306714

EXPANDED SITE INVESTIGATION

Edison Stamping and Manufacturing

AKA Kleiner Metal Specialties
AKA UTI - Kleiner

4490 Stelton Road
South Plainfield
Middlesex County, New Jersey
EPA ID No.: NJD061056198

Volume I of I

New Jersey Department of Environmental Protection
Site Remediation Program
Bureau of Environmental Measurements and Site Assessment

February 2010

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Edison Stamping and Manufacturing
4490 Stelton Road
South Plainfield, New Jersey 07080
EPA ID No.: NJD061056198

Narrative

Maps

1) United States Geological Survey Topographic Map – Plainfield Quadrangle (1995)

2) Middlesex County – County Road Map Alfred B Patton Inc (1984)

3) Borough of South Plainfield – Local Tax Map (2007)

4) Edison Stamping and Manufacturing Site Map, New Jersey Department of Environmental Protection (NJDEP) Bureau of Environmental Measurements and Site Assessment (BEMSA) (July 2009)

5) Edison Stamping and Manufacturing Site Map with Surrounding Properties NJDEP BEMSA (July 2009)

6) Edison Stamping and Manufacturing Aerial Base Map (2002)

7) Edison Stamping and Manufacturing Temporary Well Points Environmental Compliance Monitoring Inc (October 1999)

8) Edison Stamping and Manufacturing Ground Water Surface Contour Map NJDEP BEMSA (July 2009)

8A) Edison Stamping and Manufacturing Ground Water Surface Contour Map (exluding MW-1) NJDEP BEMSA (January 2010)

9) NJDEP Bureau of Water Supply 4 Mile Radius Map, Water Withdrawal Points Map (July 2009)

10) Federal Emergency Management Agency Flood Hazard Boundary Map (1980)

11) Wetlands 4 mile Radius Map. 1986 Land Use/Land Cover Data (1986)

12) Population 4 mile Radius Map. 2000 Census Data

Attachments

A) Boro of South Plainfield NJ Department of Public Works Building Division Permit Records 4490 Stelton Road

B) NJDEP Division of Waste Management Industrial Site Evaluation Element Environmental Cleanup Responsibility Act General Information Submission (January 6 1989) and Site Evaluation Submission (February 6, 1989) Edison Stamping and Manufacturing Company

C) NJDEP Division of Hazardous Waste Management, Industrial Site Evaluation Element Letter to Peter J Herzberg Greenbaum et al Re: Approval of a Negative Declaration for ESM; April 28, 1989

D) J M Sorge Inc Site Investigation Report - Edison Stamping and Manufacturing Co; 1989

E) Kerosene – Article in Wikipedia http://en.wikipedia.org/wiki/Kerosene; August 5, 2009

F) Environmental Strategies Corporation Preliminary Assessment and Site Investigation Report UTI Corporation Kleiner Specialty Metals Inc; August 30, 2000

G) Dames and Moore, ECRA General Information Submission and Site Evaluation Submission Kleiner Metal Specialties; November 2, 1988

H) LEW Corporation Letter Report Geoprobe Investigation 4490 Stelton Road South Plainfield NJ; March 13 2000

I) NJDEP Bureau of Ground Water Pollution Abatement Ground Water Quality Management Element Delineation of an Interim Ground Water Impact Area at the Nova Ukraine Area Piscataway Township Middlesex County; April 1991

J) United States Department of Agriculture Soil Conservation Service – Soil Survey of Middlesex County NJ; 1986

K) GHR Consulting Services Inc Summary Report NJDEP Sampling Episode Kleiner Metals; March 24 2009 and September 9 2009

L) United States Environmental Protection Agency Data Report: Kleiner Metals; May 2009 and August 2009.

M) Groundwater and Environmental Services Inc Well Location Map and Well Search Summary Table GPMI Service Station #57355 4501 Stelton Road South Plainfield NJ.; June 18, 2008

N) NJDEP Bureau of Environmental Measurements and Site Assessment Memo to File (July 2009) and Descriptions of Water Systems for the NJ American Water Company Elizabethtown Division and the Middlesex Water Company

O) US Dept of Commerce National Oceanic and Atmospheric Admin National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server; July 2009

NARRATIVE

EXPANDED SITE INVESTIGATION REPORT

PART I: GENERAL INFORMATION

Site Name: Edison Stamping and Manufacturing Co.
Aka: Kleiner Metal Specialties
UTI - Kleiner

Address: 4490 Stelton Road
Municipality: South Plainfield **State:** New Jersey **Zip Code:** 07080
County: Middlesex
EPA ID No.: NJD061056198
Block: 472 **Lot(s):** 3.01
Latitude: +40.558889 **Longitude:** - 74.438056 (decimal)
403332.62 742617.84 (ddmmss) -
USGS Quadrangle: Plainfield
Acreage: 0.48 **SIC Code:** 3499

Current Owner: Jack Lee
Mailing Address: 115 Allen Blvd.
City: Farmingdale **State:** NY **Zip Code:** 11735
Telephone No.: (631) 752-7280

Current Operator: Marble Depot, LLC
Mailing Address: 4490 Stelton Road
City: South Plainfield Borough **State:** NJ **Zip Code:** 07080
Telephone No.: (732) 424-4221

Owner/Operator History:

NAME	OPERATOR/ OWNER	DATES	
		FROM	TO
4490 Stelton Road Assocs., LLC	Owner	May 2001	Present
Marble Depot	Ken Li - Operator		Present
Marble & Tile Gallery, Inc.		June 1995	
The Capital Group	Owner	December 1990	June 1995
Edison Stamping and Manufacturing Co.	Owner & operator	February 1968	January 1989
Kleiner Metal Specialties	Owner & operator	1940	1968

(Attachment A)

Surrounding Land Use (zoning, adjacent properties): The site is surrounded predominantly by commercial establishments (Maps 5 and 6). The southwestern portion of the site is bordered by Stelton Road. Across Stelton Road are residential homes and small businesses operating out of homes. The site is bordered to the southeast by a storage yard utilized by J. H. Reid Construction Company, and to the northeast by a large building that currently houses a bakery distribution warehouse in one-half of the building. The other one-half of the building is empty, having been evacuated by a commercial baker in early 2009. A building housing a Sherwin Williams Automotive Finishing Paint distributor is located adjacent to the site on its northwest property boundary.

Distance to Nearest Residence or School: The nearest resident to the site is located approximately 150 feet from the site.
Direction: Southwest
Population Density (residents per square mile): 2,452 (1990 census from Victaulic Report)

PART II: SITE OPERATIONS

Discuss all current and past operations at the site. Include a description of the buildings or structures on site and their physical condition. In addition, tabulate all areas of concern (AOC) and provide the waste source type for each AOC. Include the physical state of waste at each AOC as stored or disposed, the condition of containers and the presence or absence of secondary containment and the volume of waste stored or disposed, or the volume or area of contaminated soil or water.

Edison Stamping and Manufacturing Co. (ESM) operated at 4490 Stelton Road (site) in South Plainfield, New Jersey from 1968 until January 1989 (Maps 1, 2 and 3). Prior to 1968, the facility was operated by Kleiner Metal Specialties, Inc. (KMS), the original tenant who began operations in 1940. Manufacturing operations at the site were conducted in a one-story masonry building situated on almost a half-acre of land. The primary manufacturing operation at the facility involved the custom stamping and bending of stock metal. Other site operations included administrative work, product design and fabrication, stock metal and die storage and shipping. The 5,246 square-feet of floor space within the building is constructed of reinforced concrete with floor drains. Production machines located in the manufacturing areas included presses, grinders, shears and brakes (Attachment B). Exterior portions of the property are currently paved with asphalt. A business specializing in marble countertops and tiles has operated at the site since 1995. Map 4 is a map of the site.

Between 1940 and 1968, KMS operated at the 4490 Stelton Road property manufacturing small, custom metal parts for the medical, aerospace and automobile industry. The parts were formed out of various metals using high-speed cutting and other techniques. Other parts made at the site resulted from the reforming of metal tubes. All of the finished products were used in the off-site fabrication of specialty equipment. On or about 1968, KMS moved to a larger facility built on the adjacent property located at 4315 New Brunswick Ave. KMS continued their metal fabricating business on the New Brunswick Avenue property until 2005. In 2008, the New Jersey Department of Environmental Protection (NJDEP) Site Assessment Section (SA) concurrently investigated both the Stelton Road and the New Brunswick Avenue properties.

ESM purchased the Stelton Road site from KMS in 1968, and continued operations similar to KMS until 1989.

Documentation indicates that KMS used tetrachloroethene (PCE) at their New Brunswick Ave. facility from 1968 to approximately 1986 and it is likely that they used PCE at their original Stelton Road facility between 1940 and 1968. Since ESM had a manufacturing process similar to KMS, it is possible that they also used PCE, but this could not be confirmed. Definitive documentation of PCE use at the Stelton Road facility could not be located, but high concentrations of PCE detected in the shallow ground water at the site is evidence of an on-site release. NJDEP, SA conducted a subsurface investigation in 2009 and concluded that the contamination detected at the site was attributable to the operations of KMS and ESM. In 1989, ESM submitted documentation to the NJDEP in support of a request for a negative declaration for environmental liability triggered by it's cessation of operations. The documentation included a General Information Submission (GIS) and a Site Evaluation Submission (SES). Both documents were required as part of the Environmental Cleanup Responsibility Act (ECRA). The Description of Operations section in the SES stated that kerosene was used as a degreaser during the tenure of ESM. There was no indication in either of the submissions that chlorinated solvents were used during the operation of ESM (Attachment B). Consultant reports contend that sanitary wastes generated at the 4490 Stelton Road site were disposed in an on-site septic tank which was periodically pumped out until 1980. ESM connected to a municipal sewer system in 1980. The disposition of the kerosene used by ESM was not discussed, and it is likely that kerosene and other degreaser wastes were disposed on site between 1968 and 1980.

The SES submitted by ESM indicated that kerosene was stored at the site in 5-gallon plastic containers. Minor amounts of grease and hydraulic oil were also stored and used for the maintenance of machinery. The only other reported waste stream generated at the site was metal fragments resulting from the stamping of metal. The metal wastes were stored in an outside bin and sold as scrap (Attachment B).

The NJDEP, Division of Hazardous Waste Management approved a Negative Declaration for EMS on April 28, 1989. The ECRA submissions were made in support of EMS's cessation of operations (Attachment C).

Prior to the 1989 ECRA submittals, ESM authorized the consulting firm J. M. Sorge, Inc. (JMS) to conduct an ECRA related Site Inspection (SI) at the 4490 Stelton Road site (Attachment D). The SI included the removal of two underground storage tanks (USTs) used to store heating oil and the sampling of an abandoned septic holding tank.

After performing a survey of the site, JMS determined that there were three AOCS including:

- An abandoned 1,000-gallon heating oil UST (UST A)
- An active 1,000-gallon heating oil UST (UST B)
- An abandoned septic holding tank

Based upon a review of information, NJDEP, SA added an additional AOC.

- Suspected septic system

UST removal and sampling activities occurred in October and December 1988 beginning with the removal of UST B. UST B was located in the southwestern portion of the site (MAP 4) and was installed when the site was initially developed in 1940. On-site personnel estimated that UST B was abandoned in approximately 1968 after 28 years of use. UST B was 11 feet long, 4 feet in diameter and was buried 1.5 feet below the ground surface (bgs). The base of UST B, at 5.5 feet bgs, rested in or near the weathered shale on top of the bedrock. Prior to the removal of UST B, 580 gallons of oil and water were pumped from the UST and disposed. After excavating the soils surrounding UST B, the tank was removed from the excavation. Visual inspection revealed the presence of numerous holes along the base of UST B and oil-stained soils at the base of the excavation. Additional soil was excavated resulting in an excavation 16 feet long, 11 feet wide and 7 feet deep. Ground water was not observed in the excavation.

UST A stored 1,000 gallons of heating oil and was located adjacent to the northeastern wall of the facility building (MAP 4). UST A was also 11 feet long, 4 feet in diameter and buried 1.5 feet bgs with the base of the UST 5.5 feet bgs, also resting in or near the weathered shale on top of the bedrock. UST A was installed in 1940 and continued to be active until its closure by removal in 1988. A petro-tite test for UST competency was performed on UST A in September 1987. The results of the test indicated that the UST was tight.

Documentation concerning waste disposal at the site was initially discovered in the JMS SA report (Attachment D). JMS discusses a septic relic located in the alley at the south-eastern portion of the site (MAP 4) and describes the relic as being an abandoned septic holding tank. According to JMS, facility personnel stated that the septic holding tank was pumped monthly by a NJDEP-authorized domestic waste hauler and the waste was transported to the Middlesex County Sewage Authority for treatment and disposal. The majority of references made concerning the septic holding tank imply that the tank received sanitary wastes. While SA could find no references indicating that the holding tank received industrial wastes, JMS conducted their investigation of the holding tank as if hazardous substances were deposited in the holding tank.

After the connection to the sanitary sewer was made in 1980, the septic holding tank was emptied and backfilled with crushed stone, sand and fragments of asphalt pavement. When the investigation of the tank commenced in 1987, the septic holding tank was exposed using a backhoe. JMS reported that the dimensions of the cylindrical tank were 5 feet in diameter, 4.5 feet long and the top of the tank was located 1 foot below the surface of the asphalt paving. There was no discussion about how the holding tank was oriented underground.

The presence of an additional septic system is suggested by environmental reports prepared for the second KMS Site. A Preliminary Assessment and Site Investigation Report prepared by Environmental Strategies Corporation (ESC) in August of 2000 confirmed the location of one septic system and referenced the possibility of an additional system at the KMS site (Attachment F). The report states that in September 1980 an agreement was made between KMS and ESM that allowed ESM to connect to the municipal sewerage system via piping located on the KMS property. In return, ESM agreed to discontinue using its septic system

which was located on or near the KMS property. Additionally, ESM released KMS from further liability in connection with the septic system and KMS released ESM from liability for denying ESM access to the sewer system. There was no additional information available concerning the septic system.

ESC made an effort to locate the ESM septic field during their investigation of the KMS property. Because the property behind (northeast) ESM was vacant land during the early stages of operations, it was possible that waste materials were dumped or that a septic system extended from the back of ESM. Figure 3, near the end of Attachment E, shows the ESC sampling locations advanced in the southeastern portion of the second KMS property in an effort to locate a septic system or dumping area. There were no significant detections of chlorinated solvents in any of the soil samples collected. ESC also conducted a soil investigation in the northwestern section of the KMS property. In a soil sample collected in the vicinity of the former septic tanks at a depth of 3 to 4.25 feet bgs, PCE was detected at an estimated concentration of 93 ppb, below the NJDEP IGWQS of 1,000 ppb. The detection of PCE during the sampling of the septic system was not mentioned in the text of the report and the information had to be gleaned from the soil sample analytical tables at the end of the ESM PA/SI (Attachment F). The low concentration detected in the soil sample was probably due to the facts that contaminated soils were excavated when the septic system was removed in 1980 and between 1980 and 2000, a significant amount of attenuation occurred. The fact that septic tanks were used for waste disposal at the second KMS site may be an indication that a septic system was also used by KMS at its original site.

In February 2009, the NJDEP, SA conducted its own investigation of a second ESM septic system after realizing that a significant quantity of PCE had been generated during site operations and known waste disposal practices did not account for the disposition of the waste generated. NJDEP, SA advanced two borings (B-4 and B-5 on Map 5) with a Geoprobe in the vicinity of the suspected second ESM septic system. Each boring was advanced to a depth of 5 feet where refusal was encountered. Ground water was not encountered in either boring and soil samples were not collected. During the same month, SA supervised the installation of monitoring well MW-3 in the area of the suspected second ESM septic system (MAP 4). The analysis of a ground water sample collected from the monitoring well indicated that there were no chlorinated solvents detected in the ground water sample. MTBE was detected at a concentration of 140 ppb, exceeding the GWQS of 70 ppb. If the borings advanced and the monitoring well installed by the NJDEP had been sited within a septic leachfield, then evidence of chlorinated solvents would have been expected.

KMS and ESM both stated that the wastes received by their on-site septic systems were sanitary wastes. Additional efforts to confirm that the systems received only septic wastes were made by consultants advancing soil borings in the vicinity of the septic relics. The lack of VOCs detected at concentrations greater than NJDEP Cleanup Standards allowed prior consultants to conclude that hazardous materials were not disposed in either on-site septic system. However, when the NJDEP, SA collected a shallow ground water sample in the vicinity of the KMS septic system, there was evidence that chlorinated solvents had been disposed in the septic system.

NJDEP, SA installed nine monitoring wells during the Expanded Site Investigation on the ESM and KMS properties (Map 4). The wells were installed in assumed hydraulically upgradient and downgradient positions as well as in areas where suspected septic fields were located.

NJDEP, SA obtained a Phase II report prepared by LEW Corporation (LEW) of Mountainside, New Jersey in February 2000 (Attachment H). The report was prepared for attorneys representing the site owner of the ESM property, likely in support of a real estate transaction. The report indicated that in a temporary well point installed to characterize the shallow ground water at the ESM site, PCE was detected at a concentration of 47 ppb and TCE was detected at a concentration of 5.1 ppb. The location of the well point with the elevated PCE concentration could not be determined because a map of the temporary wells was not provided with the report.

The purpose of the February 2000 LEW investigation and report was to confirm the findings of the consulting firm Environmental Compliance Monitoring, Inc. (ECM), who detected PCE in three out of five temporary well points they installed in October 1999 as part of a separate subsurface investigation at the site. In one of the temporary well points advanced by ECM, PCE was detected at a concentration of 6,600 ppb. Property owners engaged LEW to perform a separate investigation to confirm the results of the ECM study. LEW attempted to duplicate the locations of the five temporary well points installed by ECM. After analyzing the ground water samples collected from the well points, LEW detected PCE at a concentration of 47 ppb. The LEW report concluded that the concentrations of VOCs detected in their 2000 report were a magnitude lower in comparison to the original ECM results.

NJDEP, SA contacted LEW Corporation in an effort to acquire the site map that they generated during their February 2000 investigation. LEW was unable to provide a copy of their sample location map however, LEW was able to provide a copy of the original ECM sample location map (MAP 7). The ECM map displayed the temporary well point locations including analytical data. Unfortunately, the report for which the map was generated could not be located. The ECM map showed that PCE was detected in a ground water sample collected from temporary well TW-4 at a concentration of 6,600 ppb. In addition, Tentatively Identified Compounds were detected in TW-4 at a cumulative estimated concentration of 18,340 ppb. Information concerning the depth to the ground water could not be obtained, but based on work at the site conducted by NJDEP, SA, and the knowledge that the temporary well was installed using a Geoprobe, it is likely the depth of the well was between 5 feet and 9 feet bgs.

In August 2009, in an effort to confirm the findings of temporary well point TW-4, SA installed a shallow ground water monitoring well to a depth of 19 feet bgs to the top of bedrock. SA also supervised the installation of a second monitoring well in the same area from which a bedrock ground water sample could be collected (MAP 4). The analytical results of the ground water samples collected from each monitoring well confirmed the presence of a contaminant source area and documented the occurrence of a release.

VOC SUMMARY TABLE

AOC Name	Source Type	CERCLA Exempt	Physical State	Waste Quantity
Abandoned septic holding tank	Other	No	Liquid	Unknown
Suspected septic system	Other	No	Liquid	Unknown

PART III: PERMITS

A. NJPDES

Number	Date Issued	Expiration Date	Formation or Water Body Discharged To
N/A			

B. New Jersey Air Pollution Control Certificates

Plant ID No.: NJD061056198
No. of Certificates: N/A
Equipment Permitted: N/A

C. BUST Registration

Registration No.: USTs were not registered. Closed in 1988.
No. of Tanks: 2

Tank No.	Capacity (gallons)	Contents of Tank	Status
UST A	1,000	Heating oil	Tested competent prior to removal in 1988.
UST B	1,000	Heating Oil	Abandoned, numerous holes noted upon removal in 1988.

D. RCRA Status (TSD, Generator, Protective Filer, etc.) N/A

E. Other Permits (RCRA, NRC, etc.)

Issuing Agency	Permit Type	Permit No.	Date Issued	Expiration Date

PART IV: SOIL EXPOSURE

Describe soil type. Include soil series, composition of the soil and permeability of the soil.

The soil type at the site is listed in the Soil Survey of Middlesex County New Jersey as Klinesville-Urban land complex, 0 to 5 percent slopes (KWB). This unit consists of nearly level to gently sloping, well-drained Klinesville soils and areas that are used for urban development. About 40 per cent of this unit is Klinesville soils which typically have a surface layer of dark reddish brown shaly loam about 8 inches thick. The subsoil is dark reddish brown shaly loam 4 inches thick. Dark reddish brown shale bedrock is at a depth of 12 inches.

Approximately 40 per cent of this soil unit is covered by concrete, asphalt, buildings or other impervious surfaces. The entire site is paved with asphalt. The permeability of this unit is moderately rapid. Runoff is slow and the hazard of erosion is slight. (Attachment J)

For each sampling event, identify the sampler and date of sampling and list the name, address and certification number of the lab which performed the analyses. State who conducted the quality assurance review of the data and summarize any data qualifications.

JMS supervised the Phase II investigation of the ESM site in October 1988. The scope of the investigation included the collection of confirmatory soil samples to characterize the soils in the vicinity of two 1,000-gallon heating oil USTs and a septic holding tank. The samples were analyzed by Accutest Labs located at 2235 Route 130 in Dayton, New Jersey 08810. The Phase II report states that during the implementation of the sampling and analytical program, the QA/QC procedures recommended by the NJDEP were strictly followed and that all analyses were conducted by a NJDEP certified laboratory using proper QA/QC procedures as outlined in Subsection 6.2 (Attachment D).

In an effort to confirm that heating oil was not released into the environment, JMS advanced three soil borings adjacent to three sides of UST A. The soil samples were collected at a depth of 5.5 feet bgs and each was analyzed for PHC and one sample was analyzed for BN+15. Two of the soil samples exceeded the existing NJDEP Standard of 100 ppm for PHC and the combined total concentration of two detected BN's and fifteen tentatively identified compounds of 12.4 ppm exceeded the NJDEP Standard of 10 ppm. Due to the exceedences of PHC's and BN's, it was decided UST A would be removed and natural gas would replace heating oil in heating the building.

Soils surrounding UST A were excavated and the tank was removed from its excavation. There was no evidence of holes or pitting, but oily residues were observed in the fill material at the base of the excavation. Additional soils were removed until the resulting excavation was 9 feet wide by 16 feet long and 7 feet deep. Ground water was not encountered. Confirmatory samples were collected to document the condition of the soils remaining in the excavation. Results of the analysis indicated that only one soil sample exceeded the NJDEP standard of 100 ppm for PHC. The soil sample was collected from an area close to the building where soil could not be over-excavated due to concerns that the footing of the building would be compromised. Due to the competency of UST A, JMS concluded that the contaminated soils resulted from product spillage during filling operations and not leakage from the UST.

Confirmatory sampling at UST B for petroleum hydrocarbons (PHC) and base neutral compounds plus library search (BN+15) demonstrated that there were no contaminants in the excavation that exceeded NJDEP Soil Standards.

In an effort to document the contents of the septic holding tank, JMS advanced a boring through the fill material within the holding tank and collected a soil sample at the base of the tank, 5.0 to 5.5 feet bgs. The sample, consisting of fill material, was analyzed for PHC, BN+15, volatile organic compounds plus library search (VO+15), and polychlorinated biphenyls (PCBs). JMS believed that by collecting a soil sample from the backfilled materials inside the holding tank, the former contents of the holding tank could be assessed. (Attachment D).

The analysis of the soil sample from within the tank indicated that PHC was detected at a concentration of 520 ppm, exceeding the NJDEP Standard of 100 ppm. In addition, 12 BN compounds were detected at a total concentration of 6.3 ppm, below the NJDEP Standard of 10 ppm. Twelve non-priority pollutant BN compounds with a total concentration of 5.7 ppm were detected in the library search. No PCBs were detected in the sample and only two VOCs were tentatively identified. Due to the high concentration of PHC detected from within the septic holding tank, JMS collected additional soil samples from the soils adjacent to the outside of the holding tank to determine if the PHC contamination detected in the tank, impacted soils outside of the tank. Observations pertaining to the competency of the holding tank were not included in the JMS report.

JMS supervised the excavation of two test pits located within one foot of the septic holding tank. One soil sample per test pit was collected at a depth of 5.5 to 6.0 feet bgs and analyzed for PHC. This depth corresponded to the 6-inch increment of soil beneath the base of the septic holding tank. The analysis of the soil samples indicated that neither of the samples exceeded 100 ppm for PHC. Therefore, JMS concluded that additional work was not required in the septic holding tank area. The soil sample was not analyzed for VOCs which would have given a better indication whether or not VOC containing wastes were deposited in the septic holding tank. JMS supervised the removal of the two 1,000-gallon USTs during the site investigation but left the septic holding tank in the ground.

Soils resulting from the UST closures and other investigations were stockpiled at the ESM site. Five soil samples were collected and composited for waste classification parameters. The analysis of the composite soil samples indicated that PCE was detected at a concentration of 62 ppb. The waste classification sample was the only soil sample that was collected from native soil and even though the PCE concentration was below the NJDEP Impact to Ground Water Quality Standard (IGWQS) of 1,000 ppb, it is an indication that PCE was used at the ESM site.

Tabulate sample numbers and the associated Area of Concern or describe the sample location. Identify samples which establish background conditions.

JM Sorge – October 1988	
SAMPLE #	**ASSOCIATED AOC/SAMPLE LOCATION**
ESM-TB-1	**1,000-gallon H.O UST B** Post Excavation
ESM-TB-2	Post Excavation
ESM-TB-3	Post Excavation
ESM-TB-4	Post Excavation
ESM-TB-5	Post Excavation
ESM-TB-WC	Waste Soil Classification
ESM-TA-1	**1,000-gallon H.O UST A** Initial
ESM-TA-2	Initial
ESM-TA-4	Initial
ESM-TA-1R	Post Excavation
ESM-TA-2R	Post Excavation
ESM-TA-3R	Post Excavation
ESM-TA-4R	Post Excavation
ESM-TA-5R	Post Excavation
ESM-S-1	**Septic Holding Tank** – fill material
ESM-S-1A	Soil adjacent to the septic holding tank
ESM-S-1B	Soil adjacent to the septic holding tank

A sample location map is included on the last page in Appendix F, the ESM Report.

Tabulate contaminants identified in the soil. Include sample number, depth, contaminant levels and corresponding NJDEP Soil Remediation Standard.

		JM Sorge – October 1988		
SAMPLE #	**DEPTH (feet)**	**CONTAMINANT**	**CONCENTRATION (ppm)**	**NJDEP SOIL REMEDIATON STANDARD (ppm)**
UST B				
ESM-TB-1	7-7.5	PHC	<50	100
ESM-TB-2	7-7.5	PHC	<50	100
ESM-TB-3	7-7.5	PHC	<50	100
ESM-TB-4	7-7.5	PHC	<50	100
ESM-TB-5	7-7.5	PHC	<50	100
ESM-TB-WC	n/a	PHC	**5,000**	100
ESM-TB-WC	n/a	Ethylbenzene	0.083	100
		PCE	0.062	1
		Total xylene	0.286	67

SAMPLE #	DEPTH (feet)	CONTAMINANT	CONCENTRATION (ppm)	NJDEP SOIL REMEDIATON STANDARD (ppm)
UST A				
ESM-TA-1	5.5-6	PHC	60	100
SM-TA-2	5.5-6	PHC	**770**	100
		Di-n-butyl phthalate	1.8	10
		Phenanthrene	.099 J	
ESM-TA-4	5.5-6	PHC	**220**	100
ESM-TA-1R	7-7.5	PHC	<50	100
ESM-TA-2R	7-7.5	PHC	<50	100
ESM-TA-3R	7-7.5	PHC	**180**	100
ESM-TA-4R	7-7.5	PHC	<50	100
ESM-TA-5R	7-7.5	PHC	<50	100
		Di-n-butyl phthalate	2.9	
Septic Holding Tank				
ESM-S-1	5-5.5	PHC	**520**	100
		Benzo (a) anthracene	0.14 J	500
		Benzo (a) pyrene	0.20 J	100
		Benzo (b) fluoranthene	0.21 J	50
		Benzo (k) fluoranthene	0.15 J	500
		Benzo (ghi) perylene	0.18 J	500
		Butyl benzyl phthalate	0.61 J	100
		Chrysene	0.22 J	500
		Di-n-butyl phthalate	3.90 J	10
		Fluoranthene	0.38 J	100
		Indeno (1,2,3-cd) pyrene	0.14 J	500
		phenanthrene	0.26 J	
		pyrene	0.38 J	100
ESM-S-1A	5.5-6	PHC	93	100
ESM-S-1B	5.5-6	PHC	69	100

PHC – Petroleum Hydrocarbon
Detailed sample results Attachment B

J – Below Method Detection Limit
WC – Waste Classification

In February 2009, NJDEP, SA collected soil sample S-2 in the area where the suspected septic holding tank was located. The sample was collected at a depth of 5.0 to 5.5 feet bgs, where refusal was encountered. Soil sample S-2 was analyzed by the NJDEP mobile lab and there were no VOC's detected in the sample.

Discuss contaminants identified in the soil above background and remediation standards and provide the rationale for site attribution. State whether Level 1 or Level 2 contamination is present.

PCE, the contaminant of concern and a Level 1 contaminant, was detected only in the composite waste soil sample collected from the over-excavated soil resulting from the UST closures. The only other soil sample that was analyzed for VOCs was sample ESM-S-1 which was collected

from the interior of the septic holding tank. The septic holding tank had reportedly been emptied and filled with asphalt debris and other fill material. A number of semi-VOCs were detected in the sample but none exceeded their respective Soil Remediation Standard. The semi-VOC compounds likely resulted from the asphalt fragments in the fill material.

A release to soil of PHC and BNs was documented above background concentrations and the NJDEP Soil Remediation Standards in the vicinity of UST A and the septic holding tank. Most of the soils exceeding the PHC Soil Cleanup Criteria were excavated from the ground and removed offsite.

Total area of surficial contamination in square feet: N/A

If no soil sampling has been conducted, discuss areas of potentially contaminated soil, areas that are visibly contaminated or results from soil gas surveys.

The entire site is paved with asphalt.

Number of people occupying residences or attending school or day care on or within 200 feet of the site: <20
Number of workers on or within 200 feet of the site: 25
Number of on-site employees: 10

Identify terrestrial sensitive environments within 200 feet of observed contamination.

None were identified

Determine if any commercial agriculture, silviculture, livestock production or grazing are present within 200 feet of observed contamination.

None were identified.

PART V: GROUND WATER ROUTE

A. HYDROGEOLOGY

Describe geologic formations and the aquifer(s) of concern. Include interconnections, confining layers, discontinuities, composition, hydraulic conductivity and permeability.

The site area lies within the Newark Supergroup and is underlain by the late Triassic/early Jurassic Passaic Formation (formerly known as the Brunswick Formation). The Passaic Formation consists of interbedded sequences of reddish-brown siltstone, shaly siltstone, and mudstone. The thickness of the Passaic Formation is estimated to be over 10,000 feet. The sediments of the formation strike approximately north 45° east and dip 10° northwest. Fractures and/or joints may make up a significant part of the Passaic Formation, however, their presence is not well documented for the site area. These joints or fracture planes, where they exist, are high angle, nearly normal to the bedding plane, dip and strike northeast - southwest. Above the bedrock, a surface layer of no more than 10 feet, and generally less than 5 feet, of weathered Passaic Formation rock is present.

At least two aquifers exist beneath the site including an overburden aquifer and an upper bedrock aquifer. The overburden aquifer, when present, occurs within the weathered rock on top of the bedrock of the Passaic Formation. After advancing four geoprobe borings on the ESM site, the NJDEP, SA did not find water in the weathered zone. During two separate Phase II Investigations in 1999 and 2000, five temporary well points were installed. After ground water was given time to accumulate in the temporary points, ground water samples were collected. In August 2009, NJDEP, SA installed a 19-foot monitoring well to the top of the bedrock and while it initially appeared to be dry, a significant column of ground water eventually infiltrated the well.

Gauging the seven monitoring wells installed on the ESM and KMS site revealed that the depth to bedrock ground water ranges between 16 and 34 feet bgs. Ground water in the monitoring well installed within the unconsolidated aquifer was detected at 5.75 feet bgs. Published reports indicated that the bedrock ground water flow direction in the area was south with a westward component. The ground water flow map resulting from the on-site monitoring wells indicated that bedrock ground water flow was toward the south-southwest (MAP 8) however, the regional ground water flow direction is affected by a seemingly anomalous ground water elevation reading at monitoring well MW-1. The mounded ground water in MW-1 caused a radial flow pattern around MW-1 that locally disrupted the reported regional ground water flow direction. A second ground water flow map (Map 8A) was prepared excluding the ground water elevation data from MW-1. Map 8A confirmed that without the high ground water elevation detected in MW-1, the ground water flow direction is to the south-southwest toward Franklin Street. The mounding of the ground water in MW-1 is caused by differences in the hydro-geologic character of the bedrock which may vary both horizontally and vertically over short distances.

The presence of higher or lower yield wells also affects the localized ground water flow direction. Monitoring wells MW-3, MW-5 and MW-7 had to be deepened from a depth of 55 feet bgs to a depth of 65 feet due to low ground water yield.

Local aquifer testing has enabled the estimation of aquifer properties at the site. Reports indicate that the bedrock aquifer responds as a leaky confined system with vertical recharge occurring from the overburden aquifer, surface water bodies when present and/or precipitation

infiltration and percolation. Local transmissivity ranges from 150 - 313 square ft/day. Hydraulic conductivity ranges between 0.799 to 1.83 ft/day with an average of 1.31 ft/day. Horizontal hydraulic gradient averages 0.005 ft/ft to the south. Vertical hydraulic gradient ranges from 0.002 to 0.043 ft/ft downward with an average of 0.0185 ft/ft. Storativity values (developed because aquifer modeled as "confined") ranged between 5.0E-05 to 1.0E-3 with a mean value of 2.0 E-04 (Attachment I).

Horizontal ground water flow velocity averaged 0.327 ft /day or 119 ft/year in the area of the site. Because fracture fabric analysis, potential preferential ground water flow direction interpreted from pumping test results and the effects of local supply wells have not been considered in the interpretation of ground water flow rate and direction, the calculated ground water flow velocity is an average of the aquifer. In theory, ground water flow velocities are greater than within the rock matrix. Since flow velocities may be much greater along fractures or joints, ground water flow velocities within the joints or fractures may be greater than 119 ft/year. The pollutant transport rate coincides with the ground water flow velocity for each of the contaminants of concern. (Attachment I)

Due to the complexity of the bedrock ground water system near the Franklin Street Ground Water Area, the localized ground water flow direction is difficult to determine. Local variations in the bedrock structure can drastically influence ground water flow direction. Pumping influences from the neighborhood wells played an important role in ground water flow patterns until the homes were hooked up to a municipal system. The combined observation that a highly contaminated source area was detected at the ESM site, and the contaminant distribution is southwest of the source area supports the contention that ground water flows southwest from the ESM site toward Franklin Street.

Depth to water table: 25 feet
Depth to aquifer of concern: 25 feet
Depth from lowest point of waste disposal/storage to highest seasonal level of the saturated zone of the aquifer of concern: to be determined: 0 feet, aquifer is contaminated

Thickness and permeability of the least permeable layer between the ground surface and the aquifer of concern: 5 to 25 feet bgs, 10 - 4cm/sec (fractured shale)
Thickness of aquifer: 10,000 feet
Direction of ground water flow: radial around MW-1, but generally south-southwest
Net precipitation Factor Value: 6
Karst: No

Wellhead Protection Area within 4 miles of the site: No
Does a waste source overlie a Wellhead Protection Area: No

B. MONITORING WELL INFORMATION

Briefly discuss why the monitoring wells were installed.

In February and August 2009, NJDEP, SA installed 9 monitoring wells in seven locations on the KMS and ESM properties in an effort to determine a source of the PCE that impacted the homeowner wells in the FSGWA (Map 8). MW-7, MW-2 and MW-2D were installed in locations that were believed to be hydraulically upgradient of the source areas and the FSGWA. MW-2D was installed in the vicinity of MW-2. MW-2D was cased to 100 feet bgs and had an open boring from 100 to 125 feet bgs.

MW-1, MW-3, MW-4 and MW-5 were installed in an effort to identify a source of the PCE. MW-4 and MW-5 were installed in the assumed hydraulic downgradient position relative to KMS and ESM, and it was hoped that these wells would be of sufficient depth to intersect the contaminant plume as it left the farthest downgradient property boundary, right before the FSGWA. Based upon sample results which revealed low concentrations of PCE, it is likely that the plume occurred at greater depths, drawn down by the pumping influence of the residential wells at Franklin Street. MW-1 was installed in the vicinity of the septic system in bedrock and steel-cased to 30 feet bgs with an open boring 30 to 55 feet bgs.

MW-6 and MW-6S were installed on the ESM site as a result of information obtained as part of the subsurface investigation performed by ESC in October 1999. The monitoring wells were installed in an attempt to identify an additional PCE source area where a suspected septic system was identified by ESC.

Tabulate all wells below:

Well No.	Site	Casing Depth (feet bgs)	Open Boring (feet bgs)	Formation	Location
MW-1	KMS	30	30 – 55	Passaic	source
MW-2	KMS	30	30 – 55	Passaic	background
MW-2D	KMS	100	100 – 125	Passaic	background
MW-3	KMS	30	30 – 65	Passaic	source
MW-4	ESM	30	30 – 55	Passaic	down gradient/source
MW-5	ESM	30	30 - 65	Passaic	down gradient/source
MW-6	ESM	30	30 - 65	Passaic	source
MW-6S	ESM	4	4 - 19	Passaic	source
MW-7	Offsite	30	30 - 65	Passaic	background

On September 9, 2009 the monitoring wells at ESM and KMS were gauged to prepare a ground water contour map. The gauging results are presented in the table below and Map 8 summarizes the gauging data.

Well ID	Well Diameter (inches)	Top of Casing Elevation	Depth to Water (feet)	Gallon Per foot	Ground Water Elevation
MW-1	6	88.39	16.64	1.47	71.75
MW-2	6	86.64	22.00	1.47	64.64
MW-2D	6	86.47	DNG	1.47	-
MW-3	6	91.33	30.10	1.47	61.23
MW-4	6	94.27	33.87	1.47	60.40
MW-5	6	93.77	32.75	1.47	61.02
MW-6	6	90.80	29.84	1.47	60.96
MW-6S	4	90.70	5.75	0.65	84.95
MW-7	6	88.43	24.77	1.47	63.66

DNG – Did not gauge

For each sampling event, identify the sampler and date of sampling and list the name, address and certification number of the lab which performed the analyses. State who conducted the quality assurance review of the data and summarize any data qualifications.

The following table summarizes the analysis of ground water samples collected from the nine monitoring wells installed on the ESM and the KMS facilities. The monitoring well locations are depicted on Map 5. The ground water samples were collected on March 24 and September 9, 2009. (Attachment K).

