Geologist
TITLE

EC
DEPT. NO.

CC:

1900 1900

RECORD OF TELEPHONE CONVERSATION

DATE May 16, 1995

TO South Orange Water Department 201-3787746

FROM Dan Maitre Ebasco

CLIENT/PROJECT EPA - HRS.

SUBJECT Water Supply.

DISCUSSION with Mr Ben Longo

Since February 8, 1995 South Orange resident water is supplied by the East Orange Water department.

Wells located in South Orange are not used anymore.

COMMENTS

BY Daniel Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

RECORD OF TELEPHONE CONVERSATION

DATE 11/10/94

TO West Orange Health department 201-325 4121
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA PEERLESS Tube

SUBJECT Source of Water supply.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH unknown.

The town does not have a Water department.
People buy their water from the
NJ American Water Company -
tel: 376 8800.
The health department does not have information
about private well.

COMMENTS

BY D. Maitre — NAME
Senior Geologist — TITLE
EC — DEPT. NO.

CC:

11046/B-74

RECORD OF TELEPHONE CONVERSATION

DATE Dec 6 / 1994

TO Harrison Water Dpt
NAME/FILE NO.

FROM Dan. Maitre.

CLIENT/PROJECT EPA - Peerless Tube Project

SUBJECT Supply of drinking water

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH

Mrs. Debbie Lozo.

Passaic Valley Water commission is the purveyor of drinking water for the Harrison Town.

The Town does not use any water well.

COMMENTS

BY Dan Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

RECORD OF TELEPHONE CONVERSATION

DATE 11/22/94

TO North Arlington Water dpt. 201 9555665
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA Pecatonica Tube.

SUBJECT Source of water.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Bob Noe.

North Arlington water supplier is the Passaic Valley Water Commission. 17000 to 18000 residents are served.

COMMENTS

BY D. Maitre
NAME

Senior Geologist
TITLE

EC
DEPT. NO.

CC:

11046/8-74

Page 14 of 26

RECORD OF TELEPHONE CONVERSATION

DATE 11/14/94

TO Water Department - NUTLEY (NAME/FILE NO.) 201-284 4951 201-284 4959

FROM Dan Maitre

CLIENT/PROJECT EPA - PEERLESS Tube

SUBJECT Source of Water.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Mrs Caprio.

COMMENTS

Nutley residents take their drinking water from Passaic Valley Water Commission.
Some residents still have their own private wells.
The Town has one well at the Town Hall (Vincent Place) where people come to take some "drinking" water. More information can be obtained from 284 4984 and from 284 4959 Mr Anlas Town Engineer -

BY D. Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

11046/8-74

Ref 26 20/26

RECORD OF TELEPHONE CONVERSATION

DATE 11/14/94

TO NUTLEY Water dpt. Town Engineer 201-284 4959
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA. Peerless Tube

SUBJECT Source of Water

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Mr Aulas.

COMMENTS

Information about the Town Well.

Depth. 186 ft. (Passaic formation)

Production ≈ 1. 10⁶ gal/year.

Five to six people come every day to tape an average of 5 gal/person.

three years ago trichloroethene was detected. Since double charcoal filters have been installed. Well is analyzed two times a month and result, sent to the State as well as the water provided by the Passaic Valley Water Commission ~~and~~ which serves approx 29000 people in the Town

BY D. Maitre NAME — senior geologist TITLE — EC DEPT. NO.

CC:

Ref 26 21 of 26

RECORD OF TELEPHONE CONVERSATION

DATE 11/18/94

TO Verona Water department . 201-857 4805
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA Water Department

SUBJECT Water Supply.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Mrs Rosanne Chiarazallotti

Town residents are supplied by the Passaic Valley Co. (Wanaque reservoir?)

The town owns 1 well in an "abandoned" property where people come to tape water. (Fairview Avenue)

The water ~~is contam~~ quality is controlled

7000 to 8000 homes are connected corresponding to 13 to 14000 residents.

Very few homes have their own wells.

COMMENTS

~~Note~~ +

BY Dan Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

11046/8-74

Ref 26 22 of 26

RECORD OF TELEPHONE CONVERSATION

DATE 11/22/94

TO Kearny Water department. 201. 955 7406.
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA Peerless Tube

SUBJECT Source of Water

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Carol Mc Donald.

The sole supply of drinking water to Kearny is the North Jersey District Water Supply Commission. Water is taken from the Wanaque Reservoir.

34800 residents are served.

Kearny Water dpt serves also the residents of East Newark Town.

COMMENTS

Surface water intake on the Wanaque Reservoir is more than 2 4 miles NNW of the site.

Daniel Maitre

BY Dan Maitre (NAME) Senior geologist (TITLE) - EC (DEPT. NO.)

CC:

11046/8-74

Ref 26 23 of 26

RECORD OF TELEPHONE CONVERSATION

DATE 11/22/94

TO LYNDHURST Water dpt 201 4385478
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA - PEERLESS Tube

SUBJECT Water Supply

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Mr RUZZO MATTHEW -

The sole supply of drinking water to Lyndhurst is Jersey city waterwork which takes the water from the Boonton reservoir. 20 000 residents are served.

Telephone of Jersey City water work is : 5476503

COMMENTS

Water surface intake at Boonton reservoir is outside the 4 mile radius and is not connected to surface water pathway

Daniel Maitre

BY Daniel Maitre — NAME
Senior Geologist — TITLE
EC — DEPT. NO.

CC:

11046/8-74

RECORD OF TELEPHONE CONVERSATION

DATE 11/14/94

TO IRVINGTON ~~Wat~~ Public work dpt. 201-399 6690
NAME/FILE NO.

FROM Dan Maitre

CLIENT/PROJECT EPA - Peerless Tube

SUBJECT Source of Water.

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH unknown -

The town residents are supplied by
New Jersey American Water Company tel: 201 376 8800.
No town wells -

COMMENTS

BY Dan Maitre
NAME

Senior Geologist
TITLE

EC
DEPT. NO.

CC:

RECORD OF TELEPHONE CONVERSATION

DATE May 26, 95

TO Passaic Valley Water Commission 201-8902486

FROM Daniel Maitre

CLIENT/PROJECT EPA. HRS. Peerless Tube

SUBJECT Source of drinking Water.

DISCUSSION with Mrs Ethel Selst.

Sources of drinking water are the Passaic river with the Intake at Totowa and the Wanaque south system with its intake on the Pompton River at Two Bridges

COMMENTS The two intakes are located more than 6 miles North of the site.

BY Daniel Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

11046/8-74

Ref 26 26 4 no

RECORD OF TELEPHONE CONVERSATION

DATE 11/21/94

TO NJ AMERICAN WATER CO. 201-376 8800
NAME/FILE NO.

FROM Dan MAITRE

CLIENT/PROJECT EPA - PEERLESS TUBE

SUBJECT Water Sources

CHARGE: DEPT. NO. _____ CLIENT SYMBOL _____ OFS NO. _____

DISCUSSION WITH Scott Baatergarteen.

NJ American Water supplies West Orange
In Summer (April to August) with the water (Surface water) supplied by the Passaic ~~Rivr~~ Valley commission - the water came from the treatment plant of Little Fall.
In Winter (September to may) water is supplied for 50% with Short Hills reservoir and 50% from wells surrounding the Reservoir -

COMMENTS

Little fall, short hills reservoir system and the well field of Short hills are located outside the 4 mile area west of the site.

BY Dan Maitre (NAME) Senior Geologist (TITLE) EC (DEPT. NO.)

CC:

REFERENCE 27

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWNSHIP OF BLOOMFIELD, NEW JERSEY
ESSEX COUNTY

PANEL 1 OF 2
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION

COMMUNITY-PANEL NUMBER
340178 0001 B

MAP REVISED:
SEPTEMBER 4, 1987

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

—513— Base Flood Elevation Line; Elevation in Feet*

D——D Cross Section Line

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

RM7X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside special flood hazard areas. The coastal flooding elevations shown may differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Elevation reference marks are described in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of 0.0 NGVD.

Coastal base flood elevations shown on this map include the effects of wave action.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Municipal Building, Municipal Plaza, Bloomfield, New Jersey 07003-3487 (Maps available for reference only, not for distribution).

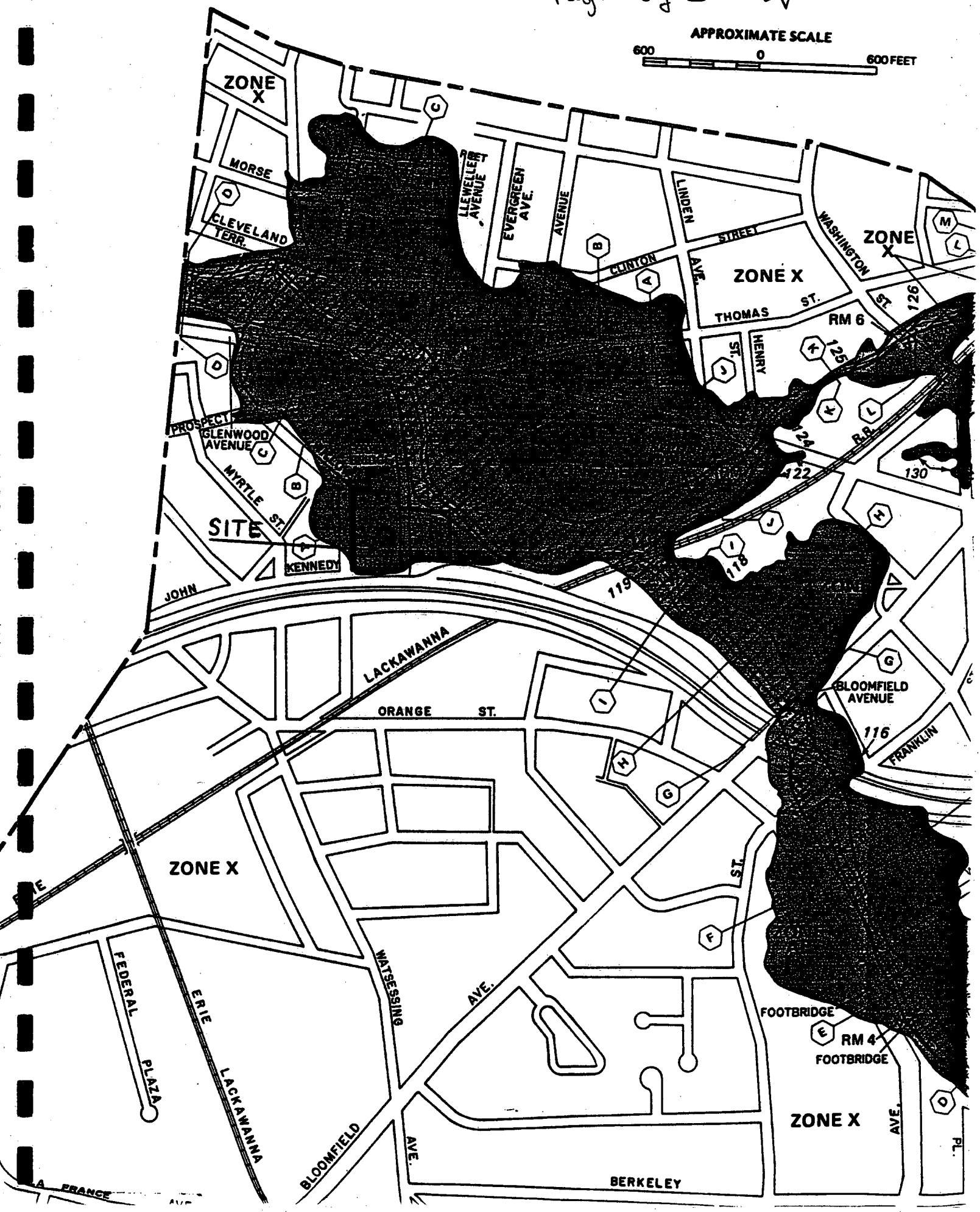
INITIAL IDENTIFICATION:
JUNE 15, 1973

FLOOD HAZARD BOUNDARY MAP REVISIONS:
NONE

FLOOD INSURANCE RATE MAP EFFECTIVE:
AUGUST 15, 1977

FLOOD INSURANCE RATE MAP REVISIONS:
September 4, 1987 - to change base flood elevations, to change special flood hazard areas, to update map format, to change floodway, to delete special flood hazard areas, and to change zone designations.