For the September 9, 2009 sampling event, ground water samples were submitted to both the NJDEP Mobile Lab and the USEPA Region 2 Laboratory. The USEPA laboratory in Edison, NJ performed the analysis of the samples and the quality assurance review. The ground water samples were analyzed under the title 'Kleiner Specialty Metals #09030055' and Kleiner Metal Specialties #09090009 (Attachment L). The NJDEP analytical data was also used in this table for 1,1-dichloroethene in MW-7.

Tabulate contaminants identified in each well. Include well number, contaminant levels and corresponding NJDEP Ground Water Quality Standard (GWQS).

SAMPLE #	SITE/DATE	CONTAMINANT	CONCENTRATION (parts per billion)	NJDEP GWQS
MW-1 EPA	KMS 03/09	toluene	6.5	1000
MW-1 EPA	KMS 03/09	chlorobenzene	6.5	50
MW-1 EPA	KMS 03/09	trans-1,2-dichloroethene	7	100
MW-1 EPA	KMS 03/09	1,2-dichlorobenzene	18	600
MW-1 EPA	KMS 03/09	**vinyl chloride**	**27**	**5**
MW-1 EPA	KMS 03/09	**trichloroethene**	**620**	**1**
MW-1 EPA	KMS 03/09	**cis-1,2-dichloroethene**	**1,600**	**70**
MW-1 EPA	KMS 03/09	**tetrachloroethene (PCE)**	**4,800**	**1**
MW-2 EPA	KMS 03/09	**MTBE**	**110**	**70**
MW-2D EPA	KMS 03/09	**tetrachloroethene (PCE)**	**7.2**	**1**
MW-2D EPA	KMS 03/09	toluene	11	1000
MW-2D EPA	KMS 03/09	acetone	22	700
MW-2D EPA	KMS 03/09	**MTBE**	**430**	**70**
MW-3 EPA	KMS 03/09	**MTBE**	**140**	**70**
MW-4 EPA	ESM 03/09	none detected		-
MW-5 EPA	ESM 03/09	**tetrachloroethene (PCE)**	**5.4**	**1**
MW-5 EPA	ESM 03/09	MTBE	11	70
MW-5 EPA	ESM 03/09	acetone	12	700
MW-6S EPA	ESM 09/09	**vinyl chloride**	**130**	**5**
MW-6S EPA	ESM 09/09	**cis-1,2-dichloroethene**	**110**	**70**
MW-6S EPA	ESM 09/09	**trichloroethene**	**39**	**1**
MW-6S EPA	ESM 09/09	**tetrachloroethene (PCE)**	**2,200**	**1**
MW-6S EPA	ESM 09/09	MTBE	8.8	70
MW-6 EPA	ESM 09/09	trans-1,2-dichloroethene	5.9	100
MW-6 EPA	ESM 09/09	**tetrachloroethene (PCE)**	**25**	**1**
MW-6 EPA	ESM 09/09	**MTBE**	**170**	**70**

SAMPLE #	SITE/DATE	CONTAMINANT	CONCENTRATION (parts per billion)	NJDEP GWQS
MW-7 DEP	Offsite 09/09	**1,1 dichloroethene**	**1**	**1**
MW-7 EPA	Offsite 09/09	**cis-1,2 dichloroethene**	**170**	**70**
MW-7 EPA	Offsite 09/09	**trichloroethene**	**93**	**1**
MW-7 EPA	Offsite 09/09	**tetrachloroethene (PCE)**	**200**	**1**
MW-7 EPA	Offsite 09/09	MTBE	7.9	70

KMS – Kleiner Metal Specialties ESM – Edison Stamping and Manufacturing
MTBE - methyl-tertiary-butyl ether
EPA – Samples analyzed by the USEPA Region 2 Laboratory
Bolded concentrations exceed NJDEP Ground Water Quality Standards

Discuss contaminants identified in the monitoring wells above background and the ground water quality standards and provide the rationale for site attribution. State whether Level 1 or Level 2 contamination is present.

PCE, TCE, cis-1,2-DCE and vinyl chloride were detected in several wells at concentrations as high as 2,200 ppb, 620 ppb, 1,600 ppb and 27 ppb respectively. Information collected at the ESM site indicates that the PCE release resulted from the use of a septic system.

MTBE was detected in MW-6 at a concentration of 170 ppb which exceeded the NJDEP GWQS of 70 ppb. The MTBE was detected in bedrock monitoring wells and its presence is not likely to be due to on-site activities. There are several gas stations located within 0.25 miles of the subject property and a hydraulically upgradient well installed on the KMS site contained MTBE at concentrations exceeding the GWQS in both the shallow and deep bedrock wells. The source of the MTBE is offsite.

Based upon these results, a release to ground water of PCE attributable to the site has been documented above background and the NJDEP Ground Water Quality Standards. Level 1 contamination is present.

C. OTHER GROUND WATER SAMPLING

Discuss any other ground water sampling that has occurred. For each sampling event, identify the sampler and date of sampling and list the name, address and certification number of the lab which performed the analyses. State who conducted the quality assurance review of the data and summarize any data qualifications.

On February 9, 2009 NJDEP, SA conducted a preliminary subsurface investigation at the ESM site. A geoprobe was used to collect soil and ground water samples in the unconsolidated sediments overlying the bedrock. Five borings were advanced on the ESM property but ground water was not detected in any of them. (MAP 4)

In 2009, NJDEP, SA acquired a map prepared by ECM as part of a subsurface investigation they conducted in 1999. The map identified the locations of five temporary well points installed at the site and summarized analytical results of ground water samples collected from the well points. The following table presents the analytical data and Map 7 shows the sample locations. Specific information concerning the sampling event – including laboratory used and analytical summary sheets - was not available. SA used the information to site monitoring wells MW-6 and MW-6S.

Tabulate sample numbers and the associated Area of Concern or describe the sample location. Identify samples which establish background conditions.

Environmental Compliance Monitoring, Inc. 10/99	
SAMPLE #	**ASSOCIATED AOC/SAMPLE LOCATION**
TW-1	Temporary Well Point – Near UST A
TW-2	Temporary Well Point - Near UST B
TW-3	Temporary Well Point - Near Septic Holding Tank
TW-4	Temporary Well Point - Possible Septic System
TW-5	Temporary Well Point - Unknown AOC

Tabulate contaminants identified in ground water. Include sample number, contaminant levels and corresponding NJDEP Ground Water Quality Standard (GWQS).

SAMPLE #	DEPTH (feet bgs)	CONTAMINANT	CONCENTRATION	NJDEP GWQS
TW-1	unknown	MTBE	22	70
		PCE	**2**	1
		Naphthalene	2.2	300
		TIC's	20 J	500
TW-2	unknown	MTBE	8	70
		TIC's	22 J	500
TW-3	unknown	MTBE	9	70
		Naphthalene	4.4	300
		TIC's	62 J	500
TW-4 *	unknown	**PCE**	**6,600**	1
		TIC's	**18,340 J**	500
TW-5	unknown	MTBE	5	70
		PCE	1	1
		Naphthalene	2.9	300
		TIC's	29 J	500

* A notation on Map 7 indicated that the ground water sample collected from TW-4 required a 100x dilution which increased the method detection levels. As a result, compounds present at lower concentrations may have been masked.

Bolded concentrations exceed NJDEP Ground Water Quality Standards
J – Estimated concentration
TIC – Tentatively Identified Compound

Discuss contaminants identified in ground water above background and the ground water quality standards and provide the rationale for site attribution. State whether Level 1 or Level 2 contamination is present.

PCE was detected in the shallow ground water overlying the bedrock at the ESM site at concentrations as high as 6,600 ppb. The ground water sample was collected from a former septic system used by ESM and the contamination is attributable to site operations.

Based upon the PCE detected in the temporary well point, NJDEP, SA installed monitoring wells MW-6s and MW-6 in the vicinity of the well point. PCE was detected in each well at concentrations of 2,200 ppb and 25 ppb respectively.

Level 1 contamination was detected in both the shallow aquifer and the bedrock aquifer.

D. POTABLE WELL INFORMATION

Distance to nearest potable well: 300' (Attachment M)
Depth of nearest potable well: 143'

Identify all public supply wells within 4 miles of the site and tabulate for each aquifer the population utilizing that aquifer for drinking purposes. Include only those populations which utilize wells that have a potential to be impacted, not wells which are actually impacted. Do not list private potable wells individually in this table, but include populations served by these private wells. (Attachment N and Map 9)

The Elizabethtown Water Department supplies water to an approximate population of 609,441. Of its total 52-million gallon per day capacity, 85% is obtained from surface water sources. Ground water is obtained from 129 active wells, 19 within a 4-mile radius from the site. It is assumed that each well is providing 1/129 of the total supply to 15% of the total population served by the company.

The Middlesex Water Department supplies water to an approximate population of 325,000. Of its total 42-million gallon per day capacity, 57% is obtained from surface water sources. Ground water is obtained from 31 active wells, 21 within a 4-mile radius from the site. It is assumed that each well is providing 1/31 of the total supply to 43% of the total population served by the company.

A map and a table summarizing the public supply wells within 4 miles of the site are included in Map 9. Attachment M is a well location map and well search summary prepared for a gasoline station located less than 300 feet southeast of the ESM site. The following table summarizes the population using ground water for drinking purposes.

Distance from Site (miles)	Population	Aquifer
0 – 0.25	0	Passaic Formation
0.25 – 0.50	0	"
0.50 – 1.0	0	"
1.0 – 2.0	0	"
2.0 – 3.0	38,900	"
3.0 – 4.0	87,271	"

(Attachment N)

State whether ground water is blended with surface water, ground water or both prior to distribution:

Ground water is blended with surface water at each of the two water companies. (Attachment N)

Discuss private potable well use within 4 miles of the site. Include depth, formation and distance, if available.

Groundwater and Environmental Services, Inc. conducted a well search as part of a Biennial Certification Report for a Ground Water Classification Exemption Area for a former Getty Gasoline Station (NJDEP Case#: 91-01-08-1116). The results of their well search indicated that there were six homes within the Franklin Street Development that were still using wells. This information was not field verified by SA. The depths of the wells ranged between 90 and 210 feet bgs and ground water is obtained from the Passaic Formation. (Attachment M)

There are other sporadic occurrences of private potable wells within 4 miles of the site. There is no information available on specific private potable wells in the area.

Discuss the site's source of potable water.

The site receives water from the Middlesex Water Department.

Discuss information concerning the population utilizing wells that are known to be contaminated with hazardous substances which are attributable to the site. Also include any other evidence of contaminated drinking water or wells closed due to contamination. State whether Level 1 or Level 2 contamination is present.

In 1982, PCE was detected in a private well in a home located on Franklin Street in the vicinity of ESM (MAP 6). The NJDEP conducted additional sampling of private potable wells throughout the 1980's and early 1990's and discovered that additional residents had also been impacted by PCE. The area in which the contamination was concentrated was named the Franklin Street Ground Water Contamination Area (FSGWCA) and consisted of a suburban residential neighborhood located in southern Piscataway Township along the South Plainfield Township Border. The FSGWCA is a community of approximately 60 homes. PCE was first detected in 1982 at 10 Franklin Street at a concentration of 44 ppb. In 1990, an additional ground water sample collected from 10 Franklin Street had a PCE concentration of 1,400 parts per billion (ppb). Degradation products of PCE were also detected. During the fall of 1990, eight-inch water supply lines were run along Franklin Street, Michael Street, Carpathia Street, Bohdan Street and Olga Place and most of the homes were connected to the Elizabethtown Public Water Supply System. (Attachment I)

From 1989 through 1993, the South Plainfield Department of Health discovered that six residential wells on Shevchenko Avenue in South Plainfield were contaminated with 1,1-DCE, TCE, PCE and 1,1-DCA. The contamination was confirmed through sampling by NJDEP in 1992 and 1993. The highest concentrations detected were 75.0 ppb for PCE, 12.7 ppb for TCE, 22.8 ppb for 1,1-DCE and 19.0 ppb for 1,1-DCA. The MCL for these contaminants were exceeded in all six wells. The impacted wells are approximately 800 feet east of ESM and it is not likely that contaminant releases from ESM were responsible for the contamination. Eighteen people were exposed to contaminated potable water on Shevchenko Avenue and all are currently on municipal water supply.

Three gasoline stations are located within 700 feet of the ESM site. Two of the three stations are currently undergoing investigations by the NJDEP. NJDEP, SA has determined that the contaminants of concern at each of the stations were BTEX only.

The ESM facility is located approximately 300 feet northeast of Franklin Street. Based on an area evaluation by the NJDEP, Bureau of Ground Water Pollution Abatement, area bedrock ground water was expected to flow southward with a westward component. The ground water flow direction determined by SA at the ESM site is south-southwest which is toward the FSGWCA.

Based on the ground water sampling results from the monitoring wells installed on the ESM property, the site is a source of the contamination detected at the FSGWCA. Level 1 contamination is present.

Identify any resource uses of ground water within 4 miles of the site (i.e., commercial livestock watering, ingredient in commercial food preparation, supply for commercial aquaculture, supply for major or designated water recreation area, excluding drinking water use, irrigation of commercial food or commercial forage crops, unusable).

There are several industrial wells in the vicinity of the site. The two closest are 0.48 and 0.53 miles from the site and are used for industrial purposes. A concrete company operates two wells 1.66 miles from the site. A greenhouse located 2.35 miles from the site uses two wells. The greenhouse does not produce food. (Map 9)

PART VI: SURFACE WATER ROUTE

A. SURFACE WATER

Does a migration pathway to surface water exist? No
Flood plain: Site is not in a flood plain
Size of drainage area for sources at the site in acres:
2-year, 24-hour rainfall in inches: 3.12 (Attachment O)
Does contaminated ground water discharge to surface water? Unknown

Identify known or potentially contaminated surface water bodies. Follow the pathway of the surface water and indicate all adjoining bodies of water along a route of 15 stream miles.

Surface Water Body	Distance for Site (miles)	Flow (cfs)	Usage(s)
Tributary to Bound Brook	0.25	<10	No known usage
Bound Brook	1.65	10 – 100	recreational fishing
New Market Pond	1.37	10 – 100	recreational fishing
Tributary to Ambrose Brook	0.60	10 - 100	Unknown
Lake Nelson	1.23	<10 (est.)	Unknown

No stream flow data is available for Bound Brook, Ambrose Brook and New Market Pond. Flow rates for these water bodies are estimated.

Identify drinking water intakes and fisheries within 15 miles downstream (or upstream in tidal areas) of the site. For each intake or fishery identify the distance from the point of surface water entry, the name of the fishery and/or supplier and population served.

Bound Brook and New Market Pond are used for recreational fishing; however, catch numbers are not available. All surface waters down stream of the site are classified as Fresh Water 2 Non-Trout Maintenance.

Identify drinking water intakes and fisheries within 15 miles downstream (or upstream in tidal areas) of the site. For each intake or fishery identify the distance from the point of surface water entry, the name of the fishery and/or supplier and population served.

There were no fisheries or drinking water intakes identified within 15 miles downstream of Bound Brook.

Discuss surface water and/or sediment sampling conducted in relation to the site. Include surface water body, sampling date, sampling agency or company. State whether Level 1 or Level 2 contamination is present for surface water. State whether Level 2 contamination of sediments is present. For each sampling event, list the name, address and certification number of the lab which performed the analyses. State who conducted the quality assurance review of the data and summarize any data qualifications. Discuss visual observations if analytical data are not available (include date of observation).

No sampling was conducted.

Determine if a contaminant on site displays bioaccumulative properties. Identify all bioaccumulative substances that may impact the food chain.

No such contaminants were detected.

Determine if surface water is used for irrigation of commercial food or commercial forage crops, watering of commercial livestock, commercial food preparation or recreation.

Surface water downstream of the site is not used for irrigation of food or commercial forage crops, watering of livestock or commercial food preparation.

B. SENSITIVE ENVIRONMENTS

Identify all sensitive environments, including wetlands, along the 15 stream-mile pathway from the site:

Since the release of contaminants occurred in the subsurface, a surface water pathway was not evaluated. Map 11 identifies wetlands located within 4 miles of the site.

C. LIKELIHOOD OF RELEASE

Discuss the likelihood of a release of contaminant(s) to surface water, include any additional information concerning the surface water route. Identify contaminants detected and provide a rationale for attributing them to the site. Identify any intakes, fisheries and sensitive environments, listed above, that are or may be actually contaminated by hazardous substances attributed to an observed release from the site.

Since the contaminant release was to the subsurface, it is unlikely that the surface water pathway of the site was impacted.

PART VII: AIR ROUTE

A. POPULATION AND SENSITIVE ENVIRONMENTS

Identify populations residing within 4 miles of the site.

Distance (miles)	Population
on site	12 workers
> 0 - 1/4	130
> 1/4 - 1/2	1,684
> 1/2 - 1	5,522
> 1 - 2	25,509
> 2 - 3	62,855
> 3 - 4	80,954

MAP 12

Identify sensitive environments and wetland acreage within 4 miles of the site.

Distance	Type of environment	Wetland acreage
0 - 1/4	Forested wetlands and fresh water marshes	7
> 1/4 - 1/2	Forested wetlands and fresh water marshes	114
> 1/2 - 1	Forested wetlands and fresh water marshes	355
> 1 - 2	Forested wetlands and fresh water marshes	1,459
> 2 - 3	Forested wetlands and fresh water marshes	1,874
> 3 - 4	Forested wetlands and fresh water marshes	2,451

MAP 11

B. LIKELIHOOD OF RELEASE

Describe the likelihood of release of hazardous substances to air. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For an observed release, discuss the supporting analytical evidence and its significance relative to background.

There is no threat of release to ambient air from this site. However, based upon current NJDEP guidance regarding indoor air, it is possible that the site building itself may be impacted by vapor intrusion from the significant PCE contamination detected in the shallow aquifer.

If a release to air is observed or suspected, determine the number of people that reside within the area of air contamination.

A release to air was neither observed nor suspected.

If a release to air is observed, identify any sensitive environments that are located within the area of air contamination.

A release to air was neither observed nor suspected.

PART VIII: REMOVAL ACTION AND/OR IEC CONDITION

Discuss conditions which constitute an Immediate Environmental Concern (IEC) or warrant EPA Removal Action consideration (improper storage of incompatible/reactive materials, leaking or unsound containers, inadequate site security, subsurface gas threat).

There were no conditions observed on the site that would constitute an IEC.

PART IX: CONCLUSIONS AND RECOMMENDATIONS

Between 1940 and 1968, Kleiner Metal Specialties (KMS) operated on the 4490 Stelton Road property and manufactured small, custom-made metal parts for the medical, aerospace and automobile industry. The parts were manufactured primarily out of stainless steel using high-speed cutting techniques and by reforming metal tubes. On or about 1968, KMS moved to an adjacent and larger property after building a new manufacturing facility on New Brunswick Avenue. Edison Stamping and Manufacturing Co. (ESM) purchased the Stelton Road site from KMS in 1968. Manufacturing operations conducted by ESM were similar to those of KMS.

Documentation from the New Brunswick Avenue site indicated that KMS stored and used tetrachloroethene (PCE) in their second facility from 1968 to approximately 1986. It is reasonable to assume that PCE was also used in their original, Stelton Road facility during their

occupancy between 1940 and 1968. Furthermore, it is possible that ESM also used PCE although definitive documentation of its use has not been obtained. Consultant reports contend that sanitary wastes generated at the 4490 Stelton Road site were disposed into a septic holding tank until 1980, when ESM connected to a municipal sewer system. The fate of the degreasers and other industrial wastes generated from manufacturing processes was not reported. Lacking a municipal waste disposal system prior to 1980, it is likely that degreaser wastes were disposed on site.

The possibility that an unreported septic system existed on the ESM site was discovered during the review of a PA/SI Report for the KMS site prepared by Environmental Strategies Corporation in August 2000 (Attachment F). On page 5 of the report, there was a discussion of a sewer system used by ESM but located on the KMS property. An agreement was made between KMS and ESM to allow ESM to connect to the municipal sewerage system through piping located on the KMS property. As part of the agreement, ESM agreed to discontinue its use of the septic system located on the KMS property and to release KMS from further liability in connection with the operation of the septic system. The NJDEP could not determine the location of an additional septic system on the KMS property.

In an effort to locate the suspected septic system on the ESM site, NJDEP, SA advanced a series of Geoprobe points to assess shallow ground water and installed monitoring wells to assess bedrock ground water. None of the borings or monitoring wells indicated the location of an unknown septic system on the ESM site.

In May 2009, NJDEP, SA obtained a copy of a map prepared in support of a Phase II investigation conducted on the ESM property in October 1999. The map (Map 7) detailed the location of five temporary well points and the analytical results of ground water samples collected from the well points. Temporary well point TW-4 was located in an area that NJDEP, SA had not investigated. A ground water sample collected from TW-4 had a reported PCE concentration of 6,600 ppb. In August 2009, NJDEP, SA installed monitoring well MW-6S to the top of bedrock in the area of TW-4 to assess the shallow ground water system. A ground water sample collected from MW-6S had a PCE concentration of 2,200 ppb. Monitoring Well MW-6 was installed within the same area to assess the ground water in the bedrock. A ground water sample collected from MW-6 indicated a PCE concentration of 25 ppb. Based upon these results, it is likely that the suspected septic system had been discovered. The high concentrations remaining in the ground water indicates that a significant release of chlorinated solvents had occurred on the ESM site

In 1982, PCE was detected in a private well in a home located on Franklin Street in the vicinity of ESM. The NJDEP conducted additional sampling of private potable wells throughout the 1980's and early 1990's, discovering that additional residents had been impacted. In 1990 a public water supply line was provided to many of the residents.

The former ESM facility is located approximately 300 feet northeast of Franklin Street. Based on an area evaluation by the NJDEP, Bureau of Ground Water Pollution Abatement, area bedrock ground water is expected to flow southward with a westward component. Combining the ground water elevation data obtained from the KMS site and offsite monitoring well MW-7, it was determined that the ground water flow direction was radial around MW-1. The mounding of the ground water in MW-1 disrupted the published regional ground water flow direction. Map 8A was prepared without the anomalous ground water elevation in MW-1. The resulting map indicates a ground water flow direction of south–southwest which both corresponded to the

direction of Franklin Street and confirmed the regional ground water flow direction derived from published sources.

Factors such as the mounding of ground water around MW-1 and other complexities within the area aquifer systems make the determination of ground water flow difficult. Working with a reported ground water flow direction of south with a westward component, NJDEP, SA developed a strategy to assess the subsurface conditions at the ESM site. Based upon the discovery of a compelling source of PCE and the south southwestern trend of the contaminant distribution from the ESM site, coupled with the significant effect of pumping by the residential wells, it is apparent that ground water flowed and may still flow south - southwest from the KMS site.

Due to its history of using chlorinated degreasers and the detection of a significant source of PCE in a septic artifact on its property, ESM (UTI-Kleiner, Accellent) is a source of the contamination at Franklin Street Ground Water Contamination.

Edison Stamping and Manufacturing Company along with Kleiner Metal Specialties and its successors (Accellent) should comply with N.J.A.C. 7:26E 4.4, Remedial Investigation of Ground Water.

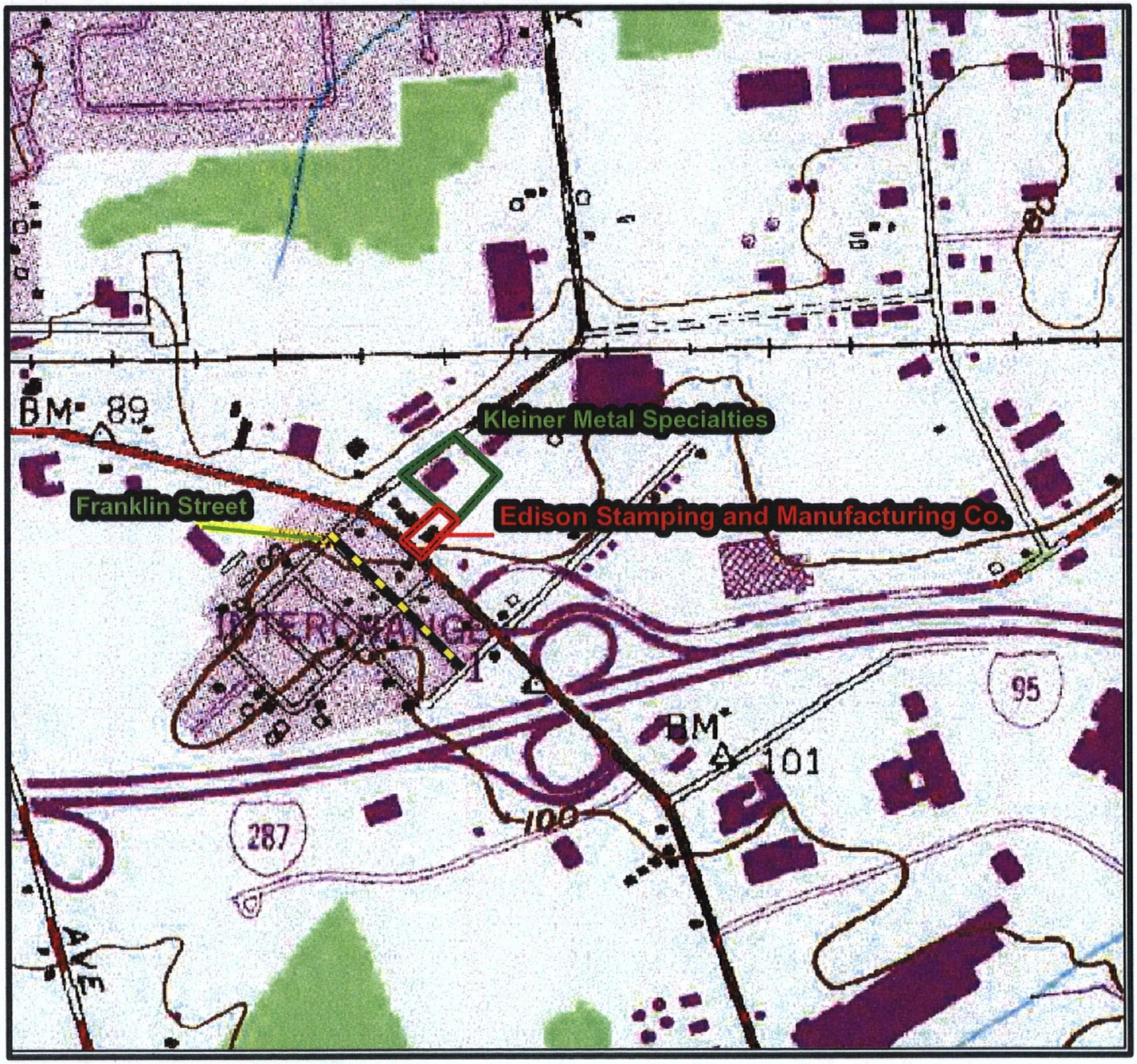
The HRS score for this site is greater than 28.5; therefore, the site is assigned a higher priority for further action under CERCLA.

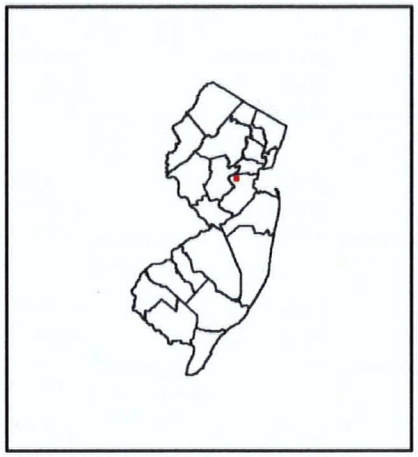
Submitted by: Steven Hoke
Title: Senior Geologist
NJDEP, Bureau of Environmental Measurements and Site Assessment
Date: 02/03/10

PART X: POTENTIALLY RESPONSIBLE PARTIES

NAME	OWNER/OPERATOR/ KNOWN DISCHARGER	CURRENT ADDRESS
Edison Stamping and Manufacturing Co.	Owner, Operator and suspected discharger	Unknown
Accellent Inc. (Formerly Kleiner Metal Specialties, United Tube International)	Operator/Known Discharger	Accellent Headquarters 100 Fordham Road Wilmington, MA 01887 USA Phone: 866-899-1392

MAPS



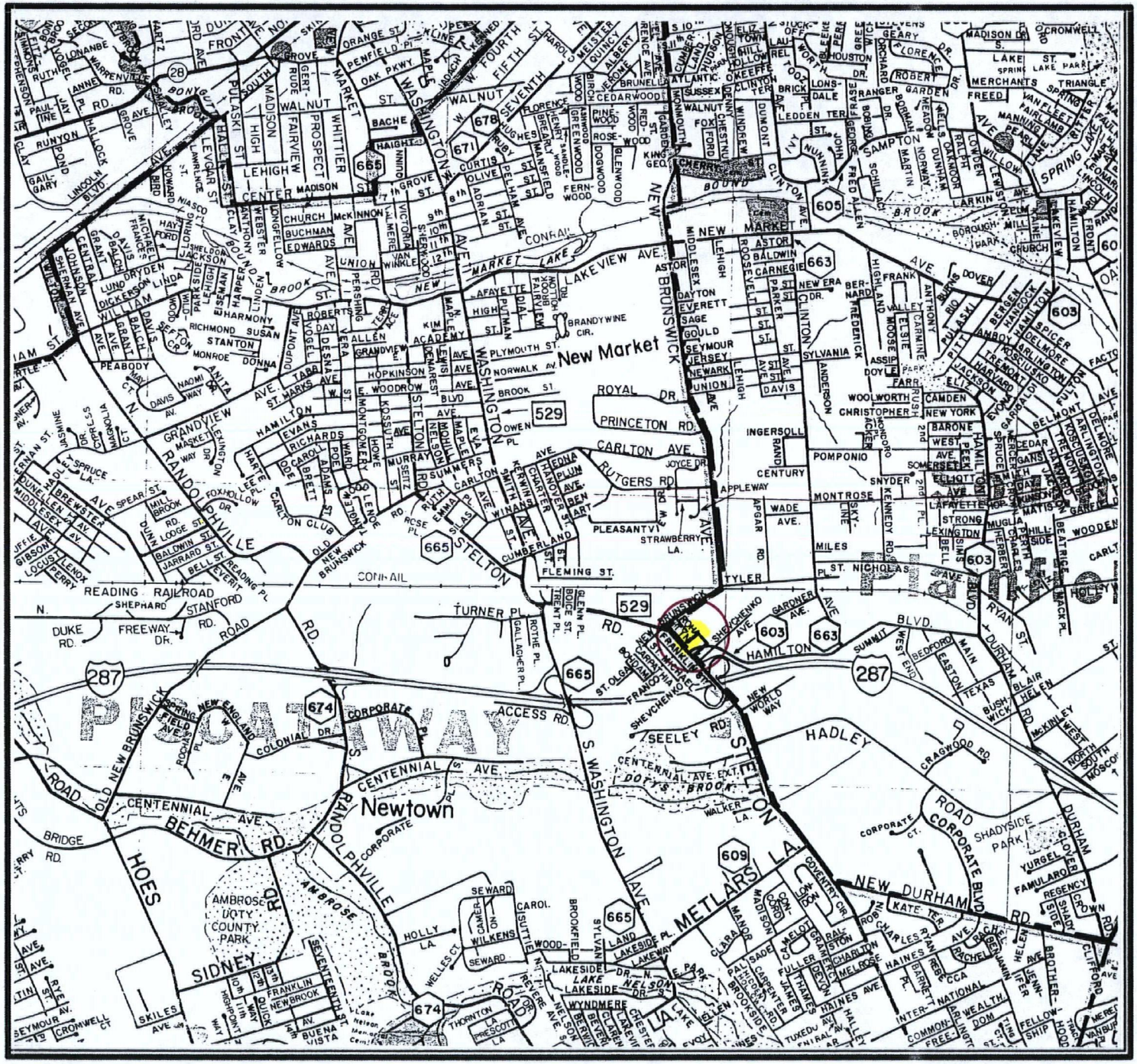


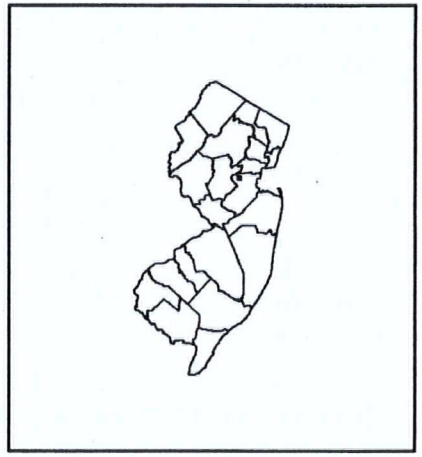
Edison Stamping and Manufacturing Co.
4490 Stelton Road
South Plainfield
Middlesex County, NJ

Plainfield Quadrangle Topographic Map

Map 1

0 495 990 1,980 2,970 3,960 Feet

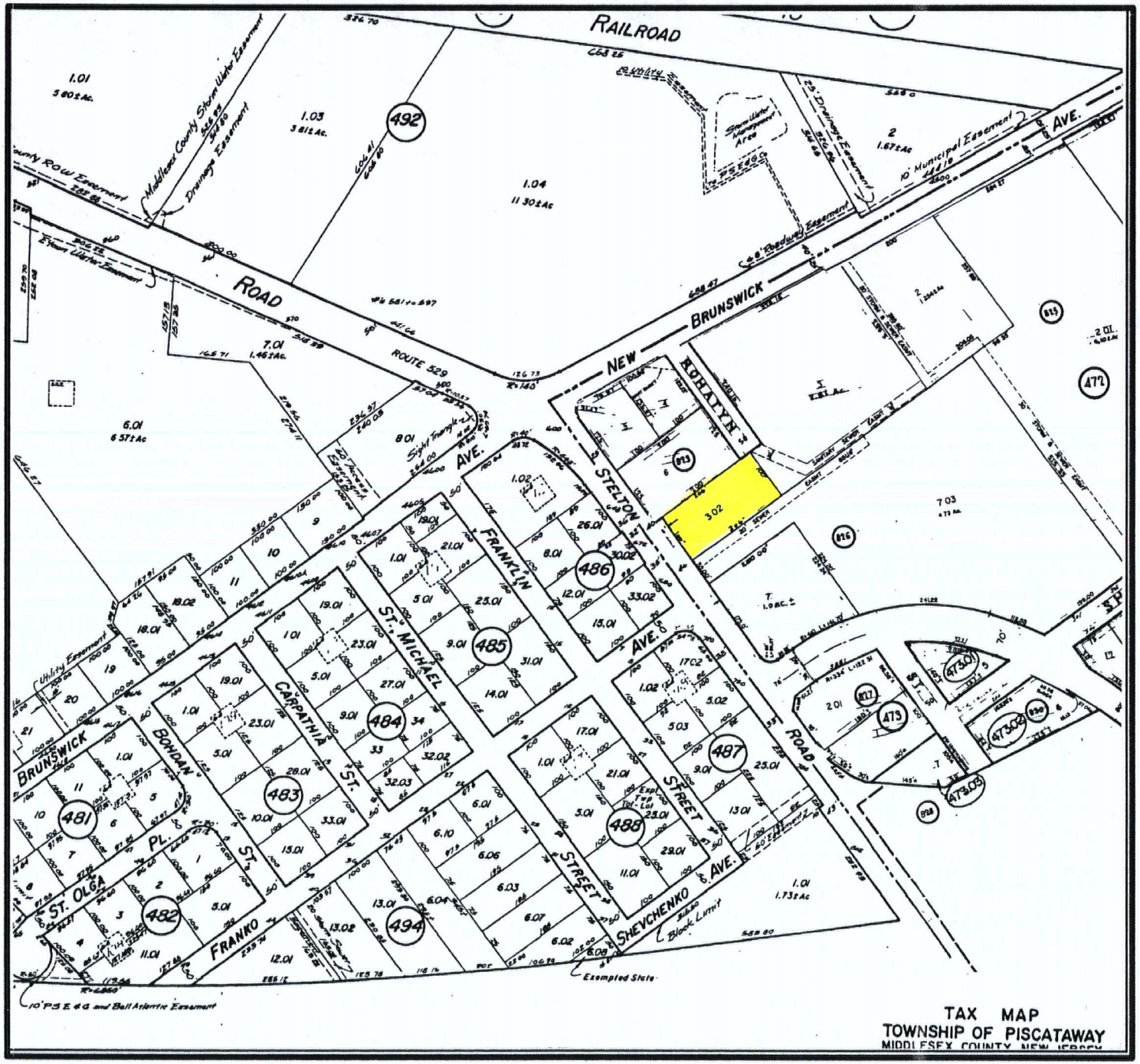


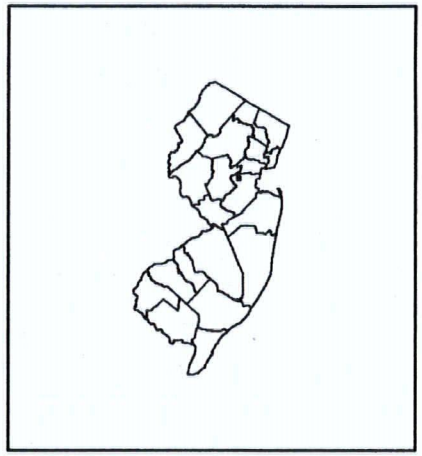


Edison Stamping and Manufacturing
4490 Stelton Road.
South Plainfield,
Middlesex County, NJ

Middlesex County Road Map

Map 2

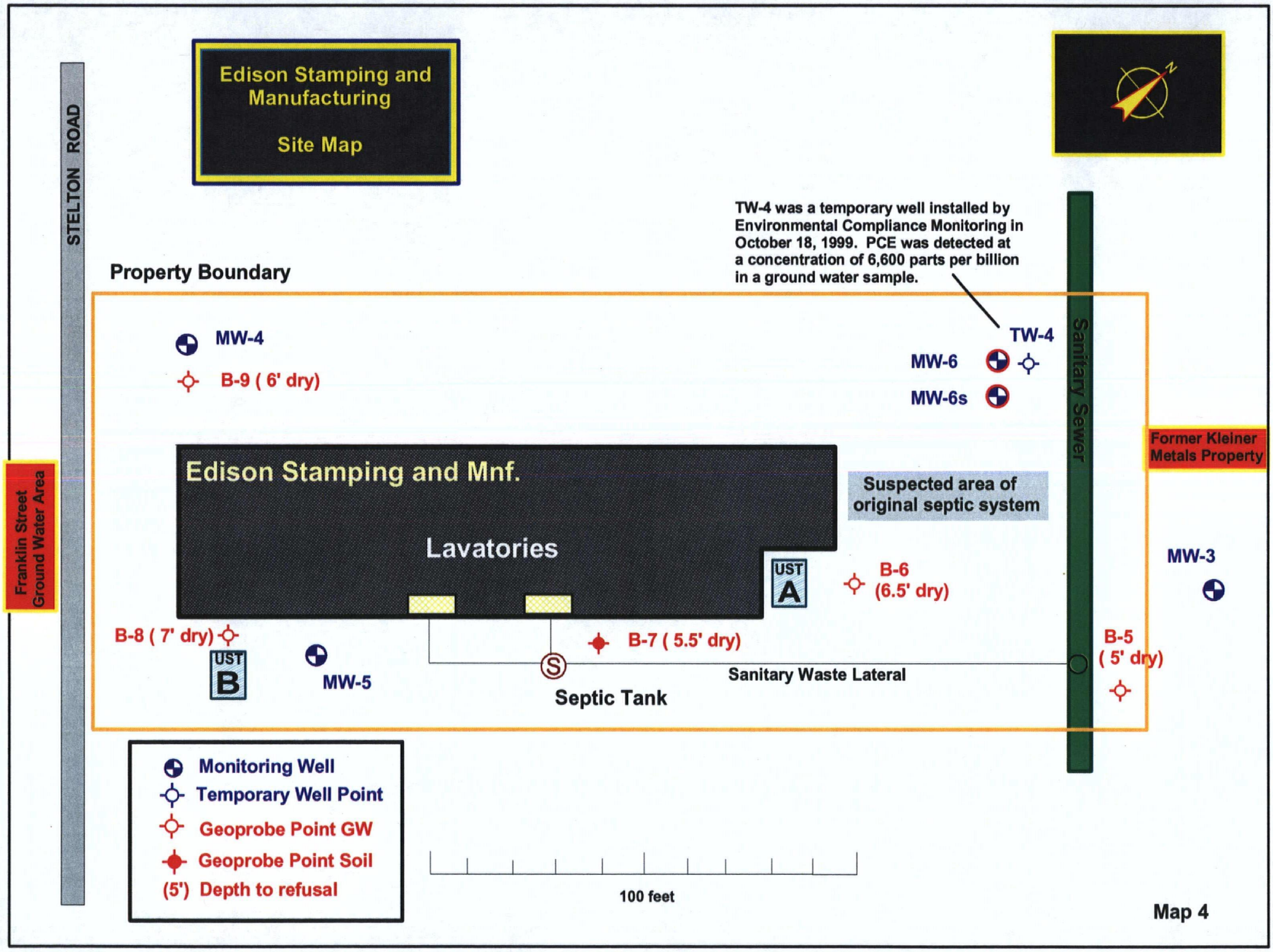


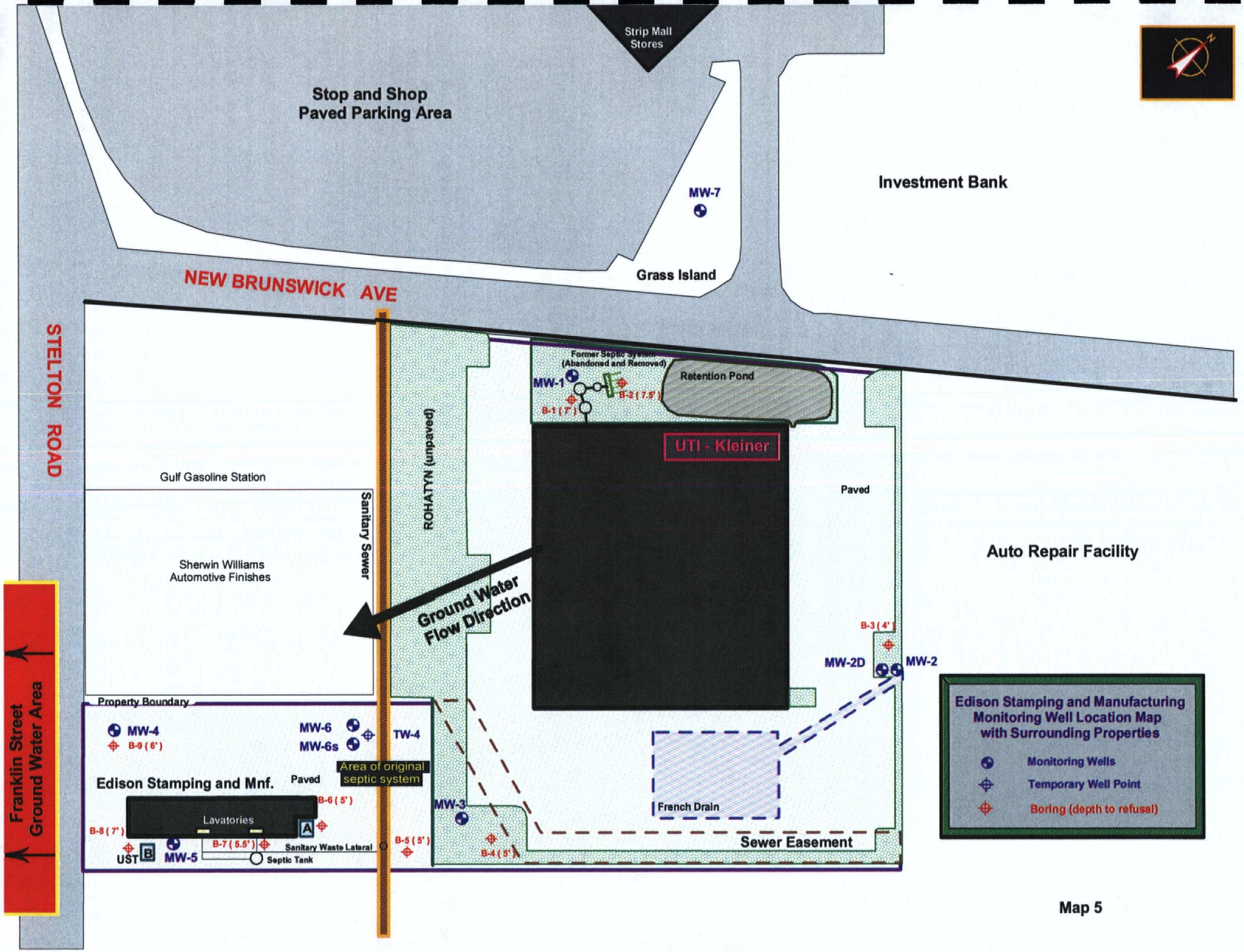


Edison Stamping and Manufacturing Co.
4490 Stelton Road
South Plainfield
Middlesex County, NJ

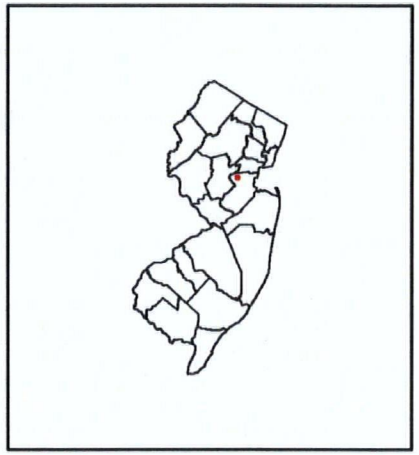
Local Tax Map

Map 3


Edison Stamping and Manufacturing
Site Map
STELTON ROAD
Property Boundary
TW-4 was a temporary well installed by Environmental Compliance Monitoring in October 18, 1999. PCE was detected at a concentration of 6,600 parts per billion in a ground water sample.
MW-4
B-9 (6' dry)
TW-4
MW-6
MW-6s
Sanitary Sewer
Former Kleiner Metals Property
Franklin Street Ground Water Area
Edison Stamping and Mnf.
Lavatories
Suspected area of original septic system
UST A
B-6 (6.5' dry)
MW-3
B-8 (7' dry)
UST B
MW-5
B-7 (5.5' dry)
Septic Tank
Sanitary Waste Lateral
B-5 (5' dry)
Monitoring Well
Temporary Well Point
Geoprobe Point GW
Geoprobe Point Soil
(5') Depth to refusal
100 feet
Map 4


Strip Mall Stores
Stop and Shop Paved Parking Area
Investment Bank
MW-7
Grass Island
NEW BRUNSWICK AVE
STELTON ROAD
Former Septic System (Abandoned and Removed)
Retention Pond
MW-1
B-1 (7')
B-2 (7.5')
UTI - Kleiner
ROHATYN (unpaved)
Paved
Gulf Gasoline Station
Sanitary Sewer
Sherwin Williams Automotive Finishes
Ground Water Flow Direction
Auto Repair Facility
B-3 (4')
MW-2D
MW-2
Property Boundary
MW-4
B-9 (6')
MW-6
MW-6s
TW-4
Area of original septic system
Edison Stamping and Mnf.
Paved
B-6 (5')
Lavatories
A
B-8 (7')
UST
B
MW-5
B-7 (5.5')
Sanitary Waste Lateral
Septic Tank
B-5 (5')
MW-3
B-4 (5')
French Drain
Sewer Easement
Franklin Street Ground Water Area
Edison Stamping and Manufacturing Monitoring Well Location Map with Surrounding Properties
Monitoring Wells
Temporary Well Point
Boring (depth to refusal)

Map 5

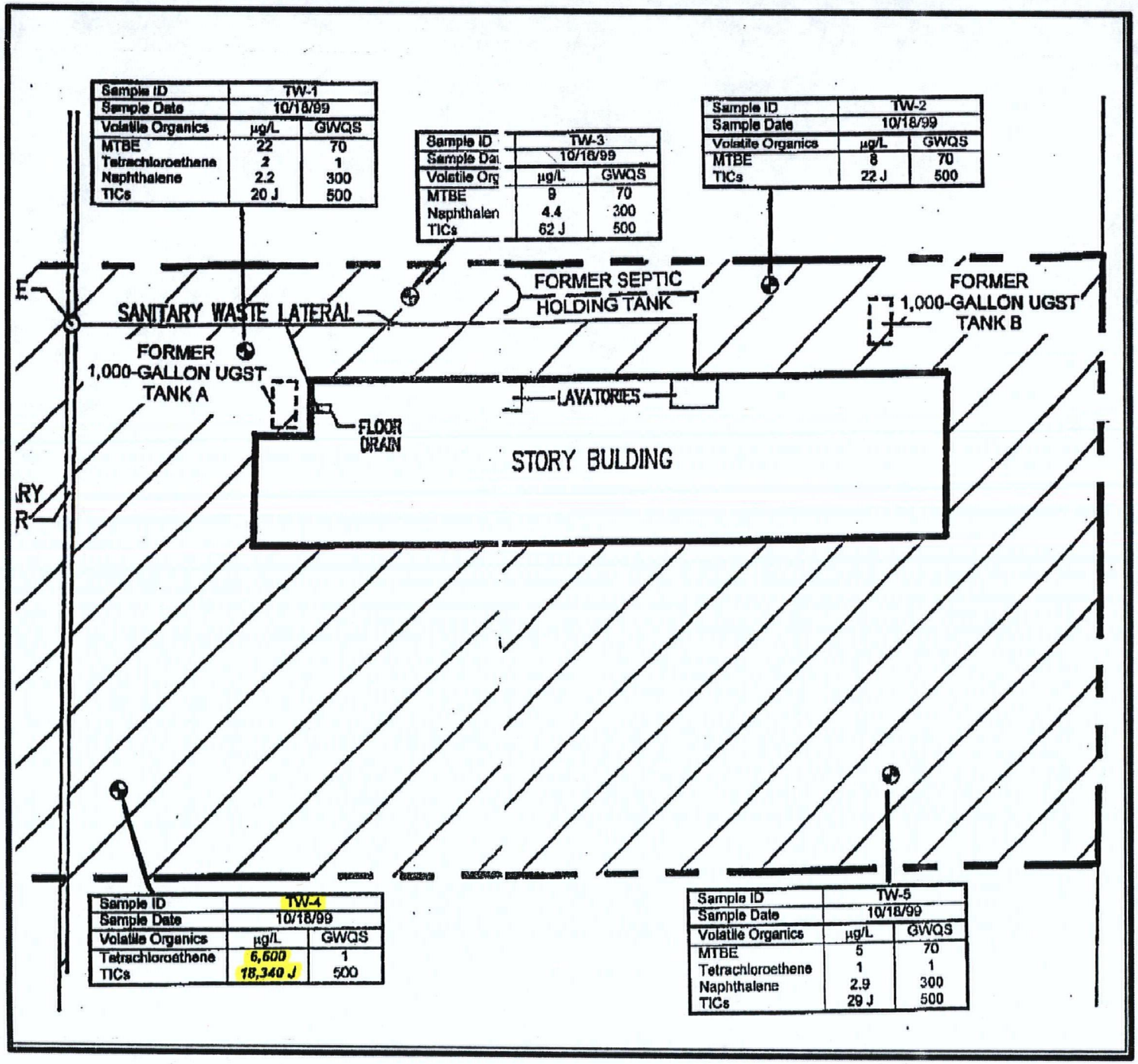


Edison Stamping and Manufacturing Co.
4490 Stelton Road
South Plainfield
Middlesex County, NJ

Aerial Photo Base Map

0 500 1,000 2,000 3,000 4,000 Feet

Map 6



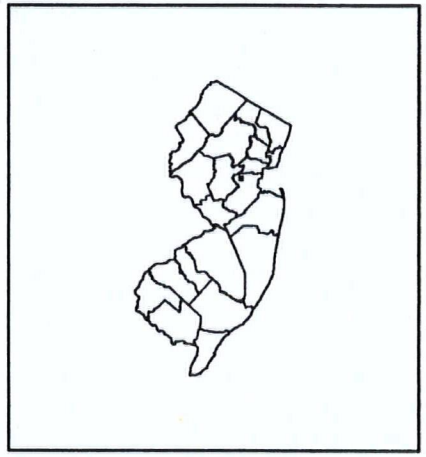
Sample ID	TW-1	
Sample Date	10/18/99	
Volatile Organics	µg/L	GWQS
MTBE	22	70
Tetrachloroethene	2	1
Naphthalene	2.2	300
TICs	20 J	500

Sample ID	TW-3	
Sample Dat	10/18/99	
Volatile Org	µg/L	GWQS
MTBE	9	70
Naphthalen	4.4	300
TICs	62 J	500

Sample ID	TW-2	
Sample Date	10/18/99	
Volatile Organics	µg/L	GWQS
MTBE	8	70
TICs	22 J	500

Sample ID	TW-4	
Sample Date	10/18/99	
Volatile Organics	µg/L	GWQS
Tetrachloroethene	6,600	1
TICs	18,340 J	500

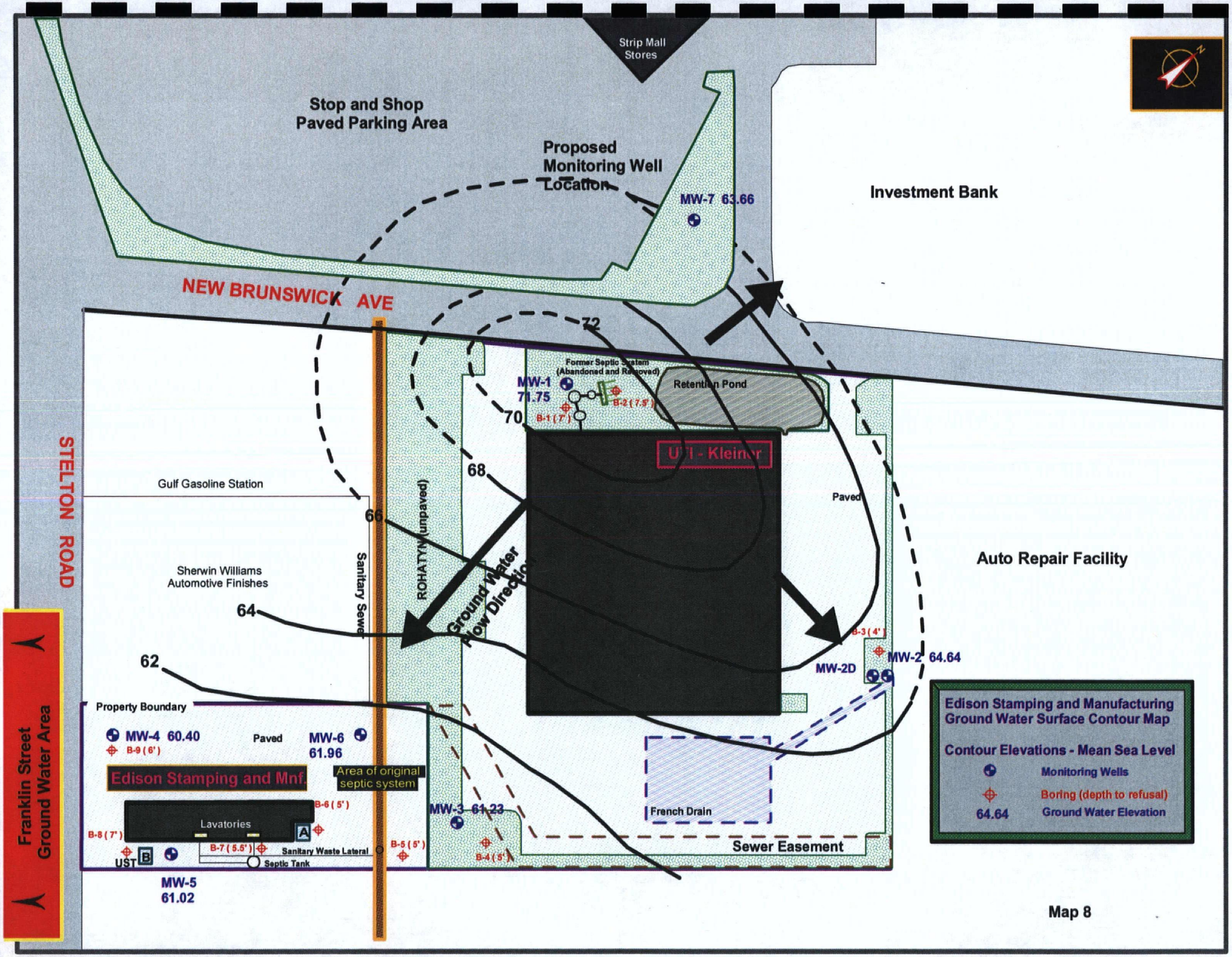
Sample ID	TW-5	
Sample Date	10/18/99	
Volatile Organics	µg/L	GWQS
MTBE	5	70
Tetrachloroethene	1	1
Naphthalene	2.9	300
TICs	29 J	500



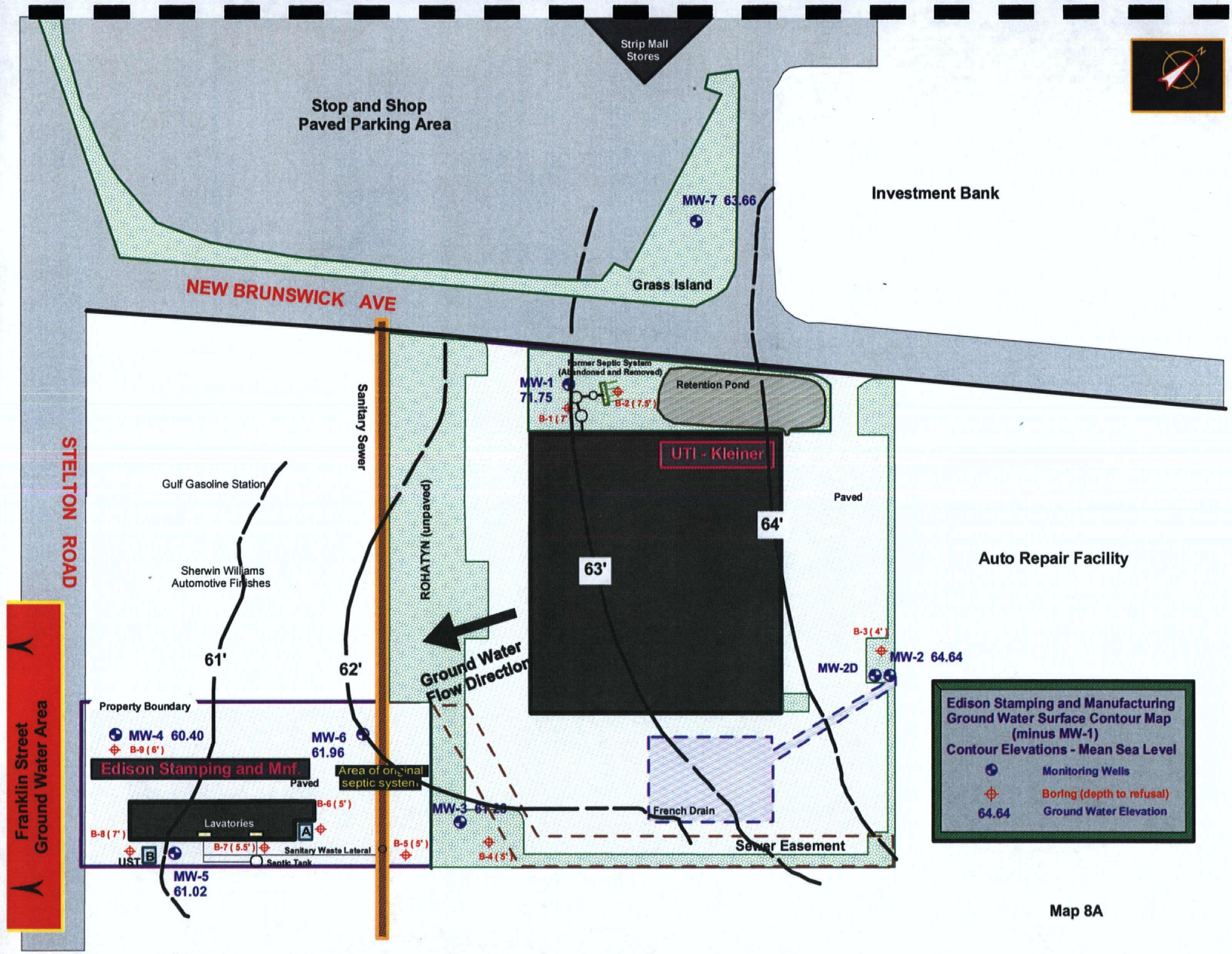
Edison Stamping and Manufacturing
4490 Stelton Road
South Plainfield
Middlesex County, NJ

Edison Stamping and Manufacturing Temporary Well Points October 1999

Map 7


Strip Mall Stores
Stop and Shop Paved Parking Area
Proposed Monitoring Well Location
MW-7 63.66
Investment Bank
NEW BRUNSWICK AVE
STELTON ROAD
Franklin Street Ground Water Area
72
70
68
66
64
62
Former Septic System (Abandoned and Removed)
Retention Pond
MW-1 71.75
B-1 (7')
B-2 (7.5')
UTI - Kleiner
Gulf Gasoline Station
Sherwin Williams Automotive Finishes
Sanitary Sewer
ROHATYN (unpaved)
Ground Water Flow Direction
Paved
Auto Repair Facility
B-3 (4')
MW-2 64.64
MW-2D
Property Boundary
MW-4 60.40
B-9 (6')
Paved
MW-6 61.96
Edison Stamping and Mnf.
Area of original septic system
B-6 (5')
Lavatories
B-8 (7')
B-7 (5.5')
Sanitary Waste Lateral
Septic Tank
UST
B-5 (5')
B-4 (5')
MW-3 61.23
French Drain
Sewer Easement
MW-5 61.02
Edison Stamping and Manufacturing Ground Water Surface Contour Map
Contour Elevations - Mean Sea Level
Monitoring Wells
Boring (depth to refusal)
64.64 Ground Water Elevation

Map 8


Strip Mall Stores
Stop and Shop Paved Parking Area
Investment Bank
MW-7 63.66
Grass Island
NEW BRUNSWICK AVE
STELTON ROAD
Franklin Street Ground Water Area
Sanitary Sewer
Former Septic System (Abandoned and Removed)
Retention Pond
MW-1 71.75
B-1 (7'
B-2 (7.5')
UTI - Kleiner
Gulf Gasoline Station
Sherwin Williams Automotive Finishes
ROHATYN (unpaved)
Paved
64'
63'
Auto Repair Facility
B-3 (4')
MW-2 64.64
MW-2D
61'
62'
Ground Water Flow Direction
Property Boundary
MW-4 60.40
B-9 (6')
MW-6 61.96
Edison Stamping and Mnf.
Area of original septic system
Paved
B-6 (5')
MW-3 61.23
French Drain
Lavatories
B-8 (7')
B-7 (5.5')
Sanitary Waste Lateral
Septic Tank
B-5 (5')
B-4 (5')
Sewer Easement
UST
MW-5 61.02
Edison Stamping and Manufacturing
Ground Water Surface Contour Map
(minus MW-1)
Contour Elevations - Mean Sea Level
Monitoring Wells
Boring (depth to refusal)
64.64 Ground Water Elevation

Map 8A

100,000 GPD WATER WITHDRAWAL POINTS WITHIN 5 Miles OF :

X : 509343.05

Y : 628713.97

SCALE : 1 : 63,360

PLOT PRODUCED BY :

NJDEP

WATER SUPPLY

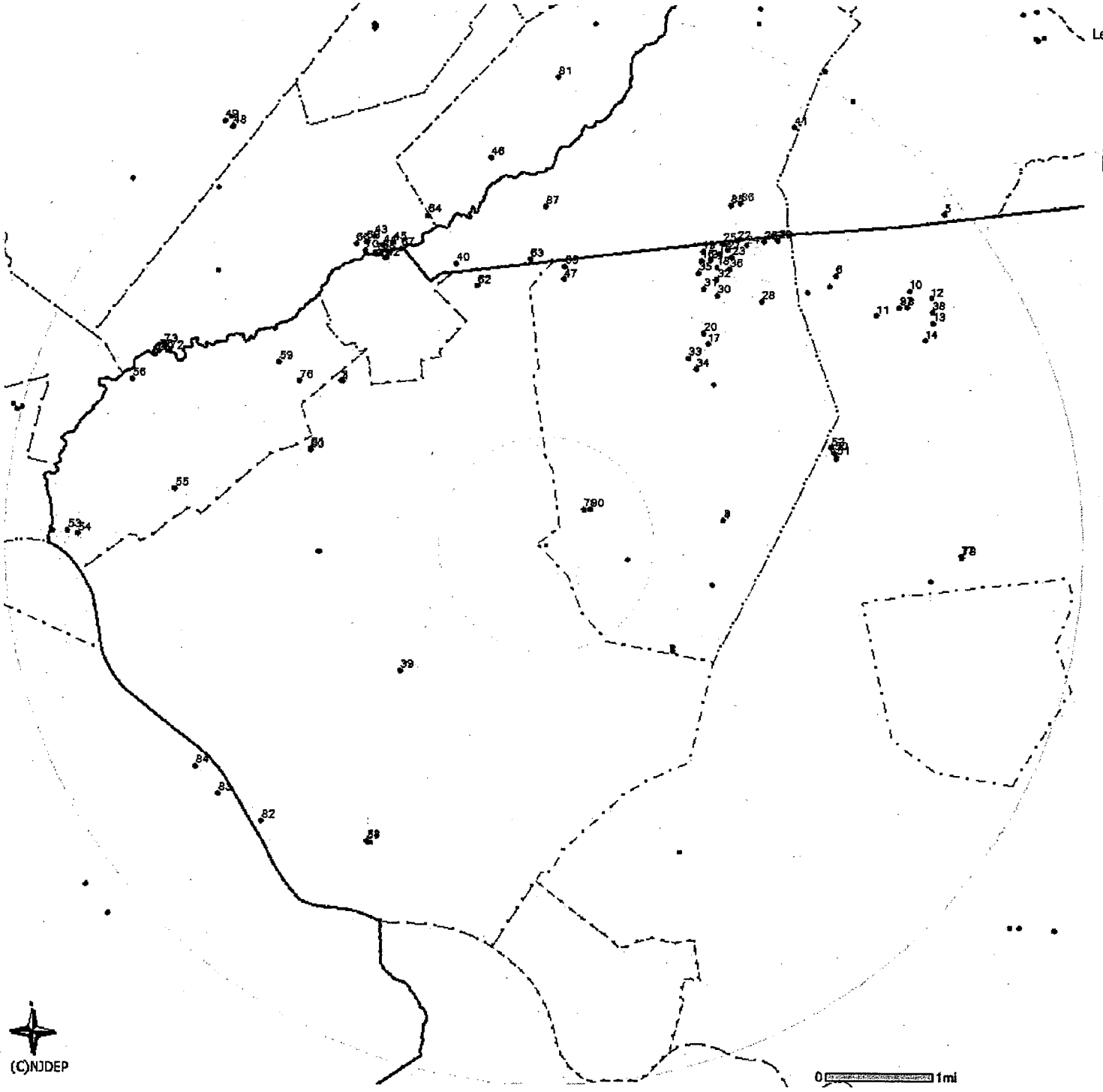
BUREAU OF WATER ALLOCATION

P.O. Box 426

TRENTON, NJ 08625

DATE : 7/17/2009

SUBJECT TO REVISION



MAP 9

Last refresh: 7/17/2009 04:58:12 PM

Withdrawal Points Tabular Data (SA)

Sequence Number	PI ID Number (Preferred NJEMS ID)	PI Name	SI Description	Distance from X/Y Origin (mi.)	Dep to Top of Open Interval + Units	Dep To Btm of Open Interval + Units	Z (Elevation)	Geologic Unit	Hydrogeologic Unit	Rated Pump Capacity + Units Code	BRDGBW
79	2492P	FERRO CORPORATION	WELL IW	0.48	50ft	200ft	80	4000 JTrp Passaic Formation	ba Brunswick aquifer	325gm	
80	2492P	FERRO CORPORATION	WELL PW	0.53	40ft	350ft	80	4000 JTrp Passaic Formation	ba Brunswick aquifer	325gm	
3	10660W	JERSEY CONCRETE CO	WELL 2	1.66	53ft	340ft	180	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	82gm	
4	10660W	JERSEY CONCRETE CO	WELL 1	1.66	60ft	285ft	210	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	87gm	
39	11161W	RARITAN LANDING GOLF COURSE	WELL 1	1.79	50ft	50ft	80	4000 JTrp Passaic Formation	ba Brunswick aquifer	325gm	
34	5293X	MIDDLESEX WATER CO	SPRING LAKE 6	2.15	58ft	504ft	62	4000 JTrp Passaic Formation	ba Brunswick aquifer	500gm	
33	5293X	MIDDLESEX WATER CO	SPRING LAKE 5	2.18	50.92ft	500ft	63	4000 JTrp Passaic Formation	ba Brunswick aquifer	600gm	
60	MI058R	GEERLINGS GREENHOUSES INC	WELL 1	2.35	50ft	200ft	65.6	4509 JTrpm Passaic Formation - mudstone	ba Brunswick aquifer	80gm	
61	MI058R	GEERLINGS GREENHOUSES INC	WELL 2	2.36	51ft	425ft	65.6	4509 JTrpm Passaic Formation - mudstone	ba Brunswick aquifer	300gm	
17	5293X	MIDDLESEX WATER CO	SPRING LAKE 8	2.41	53.33ft	501ft	65	4000 JTrp Passaic Formation	ba Brunswick aquifer	650gm	

1	2194P	DESIGN AND MOLDING SERVICES	WELL 1	2.42		390ft	54	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	120gm	
2	2194P	DESIGN AND MOLDING SERVICES	WELL 2	2.44	60ft	450ft	54	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	120gm	
20	5293X	MIDDLESEX WATER CO	SPRING LAKE 9	2.46	85.25ft	500ft	67	4000 JTrp Passaic Formation	ba Brunswick aquifer	350gm	
47	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	CLINTON AVE	2.48			69	4000 JTrp Passaic Formation	ba Brunswick aquifer	475gm	
62	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	ROCK AVE-PISCATAWAY	2.50			60	4000 JTrp Passaic Formation	ba Brunswick aquifer	150gm	
65	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	8TH STREET	2.60			70	4000 JTrp Passaic Formation	ba Brunswick aquifer	240gm	
63	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	5TH STREET	2.66			62	4000 JTrp Passaic Formation	ba Brunswick aquifer	240gm	
40	2319P	NATIONAL STARCH & CHEMICAL (FORMER)	WELL 6	2.74			60	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	700gm	
76	11032W	SILVERLINE BUILDING PRODUCTS	WELL 1	2.75	40ft	213ft	44	4000 JTrp Passaic Formation	ba Brunswick aquifer	75gm	
31	5293X	MIDDLESEX WATER CO	PARK AVE 26	2.80	67.25ft	495ft	72	4000 JTrp Passaic Formation	ba Brunswick aquifer	400gm	
52	2019P	EDISON ONE COMMERCE CENTER	WELL 1	2.80			95	3070 Trb Brunswick Formation (superceded by Passaic, Feltville,	ba Brunswick aquifer	550gm	

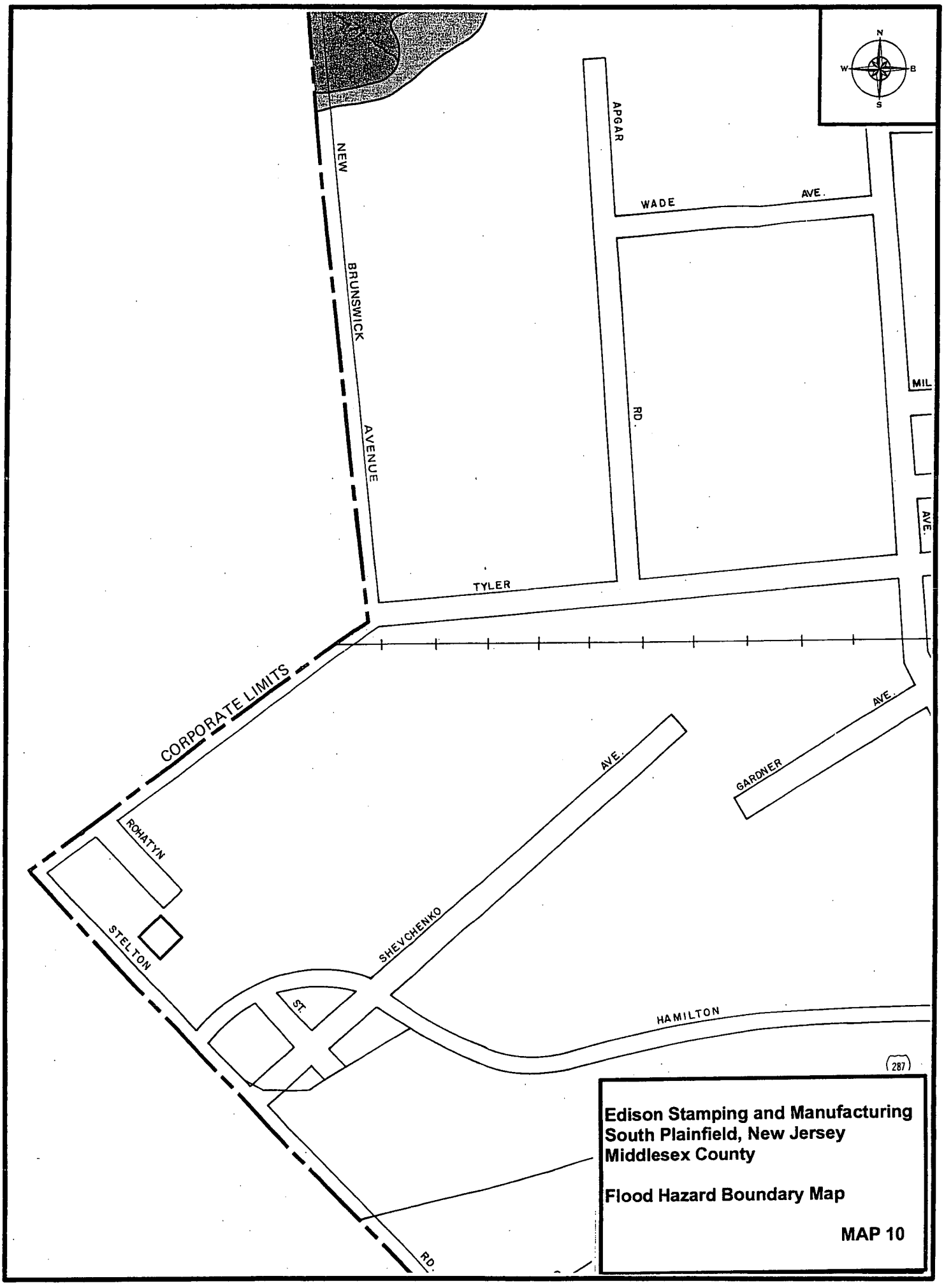
								Towaco, and Boonton Formations)			
50	2019P	EDISON ONE COMMERCE CENTER	WELLS 1 & 2	2.82			93				
30	5293X	MIDDLESEX WATER CO	PARK AVE 25	2.82			73	4000 JTrp Passaic Formation	ba Brunswick aquifer	850gm	
51	2019P	EDISON ONE COMMERCE CENTER	WELL 2	2.82			91	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	460gm	
35	5293X	MIDDLESEX WATER CO	PARK AVE 28	2.90	96.83ft	500ft	75	4000 JTrp Passaic Formation	ba Brunswick aquifer	250gm	
32	5293X	MIDDLESEX WATER CO	PARK AVE 27	2.94	104.75ft	501ft	74	4000 JTrp Passaic Formation	ba Brunswick aquifer	350gm	
59	11143W	ROUTE 28 CAR WASH	WELL 1	3.00	35ft	145ft	58	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	90gm	
16	5293X	MIDDLESEX WATER CO	PARK AVE 32	3.02	87.75ft	501ft	77	4000 JTrp Passaic Formation	ba Brunswick aquifer	250gm	
28	5293X	MIDDLESEX WATER CO	MAPLE AVE 1	3.03	97.75ft	351ft	80	4000 JTrp Passaic Formation	ba Brunswick aquifer	600gm	
18	5293X	MIDDLESEX WATER CO	PARK AVE 22	3.04			75	4000 JTrp Passaic Formation	ba Brunswick aquifer	320gm	
42	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 4	3.06			57	4000 JTrp Passaic Formation	ba Brunswick aquifer	350gm	
67	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 9	3.06			58	4000 JTrp Passaic Formation	ba Brunswick aquifer	500gm	
21	5293X	MIDDLESEX WATER CO	PARK AVE 31	3.07	110.5ft	500ft	75	4000 JTrp Passaic Formation	ba Brunswick aquifer	425gm	
36	5293X	MIDDLESEX WATER CO	PARK AVE 29	3.09	108.67ft	500ft	77	4000 JTrp Passaic Formation	ba Brunswick aquifer	730gm	

19	5293X	MIDDLESEX WATER CO	PARK AVE 24	3.10			79	400 Qsd Stratified drift	sg glacial sand and gravel	450gm	
68	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 8	3.12			56	4000 JTrp Passaic Formation	ba Brunswick aquifer	150gm	
71	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 5	3.15			55	4000 JTrp Passaic Formation	ba Brunswick aquifer	315gm	
45	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 1	3.15			58	4000 JTrp Passaic Formation	ba Brunswick aquifer	310gm	
87	10000W	INJECTRON CORP	WELL 1	3.15						400gm	
15	5293X	MIDDLESEX WATER CO	PARK AVE 30	3.15	97.83ft	500ft	76	4000 JTrp Passaic Formation	ba Brunswick aquifer	350gm	
44	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 2	3.17			57	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	650gm	
23	5293X	MIDDLESEX WATER CO	PARK AVE 19	3.19	56.75ft	78ft	78	400 Qsd Stratified drift	sg glacial sand and gravel	1100gm	
70	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 6	3.21			55	4000 JTrp Passaic Formation	ba Brunswick aquifer	600gm	
58	2337P	RUTGERS UNIVERSITY GOLF COURSE	WELL 1	3.21	55ft	300ft	60	4000 JTrp Passaic Formation	ba Brunswick aquifer	300gm	
57	2337P	RUTGERS UNIVERSITY GOLF COURSE	STORAGE POND (CORRECTED)	3.21			60			1000gm	
27	5293X	MIDDLESEX WATER CO	PARK AVE 23	3.23	58.5ft	73.5ft	77	400 Qsd Stratified drift	sg glacial sand and gravel	700gm	
25	5293X	MIDDLESEX WATER CO	PARK AVE 21	3.25			77	400 Qsd Stratified drift	sg glacial sand and gravel	1000gm	
64	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	ROCK AVE-GREEN BROOK	3.25			61	4000 JTrp Passaic Formation	ba Brunswick aquifer	350gm	
69	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 7	3.27			56	4000 JTrp Passaic Formation	ba Brunswick aquifer	80gm	
43	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN	GREEN BROOK NO. 3	3.28			57	4000 JTrp Passaic Formation	ba Brunswick aquifer	60gm	