Reference 27
Page 2 of 2



REFERENCE 28

JPDESNJPDESNJPDESNJPDES PDESNJPDESNJPDESNJPDESNJ ESNJPDESNJPDESNJPDES NJPDES

PERMIT NUMBER NJ0029327

Permittee
PEERLESS TUBE CO INC
58 - 76 LOCUST AVENUE
BLOOMFIELD, NJ 07003

Co-Permittee

Property Owner
PEERLESS TUBE COMPANY
58-76 LOCUST AVENUE
BLOOMFIELD, NJ 07003

Location of Activity
PEERLESS TUBE CO INC
71 LOCUST AVENUE
BLOOMFIELD, NJ 07003

Type of Permit Covered By This Approval	Issuance Date	Effective Date	Expiration Date
CG:General Permit N/C Cooling Wtr	6/15/88	8/01/88	9/30/90

DISCHARGED TO: Wigwam Brook **CLASSIFICATION:** FW2-NT

The permittee is authorized to discharge through outfall(s) 001 as identified in the Administrative Record for this permit.

By Authority of:
George G. McCann, P.E.
Director
Division of Water Resources

Paul C. Kuristo for
DEP AUTHORIZATION
Leroy T. Cattaneo, P.E.
Acting Assistant Director
Wastewater Facilities Management Element

(Terms, conditions and provisions attached hereto)

State of New Jersey Department of Environmental Protection Division of Water

ATTACHMENT S-2

JPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDE

REFERENCE 29

4-MILE RADIUS-WETLAND ACREAGE (AIR PATHWAY) AND 15-MILE SURFACE WATER PATHWAY-WETLAND FRONTAGE

PEERLESS TUBE CO.

SCALE: 1/24,000
NATIONAL WETLAND INVENTORY QUADRANGLES: Caldwell, Elizabeth, Jersey City, Orange, Roselle and Weehawken.

EBASCO SERVICES INCORPORATED

REFERENCE 30

Reference 30
Page 1 of 6

SURFACE WATER INTAKE LOCATIONS
BUREAU OF SAFE DRINKING WATER
With Longitude & Latitudes

Prepared by: Michael Mariano

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
MARCH 1992

PWSID#	PURVEYOR NAME	PHONE NUMBER	INTAKE MUNICIPALITY	INTAKE LOCATION	LONGITUDE	LATITUDE
0102001	ATLANTIC CITY WATER DEPARTMENT	609-345-3315	ABSECON	DOUGHTY POND - South tip Mays Landing Rd. & Hill Rd.	74 31 21.6	39 25 48.75
0238001	HACKENSACK WATER DEPARTMENT	201-767-9300	PARAMUS	SADDLE RIVER - South of intersection of Paramus Rd. & Midland Ave.		
			ORADELL	HACKENSACK RIVER - At Martin Ave.	74 01 36.64	40 56 47.63
			NORTHVALE	SPARK HILL CREEK - Northwest of intersection of Pegasus Ave. & Hill Terr.		
			ORADELL	LONG SWAMP BROOK - At Martin Ave.		
0305001	BURLINGTON CITY WATER DEPARTMENT	609-386-0307	EAST BURLINGTON	DELAWARE RIVER - 1/4 mile north of Assiscunk Creek	74 50 21.82	40 05 19.78
			BURLINGTON ISLAND	BURLINGTON ISLAND LAKE		
0325001	FORT DIX	609-542-5040		RANCOCAS CREEK	74 37 47.18	39 57 36.08
1613001	NJDWSC	201-575-0225	POMPTON LAKES	RAMAPO RIVER - At Pompton Lake (pump to Wanaque Res.)		
			WANAQUE	WANAQUE RESERVOIR - Ringwood Ave & Oricchio Ave	74 17 39.4	41 02 47.67
0717001	CITY OF ORANGE	201-762-6000	SOUTH ORANGE	ORANGE RESERVOIR - On West branch of Rahway River 40 ft upstream from dam	74 17 19.48	40 45 33.65

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
MARCH 1992

PWSID#	PURVEYOR NAME	PHONE NUMBER	INTAKE MUNICIPALITY	INTAKE LOCATION	LONGITUDE	LATITUDE
0712001	NJ AMERICAN NORTHERN DISTRICT	201-376-8800	MILLBURN	PASSAIC RIVER - At Kennedy Parkway	74 21 56.16	40 44 42.88
			SHORT HILLS	CANOE BROOK - North of Route 24	74 21 13.31	40 44 40.77
			CALDWELL	POMPTON RIVER - At Bridges Rd.		
0714001	NEWARK WATER DEPT	201-256-4965		PEQUANNOCK WATER SHED	74 25 27.07	41 01 32.44
0906001	JERSEY CITY WATER DEPARTMENT	201-547-4390	BOONTON	BOONTON RESERVOIR - 200 yds northwest of Washington St Bridge	74 23 51.41	40 53 33.80
			ROCKAWAY	SPLIT ROCK RESERVOIR - Empties into Boonton Res. via Rockaway River		
1017001	LAMBERTVILLE WATER DEPARTMENT	609-397-0526	LAMBERTVILLE	SWAN CREEK RESERVOIR EAST	74 55 28.18	40 21 40.52
			LAMBERTVILLE	SWAN CREEK RESERVOIR WEST	74 55 43.90	40 21 46.63
			LAMBERTVILLE	DELAWARE-RARITAN CANAL - At Swan St. (Emergency)	74 56 46.94	40 21 55.90
1111001	CITY OF TRENTON	609-989-3208	TRENTON	DELAWARE RIVER - At Rt 29 north of Calhoun St. Bridge	74 46 45.57	40 13 19.06
1216001	PERTH AMBOY	908-826-0290	OLD BRIDGE	TENNENTS POND - At Waterworks Rd.	74 20 12.23	40 25 33.99
1225001	MIDDLESEX WATER CO	908-634-1500	EDISON	DELAWARE-RARITAN CANAL & MILLSTONE RIVER - At Rt 18	74 27 34.00	40 30 25.66

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
MARCH 1992

PWSID#	PURVEYOR NAME	PHONE NUMBER	INTAKE MUNICIPALITY	INTAKE LOCATION	LONGITUDE	LATITUDE
1214001	NEW BRUNSWICK WATER DEPARTMENT	908-745-5060	NEW BRUNSWICK	LAWRENCE BROOK - At Burnet St St.	74 24 49.97	40 28 58.48
			NEW BRUNSWICK	DELAWARE-RARITAN CANAL - At George St & College Ave		
1214001	NORTH BRUNSWICK	908-247-0922	FRANKLIN TWP	DELAWARE-RARITAN CANAL - At Suydam Ave.	74 34 59.03	40 27 38.49
1219001	SAYERVILLE	908-390-7000	OLD BRIDGE	SOUTH RIVER - At Main St North of Rt 18	74 21 41.75	40 24 58.99
1352005	NEW JERSEY WATER SUPPLY AUTH.		WALL TWP	MANASQUAN RIVER - Hospital Rd. North of Garden State Parkway (Pump to Manasquan Resevior)	74 11 27.43	40 10 31.82
1345001	NJ AMERICAN - MONMOUTH		WALL TWP	MANASQUAN RIVER - Hospital Rd. North of GSP (Pump to Glendola Reservoir)	74 04 45.13	40 11 42.47
			NEPTUNE TWP	SHARK RIVER - Off Corlies Ave. 2000' North of GSP	74 04 16.51	40 11 53.69
			NEPTUNE TWP	JUMPING BROOK - At Greensgrove & Corlies Aves	74 03 57.82	40 12 11.83
			LINCROFT	SWIMMING RIVER RESERVOIR - 1000' West of Swimming Riv.	74 07 13.35	40 19 06.70
1326004	MATCHAPONIX		MANALAPAN	MATCHAPONIX BROOK - At Wilson Ave.	74 21 50.42	40 18 33.20
1401001	TOWN OF BOONTON	201-299-7740	MONTVILLE	TAYLORTOWN RESERVOIR - At Taylortown Rd.	74 23 00.06	40 57 13.06

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
MARCH 1992

PWSID#	PURVEYOR NAME	PHONE NUMBER	INTAKE MUNICIPALITY	INTAKE LOCATION	LONGITUDE	LATITUDE
1403001	BUTLER WATER DEPT	201-838-7200	BUTLER	KIKEOUT RESERVOIR - At Reservior Rd.	74 21 58.63	40 59 24.13
1424001	SOUTH EAST MORRIS COUNTY	201-538-5600	MENDHAM	CLYDE POTTS RESERVOIR - Cold Hill Rd & Woodland Rd	74 34 51.90	40 48 21.61
1506001	BRICK TWP	908-458-7000		METEDECONK RIVER	74 08 36.45	40 04 28.07
1603001	HALEDON WATER DEPT		HALEDON	HALEDON RESERVOIR - Lower Basin pump station at Belmont Ave.		
1605002	PASSAIC VALLEY WATER COMMISSION	201-256-1566	WAYNE	POMPTON RIVER - At Confluence of Ramapo & Pequannock Rivers		
			TOTOWA	PASSAIC RIVER - At Union Blvd.	74 13 51.49	40 52 58.46
1708300	E.I. DUPONT PENNSVILLE	609-299-5000		SALEM CANAL	75 30 19.63	39 41 08.91
1712001	SALEM WATER DEPT	609-935-0350	CLINTON TWP	LAUREL LAKE - At Waterworks Rd & Lake Ave.	75 24 28.33	39 32 52.62
			ALLOWAY TWP	ELKINTON HILL POND - Waterworks Rd. 3 miles east of Laurel Lake (Seasonal)		
1903001	BRANCHVILLE WATER DEPARTMENT	201-948-6463	FRANKFORD TWP	BRANCHVILLE RESERVOIR - 7300' northeast of Mattison Ave & Mattison School Rd.		
1906002	FRANKLIN WATER DEPT	201-827-7060	FRANKLIN BOROUGH	FRANKLIN POND - Franklin Ave. Across from plant		
1915001	NEWTON WATER DEPT	201-383-3521	SPARTA TWP	MORRIS LAKE	74 34 17.07	41 08 14.40

Reference 5c
Page 6 of 6

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER
MARCH 1992

PWSID#	PURVEYOR NAME	PHONE NUMBER	INTAKE MUNICIPALITY	INTAKE LOCATION	LONGITUDE	LATITUDE
1921001	SUSSEX WATER DEPT	201-967-5622	WANTAGE TWP	COLESVILLE RESERVOIR - At Brink Rd. 400' west of Rt. 23		
2013001	RAHWAY WATER DEPT	201-388-6086	RAHWAY	RAHWAY RIVER - At pump station off Valley Rd & Lambert St.	74 17 26.57	40 37 06.41
2004002	ELIZABETHTOWN WATER COMPANY	201-345-4444	BRIDGEWATER TWP	RARITAN & MILLSTONE RIVERS - At confluence	74 34 01.82	40 32 33.33
2108001	HACKETTSTOWN MUA	201-852-3622	DRAKESTOWN	NINE HILL RESERVOIR - Off Nine Hill Rd.	74 47 41.62	40 51 23.77
			DRAKESTOWN	BURD RESERVOIR - Off Reservoir Rd. Southeast of	74 48 01.64	40 50 27.91

REFERENCE 31

RECORD OF TELEPHONE CONVERSATION

Charge Number:	Date:	Time:
8310 0076 5000	02/14/95	9. am
Name of Contact: Bob Soldwedel	**Organization:** NJ DEP Fish, game, and wildlife	**Telephone Number:** 609-292 8692

Subject: Fisheries In Passaic River, Second River, Newark Bay.

Summary:

No data on Fisheries are established in this Area. Health advisories recommend (and prohibited) ~~the~~ not to eat any fish in the area downstream the Dundee dam in the Passaic river and Newark bay. In spite of those recommendations, people continue to fish in the Second river and the Passaic River.

Some probably eat their catch. No control has been established.

Bass, White Perch and cat fish are fished in Passaic river, Blue fish in Newark bay. Advisories not-to-eat extends to Shells and Blue Crabs — No stocking is performed in the river. More information on type of fish can be obtained by calling Mr. Bob Pupsoi 908 236 2118.

Action Required:

By:	Signature:	Title/ Department:
Dan Maitre.	Daniel Maitre	EC. Senior geologist

REFERENCE 32

Reference 52
Page 1 of 1

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Water Resources Division
Mountain View Office Park
810 Bear Tavern Road, Suite 206
West Trenton, New Jersey 08628

November 22, 1994

Mr. Daniel Maitre
Foster Wheeler Environmental Corp.
PO Box 661
Lindhurst, NJ 07071-0661

Dear Mr. Maitre:

The average streamflow recorded at the Second River at Belleville, NJ gaging station (01392500) from 1938 to 1964 is 18.3 cubic feet per second. This gaging station is currently operated as a crest-stage gage site. Only peak stages are recorded. The annual peak stage and corresponding discharge are published in our annual data report.