		WATER									
66	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	GREEN BROOK NO. 11	3.30			55	4000 JTrp Passaic Formation	ba Brunswick aquifer	200gm	
22	5293X	MIDDLESEX WATER CO	PARK AVE 18	3.35	53ft	74ft	79	400 Qsd Stratified drift	sg glacial sand and gravel	1400gm	
24	5293X	MIDDLESEX WATER CO	PARK AVE 20	3.36			82	400 Qsd Stratified drift	sg glacial sand and gravel	1450gm	
55	11030W	SPRAY-TEK INC	WELL 2	3.47	50ft	250ft		4000 JTrp Passaic Formation	ba Brunswick aquifer	58gm	
26	5293X	MIDDLESEX WATER CO	SPRAGUE AVE 1	3.48	81.33ft	100.5ft	94	400 Qsd Stratified drift	sg glacial sand and gravel	790gm	
7	2258P	PLAINFIELD COUNTRY CLUB	WELL 2	3.57			160	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	75gm	
29	5293X	MIDDLESEX WATER CO	SPRAGUE AVE 2	3.57	93.83ft	110ft	104	400 Qsd Stratified drift	sg glacial sand and gravel	790gm	
85	10659W	MUHLENBERG HOSPITAL	WELL 1	3.60			96	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	160gm	
46	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	BOARD OF EDUCATION	3.63			68	4000 JTrp Passaic Formation	ba Brunswick aquifer	400gm	
86	10659W	MUHLENBERG HOSPITAL	WELL 3	3.66			96	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	320gm	
82	11132W	RUTGERS PREPARATORY SCHOOL	WELL 2	3.68	50ft	200ft	35	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	60gm	
		PLAINFIELD	SW001								

6	2258P	COUNTRY CLUB	(CORRECTED)	3.69			80			2100gm	
11	5293X	MIDDLESEX WATER CO	TINGLEY SOUTH 5	3.75	40.17ft	532ft	78	4000 JTrp Passaic Formation	ba Brunswick aquifer	300gm	
83	11132W	RUTGERS PREPARATORY SCHOOL	WELL 1	3.82	41ft	182ft	35	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	20gm	
84	11132W	RUTGERS PREPARATORY SCHOOL	WELL 3	3.84	75ft	150ft	35	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	30gm	
77	2284P	METUCHEN GOLF & COUNTRY CLUB	POND 1 (CORRECTED)	3.87			140	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	500gm	
78	2284P	METUCHEN GOLF & COUNTRY CLUB	WELL 1	3.87	54ft	390ft	140	4000 JTrp Passaic Formation	ba Brunswick aquifer	400gm	
72	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	WELL 8	3.91	51ft	430ft	38	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	gm	
9	5293X	MIDDLESEX WATER CO	TINGLEY NORTH 4	3.96			71	4000 JTrp Passaic Formation	ba Brunswick aquifer	750gm	
37	5293X	MIDDLESEX WATER CO	TINGLEY NORTH 3	3.96			71	4000 JTrp Passaic Formation	ba Brunswick aquifer	450gm	
73	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	WELL 7	3.97	22ft	285ft	31	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	gm	

75	5020X	ELIZABETHTOWN WATER DBA NJ AMERICAN WATER	WELL 4	4.00	29ft	300ft	36	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)	ba Brunswick aquifer	gm	

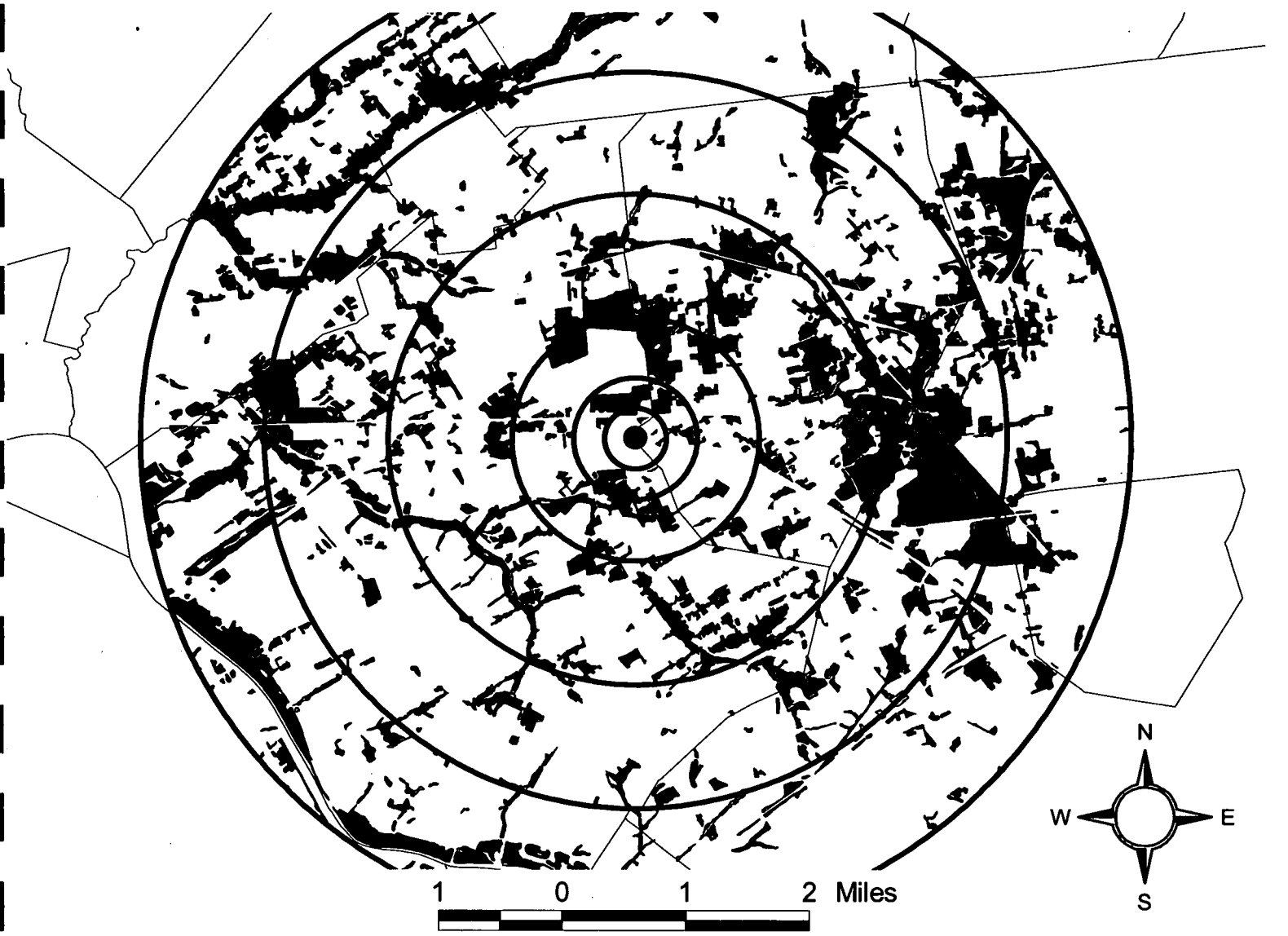


Edison Stamping and Manufacturing
South Plainfield, New Jersey
Middlesex County

Flood Hazard Boundary Map

MAP 10

Map of Wetlands Acres
Edison Stamping and Manufacturing Company
South Plainfield Boro, Middlesex County
Lat: 40° 33' 32.62" , Long: -74° 26' 17.84"

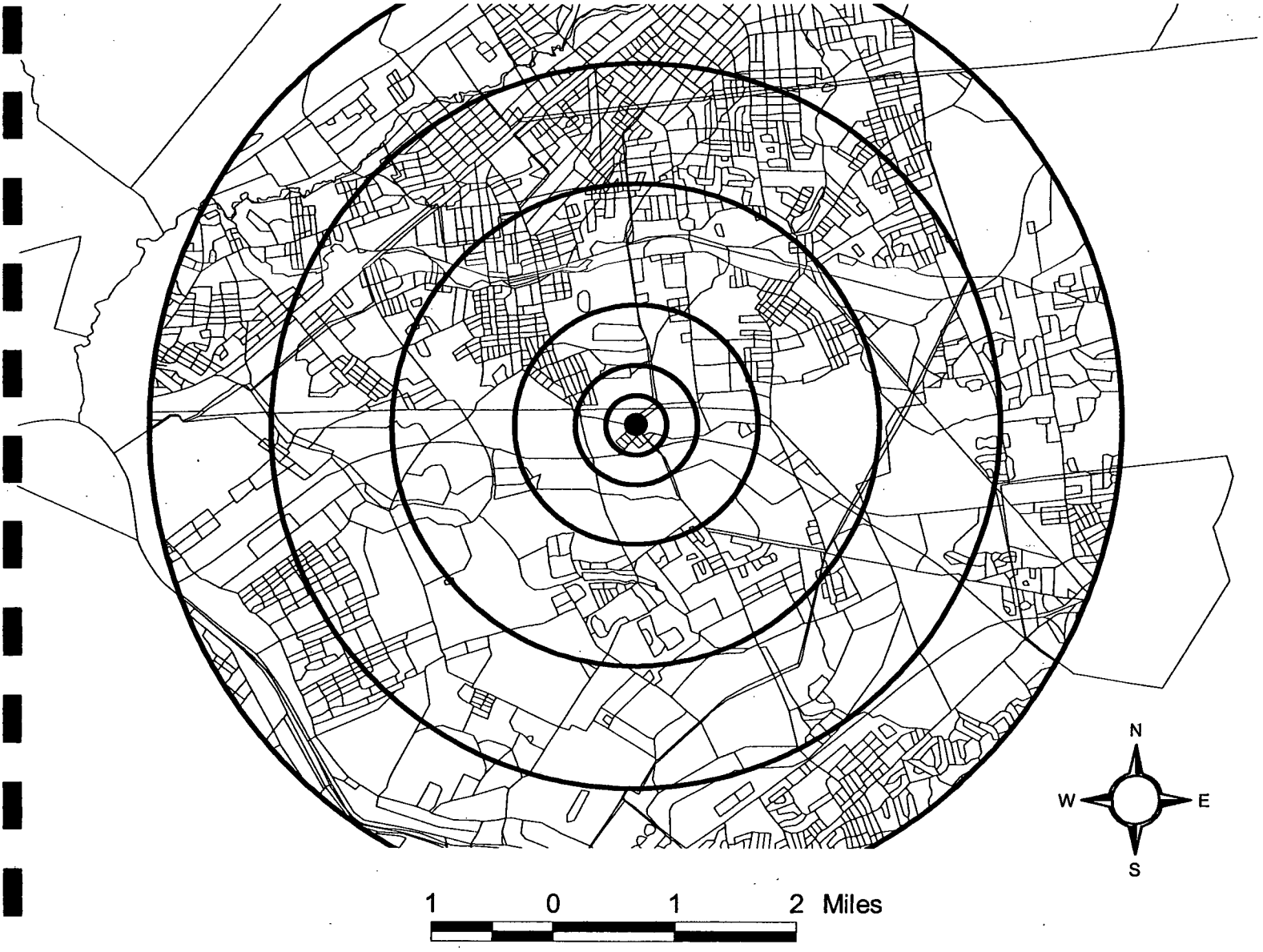


Ring	1	(0.00- 0.25)	has Wetlands Acres:	7
Ring	2	(0.25- 0.50)	has Wetlands Acres:	114
Ring	3	(0.50- 1.00)	has Wetlands Acres:	355
Ring	4	(1.00- 2.00)	has Wetlands Acres:	1459
Ring	5	(2.00- 3.00)	has Wetlands Acres:	1872
Ring	6	(3.00- 4.00)	has Wetlands Acres:	2451

*Based on 1986 Land Use/Land Cover Data

MAP 11

Population Map
Edison Stamping and Manufacturing Company
South Plainfield Boro
Middlesex County
Lat: 40° 33' 32.62" , Long: -74° 26' 17.84"



Ring	1	(0.00 – 0.25)	has	Population:	130
Ring	2	(0.25 – 0.50)	has	Population:	1,684
Ring	3	(0.50 – 1.00)	has	Population:	5,522
Ring	4	(1.00 – 2.00)	has	Population:	25,509
Ring	5	(2.00 – 3.00)	has	Population:	62,855
Ring	6	(3.00 – 4.00)	has	Population:	80,954

* Based on 2000 Census Data

MAP 12

Listing of Geographic Correlations

Obs	Ring Area	Total Pop, 2000 census	_us_ to ring alloc factor
1	0.25	130	0.001
2	0.50	1684	0.010
3	1.00	5522	0.031
4	2.00	25509	0.144
5	3.00	62855	0.356
6	4.00	80954	0.458

Report Produced on 16JUL09 by geocorr2k 1.3 Rev. 2/18/2008 9:28:05 AM

ATTACHMENT A

New Block - 472
Lot 3A

BOROUGH OF SOUTH PLAINFIELD, N. J.
DEPARTMENT OF PUBLIC WORKS
(BUILDING DIVISION)
PERMIT RECORD

Block 823

Street and No. 4490 Stelton Road

F-1

Lot (31) 12-1 25-2

DATE Mo.	Da.	Yr.	OWNER	CONSTRUCTION	COST	BUILDER	PERMIT NO.	PLAN N
			Kleiner Metal Spec. Inc.	Factory				
Apr.	28	61	Kleiner Metal Specialties, Inc.	Rear platform for loading	$2,000.	Fred Richter	8002	
Feb	28	68	Edison Stamping	& Mfg. Certificate of Occupancy			3212	10308
Jan	22	70	" "	elec. permit		Germinsky	1341	
Apr.	14	81	SEWER AVAILABILITY LETTER		NO ROAD	OPENING REQUIRED		
May	26	81	Edison Stamping	sewer	out	Corbo Constr.	4718	
Oct.	13	83	" "	Elec. Add'l.		Shaw Elec.	EL-286-83	
June	5	85	" "	Elec. A.C.		Shaw Elec.	1146 E	
Nov.	3	88	" "	Remy. 1000 gal Tank-gasoline	$ 2500	M.M. Wertheim	5628	Of

Constr. class_____
ZONE_____

BOROUGH OF SOUTH PLAINFIELD, N.J.
BUILDING DEPARTMENT

BLOCK 472

ADDRESS 4490 Stelton Road

PERMIT RECORD

LOT 3.01

DATE	NAME	CONSTRUCTION	COST	BUILDER	PERMIT	USE GRP
09-26-90	Edison Sstamping	Inter Alter	6000	SJI	900851 X	
09-26-90	Edison Stamping	add'l elec.	20,000.	Electric Serv.	900851 X	
10/17/90	" "	Stucco 3 Sides	10,000	So.River Stucco	900940	
10-25-90	Edison Stamping	Plumbing	6000	Don Rodner	900851	
11/2/90	" "	Fire	4000	Elect Service	900851 X	
12/5/90	Certificate Of	Approval	Int.Alt.		900851	
12/5/90	Tenant- The Captial Group				942558	
12/5/90	" "	Awning	5,250.00	Standard Awning	901105	OK 5-6-9 NS
1/1/491	" "	Sign	1800	Ace Sign	910026	
1/14/91	" "	Elect	200	Lexan Elect	910026	

Constr. class_____ BOROUGH OF SOUTH PLAINFIELD, N.J. BLOCK 472

ZONE ~~OBC-3~~ M-3 BUILDING DEPARTMENT

ADDRESS 4490 Stelton Road LOT 3.01

PERMIT RECORD

DATE	NAME	CONSTRUCTION	COST	BUILDER	PERMIT	USE GRP.
03-10-92	Capital Group	Certificate of Approval		Sign	910026	
6/20/95	Tenant - Marble & Tile Gallery, Inc.	Certificate OF Occupancy			169829	

Paid fee 4/14/81 for Sewer Utility 400.00

SEWER

Permit # 4718

Plumber Carbo Constr

Date 5/26/81

Underground _____

Final 6-1-81 Partial OK RL
6-2-71 Final OK RL.

8-5-91 Sent letter. Remove Portable Sign.

B.O.A 53-90 RETAIL SALES IN M-3
REZONED OBC-3 ?
STILL M-3.

ATTACHMENT B

ECRA-001
12/87

FOR DEP USE ONLY

Date Rec'd. _____

Notice No. _____

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, N.J. 08625

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

GENERAL INFORMATION SUBMISSION (GIS)

This is the first part of a two-part application form. This information must be submitted within 5 days following any applicable situation as specified at N.J. A. C. 7:26B-1.5 or any triggering event as specified at N.J. A. C. 7:26B-1.6. Please refer to the instructions and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE TYPE OR PRINT

Date January 6, 1989

1. A. Industrial Establishment

Name Edison Stamping & Manufacturing Company Telephone # (201) 752-1416

Street Address 4490 Stelton Road

City of Town South Plainfield State NJ Zip Code 07080

Municipality South Plainfield County Middlesex

B. Tax Block Number(s) 472 Tax Lot Number(s) 3.01

C. Standard Industrial Classification (SIC) Number 3469

D. Current Owner(s) (Property)

Name Edison Stamping & Manufacturing Co. Telephone # (201) 752-1416

Firm Same

Street Address 4490 Stelton Road

Municipality South Plainfield State NJ Zip Code 07080

E. Current Business Operator(s) of Industrial Establishment

Name Same as A and D above. Telephone # _____

Firm _____

Street Address _____

Municipality _____ State _____ Zip Code _____

ECRA-001
12/87

F. Current Owner(s) (Business, if different from operator(s))

Name Edison Stamping & Manufacturing Co. Telephone # (201)752-1416

Firm same

Street Address 4490 Stelton Road

Municipality South Plainfield State N.J. Zip Code 07080

G. Have there been any previous ECRA submissions by this Industrial Establishment or another Industrial Establishment which occupied the same tax block and lot number?

___ Yes X No

If Yes, Name of Industrial Establishment _____

ECRA Case No. _____ Date Submitted _____

Current Status _____

2. Describe the transaction in terms of the action which initiates the ECRA review. (See N.J.A.C. 7:26B-1.5&1.6)

Cessation of substantially all operations of industrial establishment.

3. Is a cessation of operations involved at this location? X Yes ___ No

If Yes, give the date of public release of the decision to close the facility. Date ___/___/___ None.

Is a copy of the public release enclosed? ___ Yes ___ No

If No, state the reason A public release was not made.

4. If the transaction initiating an ECRA review is an agreement of sale or execution of an option to purchase, fill in the date of execution of that instrument plus provide one (1) copy of the document. Date N/A

A. Is a sale involved? ___ Yes X No (If no, skip 4B, C and D.)

B. Date of Agreement/Letter of Intent/Notifications of Option to Purchase ___/___/___

C. Is a copy of the agreement of sale or option to purchase enclosed? ___ Yes ___ No

If No, state the reason _____

12/87

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
INDUSTRIAL SITE EVALUATION ELEMENT
CN 028, TRENTON, N.J. 08625

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

INITIAL NOTICE

SITE EVALUATION SUBMISSION (ISES)

This is the second part of a two-part application form. This information must be submitted within 45 days following any applicable situation as specified at N.J.A.C. 7:26B-1.5 or any triggering event as specified at N.J.A.C. 7:26B-1.6. Please refer to the instructions and N.J.A.C. 7:26B-3.2 before filling out this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Element. Submitting incorrect or insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE PRINT OR TYPE

Date February 6, 1989

1. Industrial Establishment

Name Edison Stamping and Manufacturing Co.

Address 4490 Stelton Road

City or Town South Plainfield Zip Code 07080

Municipality South Plainfield County Middlesex

A. Operational and Ownership History: *(Attach additional sheets if necessary)*

Name	Owner/ Operator	From	To	Current Address
Kleiner Metal Specialties	owner/ oporator	1940	1968	4315 New Brunswick Av South Plainfield NJ
Edison Stamping and Manufacturing Co.	owner/ operator	1968	Present	4490 Stelton Rd. South Plainfield NJ

B. Brief description of past operation(s) conducted on site *(Attach additional sheets if necessary)*

Kleiner Metal Specialties originally owned and operated the facility. Kleiner was engaged in custom stamping and fabrication of metal objects for use in specialty equipment. Edison Stamping and Manufacturing Co. purchased the facility in 1968. Edison Stamping conducts a similar operation as Kleiner Specialties, that involves custom stamping and bending of metal objects for off site assembly.

2. List all federal and state environmental permits applied for, or received, or both, at this facility *(Attach additional sheets if necessary)*

Check here if no permits are involved _____

A. New Jersey Bureau of Air Pollution Control

Permit Number	Certificate Number	Date of Approval or Denial	Reason for Denial (If applicable)	Expiration Date
N/A				

B. New Jersey Pollutant Discharge Elimination System (NJPDES)

Number	Discharge Activity	Date Issued or Denied	Expiration Date	Body of Water Discharged Into
N/A				

C. United State Environmental Protection Agency (EPA) Identification Number and copy of the most recent generator Annual Report prepared pursuant to the New Jersey Hazardous Waste Regulations. *(If applicable)*

ID # NJ D 061056198

Is a copy of the Annual Report attached? _____ Yes (See Attachment #_____) X No *

D. Resource, Conservation, Recovery Act (RCRA) Permit # N/A

E. Bureau of Underground Storage Tank Registration Number(s) None (Exempt)

F. All other federal, state, local governmental permits.

Agency Issuing Permit	Permit No.	Date of Approval or Denial	Expiration Date
N/A			

* The facilities EPA ID # was recently obtained for disposal of oil contaminated soil.

5. Decription of Operations:

Is this report enclosed? X Yes (See Attachment # B) ____ No

If No, state the reason _____

6. Description of Building Heating System:

A. How is the Industrial Establishment currently heated? (Oil, Gas, Electric) Oil

How long has the Industrial Establishment been heated by the above fuel/energy source: 48 years

B. Was the Industrial Establishment heated by fuel oil at any time: X Yes ____ No

Is information on the decommissioning of underground fuel oil tanks included with item No. 14 of this form?

____ Yes X No If no, explain below: The facilty maintained one (1) active and one (1) inactive underground heating oil tanks. Both tanks were removed earlier this year. Complete soil verification results are included as historical data in Attachment D.

C. Are the results of the Integrity Evaluation for Existing Underground Fuel Oil Tanks enclosed?

____ Yes (See Attachment #_____) X No If no, state the reason Although no underground storage tanks remain on the premises, a Petro Tite test was performed on the active underground fuel oil tank in September 1987. The test results are included as Attachment E.

7. Summary of Indusuial Establishment Wastewater Discharges of Sanitary and/or Industrial Waste:

A.

Discharge Period From	To	Discharge Type	Treatment By
1980	Present	Sanitary Wastes	Public Treatment Works
1940	1980	Sanitary Wastes	Septic Holding Tank

B. If the Industrial Establishment discharges sanitary and/or industrial wastes to a publicly-owned treatment plant, provide the name/address of that facility.

Name Middlesex County Sewage Authority Telephone # 201 721- 3800

Street Address Chevalier Avenue

Municipality Sayreville State NJ Zip Code 08872

	Date(s) of Discharge	Nature of Discharge
1.	1980 to present	Sanitary Wastes.
2.		
3.		

8. Hazardous Substance and Waste Containment Description (Attach additional sheets if necessary)

Type of Storage Unit	Date Installed	Area or Volumetric Capacity (include units)	Material Stored	Construction Type	Location Reference	Decommissioning or Sampling Reference
Underground Tank (removed)	1940	1000 Gallons	#2 Heating Oil	Steel	Att. B	Attachment D
Underground Tank (removed)	1940	1,000 Gallons	#2 Heating Oil	Steel	Att. B	Attachment D

9. Hazardous Substance/Waste Inventory:

Material Name	Quantity (indicate units)	Location Reference	Storage Method Container Type/Size	Typical Annual Usage	To Remain on Site (Yes or No)
#2 Heating Oil	<1000 Gal.	Attachment B (removed)	1,000 Gal. Cap Steel Tank	Unknown	No
#2 Heating Oil	<1000 Gal.	Attachment B (removed)	1,000 Gal. Cap Steel Tank	Unknown	No
Latex Paint	1 Gal.	(storage cabinet) Attachment B (removed)	(1) Gal. Steel Can	Unknown	No
Grease	5 Cart.	(storage cabinet) Attachment B (removed)	16oz. Paper Cartridge	10 Cart.	No
Albavis 20	5 Gal.	(storage cabinet) Attachment B (removed)	1 (5) Gal Steel Can	10 Gal.	No
Kerosene	5 Gal.	(storage cabinet) Attachment B (removed)	1 (5) Gal. Plastic Can	5 Gal.	No
Cook Cut 70	5 Gal.	(storage cabinet) Attachment B (removed)	1 (5) Gal. Steel Can	5 Gal.	No

10. Discharge History of Hazardous Substances and Wastes:

A. Have there been any discharges of hazardous substances and wastes?
_____Yes (Complete Item B below) __X__No (Go to Item 10C)

B. Summary of Discharges and Resolutions

Description of Discharge Event	Response and Resolutions

C. Is this Industrial Establishment subject to Spill Prevention Control and Countermeasure (SPCC) per 40 CFR Part 112 or Discharge Prevention, Containment and Countermeasure (DPCC) Plan per NJAC 7:1E-4.1 requirements?

_____Yes __X__No A copy of the Plan(s) may be required at the discretion of the Department.

11. Sampling Plan Proposal

A. Is sampling proposed at the facility? _____Yes (See Attachment #_____) No__X__

If sampling is not proposed, please explain below. *(Attach additional sheets if necessary)*

No Sampling and Analysis program other than relates to the underground tank removals and septic tank investigations, is required at the site. The results of the sampling conducted in these areas is included in Attachment D as historical results.

B. Is groundwater sampling proposed? _____Yes __X__No

Note: If groundwater sampling is proposed under the plan, you must complete ECRA Form 002A "Request for Hydrogeologic Assessment" and submit it with the application.

12. Decontamination/Decommissioning Plan

A. Is the facility Decontamination/Decommissioning Plan enclosed?

_X_ Yes (See Attachment # _C_) ____ No

B. If no, specify why decontamination/decommissioning is not considered necessary.

13. Historical Data on environmental quality at the Industrial Establishment

A. Were sampling results obtained on Environmental Quality for the Industrial Establishment?

_X_ Yes (See Attachment # _D_) ____ No

B. If sampling results were obtained but are not part of this application, please explain below:

14. List any other information you are submitting or which has been formally requested by the Department:

Description	Attachment #
Petrotite Test Results	E
Material Saftey Data Sheets	F

FEE CHECKLIST

Include below a breakdown of the total fee submitted with this application. (See N.J.A.C. 7:26B-1.10 for the appropriate fees.)

Item	Amount ($)
1. Initial Notice Review	
i. Without Sampling Plan	
ii. With Sampling Plan that includes only underground storage tank analysis without groundwater monitoring	$1,500.00
iii. With Sampling Plan other than ii. above or iv. below	
iv. With Sampling Plan that includes any groundwater monitoring	
2. Sampling Data Review	
3. Negative Declaration Review	
4. Cleanup Plan Review	
5. Oversight of Cleanup Plan Implementation	
TOTAL FEE ENCLOSED	$ 1,500.00

ARE FEES ENCLOSED? ____ YES

The NJDEP review fee was submitted with the GIS on January 10, 1989.

DESCRIPTION OF OPERATIONS

Edison Stamping and Manufacturing Co. was located at 4490 Stelton Road, South Plainfield, New Jersey. The manufacturing operations were conducted in a one-story masonry building situated on a 0.5 acre parcel of land. The 5,246 square feet of floor space in the building is constructed of reinforced concrete. Open areas within the property boundaries are covered with bituminous asphalt pavement. A site map of the facility is shown on Figure B-1.

The manufacturing operation conducted at the facility was custom stamping and bending of stock metal. The finished product was used for off-site fabrication of specialty equipment. The facility operation included: administrative, product design/fabrication, stockmetal/die storage, and shipping. Production machines located in the manufacturing areas included; presses, grinders, shears and brakes. Pressurized air, used to operate several pneumatic machines, was supplied by two (2) self-contained air compressors. Cutting oil was used to lubricate metal stock during the stamping process. Kerosene was used for cleaning machinery and finished goods. Grease and hydraulic oil were used during routine maintenance of machinery. Small quantities of these materials were stored in a metal cabinet in the manufacturing area. The facility layout is shown on Figure B-1.

Metal fragments, resulting from the stamping process, were generated as a waste product. The metal fragments and defective objects were stored in a metal storage bin located adjacent to the loading dock. The metal waste was carted off site and sold as scrap.

The facility building was heated by an oil fueled hot water boiler system. No. 2 heating oil, used to fuel the boiler, was stored in a 1,000-gallon capacity underground storage tank (Tank A). The tank was located adjacent to the exterior wall of the boiler room. A second 1,000-gallon capacity, abandoned underground fuel oil storage tank (Tank B) was located near the front of the building, both tanks were excavated and removed from the site. A description of the tank removals and verification sampling programs is included in Attachment D.

Sanitary wastes from the building were discharged to the county operated sanitary sewer system. The sanitary sewer was installed in 1980 and is located in an easement at the rear of the property. Prior to 1980, sanitary wastes were discharged to a septic holding tank. Following the connection to the sanitary sewer, the septic tank was pumped, backfilled and covered with bituminous asphalt. Figure B-1 identifies the septic holding tank and sanitary sewer. The sampling activities conducted in the septic tank area are detailed in Attachment D.

One (1) floor drain is present in the facility building. The drain is located in the boiler room and is connected to the sanitary sewer. The floor drain and discharge lateral are shown on Figure B-1.

ATTACHMENT C

CN 028
Trenton, N.J. 08625-0028

(609)633-7141

Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF HAZARDOUS WASTE MANAGEMENT

Michele M. Putnam
Deputy Director
Hazardous Waste Operations

John J. Trela, Ph.D., Director

Lance R. Miller
Deputy Director
Responsible Party Remedial Action

APR 28 1989

Peter J. Herzberg
Greenbaum, et al.
99 Wood Avenue South
Iselin, NJ 08830

Dear Mr. Herzberg:

RE: Industrial Establishment: Edison Stamping and Manufacturing Co.
Location: 4490 Stelton Road, South Plainfield Boro, Middlesex County
Block: 472 Lot: 3.01
ECRA Case #89032
Transaction: Cessation of Operations
Negative Declaration: By Operator Dated: April 10, 1989

Pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (DEP) by the Environmental Cleanup Responsibility Act (ECRA, N.J.S.A. 13:1K-6 et seq.) and duly delegated to the Assistant Director of the Industrial Site Evaluation Element pursuant to N.J.S.A. 13:1B-4, the referenced Negative Declaration is hereby approved. This approval is based upon information provided in your Initial Notice as well as DEP investigation of the site.

This approval shall be limited to the above referenced transaction only and shall not restrict or prohibit the DEP or any other agency from taking regulatory action under any other statute, rule or regulation.

Sincerely,

Karl J. Delaney, Assistant Director
Industrial Site Evaluation Element

AEH/dg

ATTACHMENT D

1.0 INTRODUCTION

J M Sorge, Inc. (JMS) was retained by Edison Stamping and Manufacturing Company, Inc. (ESM) to conduct Environmental Cleanup Responsibility Act (ECRA) related investigations at their facility located at 4490 Stelton Road, South Plainfield, New Jersey. The site investigation included the removal of two (2) underground heating oil storage tanks and sampling of an abandoned septic tank. The results of the tank removal programs and the septic tank investigation are presented in the following sections of this report.

2.0 ENVIRONMENTAL SETTING

2.1 GENERAL

Edison Stamping is located in the northern third of Middlesex county in the Borough of South Plainfield. The major land uses in the site area are commercial, industrial and residential. The closest residential area is less than 1,000 feet west of the site. The site location is shown on Figure D-1.

2.2 FACILITY BACKGROUND

The facility consists of a one-story masonry building situated on a one-half acre parcel of land. The property is covered by the facility building and bituminous asphalt pavement. The building was heated by an oil fueled hot water heating system. Number 2 heating oil, used to fuel the boiler, was stored in two (2) 1,000-gallon capacity underground storage tanks. Since 1980, sanitary wastes generated from the building have been discharged to the city operated sanitary sewer system. Prior to 1980, sanitary wastes were discharged to an on-site septic holding tank. The facility layout is shown on Figure D-2.

The original owner/operator of the facility, Kleiner Metal Specialties, occupied the property from 1940 until 1968. The operations of Kleiner Metal Specialties involved custom stamping and fabrication of metal objects used in specialty equipment. Edison Stamping and Manufacturing Company, Inc. purchased the property in 1968. The operations conducted by Edison Stamping were similar to that of Kleiner.

2.3 SOILS

The entire property, except for the area occupied by the facility building, is paved with bituminous asphalt. The Soil Survey Map for Middlesex County, prepared by Rutgers University (1978) for the Soil Conservation Service, identifies the soils in the site area as Klinesville - Urban Land Complex, 0 to 5% slopes (KWB). Typically, the surface soil is dark brown shaley loam about 8 inches thick. The sub soil is dark reddish brown shaley silt loam 4 inches thick. Dark reddish brown shale bedrock is at a depth of 12 inches.

3.0 AREAS OF ENVIRONMENTAL CONCERN

J M Sorge, Inc. (JMS) conducted a reconnaissance survey of the facility to determine areas of potential environmental concern. As a result of the inspection, three (3) areas of environmental concern were identified. The areas are presented below and shown on Figure D-3.

- Abandoned 1,000-Gallon Underground Tank (Area A)
- Active 1,000-Gallon Underground Tank (Area B)
- Abandoned Septic Holding Tank (Area C)

JMS conducted initial sampling activities at the site on October 28, 1988. The program included the removal of the abandoned underground storage tank, verification sampling of an active underground storage tank and sampling of the abandoned septic tank sludge material. Based on the findings of the initial sampling program, additional work was conducted at the site on December 16, 1988. The activities included removal of the active underground storage tank and additional sampling in septic tank area. The soil samples collected during the site activities included analysis for petroleum hydrocarbons (PHC), base neutrals +15 (BN+15), PCBs and volatile organics +15 (VO+15). The quality assurance/quality control procedures, including sampling procedures implemented during the sampling activities, are presented in Section 6.0. The sample locations and analytical parameters are included on Table 1. The analytical results are summarized on Table 2 and 3, and included as Appendix 3.

3.1 UNDERGROUND HEATING OIL STORAGE TANKS

ESM maintained two (2) 1,000-gallon capacity underground heating oil storage tanks. The tanks were utilized for the storage of #2 heating oil used to fuel the facility boiler. Both tanks were excavated and removed from the site. The facility is currently converting to natural gas for heating purposes.

ESM contracted M M Wertheim, Inc. located in Bridgewater, New Jersey, to complete the tank removal program. The tank removal programs were conducted under the direct supervision of JMS personnel. The tank removal activities included, tank excavation, removal/stockpiling of contaminated soil for disposal and post-excavation soil sampling. The post-excavation samples were collected in accordance with NJDEP Sampling Guidelines of June 6, 1986, and JMS sampling procedures Appendix 1.

3.1.1 1,000-Gallon #2 Heating Oil Tank (Tank B)

Tank B was located adjacent to the southwest corner of the facility building (Figure D-4). The top of the 4-feet diameter, 11-feet-long steel tank was approximately 1.5 feet below the ground surface. The tank was installed when the building was constructed in 1940. Based on available site data, the tank was abandoned approximately 20 years ago. ESM elected to remove the tank since it was no longer in use.

Prior to beginning the tank excavation program, the contents of the tank were evacuated and removed for disposal by L & L Oil Service, Inc., located in Aberdeen, New Jersey. L & L Oil Service, Inc. is a NJDEP-licensed waste hauler. Approximately 580 gallons of oil and water were pumped from the tank for disposal. The waste disposal receipt is included in Appendix 2. The bituminous asphalt pavement and soils over the top of the tank were excavated and stockpiled on and covered with 6-mil plastic sheeting on a paved area adjacent to the excavation. Following excavation of the surface soils, the tank was removed from the pit and placed on 6 mil plastic sheeting. A visual inspection of the tank shell and tank envelope was made to identify evidence of tank failure. Numerous holes were identified in the tank base and oily residues were observed in the soils at the base of the tank envelope.

The soil excavation was continued until all fill material from the tank envelope was removed. As a precautionary measure to ensure that all contamination was removed, additional soil was scraped from the excavation side walls and base. Clean soils were determined by field scanning techniques utilizing an Hnu meter and sensory observations. The removed soils were stockpiled with the previously excavated soil for disposal. The dimensions of the excavation were approximately 11 feet wide by 16 feet long by 7 feet deep. No groundwater was encountered in the excavation.

JMS collected five (5) post-excavation soil samples (ESM-TB-1 to ESM-TB-5) from the base and side walls of the excavation to confirm the absence of contamination. The samples were collected at depths of 7.0 to 7.5 feet below the surface at the locations shown on Figure D-4. The samples were all analyzed for PHC with the centrally located sample also analyzed for BN+15.

As shown on Table 2, PHC concentrations were not detected in the samples above the method detection limit of 50 ppm. NJDEP cleanup guidelines for PHC is 100 ppm. One (1) BN compound was identified in Sample ESM-TB-1. Di-n-butyl phthalate was detected at a concentration level of 2.2 ppm, which is well below NJDEP cleanup guidelines of 10 ppm (total BN). Five (5) non-priority pollutant BN compounds were detected during the library search for additional compounds (Table 2). The total estimated concentration level of the compounds was 2.6 ppm. Four (4) of the tentatively identified compounds with a total estimated concentration level of 1.9 ppm were also identified in the method blank which indicates laboratory contamination.

Based on the laboratory analyses of the post-excavation samples, all contaminated soil was removed from the tank excavation. No compounds were identified in the samples at concentrations above NJDEP cleanup guidelines. Therefore, no additional cleanup is required in this area.

3.1.2 1,000-Gallon #2 Heating Oil Tank (Tank A)

Tank A was located adjacent to the northeast wall of the facility building as shown on Figure D-3. The steel tank was 4 feet in diameter and 11 feet long. The top of the tank was approximately 1.5 feet below the surface. The tank was used to store #2 heating oil used to fuel the facility boiler. Based on available site data, the tank was approximately 48 years old.

A petro tite test was performed by Keegan Tech & Testing Inc. on this tank in September 1987. The results of the petro tite test certified the tank as tight. The petro tite test logs are included as Attachment E.

To verify the results of the petro tite tank test, JMS implemented a boring and sampling program around the tank. Three (3) borings were installed within 1 foot (horizontal distance) of the northeast, southwest and southeast side walls of the tank. The borings were completed to a depth of 5.5 feet below the surface level. One (1) sample per boring was collected for analyses. The samples ESM-TA-1, ESM-TA-2, and ESM-TA-4 were obtained at a depth of 5.5 - 6.0 feet below the surface at the locations shown on Figure D-5. The sampling depth represents the 6 inches of soil below the tank base. Sampling at the northwest end of the tank was attempted, however, the boring was not completed. Further investigation identified this portion of the tank to be situated below the building foundation; therefore, sampling was not possible (Figure D-5). The three (3) samples collected, were analyzed for PHC, in addition, Sample ESM-TA-2 was also analyzed for BN+15.

As shown on Table 2, PHCs were detected in concentrations of 60 ppm (ESM-TA-1), 770 ppm (ESM-TA-2) and 220 ppm (ESM-TA-4). The PHC concentration detected in Samples ESM-TA-2 and ESM-TA-4 are above NJDEP cleanup guidelines. NJDEP guidelines for PHC concentrations in soil is 100 ppm.

Two (2) BN compounds, di-n-butyl phthalate and phenanthrene were identified in Sample ESM-TA-2 (Table 2). The total concentration detected for both analytes was 1.89 ppm which is well below NJDEP cleanup guidelines of 10 ppm (total BN). Fifteen (15) non-priority pollutant base neutral compounds were detected during the library search for additional compounds (Table 2). The total estimated concentration level of the tentatively identified and tentatively unidentified base neutral compounds is 12.4 ppm.

As indicated by the sample analyses, elevated PHC levels were detected in two (2) of the three (3) samples. Based on the analytical findings, ESM implemented a tank removal program in this area. The details of the removal activities are discussed in Section 4.1.

3.2 ABANDONED SEPTIC HOLDING TANK

The septic holding tank is located adjacent to the south exterior wall of the building. Prior to connecting to sanitary sewers in 1980, the sanitary wastes from the facility's two restrooms were discharged to the septic tank. According to facility personnel, the holding tank was pumped monthly by a NJDEP authorized domestic waste hauler. The pumpage was transported to Middlesex County Sewage Authority for treatment and disposal. Following the sanitary sewer connection, the septic tank was emptied and backfilled with crushed stone, sand and fragments of asphalt pavement. The location of the septic tank and sanitary sewer are shown on Figure D-4.

To determine if hazardous substances resulting from historic discharges were present in the septic tank, JMS collected one (1) sample from the residues at the septic tank base. The septic tank was exposed utilizing a backhoe. The tank measured 5.0 feet in diameter by 4.5 feet long. The top of the steel tank was approximately 1.0 foot below the surface of the asphalt parking lot. JMS completed a boring through the fill material to a depth of 5.0 feet. One (1) soil sample ESM-S-1 was collected from the base of the boring at a depth of 5.0 to 5.5 feet at the location shown on Figure D-4. The sampling depth represents the 0 - 6 inch increment of material above the base of the septic tank. The sample was analyzed for PHC, BN+15, VO+15 and polychlorinated biphenyls (PCBs).

As shown on Table 2, PHCs were identified in the sample at a concentration of 520 ppm, which is above the NJDEP cleanup level of 100 ppm. Twelve (12) BN compounds were detected in the sample. The total concentration of the compounds identified was 6.2 ppm, which is well below NJDEP cleanup guideline of 10 ppm (total BN). Twelve (12) non-priority pollutant BN compounds with a total concentration of 5.7 ppm, were detected in the library search for additional compounds. Ten (10) compounds with a total estimated concentration of 3.1 ppm were tentatively identified. Two (2) compounds with a total estimated concentration of 1.0 ppm were tentatively unidentified. Three (3) compounds with a total estimated concentration of 1.6 ppm were also found in the method blank, indicating laboratory contamination. No PCBs were detected above the method detection limits of 0.081 ppm in the sample. Only two (2) tentatively identified compounds, with a concentration of .031 ppm, were detected in the sample during the analysis for VOs.

Based on the laboratory analysis, only PHCs were detected at a concentration above NJDEP cleanup guidelines. The PHC level detected probably resulted from analysis of asphalt pavement particles which were present in the backfill material. However, as a precautionary measure, JMS opted to collect additional samples from the septic area to determine if PHC contamination infiltrated the soils surrounding the tank. The details of the sampling activities are discussed in Section 4.0.

4.0 ADDITIONAL SOIL INVESTIGATION - ABANDONED SEPTIC SYSTEM

As described in Section 3.2, JMS conducted additional sampling in the vicinity of the septic tank. Two (2) samples ESM-S-1A and ESM-S-1B collected from the soils below the base of the septic tank. Two (2) test pits were installed within 1.0 foot horizontal distance of the tank side walls and completed to a depth of 5.5 feet. One (1) soil sample per test pit was collected at a depth of 5.5 to 6.0 feet below the surface level at the location shown on Figure D-4. The sampling depth represents the 6-inch increment of soil below the base of the septic tank. The samples were analyzed for PHCs.

As shown on Table 2, PHCs were detected in concentrations of 93 and 69 ppm in Samples ESM-S-1A and ESM-S-1B, respectively. Both concentrations are below NJDEP cleanup guidelines. Therefore no additional work is required in the septic tank area.

4.1 TANK REMOVAL - 1,000-GALLON #2 HEATING OIL TANK

As mentioned in Section 3.1.2, Tank A was to be excavated and removed from the site. The tank removal activities were conducted following the same procedures as described in Section 3.1.1 for the Tank B removal. The tank and oil disposal receipts are included in Appendix 2.

Following the exposure of the tank top, JMS determined the northwest end of the tank extended 2 feet under the footing of the building (Figure D-4). The tank was removed from the excavation and placed on 6-mil plastic sheeting for inspection. No holes were identified in the tank, however, oily residues were observed in the fill material at the base of the excavation. No ground water was encountered in the tank envelope. The excavation of soil was continued until all tank fill material had been removed. As a precautionary measure, additional soil was scraped from the northeast, southeast, southwest side walls and base of the excavation to ensure the complete removal of oily residues. The soil removal along the northwest excavation side wall was limited, since a 6-foot section of the building's footing was exposed and undermined due to the removal of the tank. Since removal of soil from below the footing threatened the structural integrity of the building, no additional soil was excavated from this area. The excavation measured approximately 9 feet wide by 16 feet long by 7 feet deep.

To verify the absence of soil contamination, JMS collected five (5) post-excavation soil samples, ESM-TA-1R to ESM-TA-5R, from the base and side walls of the excavation. Sample ESM-TA-3R was collected 2 feet under the building footing at a depth of 5.5 - 6.0 feet. The remaining four (4) samples were collected at depths of 7.0 - 7.5 feet. The sample locations are shown on Figure D-3. The samples were all analyzed for PHCs. The centrally located sample was also analyzed for BN+15.

As shown on Table 2, PHC concentrations identified during the laboratory analysis were below the method detection limit of 50 ppm in all the samples except ESM-TA-3R. Sample ESM-TA-3R contained 180 ppm PHCs, which is slightly above NJDEP cleanup guidelines of 100 ppm.

One (1) BN compound, di-n-butyl phthalate was identified at a concentration of 2.9 ppm in Sample ESM-TA-5R. The concentration of the analyte is well below NJDEP guideline of 10 ppm (total BN). Two (2) non-priority pollutant BN compounds were detected during the library search for additional compounds (Table 2). The total estimated concentration of the identified compounds is 1.98 ppm. Both compounds were also identified in the method blank indicating probable laboratory contamination.

4.1.1 Conclusion

Based on the laboratory analyses, contamination above NJDEP cleanup guidelines was not detected in the excavation except in the area below the building footing. The oily residues removed from the excavation probably resulted from spillage that occurred during tank filling operations rather than tank leakage. This opinion is justified, since holes or pitting was not identified in the tank shell and the results of a petro tite test conducted

Highly true

on the tank, in September 1987, indicated no leakage. The petro tite test results are included as Attachment E. JMS proposes no additional cleanup in the area below the footing since PHC concentrations were only detected in slightly elevated levels of 180 ppm. Furthermore, additional soil removal from under the building footing would jeopardize building integrity and result in collapse of the exterior wall.

5.0 SOIL DISPOSAL/SITE RESTORATION

The contaminated soil excavated during the tank removal programs was stockpiled on, and covered with, 6 mil plastic sheeting pending off-site disposal. Five (5) soil samples were collected from the stockpiled soil and composited for Sample ESM(WC). The composite sample was analyzed for waste classification parameters.

Results of the waste classification analysis identified six (6) metals in trace concentrations in the sample. The remaining metals were not detected above the respective method detection limits. Corrosivity, reactivity and ignitability were negative. Total cyanides were not identified above the method detection limit of 50 ppm. Total phenols were identified at a concentration of 5.1 ppm. PCBs were not identified. Total PHCs were identified at 5,000 ppm. Four (4) volatile organic compounds were identified in the sample with a total concentration of 0.411 ppm. The sample results are summarized on Table 3.

The stockpiled soil will be transported to an EPA-approved landfill located in Ohio for disposal. The waste spoils will be manifested off-site and transported by NJDEP/EPA permitted transporter in accordance with State regulations. The disposal manifests will be submitted to NJDEP in accordance with manifesting regulations.

The tank excavations were backfilled with clean stone obtained from a quarry located in Bridgewater, New Jersey. The clean fill receipt is included in Appendix 2. Final site restoration will include grading and covering the excavations with bituminous asphalt pavement.

6.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

During the implementation of the sampling and analytical program, the QA/QC procedures recommended by NJDEP were strictly followed. The detailed sampling procedures and field equipment decontamination procedures are outlined in the following subsections. All analyses were conducted by a NJDEP-certified laboratory; proper QA/QC procedures, as outlined in Subsection 6.2, were followed during laboratory analysis.

TABLE 1
EDISON STAMPING MANUFACTURING CO., INC.
SOIL SAMPLING SUMMARY

AREAS OF CONCERN/ BORING #	PURPOSE OF SAMPLING	SAMPLING DEPTH	ANALYTICAL PARAMETER
1000 GALLON UNDERGROUND HEATING OIL STORAGE TANK (TANK A)			
049 ESM-TA-1	I	5.5-6	PHC
019 ESM-TA-2	I	5.5-6	PHC, BN+15
056 ESM-TA-4	I	5.5-6	PHC
398 ESM-TA-1R	PE	7-7.5	PHC
400 ESM-TA-2R	PE	7-7.5	PHC
397 ESM-TA-3R	PE	7-7.5	PHC
401 ESM-TA-4R	PE	7-7.5	PHC
399 ESM-TA-5R	PE	7-7.5	PHC, BN+15
1000 GALLON UNDERGROUND HEATING OIL STORAGE TANK (TANK B)			
051 ESM-TB-1	PE	7-7.5	PHC, BN+15
052 ESM-TB-2	PE	7-7.5	PHC
053 ESM-TB-3	PE	7-7.5	PHC
054 ESM-TB-4	PE	7-7.5	PHC
055 ESM-TB-5	PE	7-7.5	PHC
402 ESM-TB-WC	WC	----	WASTE CLASSIFICATION PARAMETERS
ABANDONED SEPTIC HOLDING TANK			
047 ESM-S-1	I	5-5.5	PHC, VO+15, BN+15, PCB's
395 ESM-S-1A	I	5.5-6	PHC
396 ESM-S-1B	I	5.5-6	PHC

NOTES:
I - INITIAL
PE - POST EXCAVATION
WC - WASTE CLASSIFICATION

052 trip
057 field
403 field

TABLE 2
EDISON STAMPING AND MANUFACTURING CO. INC.
ANALYTICAL RESULTS SUMMARY

SAMPLE NUMBER	ESM-TA-1	ESM-TA-2	ESM-TA-4	ESM-TA-1R	ESM-TA-2R	ESM-TA-3R	ESM-TA-4R	ESM-TA-5R	ESM-TB-1	ESM-TB-2	ESM-TB-3	ESM-TB-4	ESM-TB-5
SAMPLING DATE	10/28/88			12/16/88					10/28/88				
DEPTH (FEET)	5.5-6	5.5-6	5.5-6	7-7.5	7-7.5	7-7.5	7-7.5	7-7.5	7-7.5	7-7.5	7-7.5	7-7.5	7-7.5
AREA OF CONCERN	TANK A								TANK B				
BASE NEUTRALS (ppb)	NA		NA	NA	NA	NA	NA			NA	NA	NA	NA
BENZO (A) ANTHRACENE		ND						ND	ND				
BENZO (A) PYRENE		ND						ND	ND				
BENZO (B) FLUORANTHENE		ND						ND	ND				
BENZO (K) FLUORANTHENE		ND						ND	ND				
BENZO (GHI) PERYLENE		ND						ND	ND				
BUTYL BENZYL PHTHALATE		ND						ND	ND				
CHRYSENE		ND						ND	ND				
DIMETHYL PHTHALATE		ND						ND	ND				
DI-N-BUTYL PHTHALATE		1800						2900	2200				
FLUORANTHENE		ND						ND	ND				
INDENO (1,2,3-CD) PYRENE		ND						ND	ND				
PHENANTHRENE		99 J						ND	ND				
PYRENE		ND						ND	ND				
TENTATIVELY IDENTIFIED COMPOUNDS (ppb) *		8400 (11) 990 (2)B						980 (2)B	630 (1) 1980 (4)B				
TENTATIVELY UNIDENTIFIED COMPOUNDS (ppb) *		4060 (2)						ND	ND				
VOLATILE ORGANIC (ppb)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE													
CARBON TETRACHLORITE													
ETHYLBENZENE													
TETRACHLOROETHYLENE													
TRICHLOROFLOROMETHANE													
m-XYLENE													
p,o-XYLENE													
TENTATIVELY IDENTIFIED COMPOUNDS (ppb) *													
TENTATIVELY UNIDENTIFIED COMPOUNDS (ppb) *													
PCB'S (ppb)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PERCENT SOLIDS	88	82	80	94	95	82	95	95	90	93	88	93	88
PETROLEUM HYDROCARBONS (ppm)	60	770	220	<50	<50	180	<50	<50	<50	<50	<50	<50	<50

NOTES:
B - PROBABLE/POSSIBLE LAB CONTAMINATION
J - BELOW METHOD DETECTION LIMIT
NA - NOT ANALYZED
ND - NOT DETECTED
ppb - PARTS PER BILLION
ppm - PARTS PER MILLION
* - ESTIMATED CONCENTRATION (# OF COMPOUNDS IN PARENTHESIS)

Septic

TABLE 2
EDISON STAMPING AND MANUFACTURING CO. INC.
ANALYTICAL RESULTS SUMMARY
(CONTINUED)

SAMPLE NUMBER	ESM-S-1	ESM-S-1A	ESM-S-1B	ESM-TB	ESM-FB	ESM-FB
SAMPLING DATE	10/28/88	12/16/88	12/16/88	10/28/88	10/28/88	12/16/88
DEPTH (FEET)	5.5-6	5.5-6	5.5-6	--------	--------	--------
AREA OF CONCERN	SEPTIC TANK	SEPTIC TANK	SEPTIC TANK	TRIP BLANK	FIELD BLANK	FIELD BLANK
BASE NEUTRALS (ppb)		NA	NA	NA		
BENZO (A) ANTHRACENE	140 J				ND	ND
BENZO (A) PYRENE	200 J				ND	ND
BENZO (B) FLUORANTHENE	210 J				ND	ND
BENZO (K) FLUORANTHENE	150 J				ND	ND
BENZO (GHI) PERYLENE	180 J				ND	ND
BUTYL BENZYL PHTHALATE	61 J				ND	ND
CHRYSENE	220 J				ND	ND
DIMETHYL PHTHALATE	ND				ND	ND
DI-N-BUTYL PHTHALATE	3900				ND	ND
FLUORANTHENE	380 J				ND	ND
INDENO (1,2,3-CD) PYRENE	140 J				ND	ND
PHENANTHRENE	260 J				ND	ND
PYRENE	380 J				ND	ND
TENTATIVELY IDENTIFIED COMPOUNDS (ppb) *	3070 (7) 1600 (3)B				25 (2)B	10 (1)
TENTATIVELY UNIDENTIFIED COMPOUNDS (ppb) *	1000 (2)				12 (1)	ND
VOLATILE ORGANIC (ppb)		NA	NA			NA
BENZENE	ND			ND	1.3 J	
CARBON TETRACHLORITE	ND			ND	1.3 J	
ETHYLBENZENE	ND			ND	ND	
TETRACHLOROETHYLENE	ND			ND	1.1 J	
TRICHLOROFLOROMETHANE	ND			ND	2.0 J	
m-XYLENE	ND			ND	ND	
p,o-XYLENE	ND			ND	ND	
TENTATIVELY IDENTIFIED COMPOUNDS (ppb) *	31 (2)			ND	ND	
TENTATIVELY UNIDENTIFIED COMPOUNDS (ppb) *	ND			ND	ND	
PCB'S (ppb)	ND	NA	NA	NA	NA	NA
TOTAL PERCENT SOLIDS	82	92	89	NA	NA	NA
PETROLEUM HYDROCARBONS (ppm)	520	93	69	NA	<1.0	<1.0

NOTES:

B - PROBABLE/POSSIBLE LAB CONTAMINATION
J - BELOW METHOD DETECTION LIMIT
NA - NOT ANALYZED
ND - NOT DETECTED
ppb - PARTS PER BILLION
ppm - PARTS PER MILLION
* - ESTIMATED CONCENTRATION (# OF COMPOUNDS IN PARENTHESIS)

ESM-7B-WC

ACCUTEST

ANALYSIS REPORT FOR VOLATILE ORGANICS BY GC/MS

CLIENT : SORGE
LAB SAMPLE #: E819402
MATRIX : SOIL

METHOD : SW846 8240
ANALYSIS DATE: 12/27/88
DATA FILE : >F1240

	COMPOUND	RESULT (ug/kg)*	MDL (ug/kg)*	Q
1)	ACROLEIN	ND	470	
2)	ACRYLONITRILE	ND	470	
3)	BENZENE	ND	23	
4)	BROMOFORM	ND	23	
5)	BROMODICHLOROMETHANE	ND	23	
6)	BROMOMETHANE	ND	47	
7)	CARBON TETRACHLORIDE	ND	23	
8)	CHLOROBENZENE	ND	23	
9)	CHLOROETHANE	ND	47	
10)	2-CHLOROETHYL VINYL ETHER	ND	47	
11)	CHLOROFORM	ND	23	
12)	CHLOROMETHANE	ND	47	
13)	cis-1,3-DICHLOROPROPENE	ND	23	
14)	DIBROMOCHLOROMETHANE	ND	23	
15)	1,2-DICHLOROBENZENE	ND	23	
16)	1,3-DICHLOROBENZENE	ND	23	
17)	1,4-DICHLOROBENZENE	ND	23	
18)	1,1-DICHLOROETHANE	ND	23	
19)	1,2-DICHLOROETHANE	ND	23	
20)	1,1-DICHLOROETHYLENE	ND	23	
21)	trans-1,2-DICHLOROETHYLENE	ND	23	
22)	trans-1,3-DICHLOROPROPENE	ND	23	
23)	1,2-DICHLOROPROPANE	ND	23	
24)	ETHYLBENZENE	83	23	
25)	METHYLENE CHLORIDE	ND	23	
26)	1,1,2,2-TETRACHLOROETHANE	ND	23	
27)	TETRACHLOROETHYLENE	62	23	
28)	TOLUENE	ND	23	
29)	1,1,1-TRICHLOROETHANE	ND	23	
30)	1,1,2-TRICHLOROETHANE	ND	23	
31)	TRICHLOROETHYLENE	ND	23	
32)	TRICHLOROFLUOROMETHANE	ND	23	
33)	VINYL CHLORIDE	ND	47	
34)	m-XYLENE	96	23	
35)	p,o-XYLENE	170	23	

ND = NOT DETECTED
MDL= METHOD DETECTION LIMIT

* = REPORTED ON A DRY WEIGHT BASIS

QUALIFIERS (Q)

J =INDICATES AN ESTIMATED VALUE BELOW MDL
B =INDICATES COMPOUND FOUND IN THE ASSOCIATED BLANK AS WELL AS IN SAMPLE

12

ACCUTEST

ANALYSES REPORT

SAMPLE No	COLLECTED DATE	TIME	BY	POINT OF COLLECTION
3819402	12/16/88	16:00	DH	SOIL - ESH WC, WASTE SPOILS EDISON STAMPING + MACHINE CO.

TEST DESCRIPTION	RESULT	MDL	UNITS	DATE	INITS
SOLIDS, TOTAL PERCENT	97	2.0	%	12/21/88	KY

UG/KG = PPB MG/KG = PPM
MDL = METHOD DETECTION LIMIT
ALL RESULTS REPORTED ON A DRY WEIGHT BASIS
NJDEP CERTIFICATION 12129
CTDEP CERTIFICATION PH-0585

VINCENT J. PUGLIESE
VICE-PRESIDENT

13

TABLE 3
EDISON STAMPING MANUFACTURING CO. INC.
WASTE CLASSIFICATION SAMPLE RESULTS SUMMARY

SAMPLE NUMBER	ESM-WC
EP TOXICITY METALS (ppm)	
ARSENIC	<.001
BARIUM	.17
CADIUM	.023
CHROMIUM	.046
COPPER	.070
CYANIDE	<.010
FLUORIDE	<0.10
LEAD	.002
MERCURY	<.001
NICKEL	<.040
SELENIUM	<.001
SILVER	<.010
ZINC	.14
pH (INITIAL)(SU)	4.6
pH (FINAL)(SU)	7.3
IGNITABILITY (FAHRENHEIT)	>150
CORROSIVITY	NC
CYANIDE REACTIVITY (ppm)	<1.5
SULFIDE REACTIVITY (ppm)	<20
TOTAL PHENOLS	5.1
TOTAL CYANIDE	<0.50
TOTAL PERCENT SOLIDS	83
TOTAL PETROLEUM HYDROCARBONS (ppm)	5000

NOTES:

NA - NOT ANALYZED
NC - NON CORROSIVE
ND - NOT DETECTED
SU - STANDARD UNITS
ppm - PARTS PER MILLION

ESM-TB-1

ACCUTEST

SEMIVOLATILE ORGANICS ANALYSIS Data SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client Name: SORGE

Lab Sample ID: E816051

Lab File ID: >D4183

Matrix: SOIL FOR BN

Batch Number: MS-S-280

Extraction Date: 11/10/88

Date Analyzed: 11/14/88 23:25

Number TICs found: 5

CONCENTRATION UNITS: ug/kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	79005	Ethane, 1,1,2-trichloro- (8C	7.53	470.	1
2.	544127	3-Hexen-1-ol (8C!PC!)	8.28	230.	1
3.	115220	2-Butanone, 3-hydroxy-3-meth	9.35	630.	
4.	79345	Ethane, 1,1,2,2-tetrachloro-	11.32	1000.	1
5.	16106595	1-Hexene, 4,5-dimethyl- (8C!	11.86	280.	1
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

QUALIFIERS(Q):
(1)-THIS COMPOUND (OR SIMILAR SPECTRA) FOUND IN LAB BLANK.
(2)-INTERNAL OR SURROGATE STANDARD ADDED BY LABORATORY.
(3)-THIS COMPOUND ALREADY IDENTIFIED AND REPORTED AS TARGET COMPOUND.
(4)-PROBABLE BACKGROUND DUE TO SOLVENT OR CO2.

FORM I SV-TIC

15

ACCUTEST

TO: J. M. SORGE, INC.
3301 U. S. HIGHWAY 22
SOMERVILLE, NJ 08876

ATTN: MIKE McGOWAN

DATE: 12/01/88

JOB No: 885163

PROJECT No: ESH 88116

SAMPLE RECEIVED: 10/31/88

SAMPLE SUMMARY

SAMPLE No	COLLECTED DATE	TIME	BY	POINT OF COLLECTION
E816047	10/28/88	10:15	DH	SOIL - ESH-S-1, CENTER BASE, 5-5.5' EDISON STAMPING + MACHINE CO.
E816048	10/28/88	11:20	DH	SOIL - ESH-TA-1, ACTIVE 1K OIL TANK, 5.5-6' EDISON STAMPING + MACHINE CO.
E816049	10/28/88	12:10	DH	SOIL - ESH-TA-2, ACTIVE 1K OIL TANK, 5.5-6' EDISON STAMPING + MACHINE CO.
E816050	10/28/88	13:15	DH	SOIL - ESH-TA-4, ACTIVE OIL TANK, 5.5-6' EDISON STAMPING + MACHINE CO.
E816051	10/28/88	17:25	DH	SOIL - ESH-TB-1, ABANDONED 1K OIL TANK, 7-7.5' EDISON STAMPING + MACHINE CO.
E816052	10/28/88	17:25	DH	SOIL - ESH-TB-2, ABANDONED 1K OIL TANK, 7-7.5' EDISON STAMPING + MACHINE CO.

NJDEP CERTIFICATION 12129
CLEP CERTIFICATION PH-0585

VINCENT J. FUGLIESE
VICE PRESIDENT

1

ACCUTEST

TO: J. M. SORGE, INC.
3301 U. S. HIGHWAY 22
SOMERVILLE, NJ 08876

ATTN: MIKE McGOWAN

DATE: 12/01/88

JOB No: 885163

PROJECT No: ESH 88116

SAMPLE RECEIVED: 10/31/88

SAMPLE SUMMARY

SAMPLE No	COLLECTED DATE	TIME	BY	POINT OF COLLECTION
E816053	10/28/88	17:30	DH	SOIL - ESH-TB-3, ABANDONED 1K OIL TANK, 7-7.5' EDISON STAMPING + MACHINE CO.
E816054	10/28/88	17:35	DH	SOIL - ESH-TB-4, ABANDONED 1K OIL TANK, 7-7.5' EDISON STAMPING + MACHINE CO.
E816055	10/28/88	17:40	DH	SOIL - ESH-TB-5, ABANDONED 1K OIL TANK, 7-7.5' EDISON STAMPING + MACHINE CO.
E816056	10/28/88		DH	WATER - TB, TRIP BLANK EDISON STAMPING + MACHINE CO.
E816057	10/28/88	16:35	DH	WATER - FB, FIELD BLANK EDISON STAMPING + MACHINE CO.

N EP CERTIFICATION 12129
C EP CERTIFICATION PH-0585

VINCENT J. FUGLIESE
VICE-PRESIDENT

2

Center Septic ESM-S-1

ACCUTEST

2235 ROUTE 130, BLDG. B • DAYTON, N.J. 08810 • (201) 329-0200

Center Septic

ANALYSIS REPORT FOR VOLATILE ORGANICS BY GC/MS

CLIENT : SORGE
LAB SAMPLE #: E816047
MATRIX : SOIL

METHOD : SW846 8240
ANALYSIS DATE: 11/07/88
DATA FILE >A0402

	COMPOUND	RESULT (ug/kg)	MDL (ug/kg)	Q
1)	ACROLEIN	ND	240	
2)	ACRYLONITRILE	ND	240	
3)	BENZENE	ND	12	
4)	BROMOFORM	ND	12	
5)	BROMODICHLOROMETHANE	ND	12	
6)	BROMOMETHANE	ND	24	
7)	CARBON TETRACHLORIDE	ND	12	
8)	CHLOROBENZENE	ND	12	
9)	CHLOROETHANE	ND	24	
10)	2-CHLOROETHYL VINYL ETHER	ND	24	
11)	CHLOROFORM	ND	12	
12)	CHLOROMETHANE	ND	24	
13)	cis-1,3-DICHLOROPROPENE	ND	12	
14)	DIBROMOCHLOROMETHANE	ND	12	
15)	1,2-DICHLOROBENZENE	ND	12	
16)	1,3-DICHLOROBENZENE	ND	12	
17)	1,4-DICHLOROBENZENE	ND	12	
18)	1,1-DICHLOROETHANE	ND	12	
19)	1,2-DICHLOROETHANE	ND	12	
20)	1,1-DICHLOROETHYLENE	ND	12	
21)	trans-1,2-DICHLOROETHYLENE	ND	12	
22)	trans-1,3-DICHLOROPROPENE	ND	12	
23)	1,2-DICHLOROPROPANE	ND	12	
24)	ETHYLBENZENE	ND	12	
25)	METHYLENE CHLORIDE	ND	12	
26)	1,1,2,2-TETRACHLOROETHANE	ND	12	
27)	TETRACHLOROETHYLENE	ND	12	
28)	TOLUENE	ND	12	
29)	1,1,1-TRICHLOROETHANE	ND	12	
30)	1,1,2-TRICHLOROETHANE	ND	12	
31)	TRICHLOROETHYLENE	ND	12	
32)	TRICHLOROFLUOROMETHANE	ND	12	
33)	VINYL CHLORIDE	ND	24	
34)	m-XYLENE	ND	12	
35)	p,o-XYLENE	ND	12	

ND = NOT DETECTED
MDL= METHOD DETECTION LIMIT

QUALIFIERS (Q)

J =INDICATES AN ESTIMATED VALUE BELOW MDL
B =INDICATES COMPOUND FOUND IN THE ASSOCIATED BLANK AS WELL AS IN SAMPLE

3

Center Septic

ACCUTEST

2235 ROUTE 130, BLDG B • DAYTON, N.J. 08810 • (201) 329-0200

ANALYSIS REPORT FOR BASE NEUTRAL EXTRACTABLES BY GC/MS

CLIENT : SORGE
LAB SAMPLE #: E816047
MATRIX : SOIL

METHOD : SW846 8270
ANALYSIS DATE: 11/11/88
DATA FILE : >D4174

	COMPOUND	RESULT (ug/kg)	MDL (ug/kg)	Q
1)	ACENAPHTHENE	ND	590	
2)	ACENAPHTHYLENE	ND	590	
3)	ANTHRACENE	ND	590	
4)	BENZIDENE	ND	2900	
5)	BENZO(A)ANTHRACENE	140	590	J
6)	BENZO(A)PYRENE	200	590	J
7)	BENZO(B)FLUORANTHENE	210	590	J
8)	BENZO(K)FLUORANTHENE	150	590	J
9)	BENZO(G,H,I)PERYLENE	180	590	J
10)	BIS(2-CHLOROETHOXY)METHANE	ND	590	
11)	BIS(2-CHLOROETHYL)ETHER	ND	590	
12)	BIS(2-CHLOROISOPROPYL)ETHER	ND	590	
13)	BIS(2-ETHYLHEXYL)PHTHALATE	ND	590	
14)	4-BROMOPHENYL PHENYL ETHER	ND	590	
15)	BUTYL BENZYL PHTHALATE	61	590	J
16)	2-CHLORONAPHTHALENE	ND	590	
17)	4-CHLOROPHENYL PHENYL ETHER	ND	590	
18)	CHRYSENE	220	590	J
19)	DIBENZO(A,H)ANTHRACENE	ND	590	
20)	1,2-DICHLOROBENZENE	ND	590	
21)	1,3-DICHLOROBENZENE	ND	590	
22)	1,4-DICHLOROBENZENE	ND	590	
23)	3,3'-DICHLOROBENZIDENE	ND	1200	
24)	DIETHYL PHTHALATE	ND	590	
25)	DIMETHYL PHTHALATE	ND	590	
26)	DI-N-BUTYL PHTHALATE	3900	590	
27)	2,4-DINITROTOLUENE	ND	590	
28)	2,6-DINITROTOLUENE	ND	590	
29)	DI-N-OCTYL PHTHALATE	ND	590	
30)	1,2-DIPHENYLHYDRAZINE	ND	590	
31)	FLUORANTHENE	380	590	J
32)	FLUORENE	ND	590	
33)	HEXACHLOROBENZENE	ND	590	
34)	HEXACHLOROBUTADIENE	ND	590	
35)	HEXACHLOROCYCLOPENTADIENE	ND	590	
36)	HEXACHLOROETHANE	ND	590	
37)	INDENO(1,2,3-CD)PYRENE	140	590	J
38)	ISOPHORONE	ND	590	
39)	NAPHTHALENE	ND	590	
40)	NITROBENZENE	ND	590	
41)	N-NITROSODIMETHYLAMINE	ND	590	
42)	N-NITROSODI-N-PROPYLAMINE	ND	590	
43)	N-NITROSODIPHENYLAMINE	ND	590	
44)	PHENANTHRENE	260	590	J
45)	PYRENE	380	590	J
46)	1,2,4-TRICHLOROBENZENE	ND	590	

ND = NOT DETECTED
MDL= METHOD DETECTION LIMIT

QUALIFIERS (Q)

J =INDICATES AN ESTIMATED VALUE BELOW MDL
B =INDICATES COMPOUND FOUND IN THE ASSOCIATED BLANK AS WELL AS IN SAMPLE

ACCUTEST

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client Name: SURGE

Lab Sample ID: E816047

Date Analyzed: 11/02/88 16:46

Lab File ID: >A0402

Matrix: SOIL FOR VOA

Number TICs found: 2 CONCENTRATION UNITS: ug/Kg

	CAS NUMBER	COMPOUND NAME	R	EST. CONC.	Q
1.	67641	2-Propanone (9CI)	8.07	19.	
2.	96140	Pentane, 3-methyl- (8CIPCI)	19.36	12.	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

QUALIFIERS(Q):
(1)-THIS COMPOUND (OR SIMILAR SPECTRA) FOUND IN LAB BLANK.
(2)-INTERNAL OR SURROGATE STANDARD ADDED BY LABORATORY.
(3)-THIS COMPOUND ALREADY IDENTIFIED AND REPORTED AS TARGET COMPOUND.
(4)-PROBABLE BACKGROUND DUE TO SOLVENT OR CO2.

FORM I SV-TIC

5

ACCUTEST
2235 ROUTE 130, BLDG B • DAYTON, N.J. 08810 • (201) 329-0200

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client Name: SORGE

Batch Number: MS-S-280

Lab Sample ID: E816047

Extraction Date: 11/10/88

Lab File ID: >D4174

Date Analyzed: 11/11/88 21:01

Matrix: SOIL FOR BN

Number TICs found: 12

CONCENTRATION UNITS: ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1759531	Cyclopropanecarboxylic acid	7.11	1200.	
2.	123	Ethane, 1,1,2-trichloro-	7.57	400.	/
3.	123751	Pyrrolidine (DOT)(8CI9CI)	8.11	270.	
4.	66251	Hexanal (8CI9CI)	8.29	300.	
5.	60355	Acetamide (8CI9CI)	8.69	390.	
6.		Unknown	9.40	940.	
7.	79345	Ethane, 1,1,2,2-tetrachloro-	11.37	780.	/
8.	16106595	1-Hexene, 4,5-dimethyl- (8CI	11.91	420.	/
9.	4291796	Cyclohexane, 1-methyl-2-prop	12.38	250.	
10.		Unknown	14.31	60.	
11.	106627	1-Propanol, 2-(2-hydroxyprop	20.95	420.	
12.	74381401	Propanoic acid, 2-methyl-, 1	25.43	240.	
13.					
14.					
15.					

QUALIFIERS(Q);
(1)-THIS COMPOUND (OR SIMILAR SPECTRA) FOUND IN LAB BLANK.
(2)-INTERNAL OR SURROGATE STANDARD ADDED BY LABORATORY.
(3)-THIS COMPOUND ALREADY IDENTIFIED AND REPORTED AS TARGET COMPOUND.
(4)-PROBABLE BACKGROUND DUE TO SOLVENT OR CO2.

FORM I SV-TIC

ESM-TA-5R

ACCUTEST

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client Name: SORGE

Lab Sample ID: E819399

Lab File ID: >E2832

Matrix: SOIL FOR BN

Batch Number: MS-S-312

Extraction Date: 12/23/88

Date Analyzed: 1/04/89 12:04

Number TICs found: 2

CONCENTRATION UNITS: ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	79005	Ethane, 1,1,2-trichloro- (8C	3.44	260.	
2.	79345	Ethane, 1,1,2,2-tetrachloro-	6.85	720.	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					

QUALIFIERS(Q);
(1)-THIS COMPOUND (OR SIMILAR SPECTRA) FOUND IN LAB BLANK.
(2)-INTERNAL OR SURROGATE STANDARD ADDED BY LABORATORY.
(3)-THIS COMPOUND ALREADY IDENTIFIED AND REPORTED AS TARGET COMPOUND.
(4)-PROBABLE BACKGROUND DUE TO SOLVENT OR CO2.

FORM I SV-TIC

B

ESM-TA2

ACCUTEST

2235 ROUTE 130, BLDG B • DAYTON, N.J. 08810 • (201) 329-0200

ANALYSIS REPORT FOR BASE NEUTRAL EXTRACTABLES BY GC/MS

CLIENT : SORGE
LAB SAMPLE #: E816049
MATRIX : SOIL

TA2

METHOD : SW846 8270
ANALYSIS DATE: 11/11/88
DATA FILE : >D4175

	COMPOUND	RESULT (ug/kg)	MDL (ug/kg)	Q
1)	ACENAPHTHENE	ND	590	
2)	ACENAPHTHYLENE	ND	590	
3)	ANTHRACENE	ND	590	
4)	BENZIDENE	ND	3000	
5)	BENZO(A)ANTHRACENE	ND	590	
6)	BENZO(A)PYRENE	ND	590	
7)	BENZO(B)FLUORANTHENE	ND	590	
8)	BENZO(K)FLUORANTHENE	ND	590	
9)	BENZO(G,H,I)PERYLENE	ND	590	
10)	BIS(2-CHLOROETHOXY)METHANE	ND	590	
11)	BIS(2-CHLOROETHYL)ETHER	ND	590	
12)	BIS(2-CHLOROISOPROPYL)ETHER	ND	590	
13)	BIS(2-ETHYLHEXYL)PHTHALATE	ND	590	
14)	4-BROMOPHENYL PHENYL ETHER	ND	590	
15)	BUTYL BENZYL PHTHALATE	ND	590	
16)	2-CHLORONAPHTHALENE	ND	590	
17)	4-CHLOROPHENYL PHENYL ETHER	ND	590	
18)	CHRYSENE	ND	590	
19)	DIBENZO(A,H)ANTHRACENE	ND	590	
20)	1,2-DICHLOROBENZENE	ND	590	
21)	1,3-DICHLOROBENZENE	ND	590	
22)	1,4-DICHLOROBENZENE	ND	590	
23)	3,3'-DICHLOROBENZIDENE	ND	1200	
24)	DIETHYL PHTHALATE	ND	590	
25)	DIMETHYL PHTHALATE	ND	590	
26)	DI-N-BUTYL PHTHALATE	1800	590	
27)	2,4-DINITROTOLUENE	ND	590	
28)	2,6-DINITROTOLUENE	ND	590	
29)	DI-N-OCTYL PHTHALATE	ND	590	
30)	1,2-DIPHENYLHYDRAZINE	ND	590	
31)	FLUORANTHENE	ND	590	
32)	FLUORENE	ND	590	
33)	HEXACHLOROBENZENE	ND	590	
34)	HEXACHLOROBUTADIENE	ND	590	
35)	HEXACHLOROCYCLOPENTADIENE	ND	590	
36)	HEXACHLOROETHANE	ND	590	
37)	INDENO(1,2,3-CD)PYRENE	ND	590	
38)	ISOPHORONE	ND	590	
39)	NAPHTHALENE	ND	590	
40)	NITROBENZENE	ND	590	
41)	N-NITROSODIMETHYLAMINE	ND	590	
42)	N-NITROSODI-N-PROPYLAMINE	ND	590	
43)	N-NITROSODIPHENYLAMINE	ND	590	
44)	PHENANTHRENE	99	590	J
45)	PYRENE	ND	590	
46)	1,2,4-TRICHLOROBENZENE	ND	590	

ND = NOT DETECTED
MDL= METHOD DETECTION LIMIT

QUALIFIERS (Q)

J =INDICATES AN ESTIMATED VALUE BELOW MDL
B =INDICATES COMPOUND FOUND IN THE ASSOCIATED BLANK AS WELL AS IN SAMPLE

TA2

ACCUTEST

2235 ROUTE 130, BLDG. B • DAYTON, N.J. 08810 • (201) 329-0200

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client Name: SURGE

Lab Sample ID: E816049

Lab File ID: >D4175

Matrix: SOIL FOR BN

Batch Number: MS-S-280

Extraction Date: 11/10/88

Date Analyzed: 11/11/88 22:20

Number TICs found: 15

CONCENTRATION UNITS: ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1759531	Cyclopropanecarboxylic acid	7.09	950.	
2.		Unknown	8.13	3300.	
3.	123751	Pyrrolidine (DDT)(8CI9CI)	8.99	3300.	
4.		Unknown	9.39	760.	
5.	79345	Ethane, 1,1,2,2-tetrachloro-	11.36	620.	1
6.	16106595	1-Hexene, 4,5-dimethyl- (8CI	11.90	370.	1
7.	112403	Dodecane (8CI9CI)	17.92	510.	
8.	50746537	Cyclopentane, 1-methyl-2-(2-	19.00	320.	
9.	629505	Tridecane (8CI9CI)	19.93	500.	
10.	90120	Naphthalene, 1-methyl- (8CI9	20.80	380.	
11.	106627	1-Propanol, 2-(2-hydroxyprop	20.98	510.	
12.	544763	Hexadecane (8CI9CI)	21.80	380.	
13.	629629	Pentadecane (8CI9CI)	23.56	460.	
14.	629787	Heptadecane (8CI9CI)	26.80	540.	
15.	1921706	Pentadecane, 2,6,10,14-tetra	26.91	550.	