The streamflow data collected, since 1964, is limited primarily to periodic high flow measurements only. An updated average flow estimate cannot be computed for the period of 1965 to the present.

If I can be of further assistance, please give me call at (609) 771-3900.

Sincerely,

Robert G. Reiser

Robert G. Reiser
Hydrologist

RGR:nm

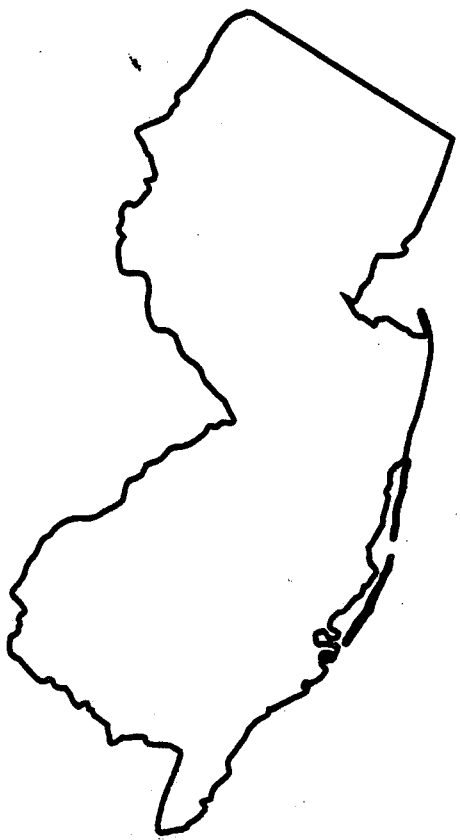
REFERENCE 33

NJ-004

Water Resources Data New Jersey Water Year 1993

Reference 33
Page 1 of 2

Volume 1. Surface-Water Data



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NJ-93-1

Prepared in cooperation with the New Jersey Department of Environmental Protection and Energy and with other agencies

Reference 33
Page 2 of 2

PASSAIC RIVER BASIN

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ--Continued

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1898 - 1993		
ANNUAL TOTAL	298956		395510				
ANNUAL MEAN	817		1084		~~1148~~		
HIGHEST ANNUAL MEAN					2394		1903
LOWEST ANNUAL MEAN					269		1965
HIGHEST DAILY MEAN	6250	Jun 8	8470	Apr 2	28000	Oct 10	1903
LOWEST DAILY MEAN	120	Feb 13	52	Aug 5	.00	Jul 3	1904
ANNUAL SEVEN-DAY MINIMUM	164	Oct 3	66	Jul 31	13	Sep 19	1932
INSTANTANEOUS PEAK FLOW			8700	Apr 1	31700a	Oct 10	1903
INSTANTANEOUS PEAK STAGE			8.48	Apr 1	---		
INSTANTANEOUS LOW FLOW			45	May 28	.00	Jul 3	1904
10 PERCENT EXCEEDS	2000		2600		2780		
50 PERCENT EXCEEDS	538		548		634		
90 PERCENT EXCEEDS	202		96		127		

a Present site.

REFERENCE 34

Reference 34
Page 1 of 26

State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Division of Parks and Forestry
Office of Natural Lands Management
CN 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

Robert C. Shinn, Jr.
Commissioner

November 28, 1994

John D. Rieckhoff
Ebasco Services Incorporated
1290 Wall Street West
Lyndhurst, NJ 07071-0661

Re: Peerless Tube and Associated Waterways
ARCSII-94-076-JR-001

Dear Mr. Rieckhoff:

Thank you for your data request regarding rare species information for the above referenced project site in Essex County.

The Natural Heritage Data Base has a record for an eastern lampmussel occurrence which may have been collected on or within the immediate vicinity of the Peerless Tuber site. The attached list provides additional information about this occurrence.

In addition, there are records for a number of occurrences for rare species which may be on, or in the immediate vicinity of the waterways that you have associated with this site. The attached list provides additional information about these occurrences. Also attached is a list of rare species from records in the general vicinity of the project site (within approximately 4 miles).

Also attached are lists of rare species and natural communities which have been documented from Bergen, Essex, Hudson, Passaic and Union Counties. If suitable habitat is present at the project site, these species have potential to be present. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend you contact the Division of Fish, Game and Wildlife, Endangered and Nongame Species Program.

In order to red flag the general locations of documented occurrences of rare and endangered species and natural communities, we have prepared computer

generated Natural Heritage Index Maps. Enclosed please find these maps for the Elizabeth, Hackensack, Jersey City, Orange, Paterson, and Weehawken USGS quadrangles.

PLEASE SEE THE ATTACHED 'CAUTIONS AND RESTRICTIONS ON NHP DATA'.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Rick Dutko

Rick Dutko
Senior Nongame Zoologist
Natural Heritage Program

cc: Lawrence Niles
Thomas Hampton
NHP File No. 94-4007472

NATURAL LANDS MANAGEMENT

CAUTIONS AND RESTRICTIONS ON NATURAL HERITAGE DATA

The quantity and quality of data collected by the Natural Heritage Program is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some natural areas in New Jersey have never been thoroughly surveyed. As a result, new locations for plant and animal species are continuously added to the data base. Since data acquisition is a dynamic, ongoing process, the Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of New Jersey. Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The attached data is provided as one source of information to assist others in the preservation of natural diversity.

This office cannot provide a letter of interpretation or a statement addressing the classification of wetlands as defined by the Freshwater Wetlands Act. Requests for such determination should be sent to the DEPE Land Use Regulation Program, CN 401, Trenton, NJ 08625-0401.

This cautions and restrictions notice must be included whenever information provided by the Natural Heritage Database is published.

28 NOV 1994

ON OR IN THE IMMEDIATE VICINITY OF PROJECT SITE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.	LOCATION
*** Invertebrates									
LAMPSILIS RADIATA	EASTERN LAMPMUSSEL				G5	S3	????-??-??	Y	FIRST AND SECOND RIVER, BLOOMFIELD.

1 Records Processed

28 NOV 1994

ON OR IN THE IMMEDIATE VICINITY OF ASSOCIATED WATERWAYS
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
FALCO PEREGRINUS	PEREGRINE FALCON	E/SA	E		G3	S1	1994-05-??	Y
PODILYMBUS PODICEPS	PIED-BILLED GREBE		E/S		G5	S1	1986-??-??	Y
STERNA ANTILLARUM	LEAST TERN		E		G4	S2	1977-??-??	Y
*** Invertebrates								
ALASMIDONTA UNDULATA	TRIANGLE FLOATER				G4	S3	????-??-??	Y
LASMIGONA SUBVIRIDIS	GREEN FLOATER	C2			G3	SH	????-??-??	Y
*** Vascular plants								
LEMNA PERPUSILLA	MINUTE DUCKWEED				G5	S1	????-??-??	Y

6 Records Processed

Page 5 of 26

28 NOV 1994

GENERAL VICINITY OF PROJECT SITE
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK	DATE OBSERVED	IDENT.
*** Vertebrates								
CLEMMYS INSCULPTA	WOOD TURTLE		T		G4	S3	1983-05-??	Y
FALCO PEREGRINUS	PEREGRINE FALCON	E/SA	E		G3	S1	1994-05-??	Y
PASSERCULUS SANDWICHENSIS	SAVANNAH SPARROW		T/T		G5	S2	1980-??-??	
*** Invertebrates								
LASMIGONA SUBVIRIDIS	GREEN FLOATER	C2			G3	SH	????-??-??	Y
*** Vascular plants								
ALISMA TRIVIALE	LARGE WATER-PLANTAIN		E		G5T5	S1	1903-08-02	Y
CALYSTEGIA SPITHAMAEA	ERECT BINDWEED		E		G4G5	S1	1907-06-22	Y
LEMNA PERPUSILLA	MINUTE DUCKWEED				G5	S1	????-??-??	Y
PHLOX PILOSA	DOWNY PHLOX		E		G5	SH	1903-05-30	Y
SALIX LUCIDA	SHINING WILLOW				G5	S2	1879-05-??	Y

9 Records Processed

Reference 34
Page 6 of 26

NATURAL LANDS MANAGEMENT

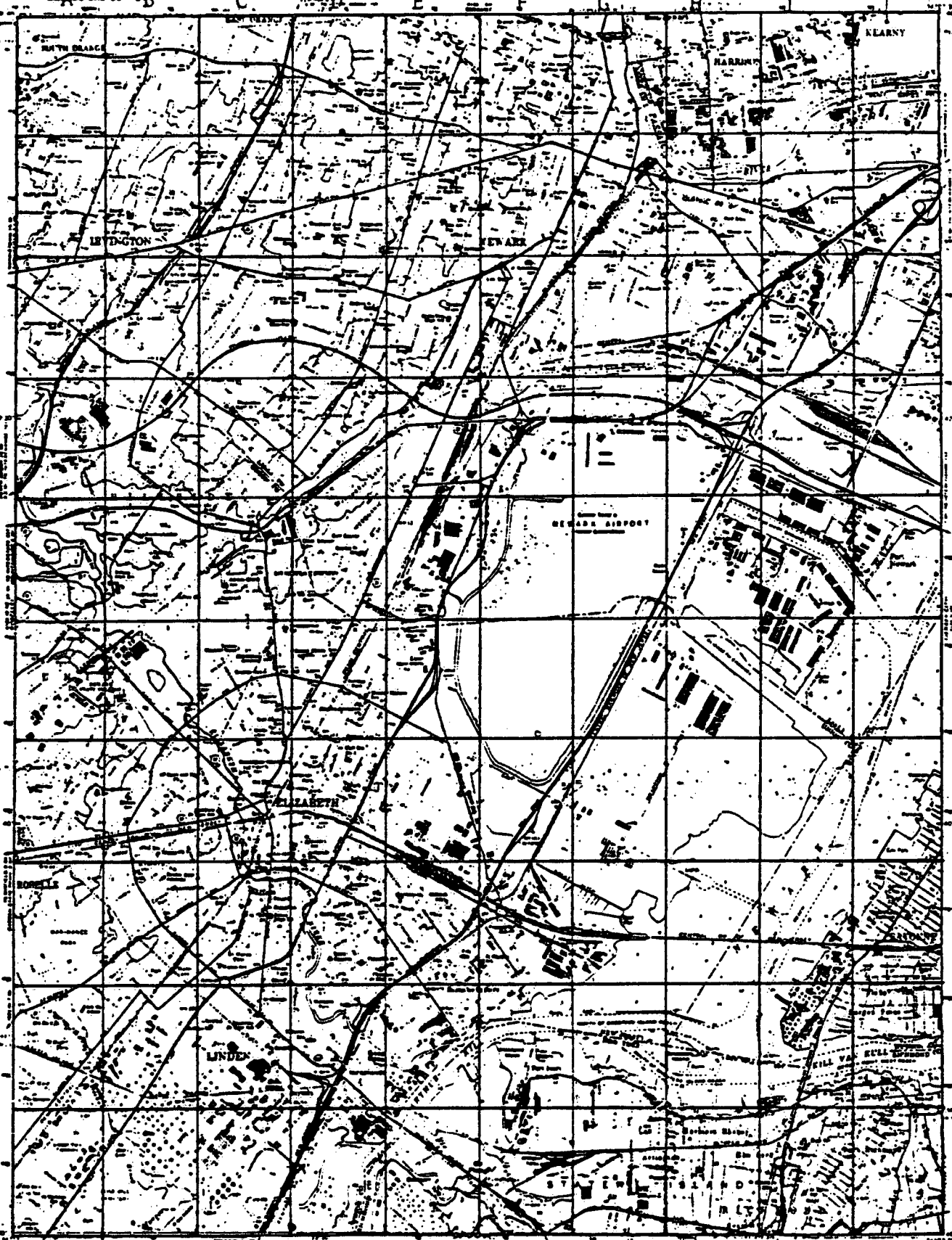
NATURAL HERITAGE INDEX MAPS

The Natural Heritage Database contains several thousand records of individual occurrences of endangered and threatened species and ecosystems. Many of these occurrences either have not been documented in recent years or have not had habitat boundaries delineated. Because much work remains to be done to delineate habitat boundaries and determine current status for these occurrences, Natural Heritage Index Maps were devised to red flag general areas in which the occurrences are located. The index maps are meant to be used as a tool to point to areas which may be of significance for endangered biological diversity. These maps do not depict all endangered species habitat in the state, but merely general areas which contain documented occurrences. Many additional areas may contain unidentified or poorly documented occurrences.

The maps have been produced using a computer generated grid which shades a grid cell approximately 330 acres in size if an endangered or threatened species or ecosystem has been documented anywhere within the cell. To use these maps, we suggest that you first find the location to be checked on the quad maps and then refer to the same grid location of the Natural Heritage Index Maps. The Natural Heritage Program can be contacted for additional information as specific projects are planned.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ELIZABETH QUADRANGLE
NEW JERSEY-NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHIC)



ELIZABETH, N.J.-N.Y.

Generalized Natural Heritage Index Map

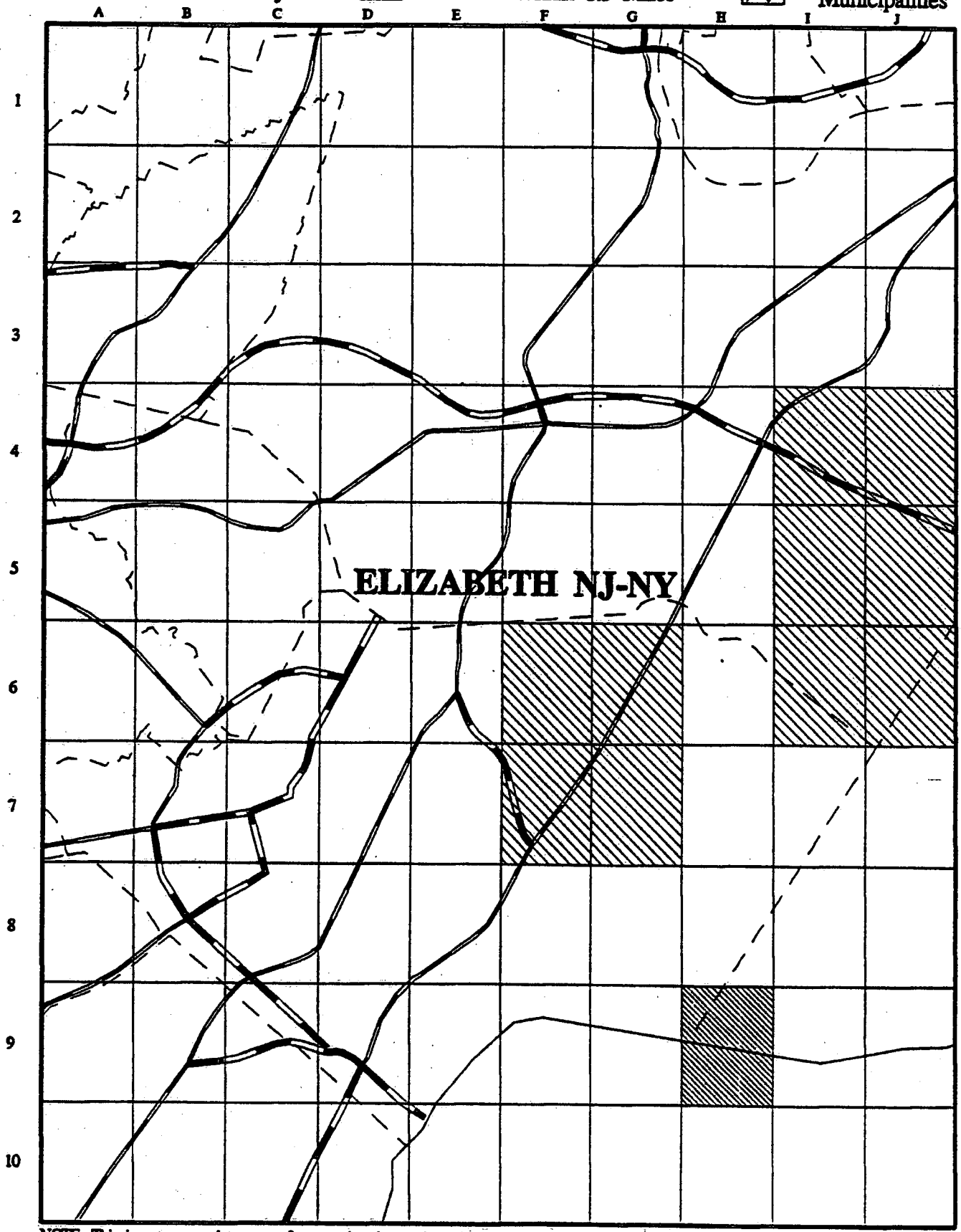
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

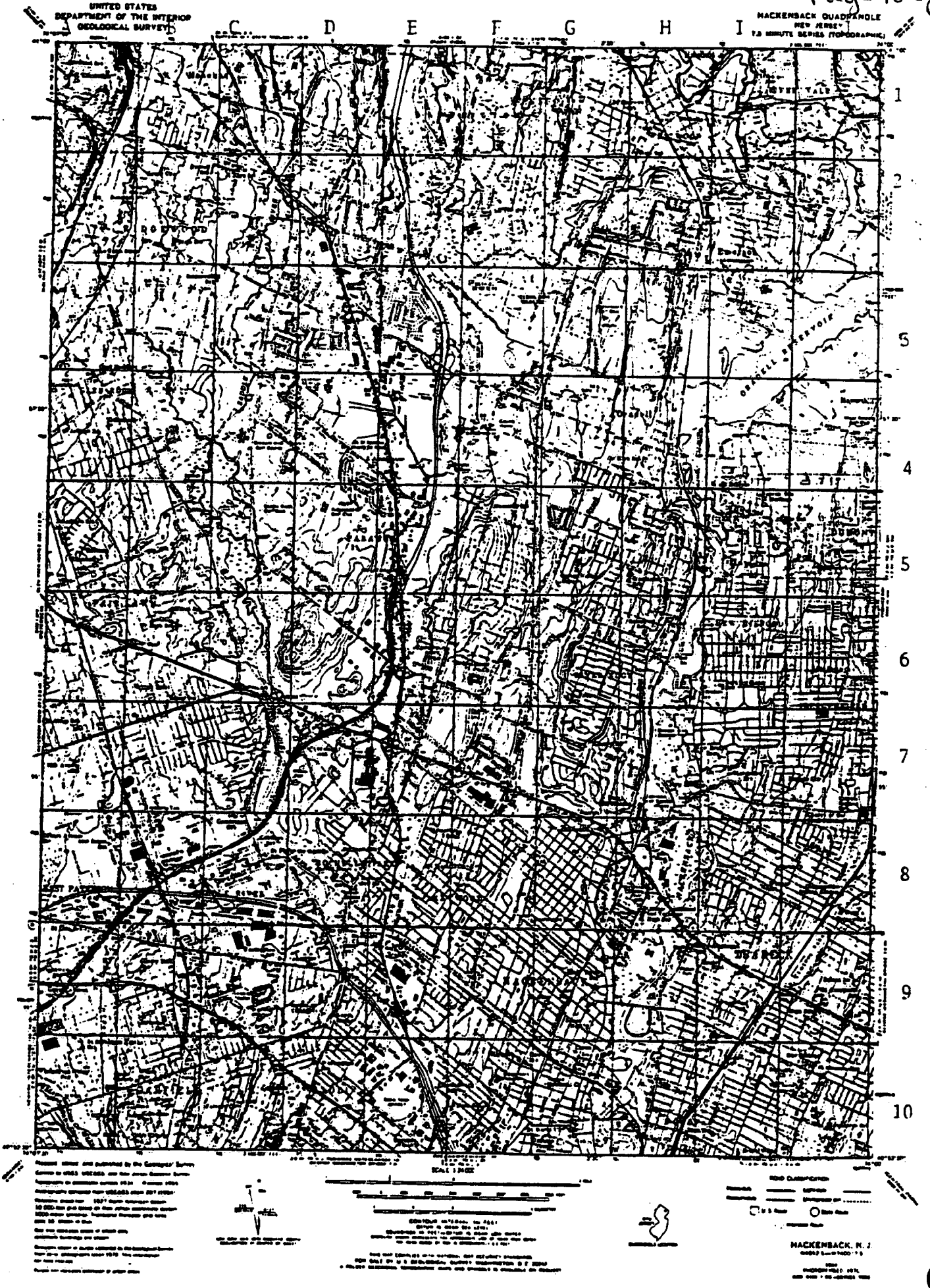
Major Roads

Municipalities



NOTE: This is not a complete map of rare and endangered species habitat for this area. It reflects data on known occurrences compiled as of the above date. It includes both historically and recently documented habitat. Additional occurrences may be found on unsurveyed habitat. For more information, contact the Office of Natural Lands Management, CN404, Trenton, NJ 08625.

APRIL 1994
Updated semiannually


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
HACKENSACK QUADRANGLE
NEW JERSEY
7.5 MINUTE SERIES (TOPOGRAPHIC)
B
C
D
E
F
G
H
I
1
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3
4
5
6
7
8
9
10
ORADELL RESERVOIR
HACKENSACK, N. J.

Reference 34
page 11 of 26

Generalized Natural Heritage Index Map

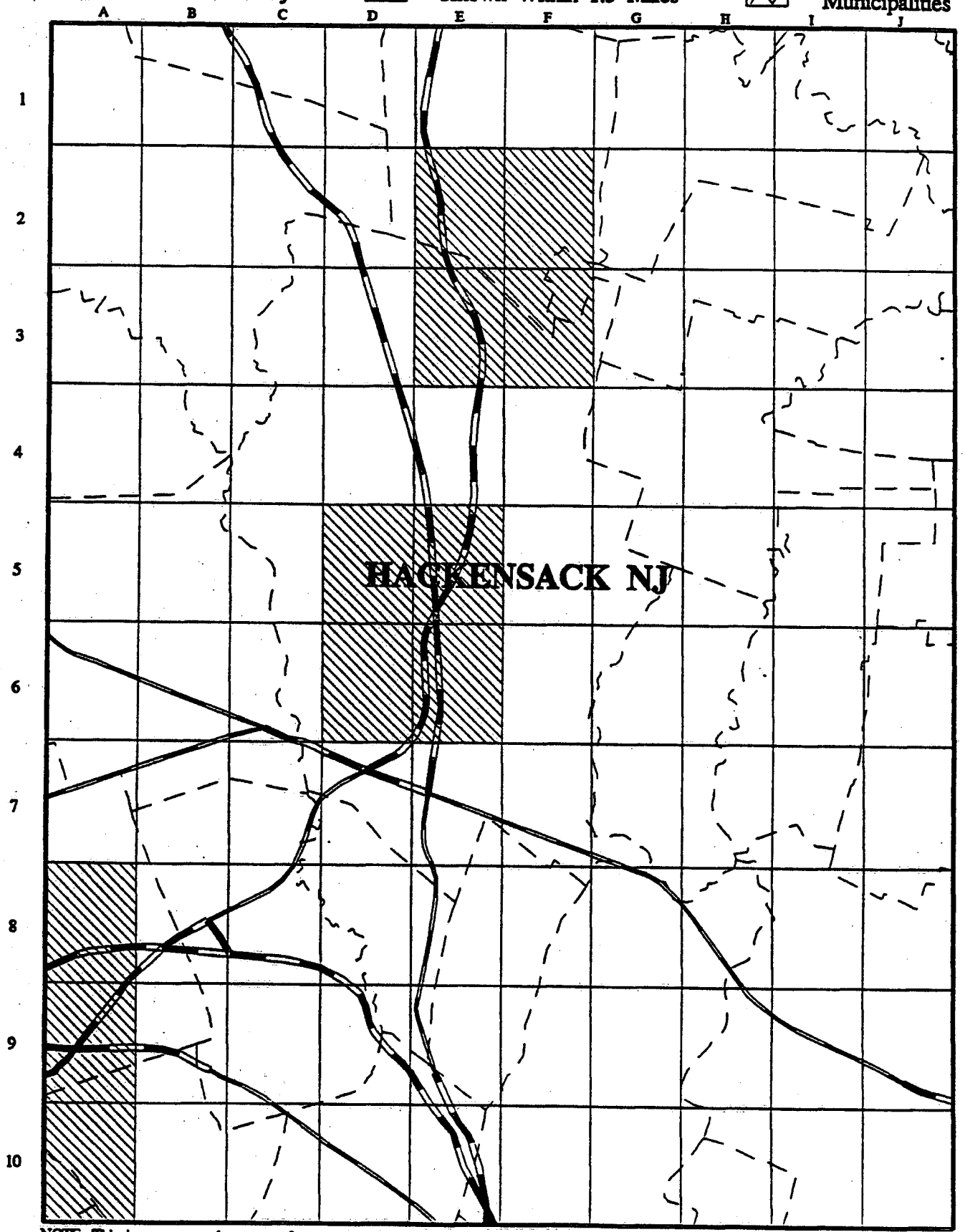
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