QUALIFIERS(Q):
(1)-THIS COMPOUND (OR SIMILAR SPECTRA) FOUND IN LAB BLANK.
(2)-INTERNAL OR SURROGATE STANDARD ADDED BY LABORATORY.
(3)-THIS COMPOUND ALREADY IDENTIFIED AND REPORTED AS TARGET COMPOUND
(4)-PROBABLE BACKGROUND DUE TO SOLVENT OR CO2.

FORM I SV-TIC

11

50

PROJECT NAME Edison Stamping Machine PROJECT NO. ESM 88116

COLLECTED BY Dan Hackay SIGNATURE Dan Hackay

JM Sorge, Inc.

SITE TYPE | SITE ID

CHAIN OF CUSTODY RECORD

112D

SPL NO.	DATE SPLD	TIME SPLD	SAMPLING POINT & SAMPLING METHOD DESCRIPTION	SAMPLE MATERIAL	ANALYSIS	REMARKS
ESM(S) E819395	12/16	10:30	ABANDONED SEPTIC TANK EAST BASE 5.5'-6.0' S/S TROWEL	Soil	PHC SB	ECRA DELIVERABLES
ESM(S) E819396	12/16	11:00	ABANDONED SEPTIC TANK WEST BASE 5.5'-6.0' S/S TROWEL	Soil	PHC	RUSH 14 days
ESM(TA) E819397 5R	12/16	2:20	1K TANK EXCAVATION 2' UNDER FOOTING at 5.5-6' S/S H AUGER	Soil	PHC	
E819398 ESM(TA) 1R	12/16	2:55	1K TANK EXCAVATION N. BASE at 7'-7.5' S/S H AUGER	Soil	PHC	E819398, E819399, E819400
E819399 ESM(TA) 5R	12/16	3:00	1K TANK EXCAVATION BASE CENTER at 7'-7.5' S/S H. AUGER	Soil	PHC B/N+15 2K	[illegible] RUB 12-20-88
ESM(TA) E819400 2	12/16	3:15	1K TANK EXCAVATION S BASE at 7'-7.5' S/S TROWEL	Soil	PHC SB	

RELINQUISHED BY	ORGANIZATION	DATE/TIME	RECEIVED BY (signature)	ORGANIZATION	DATE/TIME	REMARKS
Dan Hackay	JMS	12/20/88 11:00	S. Parsick	Acc.	12/20/88 11:00	
S. Parsick	Acc	12/20/88 15:33	R. VanBlum	ACCUTEST	12-20-88 15:33	

PROJECT NAME Edison Standing Machine PROJECT NO. ESM 88116

SO, FB

COLLECTED BY Dan Harkay SIGNATURE Dan Harkay

SITE TYPE | SITE ID

JM Sorge, Inc.

CHAIN OF CUSTODY RECORD

112B

SPL NO.	DATE SPLD	TIME SPLD	SAMPLING POINT & SAMPLING METHOD DESCRIPTION	SAMPLE MATERIAL	ANALYSIS	REMARKS
E819401 ESM 4C	12/16	3:20	1K TANK EXCAVATION E BASE at 7'-7.5' S/S TROWEL	Soil	PHC SB	ECRA DELIVERABLES Rush
ESM WC E819402	12/16	4:00	Waste Spoils Composite	Soil	ID OHIO U624 * (VO'S ONLY)	14 days
E819403 ESM FB	12/16	11:30	1K TANK EXCAVATION	WATER	PHC B/U+15	2F, SH
			* E819402 (ES-WC) as per phone conversation		all samples read 3/4 full	RUB 12-20-88
			w/ D. HARKAY this sample is to be run for U624 as		* E819401 - sample matrix is primarily rocks!	
			ID-OHIO was run previously for this sample point, now the VO analysis is needed.	RUB 12-21-88	RUB 12-20-88	

RELINQUISHED BY	ORGANIZATION	DATE/TIME	RECEIVED BY (signature)	ORGANIZATION	DATE/TIME	REMARKS
Dan Harkay	JMS	12/20/88 11:00	S. Parsich	Acc.	12/20/88 11:00	
S. Parsich	Acc.	12/20/88 15:33	R. VanBlaren	ACCUTEST	12-20-88 15:33	

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625

Please type or print in block letters. (Form designed for use on elite (12 pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

A. State Manifest Document Number: NJA 0565514

B. State Generator's ID

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Trans. ID

7. Transporter 2 Company Name | 8. US EPA ID Number

D. Transporter's Phone ( )

E. State Trans. ID

9. Designated Facility Name and Site Address | 10. US EPA ID Number

F. Transporter's Phone ( )

G. State Facility's ID

H. Facility's Phone ( )

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) | HM | 12. Containers No. | Type | 13. Total Quantity | 14. Unit Wt./Vol. | I. Waste No.

a.

b.

c.

d.

J. Additional Descriptions for Materials Listed Above

a. | c.

b. | d.

K. Handling Codes for Wastes Listed Above

a. | c.

b. | d.

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name | Signature | Month Day Year

NJA 0565514

EPA Form 8700-22 (Rev. 3/88) Previous editions are obsolete.

8 — GENERATOR COPY

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL CODIES

FITCH & SANDELL, INC.

151 SOUTH WARNER ROAD, WAYNE, PENNSYLVANIA 19087 PHONE: (215) 254-9788

NON-HAZARDOUS WASTE MANIFEST

DOCUMENT NO. 80014

THIS SECTION TO BE COMPLETED BY GENERATOR:

COMPANY NAME	ADDRESS	PICK-UP DATE
Edison Stamping & Manufacturing Company	449D Stelton Road South Planfield, NJ 07080 CITY STATE ZIP	2/22/89
		WASTE NO A-1342-3
NAME OR DESCRIPTION OF WASTE SHIPPED Soil Contaminated w/ Virgin #2 Fuel Oil		P.O. NO. JMS89070

COMMENTS
BILL TO
FITCH & SANDELL, INC.
151 SOUTH WARNER ROAD
WAYNE, PA 19087

GENERATOR ⇒ OR AGENT ⇒ MUST FILL ⇒ IN QUANTITY ⇒

QUANTITY SHIPPED
20 YDS^3

IN CASE OF AN EMERGENCY OR SPILL, CONTACT	NAME	PHONE NO	24-HR. EMERGENCY NO.
	Fitch & Sandell, Inc.	215-254-9788	same

I Hereby certify that the above named material(s) are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the DOT and the EPA.

SIGNATURE: William Cell (AGENT)

DATE: 2/22/89

THIS SECTION TO BE COMPLETED BY THE HAULER/TRANSPORTER:

COMPANY NAME	ADDRESS	PHONE NO.
Wills Trucking	3319 St. Lawrence Drive, Toledo, OH 43605	419-698-1523

VEHICLE I.D. NO.	STATE	COMMENTS
PA. A.A. 59147	PA	

I Hereby certify that the above described wastes were accepted for transportation at the producer's site and delivered to and off loaded at the waste facility. Both as listed hereupon.

SIGNATURE (DRIVER): Joe Gelb

DATE: 2-22-89

THIS SECTION TO BE COMPLETED BY RECEIVER AT DISPOSAL SITE:

COMPANY NAME	ADDRESS	PHONE NO.
Breitenstine's Landfill, Inc.	7916 Chapel Street S.E. Waynesburg, OH 44688	216-866-3265

RECEIVER'S PERMIT NO.	COMMENTS

I Hereby certify that the above described wastes were delivered to this Facility, that the Facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE | CELL NO. | DATE

GENERATOR: Copies 1 & 6
FITCH & SANDELL, INC.: Copy 7
AMERICAN WASTE SERVICES, INC.: Copies 2 & 3
RECEIVER: Copy 4
HAULER: Copy 5

GENERATOR — COPY 1

FITCH & SANDELL, INC.

151 SOUTH WARNER ROAD, WAYNE, PENNSYLVANIA 19087 PHONE: (215) 254-9788

NON-HAZARDOUS WASTE MANIFEST

DOCUMENT NO. 80039

HIS SECTION TO BE COMPLETED BY GENERATOR:

OMPANY NAME	ADDRESS	PICK-UP DATE
Edison Stamping & Manufacturing Company	449D Stelton Road South Planifield, NJ 07080 CITY STATE ZIP	2/22/89 WASTE NO. A-1342-3

AME OR DESCRIPTION OF WASTE SHIPPED	P.O. NO.
Soil Contaminated w/ Virgin #2 Fuel Oil	JMS89070

OMMENTS
ILL TO
ITCH & SANDELL, INC.
51 SOUTH WARNER ROAD
AYNE, PA 19087

GENERATOR ⇨ OR AGENT ⇨ MUST FILL ⇨ IN QUANTITY ⇨

QUANTITY SHIPPED
20 YDS³

CASE OF AN MERGENCY OR ILL, CONTACT	NAME	PHONE NO	24-HR. EMERGENCY NO.
	Fitch & Sandell, Inc.	215-254-9788	same

Hereby certify that the above named material(s) are properly assified, described, packaged, marked, and labeled and are proper condition for transportation according to the plicable regulations of the DOT and the EPA.	SIGNATURE	DATE
	William Call (AGENT)	2/22/89

HIS SECTION TO BE COMPLETED BY THE HAULER/TRANSPORTER:

OMPANY NAME	ADDRESS	PHONE NO.
Wills Trucking	3319 St. Lawrence Drive, Toledo, OH 43605	419-698-1523

EHICLE I.D. NO.	STATE	COMMENTS
155X77	Oh	

Hereby certify that the above described wastes were cepted for transportation at the producer's site d delivered to and off loaded at the waste facility. oth as listed hereupon.	SIGNATURE (DRIVER)	DATE
	[signature]	2/22/89

HIS SECTION TO BE COMPLETED BY RECEIVER AT DISPOSAL SITE:

OMPANY NAME	ADDRESS	PHONE NO.
Breitenstine's Landfill, Inc.	7916 Chapel Street, S.E. Waynesburg, OH 44688	216-866-3265

ECEIVER'S PERMIT NO.	COMMENTS

Hereby certify that the above described wastes re delivered to this Facility, that the Facility authorized and permitted to receive such wastes.	AUTHORIZED SIGNATURE	CELL NO.	DATE

ENERATOR: Copies 1 & 6 AMERICAN WASTE SERVICES, INC.: Copies 2 & 3 RECEIVER: Copy 4 HAULER: Copy 5
TCH & SANDELL, INC.: Copy 7

GENERATOR – COPY 1

FITCH & SANDELL, INC.

151 SOUTH WARNER ROAD, WAYNE, PENNSYLVANIA 19087 PHONE: (215) 254-9788

NON-HAZARDOUS WASTE MANIFEST

DOCUMENT NO. 80040

S SECTION TO BE COMPLETED BY GENERATOR:

PANY NAME	ADDRESS	PICK-UP DATE
lison Stamping & Manufacturing, ompany	449D Stelton Road South Planfield, NJ 07080 CITY STATE ZIP	2/22/89
		WASTE NO. A-1342-3
E OR DESCRIPTION OF WASTE SHIPPED Oil Contaminated w/ Virgin #2 Fuel Oil		P.O. NO. JMS89070

IMENTS

L TO
CH & SANDELL, INC.
SOUTH WARNER ROAD
YNE, PA 19087

GENERATOR OR AGENT MUST FILL IN QUANTITY ⇨

QUANTITY SHIPPED
20 YDS^3

ASE OF AN RGENCY OR L. CONTACT	NAME	PHONE NO	24-HR. EMERGENCY NO.
	Fitch & Sandell, Inc.	215-254-9788	same

eby certify that the above named material(s) are properly ified, described, packaged, marked, and labeled and are oper condition for transportation according to the cable regulations of the DOT and the EPA.

SIGNATURE: WILLIAM CALL (AGENT) William Call

DATE: 2/22/89

S SECTION TO BE COMPLETED BY THE HAULER/TRANSPORTER:

PANY NAME	ADDRESS	PHONE NO.
Wills Trucking	3319 St. Lawrence Drive, Toledo, OH 43605	419-698-1523

CLE I.D. NO.	STATE	COMMENTS
SXZ 25	Ohio	

eby certify that the above described wastes were pted for transportation at the producer's site delivered to and off loaded at the waste facility as listed hereupon.

SIGNATURE (DRIVER): Richard Fetts

DATE: 2-22-89

S SECTION TO BE COMPLETED BY RECEIVER AT DISPOSAL SITE:

PANY NAME	ADDRESS	PHONE NO.
reitenstine's Landfill, Inc.	7916 Chapel Street S.E. Waynesburg, OH 44688	216-866-3265

EIVER'S PERMIT NO.	COMMENTS

eby certify that the above described wastes delivered to this Facility, that the Facility thorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE

ERATOR: Copies 1 & 6
CH & SANDELL, INC.: Copy 7
AMERICAN WASTE SERVICES, INC.: Copies 2 & 3
RECEIVER: Copy 4
HAULER: Copy 5

GENERATOR — COPY 1

ATTACHMENT E

Kerosene

From Wikipedia, the free encyclopedia

Kerosene, sometimes spelled **kerosine** in scientific and industrial usage,[1] also known as **paraffin**, is a combustible hydrocarbon liquid. The name is derived from Greek *keros* (κηρός wax). The word *Kerosene* was registered as a trademark by Abraham Gesner in 1854 and for several years only the North American Gas Light Company and the Downer Company (to which Gesner had granted the right) were allowed to call their lamp oil *kerosene*.[2] It eventually became a genericized trademark.

Kerosene, which is typically stored in a blue (or blue labeled) container

It is usually called **paraffin** (sometimes **paraffin oil**) in the UK, South East Asia and South Africa (not to be confused with the waxy solid also called paraffin wax or just paraffin, or the much more viscous paraffin oil used as a laxative); the term *kerosene* is usual in much of Canada, the United States, Australia (where it is usually referred to colloquially as *kero*) and New Zealand.[3]

Kerosene is widely used to power jet-engined aircraft (jet fuel) and some rockets, but is also commonly used as a heating fuel and for fire toys such as poi.

The heat of combustion of Kerosene is similar to that of diesel: its lower heating value is around 18,500 Btu/lb, or 43.1 MJ/kg, and its higher heating value is 46.2MJ/kg.[4]

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- 2 History
- 3 Uses
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    - 3.1.1 Heating and Lighting
    - 3.1.2 Transportation
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    - 3.1.4 Cultural/Performance Art
  - 3.2 Other Uses
- 4 Retail cost
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Properties

Kerosene is a thin, clear liquid formed from hydrocarbons, with density of 0.78-0.81g/cm^3. Kerosene is obtained from the fractional distillation of petroleum between 150 °C and 275 °C, resulting in a mixture of carbon chains that typically contain between 6 and 16 carbon atoms per molecule.[5] The flash point of kerosene is between 37 and 65 °C (100–150 °F) and its autoignition temperature is 220 °C (428 °F).[6]

History

- Around the year 850 the Abbasid Caliphate introduced a refined lamp oil, or kerosene, manufactured from crude oil by distillation, named *naft abyad* ("white naphtha"), which was made using an apparatus called *al-inbiq*, the origin of the English word alembic. In his *Kitab al-Asrar* (*Book of Secrets*), the physician and chemist al-Razi (Rhazes) described two methods for the production of kerosene. One method involved using clay as an absorbent, whereas the other method involved using ammonium chloride (*sal ammoniac*). The distillation process was to be repeated until the final product was perfectly clear and "safe to light," i.e. volatile hydrocarbon fractions had been mostly removed. Kerosene was also produced during the same period from oil shale and bitumen by heating the rock to extract the oil, which was then distilled.[7]

- In 1846 Canadian geologist Abraham Gesner gave a public demonstration in Charlottetown, Prince Edward Island of a new process he had discovered. He heated coal in a retort and distilled from it a clear, thin fluid which he showed made an excellent lamp fuel. He coined the name "Kerosene" for his fuel, a contraction of *keroselaion*, meaning *wax-oil*.[8] The cost of extracting kerosene from coal was, however, high. Fortunately, Gesner recalled from his extensive knowledge of New Brunswick's geology a naturally-occurring asphaltum called Albertite. He was however blocked from using it by the New Brunswick coal conglomerate because they had coal extraction rights for the province and he lost a court case when their experts claimed that Albertite was in fact a form of coal.[9] Gesner subsequently moved to Newton Creek, Long Island, USA, in 1854, where he secured the backing of a group of businessmen. They formed the North American Gas Light Company, to which he assigned his patents. Despite clear priority of discovery, Gesner did not obtain his first kerosene patent until 1854, two years after James Young's US patent. Gesner's method of purifying the distillation products appears to have been superior to Young's, resulting in a cleaner and better smelling fuel. Manufacture of kerosene under the Gesner patents began in New York in 1854 and later in Boston, being distilled from bituminous coal and oil shale.[8]

- In 1848 Scottish chemist James Young experimented with oil discovered seeping in a coal mine as a source of lubricating oil and illuminating fuel. When the seep became exhausted he experimented with the dry distillation of coal, especially the resinous "Boghead coal" (Torbanite). He extracted a number of useful liquids from it, one of which he named "paraffine oil" because at low temperatures it congealed into a substance resembling paraffin wax. Young took out a patent on his process and the resulting products in 1850, and built the first truly commercial oil-works in the world at Bathgate in 1851, using oil extracted from locally-mined Torbanite, shale, and bituminous coal. In 1852 he took out a US patent for the same invention. These patents were subsequently upheld in both countries in a series of lawsuits and other producers were obliged to pay him royalties.[8] See also coal oil.

- In 1851 Samuel Martin Kier began selling kerosene to local miners, under the name *"Carbon Oil"*.

He distilled this by a process of his own invention from crude oil. He also invented a new lamp to burn his product.[10] He has been dubbed the *Grandfather of the American Oil Industry* by historians.[11] Since the 1840s, Kier's salt wells were becoming fouled with petroleum. At first, Kier simply dumped the useless oil into the nearby Pennsylvania Main Line Canal, but later he began experimenting with several distillates of the crude oil along with a chemist from eastern Pennsylvania. [12]

- Ignacy Lukasiewicz, a Polish pharmacist residing in Lvov had been experimenting with different kerosene distillation techniques, trying to improve on Gesner's process, using local seep oil. Many people knew of his work but paid little attention to it. On the night of July 31 1853, doctors at the local hospital needed to perform an emergency operation, virtually impossible by candlelight. They therefore sent a messenger for Lukasiewicz and his new lamps. The lamp burned so brightly and cleanly that the hospital officials ordered several examples plus a large supply of fuel. Lukasiewicz realized the potential of his work and quit the pharmacy to find a business partner and then travelled to Vienna to register his technique with the government. Lukasiewicz moved to the Gorlice region of Poland in 1854 and sank several wells across southern Poland over the following decade, setting up a refinery near Jasło in 1859.[13]

The widespread availability of cheaper kerosene was the principal factor in the precipitous decline in the whaling industry in the mid-to-late 19th century, as the leading product of whaling was oil for lamps.

Uses

As a fuel

Heating and Lighting

Fuels for heating

Heating oil
Wood pellet
Kerosene
Propane
Natural gas
Electricity
Wood
Coal

At one time the fuel was widely used in kerosene lamps and lanterns. Although it replaced whale oil, it was considered as "explosive as gunpowder." - the 1873 edition of *Elements of Chemistry* notes that "The vapor of this substance [kerosene] mixed with air is as explosive as gunpowder."[14] This may have been due to the common practice of adulterating kerosene with other, more volatile hydrocarbons, such as the cheaper benzene[15]. Kerosene was also a fire risk; in 1880, 39% of New York City fires were caused by defective kerosene lamps.[16]

These were superseded by the electric light bulb and flashlights powered by dry cell batteries, which are still used to this day.

Its use as a cooking fuel is mostly restricted to some portable stoves for backpackers and to less developed countries, where it is usually less refined and contains impurities and even debris.

As a heating fuel, it is often used in portable stoves, and is sold in some filling stations. It is sometimes used as a heat source during power failures. The use of portable kerosene heaters is not recommended for closed indoor areas without a chimney due to the danger of build-up of carbon monoxide gas.

Kerosene is widely used in Japan as a home heating fuel for portable and installed kerosene heaters. In Japan, kerosene can be readily bought at any filling station or be delivered to homes.

In the United Kingdom and Ireland kerosene is often used as a heating fuel in areas that are unconnected to the gas pipeline network. It is used less for cooking, which has more commonly been LPG for some decades now, owing to its easier lighting.

The Amish, who forbid use of electric appliances for religious reasons, rely on kerosene for lighting at night.

More ubiquitous in the late 19th and early 20th centuries, kerosene space heaters were often built into kitchen ranges and kept many farm and fishing families warm and dry through the winter. At one time citrus growers used a smudge pot fueled by kerosene to create a pall of thick smoke over a grove in an effort to prevent freezing temperatures from damaging crops. *Salamanders* are kerosene space heaters used on construction sites to dry out building materials and to warm workers. Before the days of blinking electrically lighted road barriers, highway construction zones were marked at night by kerosene fired pot-bellied torches. Most of these uses of kerosene created thick black smoke because of the low temperature of combustion.

A notable exception, discovered in the early 19th century, is the use of a gas mantle above the wick on a kerosene lamp. Looking like a delicate woven bag above the woven cotton wick, the mantle was a residue of mineral material (thorium dioxide) which glowed white hot as it burned the volatile gases emanating from the blue flame at the base of the wick. These types of lamps are still in use today in areas of the world without electricity. One of the most commonly available types of kerosene mantle lamps is the "Aladdin Lamp." It is available in many of the hardware stores or camping outfitters of North America.

Transportation

In the mid-20th century, kerosene or TVO (Tractor Vaporising Oil) was used as a cheap fuel for tractors. The engine would start on gasoline, then switch over to kerosene once the engine warmed up. A *heat valve* on the manifold would route the exhaust gases around the intake pipe, heating the kerosene to the point where it can be ignited by an electrical spark.

During the fuel crisis of the 1970s Saab-Valmet developed and series-produced the Saab 99 Petro that ran on kerosene, turpentine or gasoline. The project codenamed "Project Lapponia" was headed by Simo Vuorinen, and towards the end of the 1970s a working prototype was produced based on the Saab 99GL. The car was designed to run on two fuels. Gasoline was used for cold starts and when extra power was needed, but normally it ran on kerosene or turpentine. The idea was that the gasoline could be made from peat using the Fischer-Tropsch process. Between 1980 and 1984, 3756 Saab 99 Petros and 2385 Talbot Horizons (a version of the Chrysler Horizon that integrated many Saab components) were made. [17]

Today kerosene is mainly used in fuel for jet engines (more technically *Avtur*, *Jet A*, *Jet A-1*, *Jet B*, *JP-4*, *JP-5*, *JP-7* or *JP-8*). One form of the fuel known as RP-1 is burned with liquid oxygen as rocket fuel. These fuel grade kerosenes meet specifications for smoke points and freeze points. The combustion reaction can be approximated as follows, with the molecular formula $C_{12}H_{26}$:

$$C_{12}H_{26}(l) + {}^{37}/_{2}\ O_2(g) \rightarrow 12\ CO_2(g) + 13\ H_2O(g);\ \Delta H^\circ = -7513\ \text{kJ}$$

In the initial phase of liftoff the Saturn V launch vehicle was powered by the reaction of liquid oxygen with RP-1[18]. For the five ~6.4 million newton sea-level thrust F-1 rocket engines of the Saturn V,

burning together, the reaction generated roughly 1.62 x 10^{11} watts (J/s) or 217 million horsepower[18].

Kerosene is sometimes used as an additive in diesel fuel to prevent gelling or waxing in cold temperatures.[19]

Ultra-low sulfur kerosene is a custom-blended fuel used by the New York City Transit to power its bus fleet. The transit agency started using this fuel in 2004, prior to the widespread adoption of ultra-low sulfur diesel, which has since become the standard. In 2008, the suppliers of the custom fuel failed to tender for a renewal of the transit agency's contract, leading to a negotiated contract at a significantly increased cost.[20]

Cooking

In countries such as India, kerosene is the main fuel used for cooking, especially by the poor. Kerosene stoves have replaced traditional wood-based cooking appliances. The price of kerosene can be a major political and environmental issue; the Indian government subsidizes the fuel to keep the price very low (around 15 cents/liter as of Feb. 2007). Lower prices discourage dismantling of forests for cooking fuel. [21]

Cultural/Performance Art

Kerosene is often used in the entertainment industry for fire performances such as poi and fire dancing, because of its low flame temperature when burnt in free air, reducing the risk, should the performer come in contact with the flame. Kerosene is not usually used as a fuel for indoor fire-dancing as it produces an unpleasant odour which becomes poisonous in sufficient concentration. Methanol is often used instead, but it also produces less impressive flames, and it can be a more dangerous fuel because of its lower flash point.

Other Uses

- Liquid pesticides have traditionally used kerosene or some other petroleum distillate as a carrier, though water has recently begun to replace kerosene
- Kerosene has also been found effective in killing bed bugs upon direct spray.
- Kerosene has been used to treat pools of standing water to prevent mosquitoes from breeding, notably in the yellow fever outbreak of 1905 in New Orleans.
- It can be used to remove lice from hair, but this practice is painful and potentially very dangerous. Also, this practice removes all natural oils and fats from the scalp.
- Since kerosene is chemically stable, it is used to store substances with redox tendencies within to prevent unwanted reactions, such as alkali metals.
- It is used in the packaging and storing of white phosphorus to prevent contact with oxygen, which would lead to immediate combustion.
- Kerosene can be used to store crystals. When a hydrated crystal is left in air, dehydration may occur slowly. This makes the colour of the crystal become dull. Kerosene can keep air from the crystal.
- It is used as a solvent.
    - Kerosene can be applied topically to hard-to-remove mucilage or adhesive left by stickers on a glass surface (such as in show windows of stores).
    - Kerosene can be used to remove candle wax that has dripped onto a glass surface; it is recommended that the excess wax be scraped off prior to applying kerosene via a soaked cloth or tissue paper.

    - Kerosene can be used to clean bicycle and motorcycle chains of old lubricant before relubrication.
- It can be used in conjunction with cutting oil as a thread cutting and reaming lubricant. When machining aluminium and its alloys, kerosene on its own is an excellent cutting lubricant.
- Military Applications—used to make "napalm-like" incendiary devices—as reported by the San Diego Union-Tribune [1]
- Kerosene-based diluent is commonly used as a component of the organic solvent in SX/EW copper refining.[22]
- Hydrotreated kerosene can be used as a starting material to produce high purity linear paraffins which are subsequently dehydrogenated to linear olefins, and when the latter are reacted with benzene in the presence of a catalyst result in the production of linear alkyl benzene.

Retail cost

United States

In 2008, Kerosene cost was $39.92 per 1 million BTUs for heating.[23]

See also

- Aviation fuel
- Flash oil
- Gasoline gallon equivalent
- Tractor vaporising oil
- List of CO2 emitted per million Btu of energy from various fuels

Notes

1. ^ Webster's New World College Dictionary, *kerosene*.
2. ^ Asbury, Herbert (1942). *The golden flood: an informal history of America's first oil field*. Alfred A. Knopf. pp. 35.
3. ^ Oxford English Dictionary, *kerosene*.
4. ^ Annamalai, Kalyan; Ishwar Kanwar Puri (2006). *Combustion Science and Engineering*. CRC Press. pp. 851. ISBN 978-0849320712.
5. ^ Chris Collins (2007), "Implementing Phytoremediation of Petroleum Hydrocarbons, *Methods in Biotechnology* **23**:99-108. Humana Press. ISBN 1588295419.
6. ^ *Kerosene*, http://www.inchem.org/documents/icsc/icsc/eics0663.htm, retrieved on 2009-06-10.
7. ^ Bilkadi, Zayn, "The Oil Weapons", *Saudi Aramco World* **46** (1): 20–27, http://www.saudiaramcoworld.com/issue/199501/the.oil.weapons.htm
8. ^ *a b c* Russell, Loris S. (2003). *A Heritage of Light: Lamps and Lighting in the Early Canadian Home*. University of Toronto Press. ISBN 0802037658.
9. ^ Black, Harry (1997). *Canadian Scientists and Inventors*. Pembroke Publishers Limited. ISBN 1551380811.
10. ^ *Greater Pittsburgh and Allegheny County, Past, Present, Future; The Pioneer Oil Refiner*. Original from the New York Public Library: The American Manufacturer and Iron World. 1901. http://books.google.com/books?id=lkcVAAAAYAAJ&pg=PT57&dq=refinery+kier+pittsburgh&client=firefox-a.
11. ^ McInnis, Karen. "Kier, Samuel Martin- Bio" (web). *biography*. The Pennsylvania State University. http://www.pabook.libraries.psu.edu/palitmap/bios/Kier__Samuel_Martin.html. Retrieved on 2008-12-12.
12. ^ Harper, J. A. (1995). "Samuel Kier - Medicine Man & Refiner" (web). *Excerpt from Yo-Ho-Ho and a Bottle of Unrefined Complex Liquid Hydrocarbons. Pennsylvania Geology, v. 26, No. 1, p. -*. Oil Region

Alliance of Business, Industry & Tourism. http://www.oil150.com/essays/2007/02/samual-kier. Retrieved on 2008-12-12.
13. ^ Steil, Tim; Jim Luning (2002). *Fantastic Filling Stations*. MBI Publishing Company. pp. 19–20. ISBN 0760310645.
14. ^ Cooley, Le Roy Clark (1873). *Elements of Chemistry: for Common and High Schools*. Scribner, Armstrong. pp. 98.
15. ^ Benjamin Johnson, Crew; Charles Albert Ashburner (1887). *A Practical Treatise on Petroleum*. Baird. pp. 395.
16. ^ Bettmann, Otto (1974). *The Good Old Days--They Were Terrible!*. Random House. pp. 34. ISBN 9780394709413.
17. ^ Bakrutan: "Saab 99 Petro" by Petri Tyrkös, nr 4, 2008
18. ^ *a b* Ebbing, D. D., & Gammon, S. D. (2005). *General Chemistry* (8th ed.). New York: Houghton Mifflin Company.
19. ^ Kerosene blending, (pdf from EPA)
20. ^ How a Plan for Bus Fuel Grew Expensive, The New York Times, 2008-09-25.
21. ^ Bradsher, Keith (28 July 2008), "Fuel Subsidies Overseas Take a Toll on U.S.", *New York Times*, http://www.nytimes.com/2008/07/28/business/worldbusiness/28subsidy.html
22. ^ http://www.meab-mx.se/en/sx_principles.htm
23. ^ Ryan, Matt (June 20, 2008). *Homeowners seek cheaper winter heat*. Burlington Free Press.

External links

- "Kerosene", Webster Online Dictionary
- Article on Gesner
- Kerosene Fuel Primer
- San Diego Union-Tribune Article

Retrieved from "http://en.wikipedia.org/wiki/Kerosene"
Categories: Alkanes | Aviation fuels | Coolants | Fuels | Hydrocarbon solvents | Lubricants | Petroleum products
Hidden categories: All articles with unsourced statements | Articles with unsourced statements from July 2009 | Articles with unsourced statements from June 2008

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ATTACHMENT F

PRELIMINARY ASSESSMENT
AND
SITE INVESTIGATION REPORT
UTI COPORATION
KLEINER SPECIALTY METALS, INC.
SOUTH PLAINFIELD, NEW JERSEY

ISRA CASE #2000226

PREPARED FOR
UTI CORP.

PREPARED

BY

ENVIRONMENTAL STRATEGIES CORPORATION

AUGUST 30, 2000

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- 2.2 AOC # 14 Compressor Blowdown 5

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- Figure 2 – Areas of Concern
- Figure 3 – AOC # 11 Soil Sample Locations
- Figure 4 – AOC # 13 Soil Sample Locations

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- Table 2 – AOC # 13 Soil Sample Results

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1.0 INTRODUCTION

This Site Investigation Report summarizes the soil investigation conducted as part of the Industrial Site Recovery Act (ISRA) compliance program at the UTI Corp., Kleiner Specialty Metals, Inc., (UTI) facility in South Plainfield, New Jersey, from May to June 2000. The site location is shown on Figure 1. This report summarizes the investigation activities conducted by Environmental Strategies Corporation (ESC) of Somerset, New Jersey, during May and June 2000. The purpose of the site investigation was to determine if soil quality has been affected by site operations. The NJDEP Soil Cleanup Criteria (May 3, 1999) and Class IIA-Groundwater Quality Criteria (April 5, 1993) were used to evaluate the sampling results.

1.1 Delineation Requirements

The site investigation was conducted based on the information collected pursuant to the preliminary assessment requirements in NJAC 7:26E-3.5, and to satisfy the general sampling requirements of NJAC 7:26E-3.4; and the soil sampling requirements of NJAC 7:26E-3.6. The most stringent Soil Cleanup Criteria were used to delineate each area of concern (AOC).

1.2 Facility Operations

The Kleiner Metals facility is located at 4315 New Brunswick Avenue, South Plainfield, New Jersey. The facility is located in a light industrial and commercial section of South Plainfield. Kleiner Metals manufactures small metal parts for use in the medical, aerospace, and automobile industries. The parts are manufactured by high-speed cutting and forming metal tubes (predominately stainless steel). The tubes are delivered by truck in 20-foot straight lengths or coils that are manufactured at the Uniform Tubes, Inc. facility in Collegeville, Pennsylvania. Reportedly, there have been no significant changes in the general nature of site activities since operations began.

Kleiner Metals began operations at the facility when an approximately 15,000-square foot building was constructed on undeveloped property in or about 1965. Uniform Tubes, Inc. purchased Kleiner Metals and the property in 1971. An approximately 24,000 square foot addition was

constructed in 1978. The one story, approximately 39,000-square foot building consists of masonry block and steel I-beams on a poured concrete foundation. The building roof consists of rubber sheets underlain by corrugated metal panels on steel trusses. There is a loading dock on the east side of the building. The grounds around the building consist of asphalt paved parking areas and landscaped areas. The building is heated by three natural gas fired boilers and cooled by roof mounted air conditioning systems.

Materials used at the facility include: metal tubes and coils (stainless steel, carbon steel, titanium, copper, and brass), hydrochloric and hydrofluoric acids (for cleansing and etching), n-propyl bromide (degreaser), and lubricating oils.

Metal tubes and coils are delivered to the facility by truck and stored on racks inside the building. Each tube and coil is labeled as to the type of metal, wall thickness, and inventory number. The tubes and coils are moved by hand from storage to the production floor.

Hydrochloric and hydrofluoric acids are delivered in 1-gallon glass carboys and stored in a chemical storage cabinet in the Stem Department. The acid is poured by hand from the glass carboy into smaller containers, diluted, and used to etch and clean select parts.

Propyl bromide is delivered in 55-gallon steel drums and stored in a designated section of the storeroom until needed at the Materials Preparation Area. The n-propyl bromide is pumped directly from the drums into the stainless steel baths, filtered, and reused.

Lubricating oils are delivered in 55-gallon steel drums and stored in a designated section of the storeroom on metal racks. The oil is poured by hand from the drums into small point-of-use containers.

The coils are pulled through a series of dies to create straight lengths of tubing. A small amount of lubricating oil is used and consumed in this process. No liquid wastes are generated.

Straight lengths of metal tubing are cleaned (degreased) to remove any residual oil or grease from tube manufacturing or straightening. The tubes are placed into steel troughs (baths) and immersed in mineral spirits that is pumped from a 55-gallon steel drum into the trough. The mineral spirits are then pumped from the troughs, filtered, placed in a 55-gallon drum, and reused. Mineral spirits that can no longer be adequately filtered is drummed and shipped off site for disposal.

The tubing is placed on four slide machines, cut, and formed to customer specifications. A small amount of cutting oil is used and consumed in this operation. The parts are cleansed using an n-propyl bromide solution in a vapor degreaser. The n-propyl bromide solution is captured, distilled, and reused. The n-propyl bromide solution that can no longer be adequately distilled and still bottoms are drummed and shipped off site for disposal. The formed metal parts are tumbled to remove burrs and surficial imperfections. A non-hazardous aqueous based surfactant solution and tumbling media (small ceramic disks) are used in this process. The spent surfactant solution is passed through a sediment trap and discharged to the municipal sanitary system. The tumbled parts are rinsed in an ultrasonic bath and the parts drip dried over a slop sink (which discharges to the municipal sanitary system). The ultrasonic bath water is discharged to the municipal sanitary system.

Select parts (generally titanium) are cleaned using a dilute acid solution (hydrochloric and hydrofluoric acid and water) before being coated with an epoxy resin. The parts are cleaned over a slop sink that discharges to the municipal sanitary system.

The tool shop repairs facility equipment and dies. Parts cleaning using solvents is conducted in a self-contained wash station. The spent solvent is removed periodically and recycled off site. A dust collector is used to capture fine metal particles generated by grinding. The dust collector filters are removed periodically and disposed of off site.

2.0 SOIL INVESTIGATION SUMMARY

This section summarizes the work conducted by ESC at the UTI facility in 2000. The AOC locations are shown on Figure 2. Sample locations and results are shown on Figures 3 and 4. Sample results are summarized on Tables 1 and 2. The laboratory reports are bound separately in Appendix A.

2.2 AOC#11 Former Septic Tanks

A facility drawing prepared by Casey & Keller, Inc. dated June 23, 1980 indicates that UTI-Kleiner operated a septic system at the northwest corner of the building. The septic system consisted of three septic tanks and a leach field. Reportedly, the septic system was removed as part of building renovations conducted in 1981.