Municipalities



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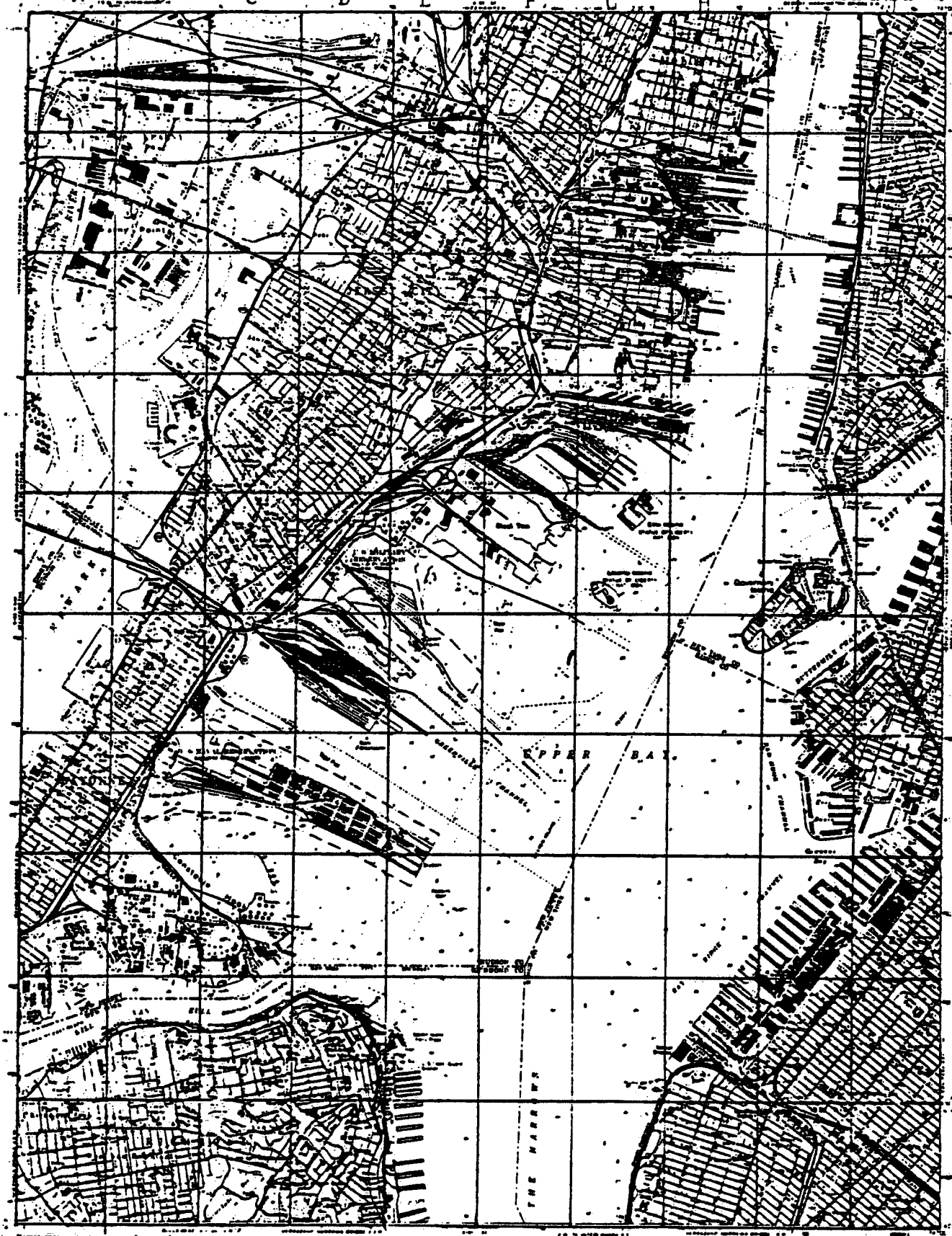
APRIL 1994
Updated semiannually

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

JERSEY CITY QUADRANGLE
NEW JERSEY - NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHIC)



JERSEY CITY, N.J.-N.Y.

Reference 54
page 13 of 36

Generalized Natural Heritage Index Map

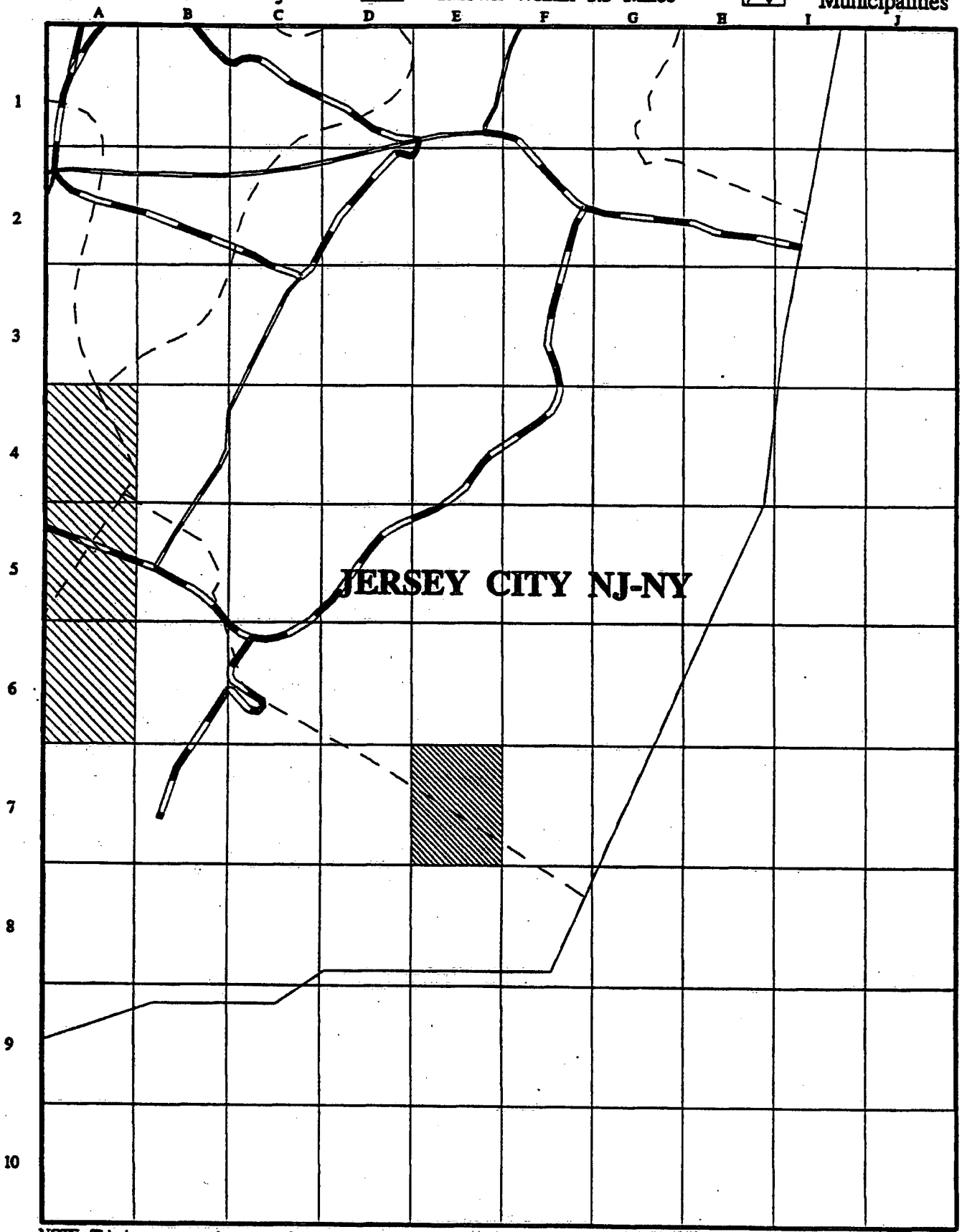
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

Municipalities



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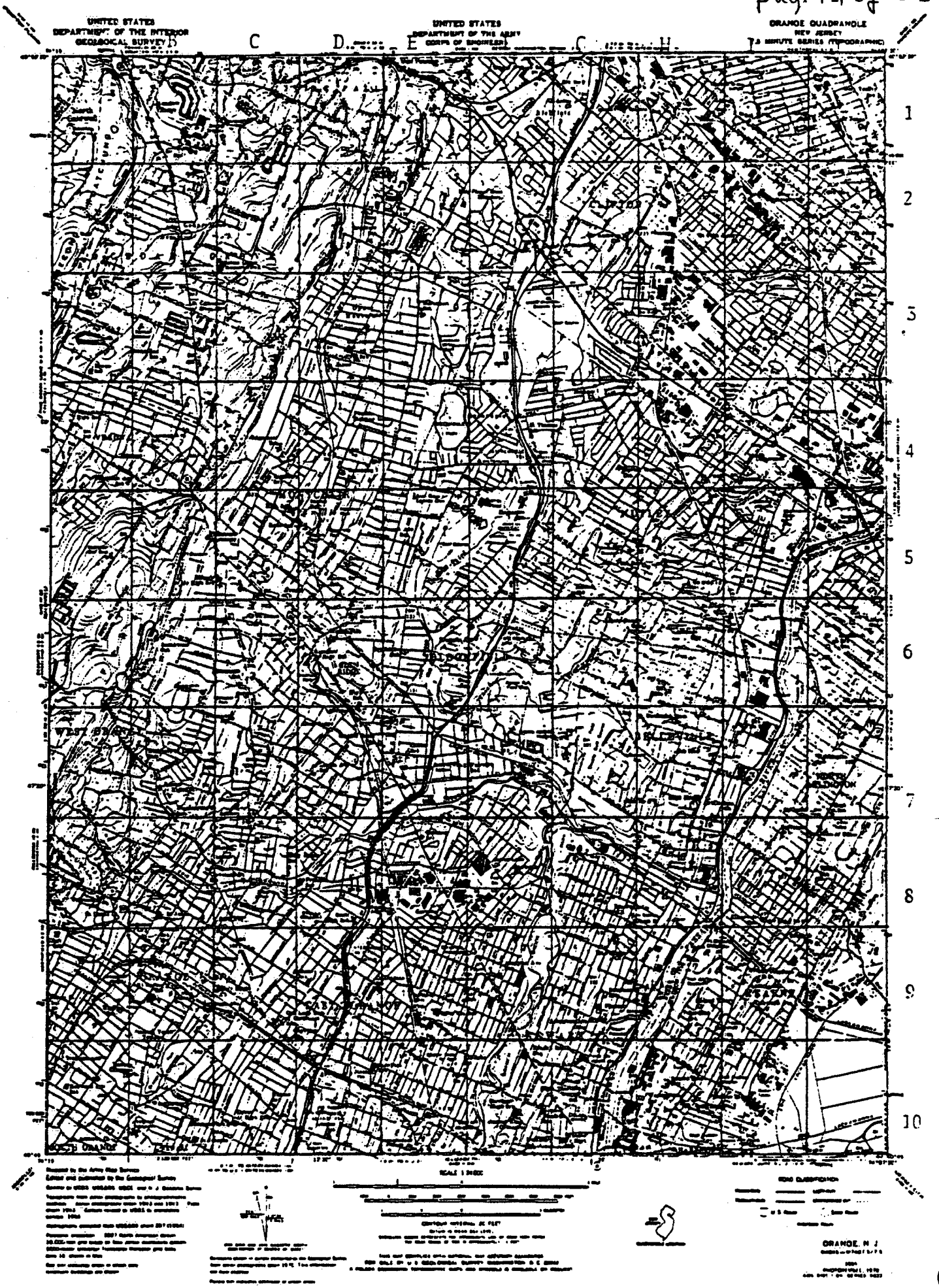
APRIL 1994
Updated semiannually


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
ORANGE QUADRANGLE
NEW JERSEY
7.5 MINUTE SERIES (TOPOGRAPHIC)
B
C
D
E
C
H
1
2
3
4
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6
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8
9
10
WEST ORANGE
SOUTH ORANGE
ORANGE, N. J.

Reference 34
page 15 of 26

Generalized Natural Heritage Index Map

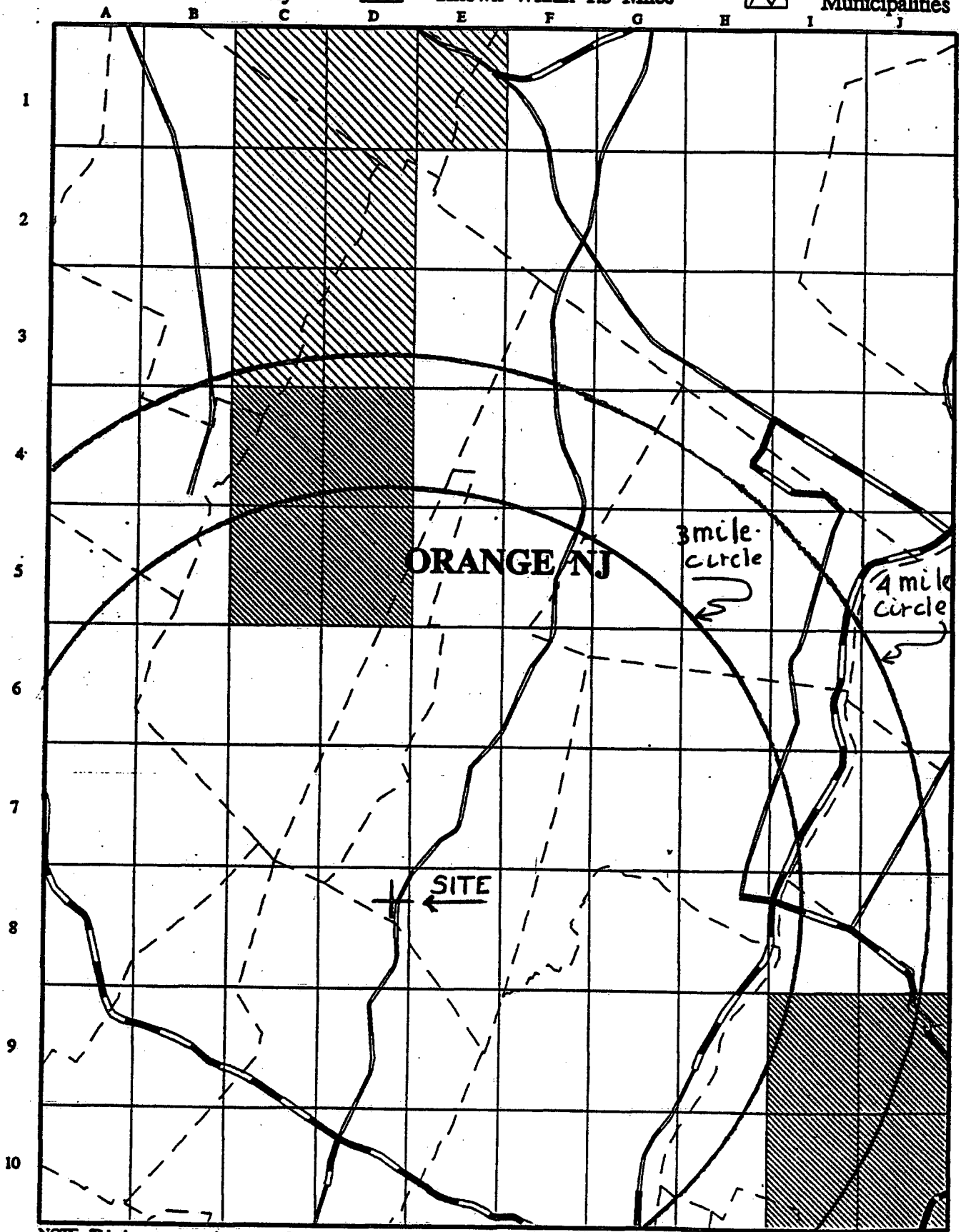
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

Municipalities



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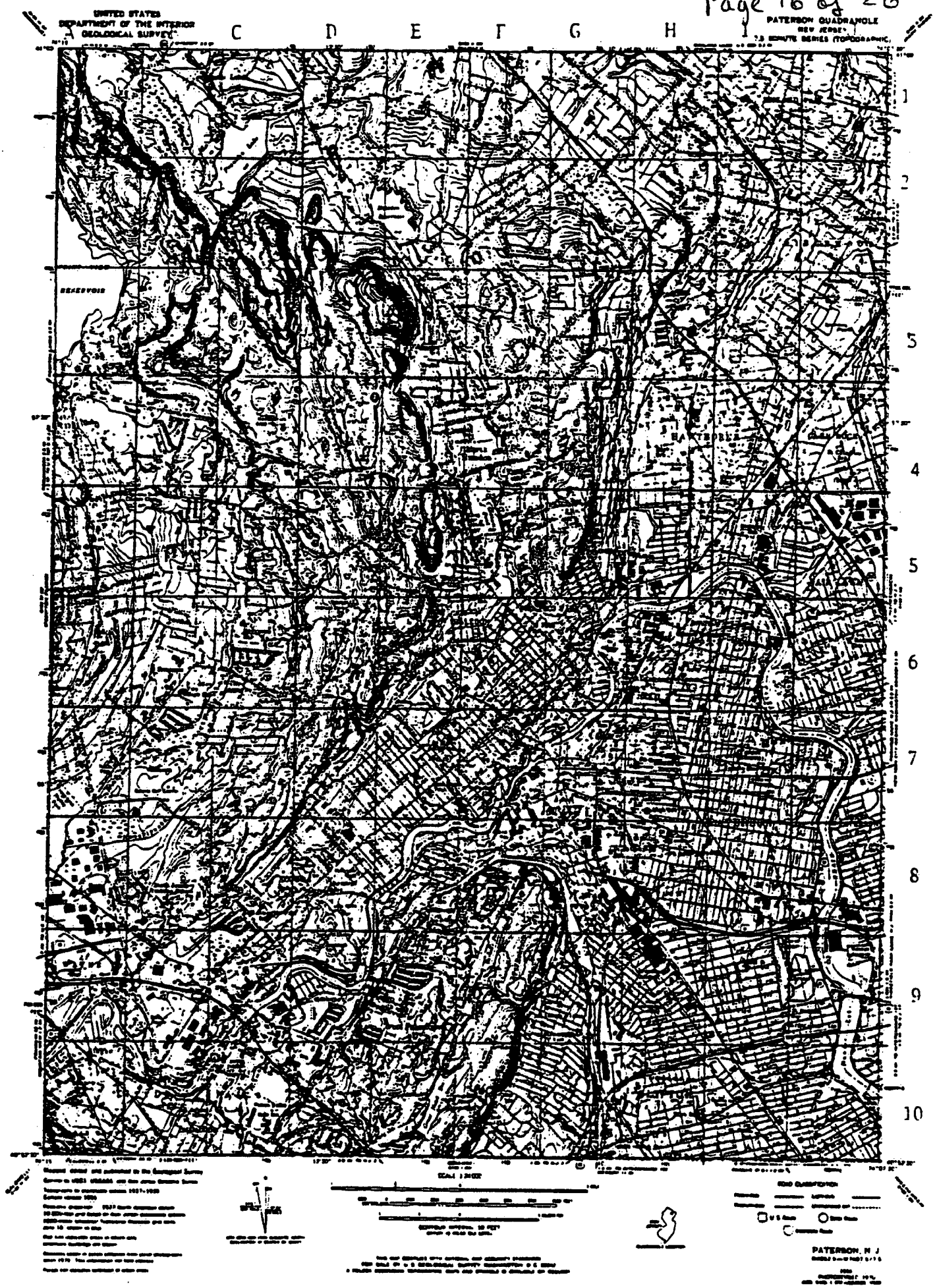
APRIL 1994
Updated semiannually

Reference 34
Page 16 of 26



reference 34
page 17 of 26

Generalized Natural Heritage Index Map

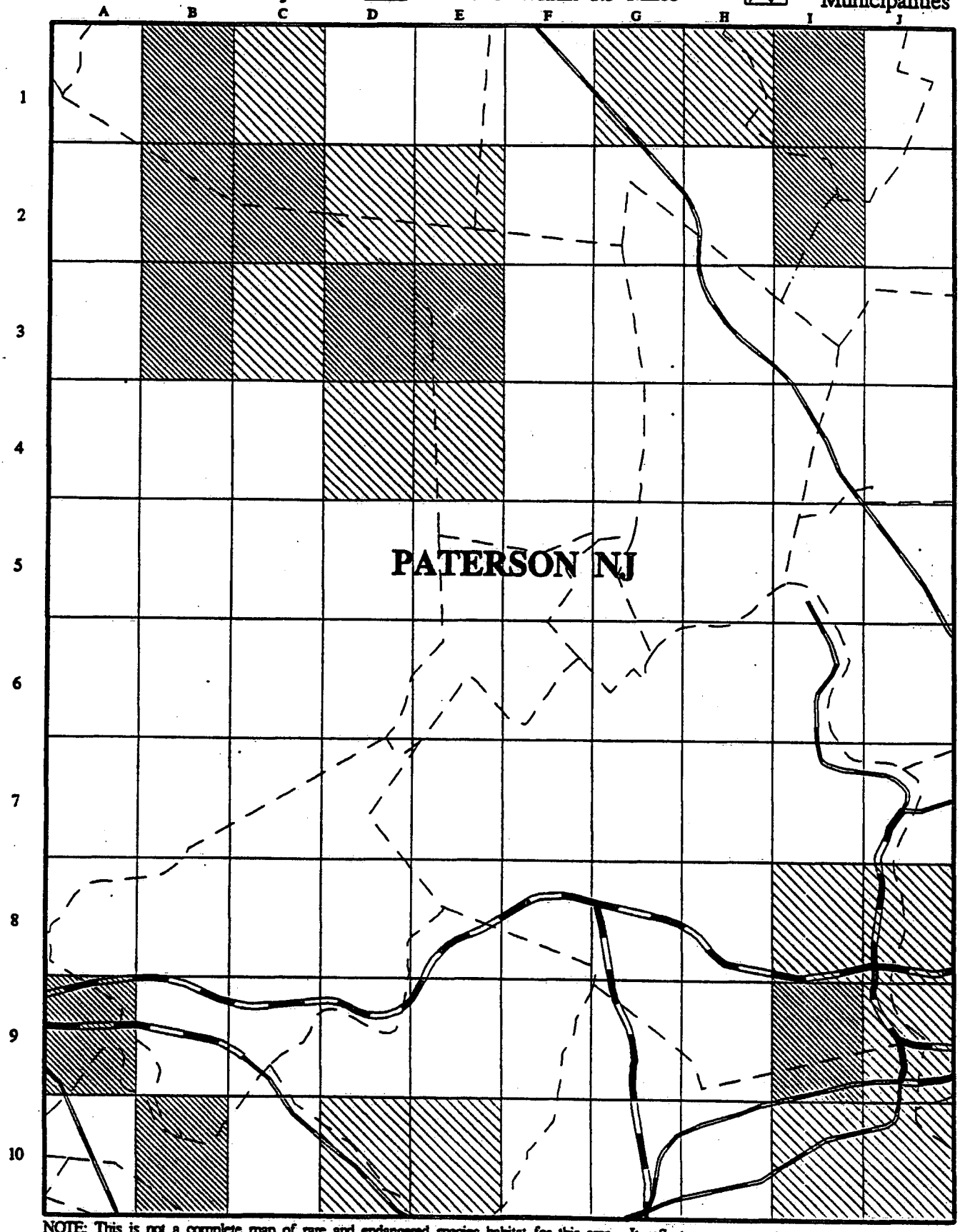
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

Municipalities



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APRIL 1994
Updated semiannually