According to an agreement between Kleiner Metals Specialties, Inc., and Edison Stamping and Manufacturing Co. dated September 29, 1980, Kleiner agreed to allow Edison Stamping and Manufacturing Co. to connect to the municipal sewerage system through piping located at Kleiner's property. In addition, Edison Stamping and Manufacturing Co. agreed to discontinue using its septic system which was located on Kleiner's property. As part of the agreement, Edison released Kleiner from further liability in connection with the operation of the septic system and Kleiner released Edison from liability for denying Edison access to the sewer system. No additional information was available concerning this septic system.

On May 22 and 23, 2000, ESC collected 4 soil samples (samples GP-01 through GP-04) from the former Kleiner septic system area and 10 soil samples (samples GP-05 through GP-14) from the former Edison septic system area to determine whether the discharges to these systems had affected soil quality. The soil samples at the former Edison septic system were collected at approximately 1 foot below the reported depth of the septic laterals. The samples from the former Kliener septic system area were collected at approximately 1 foot below the laterals or 1 foot below the base of the former septic tank. The samples were sent to STL and analyzed for TPH by USEPA Method 418.1; SVOCs by USEPA Method 8270; volatile organic compounds (VOCs) by USEPA Method 8260; priority pollutant metals by USEPA Method 6010; and polychlorinated biphenyls

(PCBs).

The sampling indicated that TPH, VOCs, and priority pollutant metals did not exceed the most stringent soil cleanup criteria. No PCBs were detected. The Residential Direct Contact Criteria (RDCSCC) was exceeded for 3 SVOCs in GP-3: benzo(a) anthracene [1.7 milligrams per kilogram (mg/kg)] above the 0.9 mg/kg RDSCC, benzo (b) floranthene (1.7 mg/kg) above the 0.9 mg/kg RDSCC, and benzo(a) pyrene (1.5 mg/kg) above the 0.66 mg/kg RDSCC. However, none of these concentrations exceeded the non-residential Direct Contact Criteria or the Impact to Groundwater Soil Cleanup Criteria.

No additional sampling or remediation is proposed because there are no continuing sources(the septic system has been removed) the affected soil is not readily accessible (greater than 4 feet below grade), and the intended use of the property (industrial) is not expected to change.

2.2 AOC#13 Compressor Blowdown

There is one air compressor located on the eastern side of the facility. The air compressor condensate is discharged to a concrete pad.

On May 3, 2000, a soil boring was installed and a soil sample collected (sample UTI-SS-01) at the edge of the concrete pad. The sample was collected 0.5-feet below the ground surface.

The samples were sent to Severn Trent Laboratories of Edison, New Jersey, (STL) and analyzed for total petroleum hydrocarbons (TPH) by USEPA Method 418.1 and semi-volatile organic compounds (SVOCs) by USEPA Method 8270.

The sampling indicated that TPH and SVOC concentrations did not exceed the most stringent soil cleanup criteria. Therefore, no additional sampling or remediation is proposed or warranted.

TA

Soil Sample Results (AOC 11), June 2000
Kleiner Specialty Metals
South Plainfield, New Jersey

Sample ID Lab Sample Number Sampling Date Matrix Dilution Factor Units	New Jersey Residential Direct Contact Soil Cleanup Criteria (ug/kg)	New Jersey Non-Residential Direct Contact Soil Cleanup Criteria (ug/kg)	New Jersey Impact to Ground Water Soil Cleanup Criteria (ug/kg)	GP-1_7.5 206751 05/22/00 SOLID 50.0 ug/Kg	GP-2_5.5 206752 05/22/00 SOLID 50.0 ug/Kg
VOLATILE COMPOUNDS (GC/MS)					
Chloromethane	520,000	1,000,000	10,000	770 U	710 U
Bromomethane	79,000	1,000,000	1,000	770 U	710 U
VinylChloride	2,000	7,000	10,000	770 U	710 U
Chloroethane	NA	NA	NA	770 U	710 U
MethyleneChloride	49,000	210,000	1,000	460 U	430 U
Trichlorofluoromethane	NA	NA	NA	770 U	710 U
1,1-Dichloroethene	8,000	150,000	10,000	310 U	280 U
1,1-Dichloroethane	570,000	1,000,000	10,000	770 U	710 U
trans-1,2-Dichloroethene	1,000,000	1,000,000	50,000	770 U	710 U
cis-1,2-Dichloroethene	79,000	1,000,000	1,000	770 U	710 U
Chloroform	19,000	28,000	1,000	770 U	710 U
1,2-Dichloroethane	6,000	24,000	1,000	310 U	280 U
1,1,1-Trichloroethane	210,000	1,000,000	50,000	770 U	710 U
CarbonTetrachloride	2,000	4,000	1,000	310 U	280 U
Bromodichloromethane	11,000	46,000	1,000	150 U	140 U
1,2-Dichloropropane	10,000	43,000	NA	150 U	140 U
(1) cis-1,3-Dichloropropene	4,000	5,000	1,000	770 U	710 U
Trichloroethene	23,000	54,000	1,000	150 U	140 U
Dibromochloromethane	110,000	1,000,000	1,000	770 U	710 U
1,1,2-Trichloroethane	22,000	420,000	1,000	460 U	430 U
Benzene	3,000	13,000	1,000	150 U	140 U
(1) trans-1,3-Dichloropropene	4,000	5,000	1,000	770 U	710 U
2-ChloroethylVinylEther	NA	NA	NA	770 U	710 U
Bromoform	86,000	370,000	1,000	620 U	570 U
Tetrachloroethene	4,000	6,000	1,000	150 U	140 U
1,1,2,2-Tetrachloroethane	34,000	70,000	1,000	150 U	140 U
Toluene	1,000,000	1,000,000	500,000	770 U	710 U
Chlorobenzene	37,000	680,000	1,000	770 U	710 U
Ethylbenzene	1,000,000	1,000,000	100,000	620 U	570 U
Xylene(Total)	410,000	1,000,000	67,000	770 U	710 U
Total Confident Conc. VOAs (s)				0	0
Total Estimated Conc. VOA TICs (s)				0	0

(1) Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene.
^ Value is a revision to the Class IIA ground water quality standard based upon the November 18, 1996 Safe Drinking Water Act maximum contaminant level changes and the February 5, 1997 policy memo issued by Assistant Commissioner R. Gimello.

Qualifiers

U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concetration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NR - Not analyzed.

TA

Soil Sample Results (AOC 11), June 2000
Kleiner Specialty Metals
South Plainfield, New Jersey

Sample ID	GP-3_4.25	GP-4_7.5	GP-5_4.0	GP-6_4.0	GP-7_4.5
Lab Sample Number	206753	206754	206755	206756	206757
Sampling Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor	50.0	50.0	50.0	50.0	50.0
Units	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
VOLATILE COMPOUNDS (GC/MS)					
Chloromethane	750 U	720 U	650 U	790 U	710 U
Bromomethane	750 U	720 U	650 U	790 U	710 U
VinylChloride	750 U	720 U	650 U	790 U	710 U
Chloroethane	750 U	720 U	650 U	790 U	710 U
MethyleneChloride	450 U	440 U	390 U	480 U	430 U
Trichlorofluoromethane	750 U	720 U	650 U	790 U	710 U
1,1-Dichloroethene	300 U	290 U	260 U	320 U	280 U
1,1-Dichloroethane	750 U	720 U	650 U	790 U	710 U
trans-1,2-Dichloroethene	750 U	720 U	650 U	790 U	710 U
cis-1,2-Dichloroethene	750 U	720 U	650 U	790 U	710 U
Chloroform	750 U	720 U	650 U	790 U	710 U
1,2-Dichloroethane	300 U	290 U	260 U	320 U	280 U
1,1,1-Trichloroethane	750 U	720 U	650 U	790 U	710 U
CarbonTetrachloride	300 U	290 U	260 U	320 U	280 U
Bromodichloromethane	150 U	140 U	130 U	160 U	140 U
1,2-Dichloropropane	150 U	140 U	130 U	160 U	140 U
(1) cis-1,3-Dichloropropene	750 U	720 U	650 U	790 U	710 U
Trichloroethene	150 U	140 U	130 U	160 U	140 U
Dibromochloromethane	750 U	720 U	650 U	790 U	710 U
1,1,2-Trichloroethane	450 U	440 U	390 U	480 U	430 U
Benzene	150 U	140 U	130 U	160 U	140 U
(1) trans-1,3-Dichloropropene	750 U	720 U	650 U	790 U	710 U
2-ChloroethylVinylEther	750 U	720 U	650 U	790 U	710 U
Bromoform	600 U	580 U	520 U	630 U	570 U
Tetrachloroethene	93 J	140 U	130 U	160 U	140 U
1,1,2,2-Tetrachloroethane	150 U	140 U	130 U	160 U	140 U
Toluene	750 U	720 U	650 U	790 U	710 U
Chlorobenzene	160 J	110 J	650 U	790 U	710 U
Ethylbenzene	600 U	580 U	520 U	630 U	570 U
Xylene(Total)	750 U	720 U	650 U	790 U	710 U
Total Confident Conc. VOAs (s)	0	0	0	0	0
Total Estimated Conc. VOA TICs (s)	1200	0	0	0	1000

11/28/00 4:14 PM

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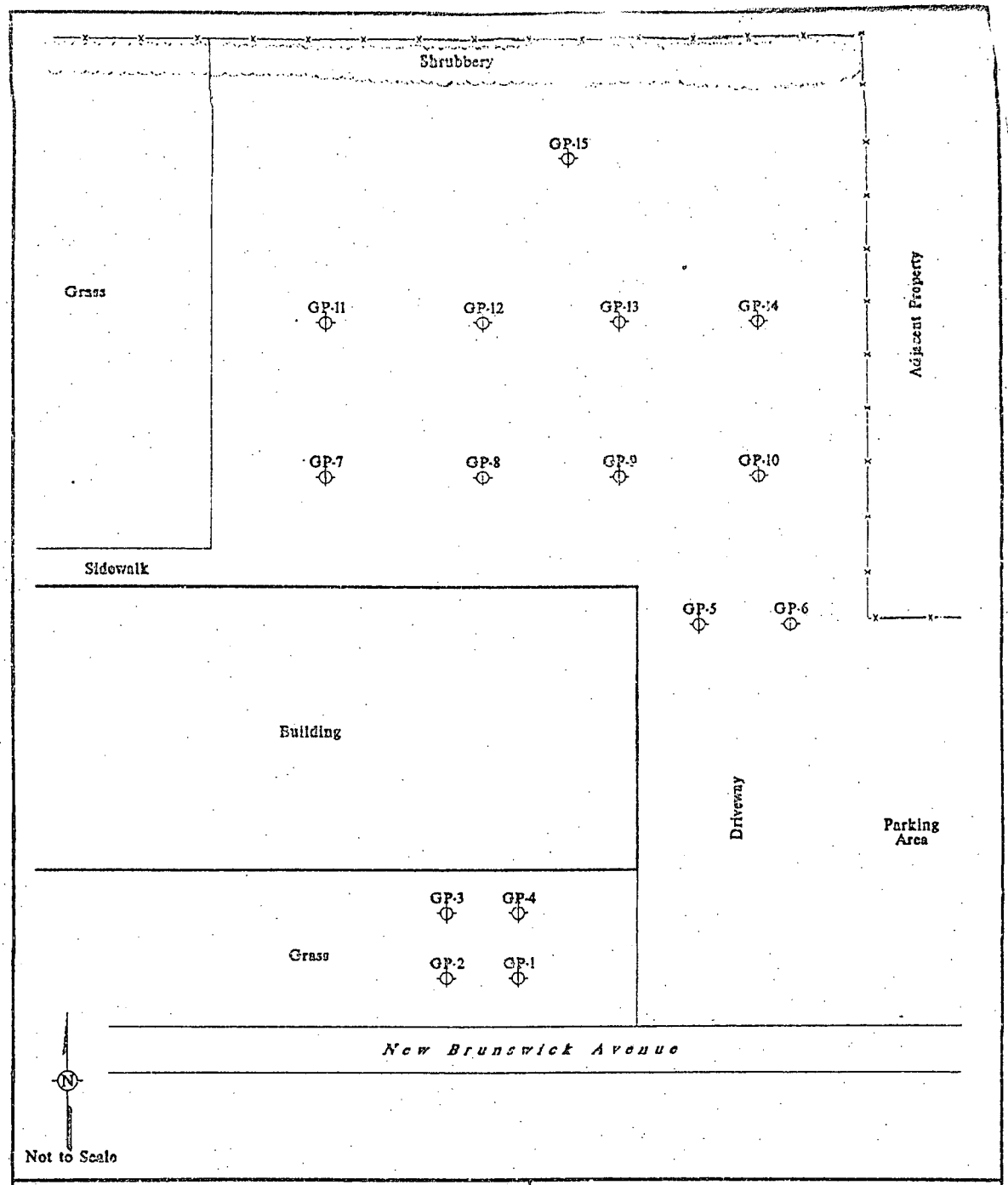
Soil Sample Results (AOC 11), June 2000
Kleiner Specialty Metals
South Plainfield, New Jersey

Sample ID	GP-8_5.0	GP-9_5.5	GP-10_4.0	GP-11_5.0	GP-12_2.5
Lab Sample Number	206758	206759	206760	206761	206762
Sampling Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor	50.0	50.0	50.0	50.0	50.0
Units	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
VOLATILE COMPOUNDS (GC/MS)					
Chloromethane	860 U	700 U	820 U	700 U	790 U
Bromomethane	860 U	700 U	820 U	700 U	790 U
VinylChloride	860 U	700 U	820 U	700 U	790 U
Chloroethane	860 U	700 U	820 U	700 U	790 U
MethyleneChloride	520 U	420 U	490 U	420 U	480 U
Trichlorofluoromethane	860 U	700 U	820 U	700 U	790 U
1,1-Dichloroethene	340 U	280 U	330 U	280 U	320 U
1,1-Dichloroethane	860 U	700 U	820 U	700 U	790 U
trans-1,2-Dichloroethene	860 U	700 U	820 U	700 U	790 U
cis-1,2-Dichloroethene	860 U	700 U	820 U	700 U	790 U
Chloroform	860 U	700 U	820 U	700 U	790 U
1,2-Dichloroethane	340 U	280 U	330 U	280 U	320 U
1,1,1-Trichloroethane	860 U	700 U	820 U	700 U	790 U
CarbonTetrachloride	340 U	280 U	330 U	280 U	320 U
Bromodichloromethane	170 U	140 U	160 U	140 U	160 U
1,2-Dichloropropane	170 U	140 U	160 U	140 U	160 U
(1) cis-1,3-Dichloropropene	860 U	700 U	820 U	700 U	790 U
Trichloroethene	170 U	140 U	160 U	140 U	160 U
Dibromochloromethane	860 U	700 U	820 U	700 U	790 U
1,1,2-Trichloroethane	520 U	420 U	490 U	420 U	480 U
Benzene	170 U	140 U	160 U	140 U	160 U
(1) trans-1,3-Dichloropropene	860 U	700 U	820 U	700 U	790 U
2-ChloroethylVinylEther	860 U	700 U	820 U	700 U	790 U
Bromoform	690 U	560 U	660 U	560 U	630 U
Tetrachloroethene	170 U	140 U	160 U	140 U	160 U
1,1,2,2-Tetrachloroethane	170 U	140 U	160 U	140 U	160 U
Toluene	860 U	700 U	820 U	700 U	790 U
Chlorobenzene	860 U	700 U	820 U	700 U	790 U
Ethylbenzene	690 U	560 U	660 U	560 U	630 U
Xylene(Total)	860 U	700 U	820 U	700 U	790 U
Total Confident Conc. VOAs (s)	0	0	0	0	0
Total Estimated Conc. VOA TICs (s)	1100	0	0	0	0

Soil Sample Results (AOC 11), June 2000
Kleiner Specialty Metals
South Plainfield, New Jersey

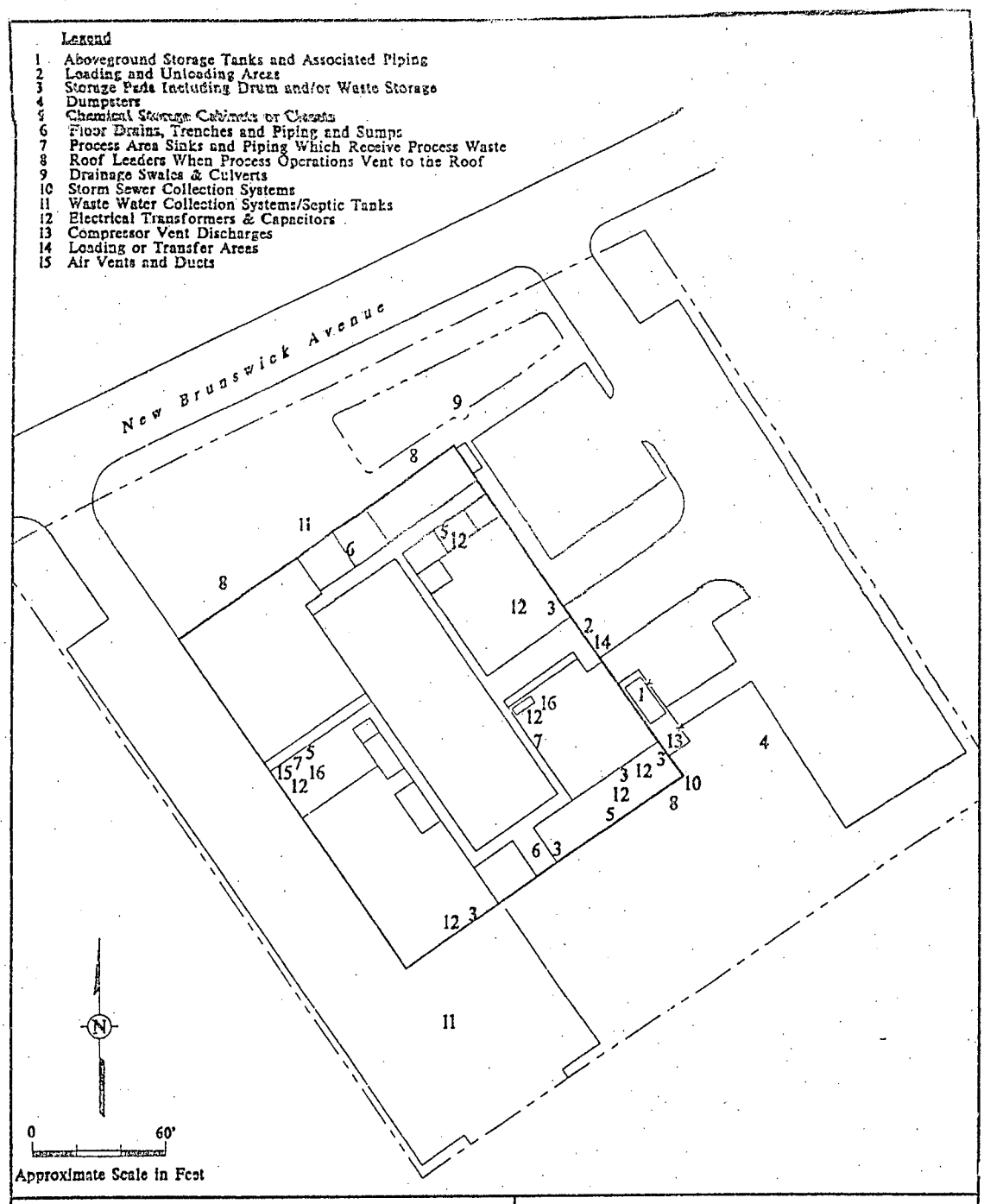
Sample ID	GP-13_4.0	GP-14_2.0	GP-15_2.5	200	Trip_Blank
Lab Sample Number	206763	206764	206765	206766	206767
Sampling Date	05/23/00	05/23/00	05/23/00	05/23/00	05/22/00
Matrix	SOLID	SOLID	SOLID	SOLID	SOLID
Dilution Factor	50.0	50.0	50.0	50.0	50.0
Units	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
VOLATILE COMPOUNDS (GC/MS)					
Chloromethane	700 U	680 U	670 U	650 U	620 U
Bromomethane	700 U	680 U	670 U	650 U	620 U
VinylChloride	700 U	680 U	670 U	650 U	620 U
Chloroethane	700 U	680 U	670 U	650 U	620 U
MethyleneChloride	420 U	410 U	400 U	390 U	380 U
Trichlorofluoromethane	700 U	680 U	670 U	650 U	620 U
1,1-Dichloroethene	280 U	270 U	270 U	260 U	250 U
1,1-Dichloroethane	700 U	680 U	670 U	650 U	620 U
trans-1,2-Dichloroethene	700 U	680 U	670 U	650 U	620 U
cis-1,2-Dichloroethene	700 U	680 U	670 U	650 U	620 U
Chloroform	700 U	680 U	670 U	650 U	620 U
1,2-Dichloroethane	280 U	270 U	270 U	260 U	250 U
1,1,1-Trichloroethane	700 U	680 U	670 U	650 U	620 U
CarbonTetrachloride	280 U	270 U	270 U	260 U	250 U
Bromodichloromethane	140 U	140 U	130 U	130 U	120 U
1,2-Dichloropropane	140 U	140 U	130 U	130 U	120 U
(1) cis-1,3-Dichloropropene	700 U	680 U	670 U	650 U	620 U
Trichloroethene	140 U	140 U	130 U	130 U	120 U
Dibromochloromethane	700 U	680 U	670 U	650 U	620 U
1,1,2-Trichloroethane	420 U	410 U	400 U	390 U	380 U
Benzene	140 U	140 U	130 U	130 U	120 U
(1) trans-1,3-Dichloropropene	700 U	680 U	670 U	650 U	620 U
2-ChloroethylVinylEther	700 U	680 U	670 U	650 U	620 U
Bromoform	560 U	540 U	540 U	520 U	500 U
Tetrachloroethene	140 U	140 U	130 U	130 U	120 U
1,1,2,2-Tetrachloroethane	140 U	140 U	130 U	130 U	120 U
Toluene	700 U	680 U	670 U	650 U	620 U
Chlorobenzene	700 U	680 U	670 U	650 U	620 U
Ethylbenzene	560 U	540 U	540 U	520 U	500 U
Xylene(Total)	700 U	680 U	670 U	650 U	620 U
Total Confident Conc. VOAs (s)	0	0	0	0	0
Total Estimated Conc. VOA TICs (s)	0	0	0	0	0



ENVIRONMENTAL STRATEGIES CORPORATION
11911 Freedom Drive Suite 900
Reston, Virginia 20190
703-709-6500

Figure 3
AOC #11 Soil Sample Locations
UTI - Kleiner Metals
South Plainfield, New Jersey

HOGAN01.DWG



ENVIRONMENTAL STRATEGIES CORPORATION
11911 Freedom Drive Suite 900
Reston, Virginia 20190
703-709-6500

Figure 2
Areas of Concern
UTI - Kleiner Metals
South Plainfield, New Jersey

UTI09LDWG

ATTACHMENT G

NJDEP
Industrial Site
Evaluation Element
CN 028
Trenton, NJ 08625

ECRA GENERAL INFORMATION SUBMISSION
AND SITE EVALUATION SUBMISSION
KLEINER METAL SPECIALTIES
SOUTH PLAINFIELD, NEW JERSEY

NOVEMBER 2, 1988

JOB NO. 17976-001-10

Dames & Moore

CRANFORD, NEW JERSEY

APPENDIX E

DESCRIPTION OF OPERATIONS

1.0 INTRODUCTION

This section provides a description of operations at the UTI Corporation, Kleiner Metal Specialties facility in South Plainfield, New Jersey. The facility occupies approximately 27,000 square feet of a 100,731 square-foot parcel of land.

2.0 BACKGROUND

Operations began at the site in 1967. Prior to this time, the property was undeveloped. The same production activities have been undertaken throughout the life of the facility, under various owners.

In 1980, construction activities were undertaken at the site. These activities included:

- Construction of a 11,250 square-foot addition to the rear of the facility.
- Construction of a french-drain system to improve the structural quality of soils southeast of the building.
- Demolition of a 1,200 square-foot storage shed, which was previously used to store office supplies and old machinery.
- Abandonment and removal of the septic system and connection to the town's sanitary sewer system.

3.0 OPERATIONS AND DESCRIPTION

Kleiner Metal Specialties manufactures tubular formed parts from bulk tubing lengths. This service involves material receiving, processing, cleaning, packaging and shipping. The material safety data sheets for the substances utilized at the site are presented in Appendix H. A detailed description of the general procedures is provided below. Refer to Figures 2 through 4 in Appendix D for locations.

3.1 TUBING PREPARATION (RECEIVING ROOM)

Tubing is received by truck at the receiving room. The tubing is prepared by flushing with Magnusol 1265 to remove loose metal particles. The cleaner is recycled continuously through the system. Pieces of metal washed from the tubing are captured by a mechanical filter. After cleaning, the tubing is stored on racks.

3.2 CUTTING AND FORMING (PRODUCTION ROOM)

Lengths of tubing are manually transported to the production area. The tubing is fed into four-slide machines which cut and bend the tubing to produce useful parts. The cutting machines are lubricated with Cook's Prime Oil. The oil is supplied to the machines through 1/2-inch overhead piping, from a drum, by a small pump. The oil is collected in trays immediately beneath the cutting heads and returned to the drum for reuse. Production occasionally requires the use of CRC 700 oil. When this oil is used, operations are conducted under a vacuum hood. The air stream is fed to an electrostatic precipitator to carbonize oil in the air flow, and discharged back to the room.

3.3 DEGREASING (SHIPPING ROOM)

Tabular parts are manually transported to the Baron/Blakeslee MSW-280 degreaser in trays. The parts are degreased using 1,1,1-trichloroethane (Blaco-Thane). Prior to 1986, tetrachloroethylene was used

as the solvent. A programmable transport system conveys parts through the degreasing cycle. Dual cooling coils control emissions to the ambient air. The system is not vented to the exterior of the building. Prior to the installation of the secondary cooling coil in 1986, vapors from the degreaser were vented through the roof of the facility. Depending on the level of plant operations, between 123 and 238 gallons of solvent are emptied from the degreaser into Tank 3 per week.

3.4 SOLVENT STORAGE AND RECIRCULATING (SHIPPING ROOM)

Three above-ground, 275-gallon tanks are used to store 1,1,1-trichloroethane (Figure 4). New solvent is delivered to the site and placed directly into Tank 1. Solvent is fed to the degreaser and emptied from the degreaser to Tank 3. Reclaimable solvent in Tank 3 is pumped to a Baron/Blakeslee HRS-60 still for distillation and subsequent storage in Tank 2. The reclaimed solvent is then fed to the degreaser as necessary. Solvent in Tank 3 is recycled one to two times per week due to the in-line process of the degreasing operation.

The solvent is utilized until it reaches a specific gravity limit. At this time, Baron/Blakeslee (a New Jersey-licensed TSD facility) removes the solvent, under hazardous waste manifest, for recycling. Approximately 600 gallons of solvent are removed from the site per year.

3.5 GRINDING AND DRILLING (TOOL ROOM)

Surface grinders are used to finish certain products. The dust generated by this process is collected by a vacuum system at each machine and removed from the air stream by a mechanical filter. The filtered air is returned to the room. Plunge electric discharge machines are used to perforate certain products. A vacuum system and electrostatic precipitator are used to capture and carbonize oil droplets in the air discharged by the machines. Air from the electrostatic precipitator is returned to the room. The machines contain a total of 80 gallons of CLC Lubricants dielectric oil.

3.6 STEM PRODUCTION (STEM DEPARTMENT)

Stems for use in electrochemical drilling are produced from tubing. Previously cut sections of tubing are straightened to the necessary tolerance, coated with Alkanex, a non-hazardous material, and baked in two electric kilns until dry. Heat from the kilns is vented outside through the roof of the building. One 10-gallon tank is used for the cleaning of parts with 1,1,1-trichloroethane. Certain parts are etched with hydrochloric acid under two fume hoods. Both hoods are connected to one vent through the roof.

3.7 PRODUCT STORAGE (SHIPPING ROOM)

Prior to shipping off-site, finished, degreased parts are placed in plastic bags and stored on racks.

3.8 FLOOR DRAINS (BOILER ROOM AND PRODUCTION ROOM)

Two floor drains are present at the facility. The floor drain in the production area is surrounded by a four-inch high concrete berm. Janitorial supplies, soaps and cleaners are stored in this area. Both floor drains discharge directly to the sanitary sewer.

3.9 ABANDONED SEPTIC SYSTEM (BUILDING EXTERIOR)

Prior to 1980, the facility discharged its sanitary waste to a septic system. This system was located along the southwest side of the building (Figure 3). In 1980 the seepage tanks were cleaned and backfilled, and the leachfield was excavated to install a detention basin. Since 1980, the facility has been connected to the sanitary sewer.

3.10 ELECTRICAL TRANSFORMER (BUILDING EXTERIOR)

One electrical transformer is located along the southwest side of the building. Information provided by the utility indicates that the

transformer does not contain PCBs. This information will be provided to the NJDEP as soon as it is available.

3.11 FRENCH DRAIN SYSTEM (BUILDING EXTERIOR)

During construction activities of 1980, a french-drain system was installed to improve the structural quality of soils southeast of the building. Water collected from this area flows north under the parking lot and discharges to a drainage trench. Water flows northwest through a trench along the property boundary, under New Brunswick Avenue and through a trench northeast along New Brunswick Avenue.

APPENDIX I

JUSTIFICATION FOR NO SAMPLING

Based on available information concerning the environmental quality of the Kleiner Metal Specialties site in South Plainfield, New Jersey, it is anticipated that no sampling is required to complete the ECRA process. Factors which lead to this conclusion include the following:

- No areas of visible staining are obvious around the exterior of the facility.

- Sanitary waste has been discharged to the town's sanitary sewerage system since 1980. Prior to that time, only sanitary waste was discharged to an on-site septic system. In 1980, the leach field for this system was excavated, and the tanks were filled. The facility generates no other waste water streams.

- The facility is a relatively new site. Accordingly, plant employees and records are available to provide information concerning historical operations. Plant employees and facility records indicate no history of spills or illegal discharges at the site.

- No underground storage tanks are or were utilized by the facility. All solvent storage is in aboveground storage tanks which are contained in a single pour cement holding basin.

ATTACHMENT H

LEW Corporation
"The Environmental Company"

513 W. Mt. Pleasant Ave.
Livingston, NJ 07039
(973) 535-1973
(800) 783-0567
Fax (973) 994-9528

March 13, 2000

Solomon Pearl Blum & Quinn LLP
Woolworth Building
37th Floor, 233 Broadway
New York, N.Y. 10279

Subject: Geoprobe Investigation
4490 Stelton Road, South Plainfield, NJ

On February 1, 2000, LEW Corporation (LEW) was contracted by Solomon Peral Blum & Quinn LLP to conduct a geoprobe groundwater investigation at the subject property. A report of our findings during the February 1, 2000, investigation is presented below and organized according to the following sections:

Section I	Project Understanding
Section II	Analytical Results
Section III	Conclusions

SECTION I PROJECT UNDERSTANDING

In September of 1999, Environmental Compliance Monitoring, Inc. (ECM) was contracted by Solomon Peral Blum & Quinn LLP to perform a Phase I Environmental Site Assessment at the subject property. ECM noted during their October 1, 1999, investigation that minor amounts of potentially hazardous materials (e.g. propane, 5-gallon gasoline containers, etc.) were stored on-site. ECM also noted in this investigation two areas of environmental concern. They were the following:

a) Eight areas of potential asbestos containing material (ACM); such as, thermal system insulation, and miscellaneous materials (e.g. floor tiles, mastic, etc.)

b) Surrounding property utilization consisted of commercial and industrial usage. These properties have documented usage/storage and/or environmental investigations/discharges.

On the basis that the surrounding properties have noted discharges of hazardous materials, ECM recommended a Phase II ESA to assess potential impacts to the groundwater beneath the subject property.

On October 18, 1999, ECM installed five temporary wells. These locations are depicted in the ECM Ground Water Sampling Plan Map – dated October 18, 1999. Samples were collected from the five temporary wells to test for volatile organic compounds (VOC).

VOC contamination was reported in three of the collected samples that exceeded the New Jersey Ground Water Quality Standards (GWQS).

On February 1, 2000, LEW was contracted to confirm or refute the presence of the reported groundwater contamination. LEW's investigation consisted of installing five temporary wells. The temporary wells were installed in close proximity to the sites sampled in the October 18, 1999 investigation. A groundwater sample was collected from each temporary well location and analyzed for VOC contamination. Groundwater samples were collected using temporary PVC screen.

SECTION II ANALYTICAL RESULTS

A ground water sample was collected from each temporary well and analyzed for VOC contamination. Samples were analyzed by EMSL Laboratory, a NJDEP certified laboratory. A summary of the VOCs detected in presented Table 1.

TABLE 1
ANALYTICAL SUMMARY OF GROUND WATER SAMPLES COLLECTED

COMPOUND	TW-1	TW-2	TW-3	TW-4	TW-5	GWQS
Methylene Chloride	0.5	ND	ND	ND	ND	400
Chloroform	ND	***12***	***7.4***	ND	ND	6
Bromdichloromethane	ND	***4.5***	***2.8***	ND	ND	0.3
Tetrachloroethene	ND	0.8	ND	ND	***47***	1.0
Dibromochloromethane	ND	1.1	0.6	ND	ND	10
Trichloroethene	ND	ND	ND	ND	***5.1***	1.0
Cis-1,2-dichloroethene	ND	ND	ND	ND	4.6	10

NOTE:
1) ND represents that the compound was reported below the method detection limit.
2) Bold italic indicates that the compound was reported to be above the Ground Water Quality Standard in the sample.

In summary, methylene chloride was reported in Sample TW-1 but, well below the associated GWQS. Chloroform and Bromdichloromethane were detected in Sample TW-2 and TW-3 and well above the associated GWQS. No VOCs were reported above the GWQS in Sample TW-4 and TW-1. Tetrachloroethene and Trichloroethene were reported to be above the associated GWQSs in Sample TW-5.

SECTION III CONCLUSIONS

VOC compounds were reported to be above GWQS during the October 18, 1999 geoprobe investigation by ECM. VOC compounds were also reported to be above the GWQS during LEW's February 1, 2000 investigation. Concentrations of VOCs were reported to be of a lower magnitude during the LEW investigation.

Both the site reconnaissance's performed by ECM and LEW indicated that very minor quantities of hazardous materials were stored on-site and that surrounding property utilization consisted of properties that store hazardous materials and that may have known discharges. Thus, it is plausible that the reported contamination may have originated off-site. Thus, remediation of the reported contamination would most likely be that of the potentially responsible party.

Thank you for this very important work. Should you have any questions please do not hesitate to call me at (973) 535 – 1973.

Sincerely yours,

Sarah Calandra

Sarah Calandra
Project Manager

ATTACHMENT I

DELINEATION OF AN INTERIM GROUND WATER IMPACT AREA AT THE NOVA UKRAINE AREA, PISCATAWAY TOWNSHIP, MIDDLESEX COUNTY

April 1991

Joseph Marchesani
Hydrogeologist

Bureau of Ground Water Pollution Abatement
Ground Water Quality Management Element
Division Water Resources
New Jersey Department of Environmental Protection
401 East State Street
Trenton, New Jersey 08625

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Attachment II - Names, Locations, and Sampling Dates of Home Wells

Attachment III - Available Local Home Well and Local Deep Well Logs

Attachment IV - Standard Symbols for Mapping Water Quality

* Attachment V - Laboratory QA/QC Data

* Available upon request

INTRODUCTION

The purpose of this report is to delineate an Interim Ground Water Impact Area for the Franklin Street Area; Nova Ukraine Section in southern Piscataway Township, Middlesex County. A Ground Water Impact Area (GWIA) is the area consisting of the currently known extent of ground water pollution combined with the interim- most probable ground water pollution migration area.

The currently known extent of ground water pollution is the extent of area where pollutant concentrations in ground water exceed maximum contaminant levels (MCL's), or in the absence of MCL's other appropriate health based criteria or guidelines. The GWIA is delineated within this report as "interim" because multiple sources of ground water contamination potentially exist and a source area(s) needs to be determined to more accurately and precisely delineate a final GWIA, thus assessing any additional home wells which may potentially be at risk. Potential source areas are given in attachment I.

Based on source area(s) delineation and further hydrogeologic analysis, this interim GWIA may have to be modified in the future. Any modification will be an expansion of the interim GWIA delineated within this report. Additional justification for delineating the GWIA as "interim" includes:

1. the source or sources of ground water contamination have not been determined,

2. no ground water remediation system is presently in operation to control the flow of contaminated ground water,

3. local domestic and industrial supply wells have recently discontinued pumping and obtained hook-ups to Elizibethtown Water Company due to the massive extent and concentration of local ground water contamination, thus, they no longer exert any constraints on contaminant flow velocities and direction,

4. fracture fabric analysis (see definition on page 4), and potential preferential flow direction determined from pumping tests were not used in this interpretation of ground water flow rate and direction,

5. it is most probable that not yet located pockets of highly contaminated ground water exist trapped in the fractured bedrock.

BACKGROUND

The Nova Ukraine area is a suburban residential neighborhood located in southern Piscataway Township along the South Plainfield Township border (see figure 1). Both townships are located in Middlesex County. The site consists of a community composed of approximately 60 homes, all being permanent places of

residence. The community is "triangle- shaped" and the east by Stelton Road, on the west by New Brunswick Avenue, and along the south by interstate route 287.

HISTORY OF GROUND WATER CONTAMINATION: NOVA UKRAINE SITE

The currently known extent of ground water contamination, as of April, 1990 is shown on figure 2. Ground water contamination was first identified in the home well of the Robertson residence (see figure 2) in 1982 at 44.4 ug/l Tetrachloroethylene (PCE). Point of use control was implemented at this time through the installation of a carbon tap filter. The Robertson residence home well was then sampled several times during the 1980's verifying the contamination.

Recent sampling during early 1990 of the Robertson residence well indicated elevated levels of 1400 ug/l PCE contamination, along with Trichloroethylene (TCE), 1,1-Dichloroethylene (1,1-DCE), Total 1,2-Dichloroethylene (1,2-DCE), Methyl-Tertiary-Butyl-Ether (MTBE), Toluene, and Trichloroflouromethane (see description of contamination on page 6). Sample results of residences around the Robertson home reveal that PCE and above contaminants have impacted other residences.

Residences whose homes are impacted with ground water contamination and the results of recent sampling events are included as Attachment II.

During the fall of 1990, a limited number of residences within the Nova Ukraine Site were hooked- up to the Elizabethtown Public Water Supply system. Eight inch water supply lines were run along the following streets; Franklin St., Michael St., Carpathia St., Bohdan St., and Olga Place.

GEOLOGY

The Nova Ukraine site lies within the Newark Supergroup and is underlain by the late Triassic/early Jurassic Passaic formation (see figure 3), (Olsen, 1980). The Passaic formation consists of hematite- cemented coarse silt to very fine sand (siltstone and sandstone), and conglomerate in places; however, the conglomerate is not found local to the Nova Ukraine area. These clastic sediments are interbedded to a maximum thickness estimated at over 10,000 feet. Well logs of nearby 350- foot deep wells verify this lithology (HLA, 1990). The sediments which underlie the site strike about N45E and dip 10° northwest. Fractures or joints may make up a significant part of the Passaic formation, but have not been documented in local well logs (NJGS 1986, HLA 1990). These joints or fracture planes, where existent, are high- angle, nearly normal to bedding plane dip, and strike northeast-southwest. Therefore, both the bedding plane and joint/fractures strike northeast- southwest.