Reference 24
Page 18 of 36

Reference 54
Page 14 of 26

Generalized Natural Heritage Index Map

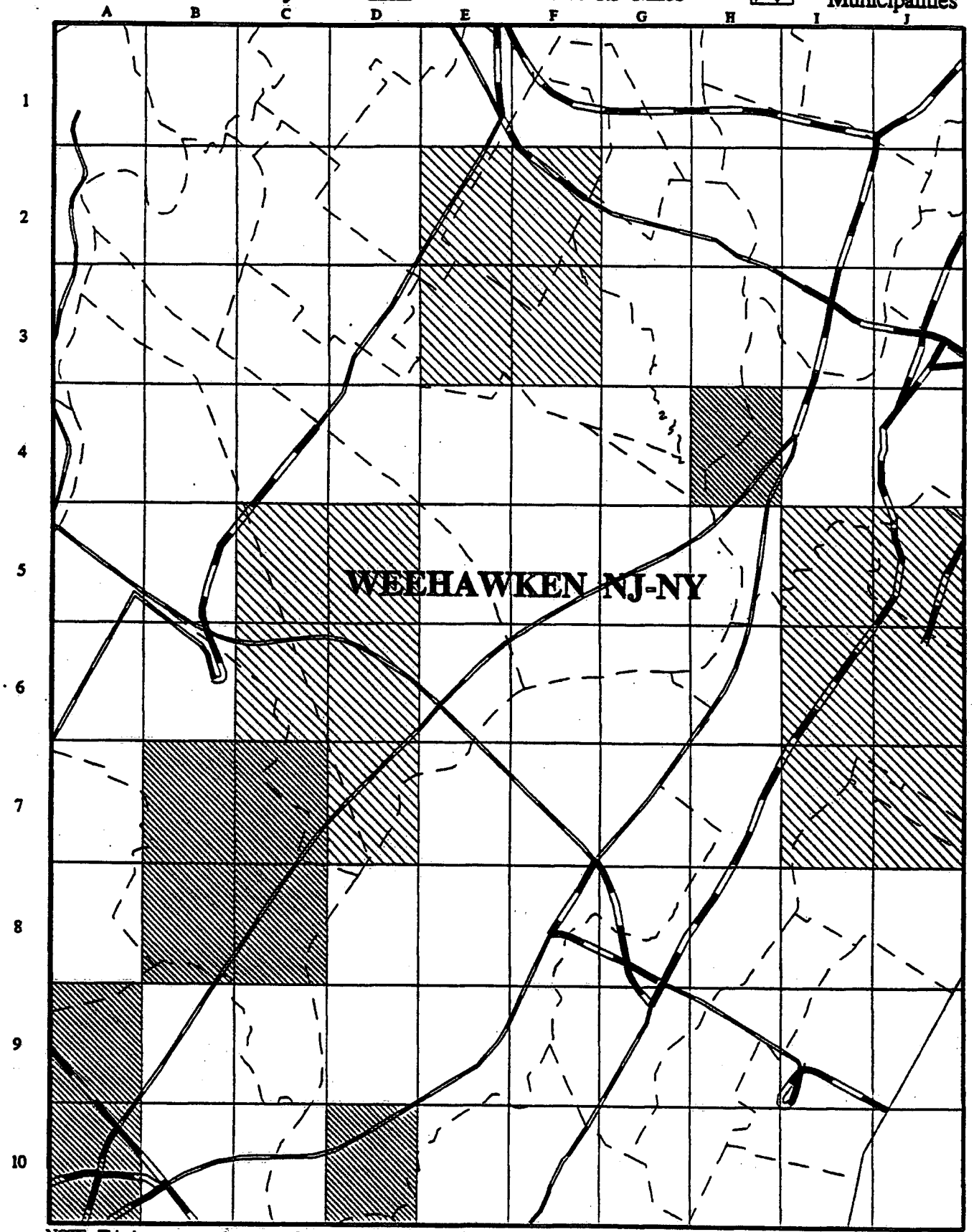
Generalized Locations for Rare and Endangered Elements of Natural Diversity

Documented Location Known Precisely

Documented Location Known Within 1.5 Miles

Major Roads

Municipalities



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APRIL 1994
Updated semiannually

EXPLANATIONS OF CODES USED IN NATURAL HERITAGE REPORTS

FEDERAL STATUS CODES

The following U.S. Fish and Wildlife Service categories and their definitions of endangered and threatened plants and animals have been modified from the U.S. Fish and Wildlife Service (F.R. Vol. 50 No. 188; Vol. 55, No. 35; F.R. 50 CFR 17.11 and 17.12). Federal Status codes reported for species follow the most recent listing.

LE Taxa formally listed as endangered.

LT Taxa formally listed as threatened.

PE Taxa already proposed to be formally listed as endangered.

PT Taxa already proposed to be formally listed as threatened.

C1 Taxa for which the Service currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species.

C1* Taxa which may be possibly extinct (although persuasive documentation of extinction has not been made--compare to 3A status).

C2 Taxa for which information now in possession of the Service indicates that proposing to list them as endangered or threatened species is possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules.

C3 Taxa that are no longer being considered for listing as threatened or endangered species. Such taxa are further coded to indicate three subcategories, depending on the reason(s) for removal from consideration.

3A Taxa for which the Service has persuasive evidence of extinction.

3B Names that, on the basis of current taxonomic understanding, do not represent taxa meeting the Act's definition of "species".

3C Taxa that have proven to be more abundant or widespread than was previously believed

and/or those that are not subject to any identifiable threat.

S/A Similarity of appearance species.

STATE STATUS CODES

Two animal lists provide state status codes after the Endangered and Nongame Species Conservation Act of 1973 (NSSA 23:2A-13 et. seq.): the list of endangered species (N.J.A.C. 7:25-4.13) and the list defining status of indigenous, nongame wildlife species of New Jersey (N.J.A.C. 7:25-4.17(a)). The status of animal species is determined by the Nongame and Endangered Species Program (ENSP). The state status codes and definitions provided reflect the most recent lists that were revised in the New Jersey Register, Monday, June 3, 1991.

D Declining species-a species which has exhibited a continued decline in population numbers over the years.

E Endangered species-an endangered species is one whose prospects for survival within the state are in immediate danger due to one or many factors - a loss of habitat, over exploitation, predation, competition, disease. An endangered species requires immediate assistance or extinction will probably follow.

EX Extirpated species-a species that formerly occurred in New Jersey, but is not now known to exist within the state.

I Introduced species-a species not native to New Jersey that could not have established itself here without the assistance of man.

INC Increasing species-a species whose population has exhibited a significant increase, beyond the normal range of its life cycle, over a long term period.

T Threatened species-a species that may become endangered if conditions surrounding the species begin to or continue to deteriorate.

P Peripheral species-a species whose occurrence in New Jersey is at the extreme edge of its present natural range.

S Stable species-a species whose population is not undergoing any long-term increase/decrease within its natural cycle.

U Undetermined species-a species about which there is not enough information available to determine the status.

Status for animals separated by a slash(/) indicate a duel status. First status refers to the state breeding population, and the second status refers to the migratory or winter population.

Plant taxa listed as endangered are from New Jersey's official Endangered Plant Species List N.J.S.A. 131B-15.151 et seq.

E Native New Jersey plant species whose survival in the State or nation is in jeopardy.

REGIONAL STATUS CODES FOR PLANTS

LP Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction. Not all species currently tracked by the Pinelands Commission are tracked by the Natural Heritage Program. A complete list of endangered and threatened Pineland species is included in the New Jersey Pinelands Comprehensive Management Plan.

EXPLANATION OF GLOBAL AND STATE ELEMENT RANKS

The Nature Conservancy has developed a ranking system for use in identifying elements (rare species and natural communities) of natural diversity most endangered with extinction. Each element is ranked according to its global, national, and state (or subnational in other countries) rarity. These ranks are used to prioritize conservation work so that the most endangered elements receive attention first. Definitions for element ranks are after The Nature Conservancy (1982: Chapter 4, 4.1-1 through 4.4.1.3-3).

GLOBAL ELEMENT RANKS

G1 Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state; a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout it's range; with the number of occurrences in the range of 21 to 100.

G4 Apparently secure globally; although it may be quite rare in parts of its range, especially at the periphery.

G5 Demonstrably secure globally; although it may be quite rare in parts of its range, especially at the periphery.

GH Of historical occurrence throughout its range i.e., formerly part of the established biota, with the expectation that it may be rediscovered.

GU Possibly in peril range-wide but status uncertain; more information needed.

GX Believed to be extinct throughout range (e.g., passenger pigeon) with virtually no likelihood that it will be rediscovered.

G? Species has not yet been ranked.

STATE ELEMENT RANKS

S1 Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres). Elements so ranked are often restricted to very specialized conditions or habitats and/or restricted to an extremely small geographical

area of the state. Also included are elements which were formerly more abundant, but because of habitat destruction or some other critical factor of its biology, they have been demonstrably reduced in abundance. In essence, these are elements for which, even with intensive searching, sizable additional occurrences are unlikely to be discovered.

S2 Imperiled in New Jersey because of rarity (6 to 20 occurrences). Historically many of these elements may have been more frequent but are now known from very few extant occurrences, primarily because of habitat destruction. Diligent searching may yield additional occurrences.

S3 Rare in state with 21 to 100 occurrences (plant species in this category have only 21 to 50 occurrences). Includes elements which are widely distributed in the state but with small populations/acreage or elements with restricted distribution, but locally abundant. Not yet imperiled in state but may soon be if current trends continue. Searching often yields additional occurrences.

S4 Apparently secure in state, with many occurrences.

S5 Demonstrably secure in state and essentially ineradicable under present conditions.

SA Accidental in state, including species (usually birds or butterflies) recorded once or twice or only at very great intervals, hundreds or even thousands of miles outside their usual range; a few of these species may even have bred on the one or two occasions they were recorded; examples include european strays or western birds on the East Coast and visa-versa.

SE Elements that are clearly exotic in New Jersey including those taxa not native to North America (introduced taxa) or taxa deliberately or accidentally introduced into the State from other parts of North America (adventive taxa). Taxa ranked SE are not a conservation priority (viable introduced occurrences of G1 or G2 elements may be exceptions).

SH Elements of historical occurrence in New Jersey. Despite some searching of historical occurrences and/or potential habitat, no extant occurrences are known. Since not all of the historical occurrences have been field surveyed, and unsearched potential habitat remains, historically ranked taxa are considered possibly extant, and remain a conservation priority for continued field work.

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Page 25 of 26

SN Regularly occurring, usually migratory and typically nonbreeding species for which no significant or effective habitat conservation measures can be taken in the state; this category includes migratory birds, bats, sea turtles, and cetaceans which do not breed in the state but pass through twice a year or may remain in the winter (or, in a few cases, the summer); included also are certain lepidoptera which regularly migrate to a state where they reproduce, but then completely die out every year with no return migration. Species in this category are so widely and unreliably distributed during migration or in winter that no small set of sites could be set aside with the hope of significantly furthering their conservation. Other nonbreeding, high globally-ranked species (such as the bald eagle, whooping crane or some seal species) which regularly spend some portion of the year at definite localities (and therefore have a valid conservation need in the state) are not ranked SN but rather S1, S2, etc.

SR Elements reported from New Jersey, but without persuasive documentation which would provide a basis for either accepting or rejecting the report. In some instances documentation may exist, but as of yet, its source or location has not been determined.

SRF Elements erroneously reported from New Jersey, but this error persists in the literature.

SU Elements believed to be in peril but the degree of rarity uncertain. Also included are rare taxa of uncertain taxonomical standing. More information is needed to resolve rank.

SX Elements that have been determined or are presumed to be extirpated from New Jersey. All historical occurrences have been searched and a reasonable search of potential habitat has been completed. Extirpated taxa are not a current conservation priority.

SXC Elements presumed extirpated from New Jersey, but native populations collected from the wild exist in cultivation.

T Element ranks containing a "T" indicate that the infraspecific taxon is being ranked differently than the full species. For example *Stachys palustris* var. *homotricha* is ranked "G5T? SH" meaning the full species is globally secure but the global rarity of the var. *homotricha* has not been determined; in New Jersey the variety is ranked historic.

Q Elements containing a "Q" in the global portion of its rank indicates that the taxon is of questionable, or uncertain taxonomical standing, e.g., some authors regard it as a full species, while others treat it at the subspecific level.

Reference S4
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.1 Elements documented from a single location.

Note: To express uncertainty, the most likely rank is assigned and a question mark added (e.g., G2?). A range is indicated by combining two ranks (e.g., G1G2, S1S3).

IDENTIFICATION CODES

These codes refer to whether the identification of the species or community has been checked by a reliable individual and is indicative of significant habitat.

Y	Identification has been verified and is indicative of significant habitat.
BLANK	Identification has not been verified but there is no reason to believe it is not indicative of significant habitat.
?	Either it has not been determined if the record is indicative of significant habitat or the identification of the species or community may be confusing or disputed.

REFERENCE 35

RECORD OF TELEPHONE CONVERSATION

Charge Number:	Date:	Time:
8310 0076 0000 40029	5/8/95	15:00
Name of Contact:	**Organization:**	**Telephone Number:**
Lerry Lomagna	NJDEP Bureau of Water Planning + Policy	(609) 633-1179

Subject: Wellhead Protection → for New Jersey

Summary: Ms. Lomagna informed me that there is no designated wellhead protection because the rules are not final. The first draft may be submitted around the end of July

Action Required: call back in the fall for publication.

By:	Signature:	Title/ Department:
Christine Kovari	Christine Kovari	asst geologist / EC

REFERENCE No 36

REFERENCE No 36

Surface Water Quality Standards

N.J.A.C. 7:9B

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY

Office of Land and Water Planning

April 1994

STATE OF NEW JERSEY
Christine Todd Whitman, Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
Robert Shinn, Commissioner

ENVIRONMENTAL REGULATION
John Weingart, Assistant Commissioner

SURFACE WATER QUALITY STANDARDS

Authority
N.J.S.A. 13:1D-1 et seq., 58:10A-1 et seq.,and 58:11A-1 et seq.

Source and Effective Date
R.1993 d.610, effective December 6, 1993.
See:24 N.J.R.3983(a), 24 N.J.R. 4471(a), 25 N.J.R. 404(a), 25 N.J.R. 405(a), 25 N.J.R. 3755(a), 25 N.J.R. 5569(a), 26 N.J.R. 1124(a), 26 N.J.R. 1226(a)

Executive Order No. 66(1978) Expiration Date
Chapter 9B, Surface Water Quality Standards, expires on January 18, 1996

A copy of this document can be obtained by calling 609-633-1179
or by sending a written request to:

Steven P. Lubow
CN-423
Office of Land and Water Planning
Department of Environmental Protection and Energy
Trenton, NJ 08625

(f) A reclassification for more restrictive uses may be made when:

1. It is demonstrated to the satisfaction of the Department that the waters should be set aside to represent the natural aquatic environment and its associated biota; or

2. It is demonstrated to the satisfaction of the Department that a more restrictive use is necessary to protect a unique ecological system or threatened/endangered species.

(g) In those cases in which a thermal discharge is involved, the procedures for reclassifying segments for more restrictive uses shall be consistent with section 316 of the Federal Clean Water Act.

7:9B-1.12 Designated uses of FW1, PL, FW2, SE1, SE2, SE3, and SC waters

(a) In all FW1 waters the designated uses are:

1. Set aside for posterity to represent the natural aquatic environment and its associated biota;

2. Primary and secondary contact recreation;

3. Maintenance, migration and propagation of the natural and established aquatic biota; and

4. Any other reasonable uses.

(b) In all PL waters the designated uses are:

1. Cranberry bog water supply and other agricultural uses;

2. Maintenance, migration and propagation of the natural and established biota indigenous to this unique ecological system;

3. Public potable water supply after such treatment as required by law or regulations;

4. Primary and secondary contact recreation; and

5. Any other reasonable uses.

(c) In all FW2 waters the designated uses are:

1. Maintenance, migration and propagation of the natural and established biota;

2. Primary and secondary contact recreation;

3. Industrial and agricultural water supply;

4. Public potable water supply after such treatment as required by law or regulation; and

5. Any other reasonable uses.

(d) In all SE1 waters the designated uses are:

1. Shellfish harvesting in accordance with N.J.A.C. 7:12;

2. Maintenance, migration and propagation of the natural and established biota;

3. Primary and secondary contact recreation; and

4. Any other reasonable uses.

(e) In all SE2 waters the designated uses are:

1. Maintenance migration and propagation of the natural and established biota;

2. Migration of diadromous fish;

3. Maintenance of wildlife;

4. Secondary contact recreation; and

5. Any other reasonable uses.

(f) In all SE3 waters the designated uses are:

1. Secondary contact recreation;

2. Maintenance and migration of fish populations;

3. Migration of diadromous fish;

4. Maintenance of wildlife; and

7:9B-1.15 Surface water classifications for the waters of the State of New Jersey

(a) This section contains the surface water classifications for the waters of the State of New Jersey. Surface water classifications are presented in tabular form. Subsections (c) through (g) contain surface water classifications by major drainage basin. Subsection (h) lists FW1 waters by tract within basins and subsection (i) identifies the Outstanding National Resource Waters of the State.

(b) The following are instructions for the use of Tables 1 through 5 found in N.J.A.C. 7:9B-1.15(c) through (g) respectively:

1. The surface water classification tables give the surface water classifications for waters of the State. Surface waters of the State and their classification are listed in the table covering the major drainage basin in which they are located. The major drainage basins are:
   i. The Atlantic Coastal drainage basin which contains the surface waters listed in Table 1 in (c) below;
   ii. The Delaware River drainage basin which contains the surface waters listed in Table 2 in (d) below;
   iii. The Passaic River, Hudson River and New York Harbor Complex drainage basin which contains the surface waters listed in Table 3 in (e) below;
   iv. The Raritan River and Raritan Bay drainage basin which contains the surface waters listed in Table 4 in (f) below; and
   v. The Wallkill River drainage basin which contains the surface waters listed in Table 5 in (g) below.

2. Within each basin the waters are listed alphabetically and segment descriptions begin at the headwaters and proceed downstream.

3. To find a stream:
   i. Determine which major drainage basin the stream is in;
   ii. Look for the name of the stream in the appropriate Table and find the classification;
   iii. For unnamed or unlisted streams, find the stream or other waterbody that the stream of interest flows into and look for the classification of that stream or waterbody. The classification of the stream of interest may then be determined by referring to (b)5 below. If the second stream or waterbody is also unlisted, repeat the process until a listed stream or waterbody is found. Use (b)5iv below to classify streams entering unlisted lakes.

4. To find a lake or other non-stream waterbody:
   i. Determine which major drainage basin the waterbody is in;
   ii. Look for the waterbody name in the appropriate Table;
   iii. If the waterbody is not listed, use (b)5ii, 5iii, 5vi, and 5vii below to determine the appropriate classification.

5. To find unnamed waterways or waterbodies or named waterways or waterbodies which do not appear in the listing, use the following instructions:
   i. Unnamed or unlisted freshwater streams that flow into streams classified as FW2-TP, FW2-TM, or FW2-NT take the classification of the classified stream they enter, unless the unlisted stream is a PL water which is covered in (b)5vii below. If the stream could be a C1 water, see (b)5vi below.
   ii. All freshwater lakes, ponds and reservoirs that are five or more acres in surface area, that are not located entirely within the Pinelands Area boundaries (see (b)5vii below) and that are not specifically listed as FW2-TP or FW2-TM are classified as FW2-NT. This includes lakes, ponds and reservoirs on segments of streams which are classified as FW2-TM or FW2-TP such as Saxton Lake on the Musconetcong River. If the waterbody could be a C1 water, also check (b)5vi below.
   iii. All freshwater lakes, ponds and reservoirs, that are less than five acres in surface area, upstream of and contiguous with FW2-TP or FW2-TM streams, and which are not located entirely within the Pinelands Area boundaries (see(b)5vii below) are classified as FW2-TM. All other freshwater lakes, ponds and reservoirs that are not otherwise classified in this subsection or the following Tables are classified as FW2-NT. If the waterbody could be a C1 water, also check (b)5vi below.
   iv. Unnamed or unlisted streams that enter FW2 lakes, ponds and reservoirs take the classification of either the listed tributary stream flowing into the lake with the highest classification or the listed tributary stream leaving the lake with the highest classification, whichever has the highest classification, or, if there are no listed tributary or outlet streams to the lake, the first listed stream downstream of the lake. If the stream is located within the boundaries of the Pinelands Area, see (b)5.vii. below; if it could be a C1 water, also see (b)5vi below.
   v. Unnamed or unlisted saline waterways and waterbodies are classified as SE1 in the Atlantic Coastal Basin. Unnamed or unlisted saline waterways which enter SE2 or SE3 waters in the Passaic, Hackensack and New York Harbor Complex basin are classified as SE2 unless otherwise classified within Table 3 in (e) below. Freshwater portions of unnamed or unlisted streams entering SE1, SE2, or SE3 waters are classified as FW2-NT. This only applies to waters that are not PL waters (see (b)5vii below). If the waterbody or waterway could be a C1 water, also see (b)5vi below.
   vi. If the waterway or waterbody of interest flows through or is entirely located within State parks, forests or fish and game lands, Federal wildlife refuges, other special holdings, or is a State shellfish water as defined in this subchapter, the Department's maps should be checked to determine if the waterbody of interest is mapped as a C1 water. If the waterway or waterbody does not appear on the United States Geological Survey quadrangle that the Department used as a base map in its designation of the

origins to about 1000 feet south of the Route 23 bridge, located entirely within the boundaries of the Newark watershed	FW1(tp)
(Stockholm) - Brook between Hamburg Turnpike and Vernon-Stockholm Rd. to its confluence with Lake Stockholm Brook, north of Rt. 23	FW2-TP(C1)
LITTLE POND BROOK (Oakland) - Entire length	FW2-NT
LOANTAKA BROOK	
(Green Village) - Entire length, except segment described below	FW2-NT(C1)
(Great Swamp) - Brook and all tributaries within the boundaries of Great Swamp National Wildlife Refuge	FW1
LUD-DAY BROOK (Camp Garfield) - Source downstream to its confluence with the southwestern outlet stream from Clinton Resevoir just upstream of the confluence of the outlet stream and a tributary from Camp Garfield	
MACOPIN RIVER	
(Newfoundland) - Source to Echo Lake dam	FW2-NT
(Newfoundland) - Echo Lake dam to Pequannock River	FW2-TM
MEADOW BROOK (Wanaque) - Skyline Lake to Wanaque River	FW2-NT
MILL BROOK	
(Randolph) - Source to Rt. 10 bridge	FW2-TP(C1)
(Randolph) - Rt. 10 bridge to Rockaway River	FW2-NT
MONKSVILLE RESERVOIR (Long Pond Iron Works State Park)	FW2-TM(C1)
MORSES CREEK (Linden) - Entire length	FW2-NT/SE3
MOSSMANS BROOK (West Milford) - Source to confluence with Clinton Reservoir	FW2-TP(C1)
MT. TABOR BROOK (Morris Plains) - Entire length	FW2-NT
NEWARK BAY (Newark) - North of an east-west line connecting Elizabethport with Bergen Pt., Bayonne up to the mouths of the Passaic and Hackensack Rivers	SE3
NOSENZO POND (Upper Macopin)	FW2-NT(C1)
OAK RIDGE RESERVOIR (Oak Ridge)	FW2-TM
OAK RIDGE RESERVOIR (Oak Ridge) - Northwestern tributary to Reservoir	FW1(tm)
OHIO BROOK (Morris Township) - Source downstream to Morristown town line	FW2-TM
OVERPECK CREEK (Palisades Park) - Entire length	FW2-NT/SE2
PACACK BROOK	
(Canistear) - Brook and tributaries upstream of	FW1

Canistear Reservoir located entirely within the boundaries of the Newark Watershed	
(Stockholm) - Outlet of Canistear Reservoir to Pequannock River	FW2-NT
PASSAIC RIVER	
(Mendham) - Source to Interstate 287 bridge, except tributaries described separately below	FW2-TP(C1)
(Paterson) - Interstate 287 bridge to Dundee Lake dam	FW2-NT
(Little Falls) - Dundee Lake dam to confluence with Second River	FW2-NT/SE2
(Newark) - Confluence with Second River to mouth	SE3
TRIBUTARIES	
(Great Piece Meadows State Park) - Tributaries within Great Piece Meadows State Park	FW2-NT(C1)
PECKMAN RIVER (Verona) - Entire length	FW2-NT
PEQUANNOCK RIVER	
MAIN STEM	
(Vernon) - Source to confluence with Pacack Brook	FW1(tp)
(Hardyston) - Pacack Brook to, but not including, Macopin Reservoir or the tributaries described separately below	FW2-TM
(Kinnelon) - Macopin Reservoir outlet to Hamburg Turnpike bridge in Pompton Lakes Borough	FW2-TP(C1)
(Riverdale) - Hamburg Turnpike bridge in Pompton Lakes Borough to confluence with Wanaque River	FW2-TM
(Pompton Plains) - Confluence with Wanaque River downstream to confluence with Pompton River	FW2-NT
TRIBUTARIES	
(Copperas Mtn.) - Entire length	FW2-TP(C1)
(Smoke Rise) - Entire length	FW2-TP(C1)
(Green Pond Junction) - Tributary at Green Pond Junction from its origin downstream to Route 23	FW1(tm)
(Jefferson) - Tributary joining the main stem about 3500± feet southeast of the Sussex-Passaic County line, near Jefferson from its origin to about 2000 feet upstream of the pond	FW1(tm)
(Lake Kampfe) - Source to, but not including, Lake Kampfe	FW2-TM
(Lake Kampfe) - Lake Kampfe to Pequannock River, except tributary described separately below	FW2-NT
(Lake Kampfe) - Tributary within the boundaries of Norvin Green State Forest, originating west of Torne Mtn.	FW2-NT(C1)
PILES CREEK (Grasselli) - Entire length	SE3