Depth to weathered bedrock (aka. regolith or overburden) feet. Weathered bedrock continues until an approximate depth of 20 feet beneath ground surface, where bedrock becomes competent (ie. not weathered).

HYDROGEOLOGY

Based on a review of available well logs within the Bureau of Water Allocation (BWA), Division Water Resources, NJDEP (see Attachment I), the depths of local domestic wells range from 113 to 200 feet below grade. Average well depth is 158.5 feet. Casing depths range from 22 to 50 feet below grade. Average casing depth is 33.6 feet. Well yields range from 10 to 40 gallons per minute (gpm). Average domestic well yield is approximately 14.9 gpm or 21,456 gpd. The well logs available within the BWA are not a complete record of wells in the Nova Ukraine Area. Based on field observations, there are many more domestic wells in the Nova Ukraine area.

Two aquifers potentially exist beneath the site, an overburden aquifer and a bedrock aquifer. The bedrock aquifer is the aquifer of concern and is the aquifer utilized as a potable water supply; therefore, this report is prepared for the bedrock aquifer.

If an overburden aquifer is present, ground water would occur between 3 - 5 feet beneath ground surface (HLA, 1990). The overburden aquifer, consisting of the weathered upper part of the Passaic formation, exists mainly where surface drainage pathways (ie. streams) are present. Since no streams exist within the Nova Ukraine area, an overburden aquifer may not exist. The hydraulic interconnectivity between overburden and competent bedrock is not known. Ground water flow direction within an overburden aquifer would be towards an existing stream.

Depth to water table within the bedrock (Passaic) aquifer is approximately 20 feet. Ground water flow within the bedrock aquifer appears to be southward, although a westward component may exist. Figure 4 depicts the locations of three nearby sites which were used in the interpretation of ground water flow direction within the Nova Ukraine area. Site 17 is one- quarter mile north of the Nova Ukraine area, site 16 is one- quarter mile east of the Nova Ukraine area, and site 15 is approximately one and one- quarter mile west of the Nova Ukraine area (the site numbers refer to Attachment III- Potential Source Areas). Insets A through H to figure 4 depict ground water flow direction within the bedrock aquifer at different elevations for each of the three sites.

Sites 16 and 17 depict ground water flow direction within the bedrock aquifer as southerly, whereas site 15 depicts general ground water flow direction as westward and ground water flow within a specific unit (see Michalski, 1990) as westward. Based on a review of ground water flow direction for these three sites, the writer has concluded that a southerly ground water flow

direction exists at the Nova Ukraine area, and that a significant, unknown westward component of ground water flow is probable and, therefore, should be taken into consideration for delineation of the interim GWIA.

As previously mentioned, bedding plane dip is to the northwest; therefore, ground water appears to flow against dip or "up-dip". Ground water flow also appears to be normal to strike of the near vertical fractures oriented parallel to the strike of bedding plane. Fractures have been thought to control ground water flow in the Passaic formation; however, Michalski (1990) has proposed that ground water flow in the Passaic formation is primarily influenced by partings along bedding plane, and by the contrast of the degree of fracturing between bedding planes.

Other influences on local ground water flow direction include local industrial supply wells and domestic supply wells. Within the Nova Ukraine area, approximately 60 home wells exist, each capable of yielding 21,456 gallons per day, or altogether capable of withdrawing 1,287,360 gallons per day (gpd). Within 1000- feet north of the Nova Ukraine area, two industrial supply wells rated at 100,000 gpd exist on the Parkway Plastics property. As of December 31, 1990, the two industrial wells at Parkway plastics have been shut down and water supplied as- needed by the Elizabethtown Water Authority. In addition, as of mid- December, 1990, impacted homes within the Nova Ukraine area have been utilizing the public water supply rather than domestic home wells. Ground water flow direction may differ slightly now that these outside influences have ceased.

In order to further verify ground water flow direction, pump tests should be conducted to determine if there is a preferential flow direction in the bedrock aquifer. Bedrock core samples should also be obtained and analyzed. Hoag (1985) has shown that ground water flow direction and hence, potential contaminant migration pathways is more representative of the true flow direction in the aquifer when interpreted from pumping test results and fracture fabric analysis. Fracture fabric refers to the total sum of fracture shape, fracture size, and fracture configuration within the Passaic formation.

Additional investigation is warranted to more decisively interpret bedrock aquifer ground water flow direction within the Nova Ukraine area. However, based on existing information and for the purposes of this interim GWIA, ground water flow direction is concluded as southward with a westward component.

AQUIFER TESTING

Local aquifer tests (AGES 1987, HLA 1990) have estimated aquifer properties. The bedrock aquifer responds as a leaky confined system, with vertical recharge occurring from the overburden aquifer and surface water bodies where present, or precipitation infiltration and percolation. Local transmissivity (T) values

range from 150 ft^2/day (1122 gal/day-ft) to 31[illegible] [illegible] gal/day-ft). Hydraulic conductivity (K) values range from 0.[illegible] ft/day to 1.83 ft/day with an average of 1.31 ft/day. Horizontal hydraulic gradient ($dh_h/dl_h = I_h$) averages 0.005 ft/ft to the south. Vertical hydraulic gradient ($dh_v/dl_v = I_v$) ranges from 0.002 to 0.043 ft/ft <u>downward</u>, with an average downward I_v of 0.0185 ft/ft (Ages, 1988). Storativity values (s) (developed because aquifer modeled as "confined") ranged from 5.0E-05 to 1.0E-3, with a mean value of 2.0E-04.

For the purposes of ground water flow velocity computations, this mean storativity value could not be used since the bedrock aquifer is probably not confined at the Nova Ukraine area. Therefore, an effective porosity (n_e) within the aquifer rock matrix was used and the Nova Ukraine area was modeled as unconfined. Driscoll (1989), and Fetter (1988) show n_e values indicative of the bedrock aquifer range from 0.05 to 0.005. An average value of 0.02 was assumed for purposes of interim GWIA delineation. This value does not consider the existence of joint/fracture apertures or partings along bedding plane. If these variables were considered, effective porosity may be as low as 0.005. The local aquifer tests conducted by AGES and HLA did not calculate aquifer properties along strike; hence, aquifer properties used in this analysis may be an estimation of actual values.

GROUND WATER FLOW VELOCITY

The horizontal ground water flow velocity (V) can be determined using the following equation:

$$V = (K dh_h/dl_h)/n_e \qquad \text{(Fetter, 1980)}$$

where n_e is the effective porosity (the porosity available for fluid flow). Considering an n_e of 0.02, and the average of K and dh_h/dl_h given above, the ground water flow velocity averages 0.327 ft/day or 119 ft/year. Because fracture fabric analysis, potential preferential ground water flow direction interpreted from pumping test results and the effects of local supply wells have not been considered in the interpretation of ground water flow rate and direction, the calculated ground water flow velocity is an average for the aquifer. In theory, ground water flow velocities are greater in fractures than within the rock matrix. Since flow velocities may be much greater along fractures or joints then within the rock matrix, ground water flow velocities in the joints or fractures may be much greater than 119 ft/year.

MOST PROBABLE POLLUTANT TRANSPORT RATE

The most probable pollutant transport rate (V_{pt}) in ground water can be estimated by using the following equation:

$$V_{pt} = (Kdh/dl)/(n_e R_d)$$ (BGWRA,

Since no retardation factors (R_d) have been developed for any compound of concern within the project area, a retardation factor value of one was assumed for all compounds. This assumption would generate the greatest most probable pollutant transport rate and provide a "worst case scenario". As a result of this assumption, the most probable pollutant transport rate longitudinal to ground water flow direction is equal to ground water flow velocity, which is 119 ft/year. This value is applicable to all compounds.

Because of the potential westward component of ground water flow, it is important to obtain a pollutant transport rate based on a westward ground water flow direction. Also, potential source area locations were reviewed (see attachment I) using this flow assumption. As a result of this review and assumption, the most probable pollutant transport rate in the westward direction would be 119 ft/year. This value is applicable to all compounds.

DESCRIPTION OF GROUND WATER CONTAMINATION: NOVA UKRAINE AREA

Ground water samples collected from the 49 domestic wells between 25 August 1989 and 26 April 1990 disclosed ground water contamination within the Nova Ukraine area. Attachment II depicts domestic well sampling locations, dates, and contaminant concentrations. Figures 5 through 9 depict the currently known extent of ground water pollution (above MCL's or Department guidelines) for each contaminant mentioned below. The bedrock aquifer at the Nova Ukraine area has been classified as GW-2 (drinking water aquifer) and Department guidelines were developed accordingly.

TETRACHLOROETHYLENE (PCE)

PCE was detected in fourteen wells at concentrations ranging from 0.7 to 1400 ppb. Twelve of the fourteen wells were above promulgated state MCL's (see figure 5). The MCL for PCE is 1.0 ppb. Resampling ten of the fourteen domestic wells verified the PCE contamination.

PCE has a specific density of 1.62, and is termed a dense, non-aqueous phase liquid (DNAPL). PCE is a colorless liquid with a solubility in water limited to 150 mg/l @ 20-25°C . PCE degrades both chemically and biologically sequentially to TCE, 1,2-DCE, and vinyl chloride (Montgomery and Welkom, 1990).

TRICHLOROETHYLENE (TCE)

TCE was detected in seven wells at concentrations ranging from 0.5 to 10.0ppb. Four of the seven wells were above promulgated state MCL's (see figure 6). The MCL for TCE is 1.0 ppb. Resampling of six wells verified TCE contamination in three of the seven wells.

TCE has a specific density of 1.46, and is termed a clear, colorless, watery- liquid with a solubility in water 1,100 mg/l @ 20-25°C . TCE degrades sequentially into 1,2-DCE and vinyl chloride (Montgomery and Welkom, 1990).

1,1- DICHLOROETHYLENE (1,1-DCE)

1,1-DCE was detected in five wells at concentrations ranging from 0.5 to 3.9 ppb. One of the five wells was above Department guidelines (see figure 7). The Department guideline for 1,1-DCE is 2.0 ppb. Resampling of three wells verified 1,1-DCE contamination in one of the five wells.

1,1-DCE has a specific density of 1.22, and is termed a DNAPL. 1,1-DCE is a colorless liquid with a solubility in water limited to 400 mg/l @ 20°C and 273 mg/l @ 25°C. 1,1-DCE biodegrades into vinyl chloride (Montgomery and Welkom, 1990).

TOTAL 1,2- DICHLOROETHYLENE (1,2-DCE)

1,2-DCE was detected in five wells at concentrations ranging from 0.5 to 19 ppb. Two of the five wells were above Department guidelines (see figure 8). The Department guideline for 1,2-DCE is 10 ppb. Resampling of four wells verified 1,2-DCE contamination in two of the five wells.

1,2-DCE has a specific density of 1.27, and is termed a DNAPL. 1,2-DCE is commonly a mixture of cis- and trans- isomers (hence "total"), forming a colorless liquid with a solubility in water limited to 600 mg/l @ 20°C; however, becomes substantially more soluble to 6,300 mg/l @ 25°C. It both chemically and biologically degrades to vinyl chloride (Montgomery and Welkom, 1990).

SUMMARY OF ABOVE MENTIONED COMPOUNDS

1,1- DCE along with total 1,2- DCE appear to have no logical source since they are either not actually produced or are not as commonly used as PCE or TCE. Therefore, it is assumed that 1,1-DCE and total 1,2- DCE are the result of anaerobic biodegradation of PCE and/or TCE. The degradation sequence is as follows:

```
    Cl      Cl                  Cl
    |       |   cis-1,2-DCE     |
PCE--> TCE--> trans-1,2-DCE--> Vinyl Chloride      (Wood &
               1,1-DCE                            others, 1981)
```

Thus, it appears that all of the above mentioned compounds are related to the same source area(s). As degradation occurs, a chlorine is lost until vinyl chloride is formed. Vinyl chloride is not found within the Nova Ukraine area; therefore, one can predict its ultimate formation from the above degradation sequence. The breakdown of vinyl chloride to carbon dioxide would eventually occur.

METHYL-TERTIARY-BUTYL-ETHER (MTBE), TOLUENE, TRICHLOROFLOURO METHANE (Freon)

These compounds were detected in six wells at total combined concentrations ranging from 1.8 to 58 ppb. One of the six wells was above the Department guideline of 50.0 ppb for these compounds (see figure 9). Resampling of five wells verified MTBE contamination in three of the six wells.

MTBE has been used as an octane enhancer in premium grade gasolines since 1979, thus is associated with gasoline related contamination. It is commonly referred to as 2-methoxy 2-methyl propane. MTBE has a high solubility in water of 43,000 mg/l (4.3%) @ 25° and is not a DNAPL (Garret and others, 1986). When it is found in ground water, it is typically found at the leading edge of a gasoline plume. Since MTBE is a gasoline additive, it is not likely related to the PCE and related degradation product contaminant source area(s).

Toluene is a colorless liquid with a solubility in water of 515 mg/l @ 20°C and 524 mg/l @ 25°. Toluene has been known to degrade completely to carbon dioxide within an aquifer (Montgomery and Welkom, 1990). Toluene has a specific density of 0.86 and is therefore not a DNAPL. Toluene is a component of gasoline at varying concentrations; however, is also utilized as a commercial solvent.

Freon is a colorless, odorless liquid (a gas above 23.63^{o}C) with a solubility in water of 1100 mg/L @ 20°C to 1240 mg/L @ 25°. Freon has a specific density of 1.48 and is therefore a DNAPL. Freon is commonly used as an aerosol propellant, a refrigerant and in fire extinguishing (Montgomery and Welkom, 1990).

Toluene and trichloroflouromethane may be related to the source area(s) of PCE and related degradation product contamination.

INTERIM MOST PROBABLE GROUND WATER POLLUTION MIGRATION AREA

The interim most probable ground water pollution migration area has been determined for each compound described above based upon the most probable ground water flow direction (southward) and the most probable pollutant transport rate (V_{pt}) which is 119 ft/year. The horizontal migration distance (D_{hm}) for each compound is calculated by multiplying V_{pt} by a time factor (T_f). The T_f used in this situation is five years (1825 days). Interim most probable ground water pollution migration area maps (figures 10 - 14) have been developed by adding D_{hm} in the direction of ground water flow, to the currently known extent of ground water pollution delineated for each individual compound. Additionally, these maps have been modified in the northerly (upgradient) and easterly (potentially upgradient to the assumed westward component of ground water flow direction) directions since nearby potential source areas exist in these directions (see attachment

I). Since a westward component of ground water [illegible] assumed, but not identified due to lack of data, a worst-case ground water pollutant transport rate of 119 ft/year is estimated westward and the maps have been modified westward to reflect this potential westward component.

Each interim most probable pollution migration area has been given a vertical component equal to the thickness of the Passaic aquifer at the Nova Ukraine Site. This vertical component is based on; 1)the lack of identified confining units (aquitards) within the Passaic aquifer, 2)the presence of local deep industrial supply wells, 3)the potential presence of near vertical joint or fracture patterns, 4)the chemical and physical properties of the compounds within the pollution migration area, and 5)an average downward I_v value calculated at 0.0185 ft/ft.

INTERIM- MOST PROBABLE GROUND WATER POLLUTION MIGRATION AREA/ INTERIM GROUND WATER IMPACT AREA DELINEATION

The Interim Ground Water Impact Area defined in this report is the area consisting of all interim most probable ground water pollution migration areas for each compound combined.

The Interim Ground Water Impact Area is shown in figure 15. The interim GWIA is based on the present extent of contamination (April 1990), a southerly ground water flow direction and the ground water flow velocity (same as pollutant transport rate), unknown source area(s), and a westward component of ground water flow equal to the southerly flow rate. The downgradient extent of the GWIA corresponds to interstate route 287. This downgradient extent will be reached in approximately five years.

CONCLUSIONS

This report delineates an interim GWIA which includes existing pollution and the most likely migration pathway in the next five years. This is considered an interim area because of limited information and the lack of hydraulic control of the plume as described in the introduction. During the determination of ground water flow rate and direction, detailed information on the structural texture and fabric of the Passaic formation in the local area was not available. In addition, the aquifer properties determined from the pump tests were not determined along strike of the formation, which would provide for a greater understanding of aquifer properties.

Based on the results of additional investigations and/or the implementation of remedial action in the area, this interim GWIA may need to be expanded in the future.

REFERENCES

AGES Corporation, "Phase I Ground Water Investigation Report Prepared for the Tang Realty Site", Piscataway, New Jersey. October 1987.

BGWPA, "Draft Standard Methodology for Ground Water Impact Area Determinations". Bureau of Ground Water Pollution Assessment, Ground Water Quality Management Element, Division Water Resources, New Jersey Department of Environmental Protection. 21pp., May 1990.

Driscoll, Fletcher G., Ph.D., Ground Water and Wells, Second Edition. Johnson Filtration Systems Inc., St. Paul, Minnesota. 1089 pp. 1989.

Fetter, C.W., Applied Hydrogeology, Second Edition. Merrill Publishing Company, Columbus, Ohio. 592 pp. 1988.

Harding Lawson Associates, "Ground Water Characterization Report Prepared for the Tang Realty Site", Piscataway, New Jersey. September 1987.

----------, "Partial Listing of Commercial/ Industrial Properties and Partial Listing of Underground Storage Tank Locations and CERCLIS List Sites in Piscataway and South Plainfield Township", Middlesex County, December 1989.

Hoag, Roland B., Jr., Ph.D. "An Innovative Technique for Determining Contaminant Pathways in Fractured Bedrock", BCI Geonics, Inc., Laconia, New Hampshire, Proc. The Sixth National Conference on Management of Uncontrolled Hazardous Waste Sites, Washington, DC. November 1985.

Michalski, Andrew. "Hydrogeology of the Brunswick (Passaic) Formation and Implications for Ground Water Monitoring Practice", Ground Water Monitoring Review. Fall 1990.

Montgomery, John H. and Welkom, Linda M. Ground Water Chemicals Desk Reference. Lewis Publishers, Inc., Chelsea, Michigan. 640 pp. 1990.

Olsen, Paul E., Triassic and Jurassic Formations of the Newark Basin. Bingham Laboratories, Department of Biology, Yale University, New Haven, Connecticut. 1980.

Piscataway Township Official Tax Map, Sheet #41A.

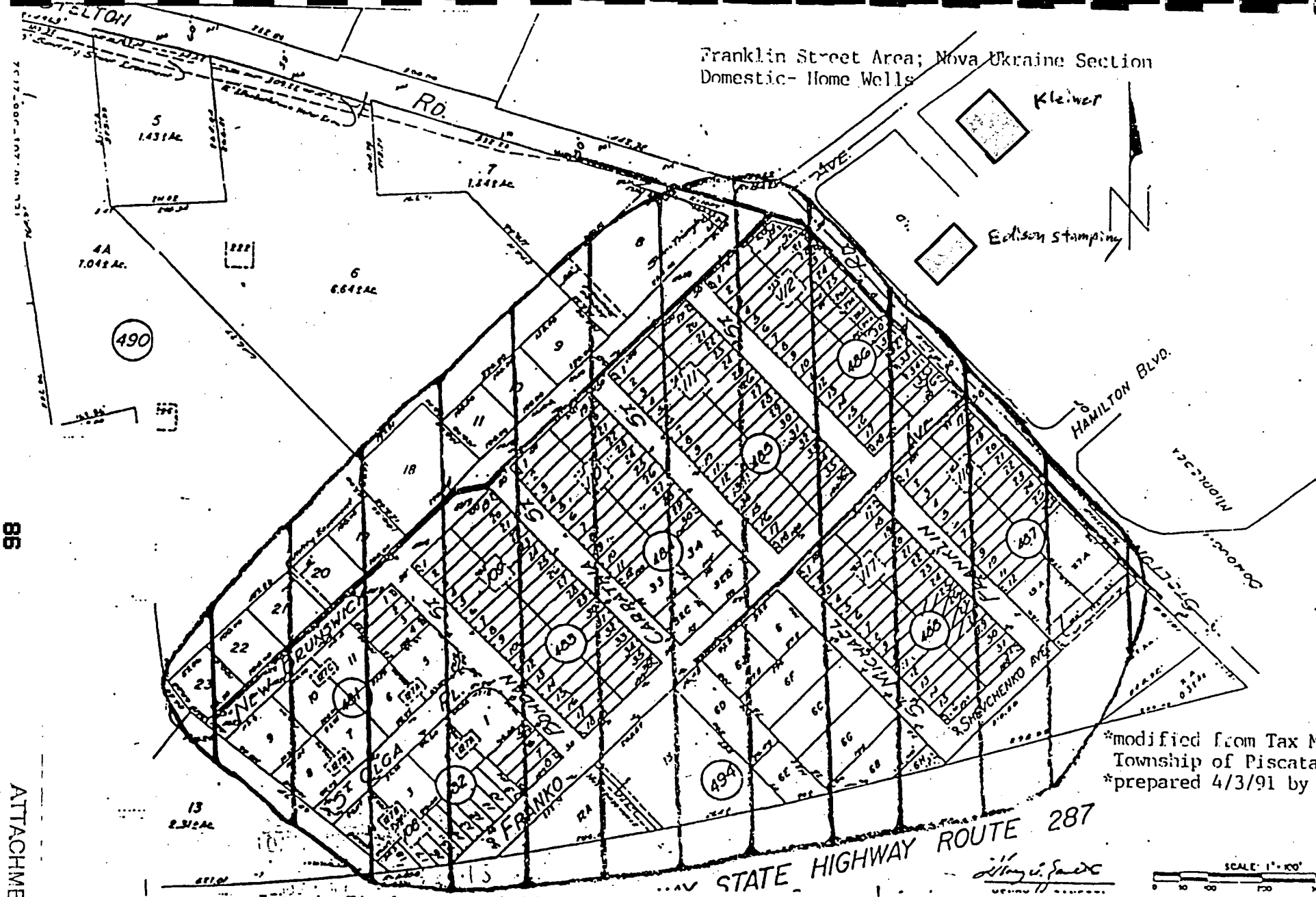
Wood, P.R., Lang, R.F., and Payan, I.L., Anaerobic Transformation, Transport, and Removal of Volatile Chlorinated Organics in Ground Water. Drinking Water Research Center, School of Technology, Florida International University, Tamiami Campus, Miami, Fl, 1981.

FRANKLIN AVENUE AREA
PISCATAWAY TOWNSHIP
MIDDLESEX COUNTY

Blocks and Lots Included
Within the GWIA

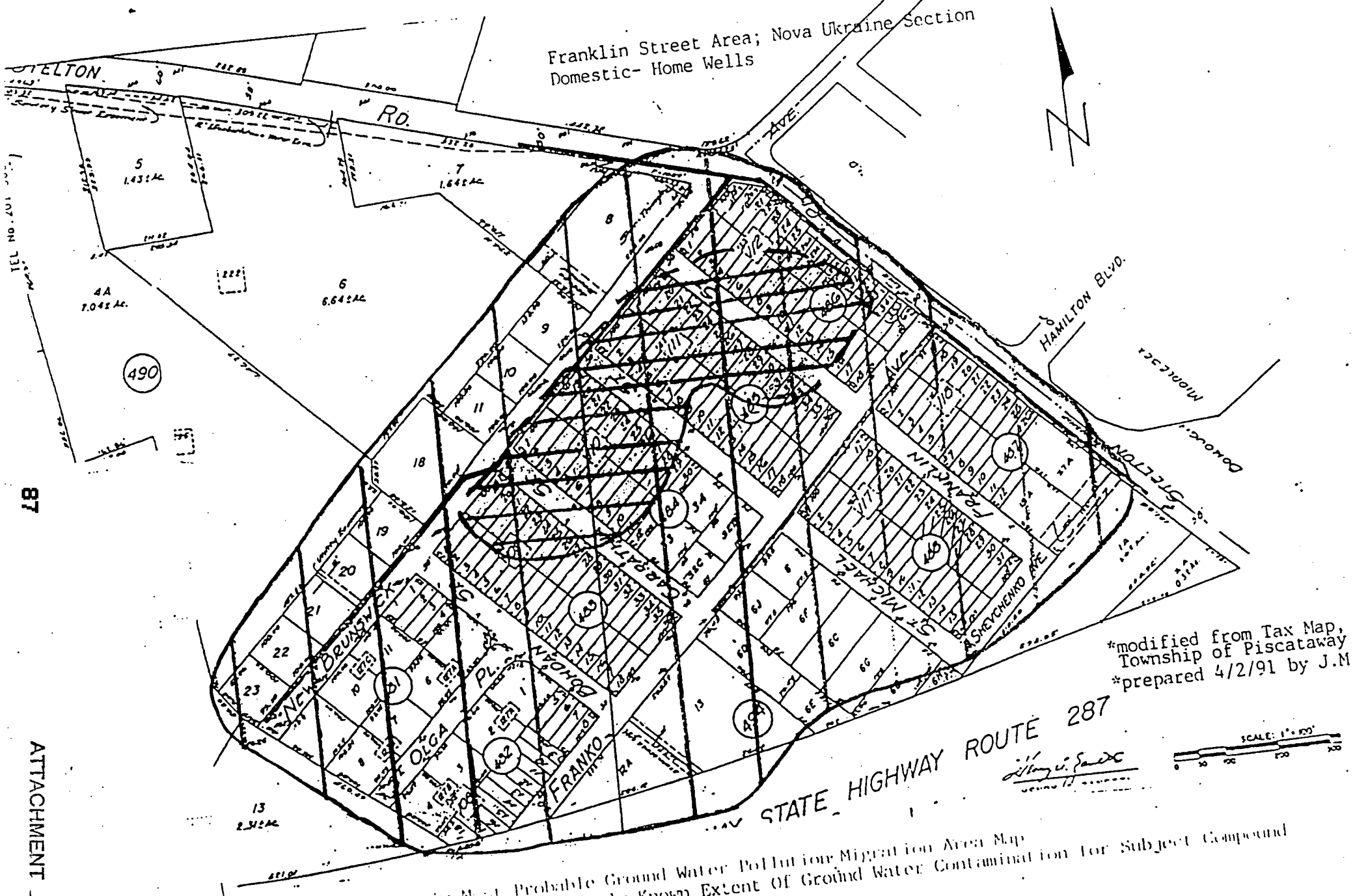
BLOCK:	481	LOTS:	1-11
BLOCK:	482	LOTS:	1-18
BLOCK:	483	LOTS:	1-36
BLOCK:	484	LOTS:	1-31, 32B, 32C, 33,34
BLOCK:	485	LOTS:	1-36
BLOCK:	486	LOTS:	1-36
BLOCK:	487	LOTS:	1A,2A,1-12, 13A,17-26, 27A
BLOCK:	488	LOTS:	1-32
BLOCK:	490	LOTS:	4A,6,8-11,13,14C,18-23
BLOCK:	494	LOTS:	6,6B-6H,6J,12A,13

ATTACHMENT N3



Interim-Final Most Probable Ground Water Pollution Migration Area Map/
Interim Ground Water Impact Area

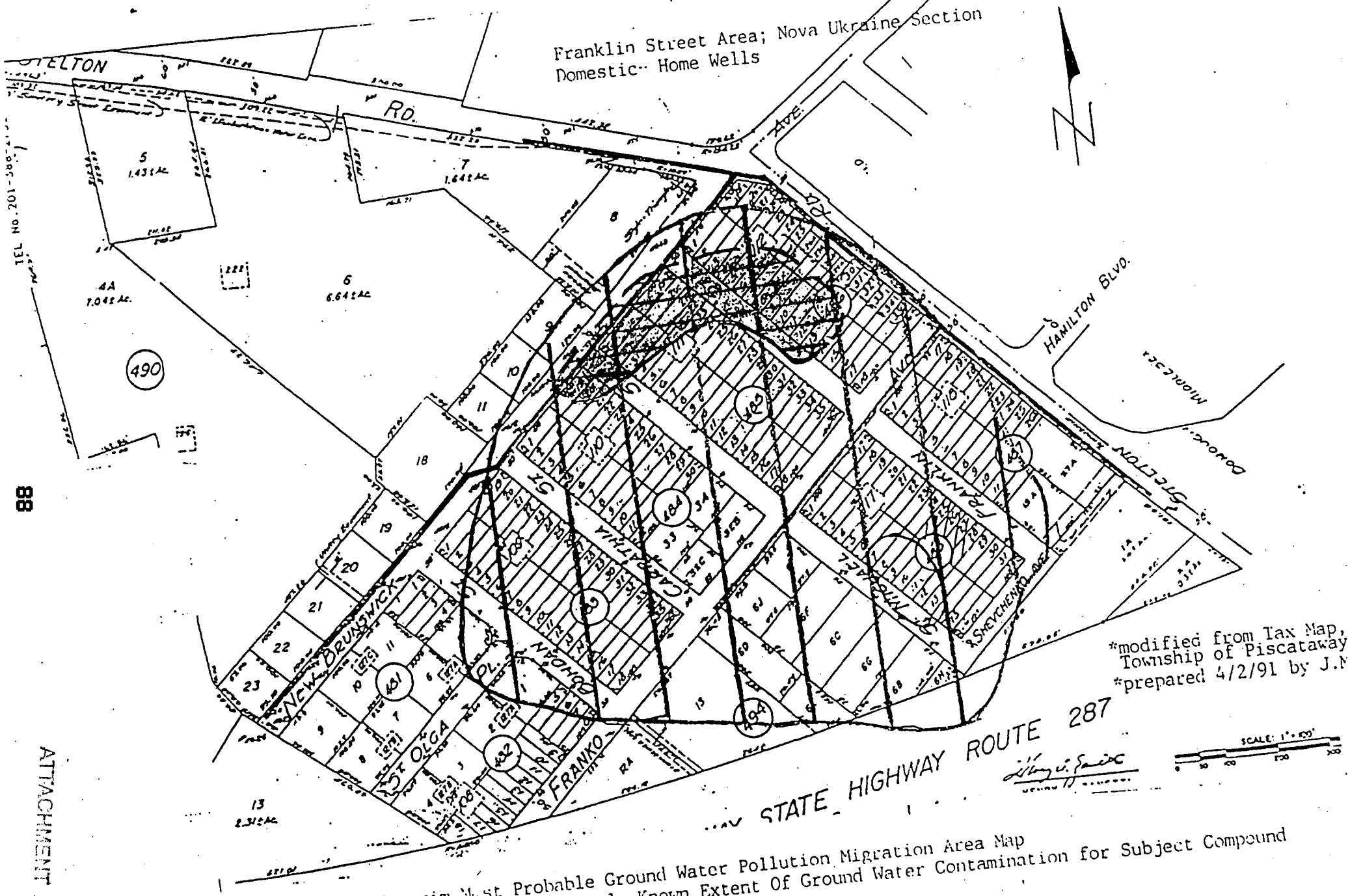
ATTACHMENT N



Interim Most Probable Ground Water Pollution Migration Area Map
Developed From Currently Known Extent Of Ground Water Contamination For Subject Compound
Subject Compound is Tetrachloroethylene

FIGURE 10

ATTACHMENT

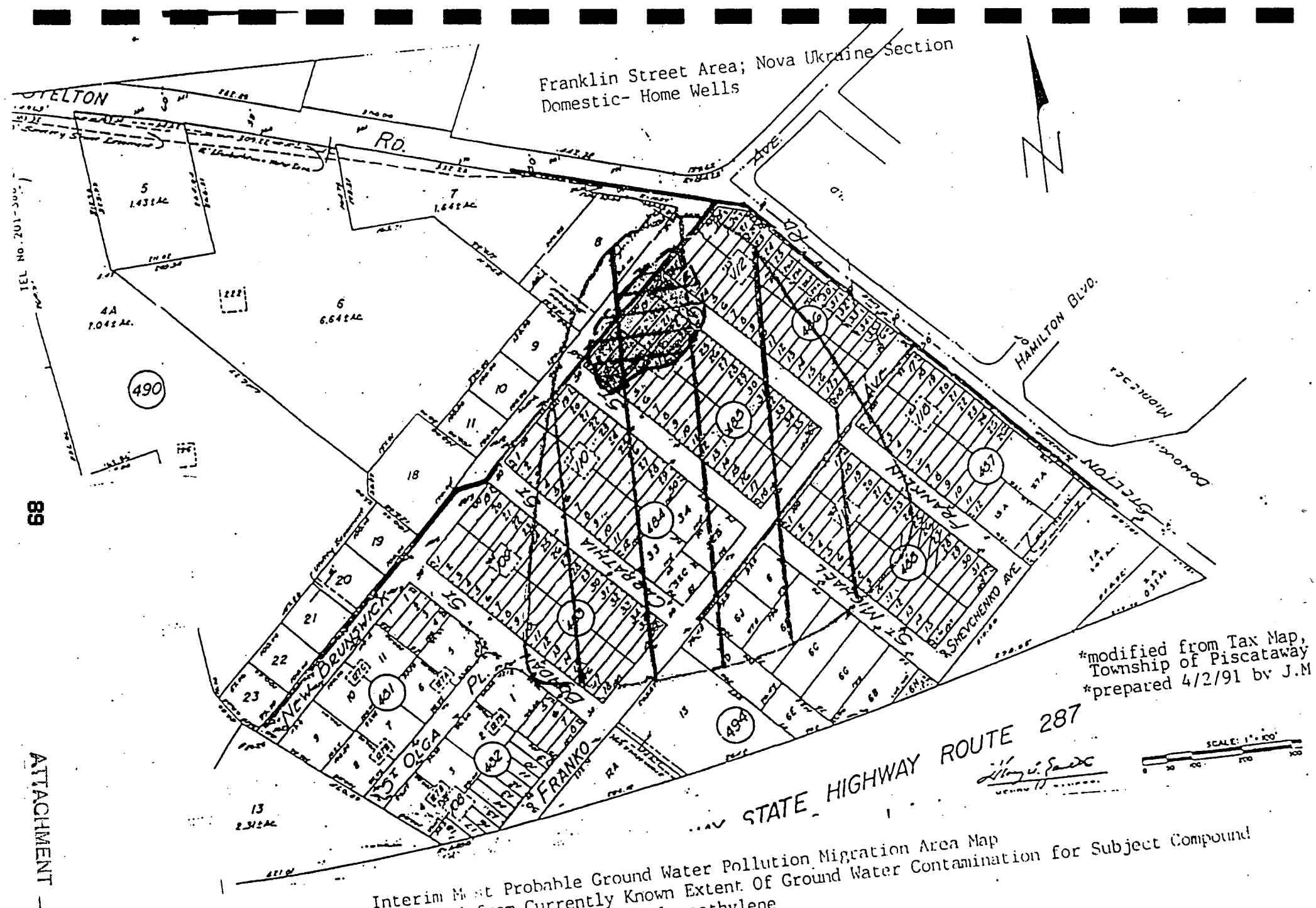


Interim Most Probable Ground Water Pollution Migration Area Map
Developed from Currently Known Extent Of Ground Water Contamination for Subject Compound
Subject Compound is Trichloroethylene

FIGURE 11

ATTACHMENT

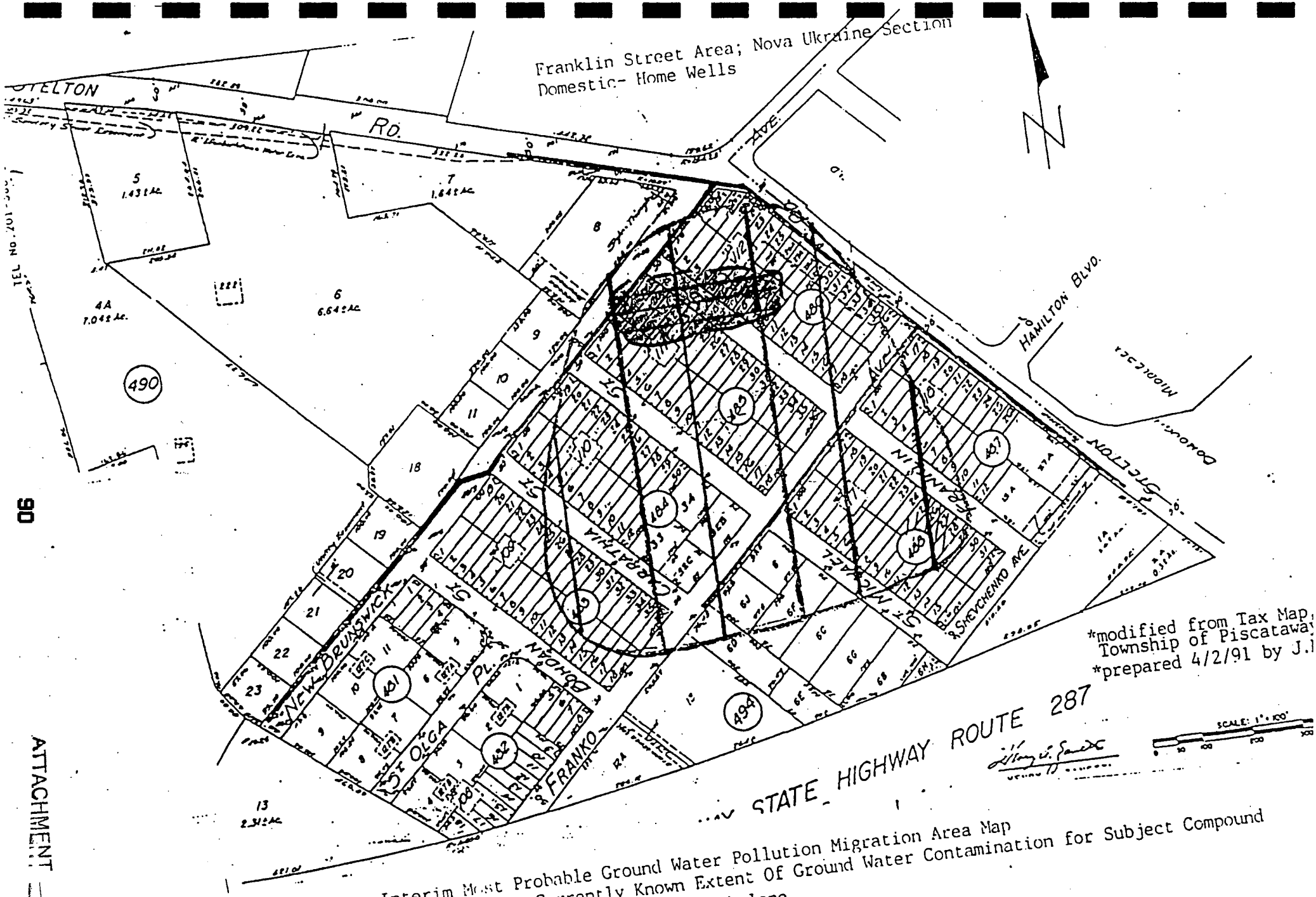
88



Interim Most Probable Ground Water Pollution Migration Area Map
Developed from Currently Known Extent Of Ground Water Contamination for Subject Compound
Subject Compound is 1,1-Dichloroethylene

FIGURE 12

ATTACHMENT

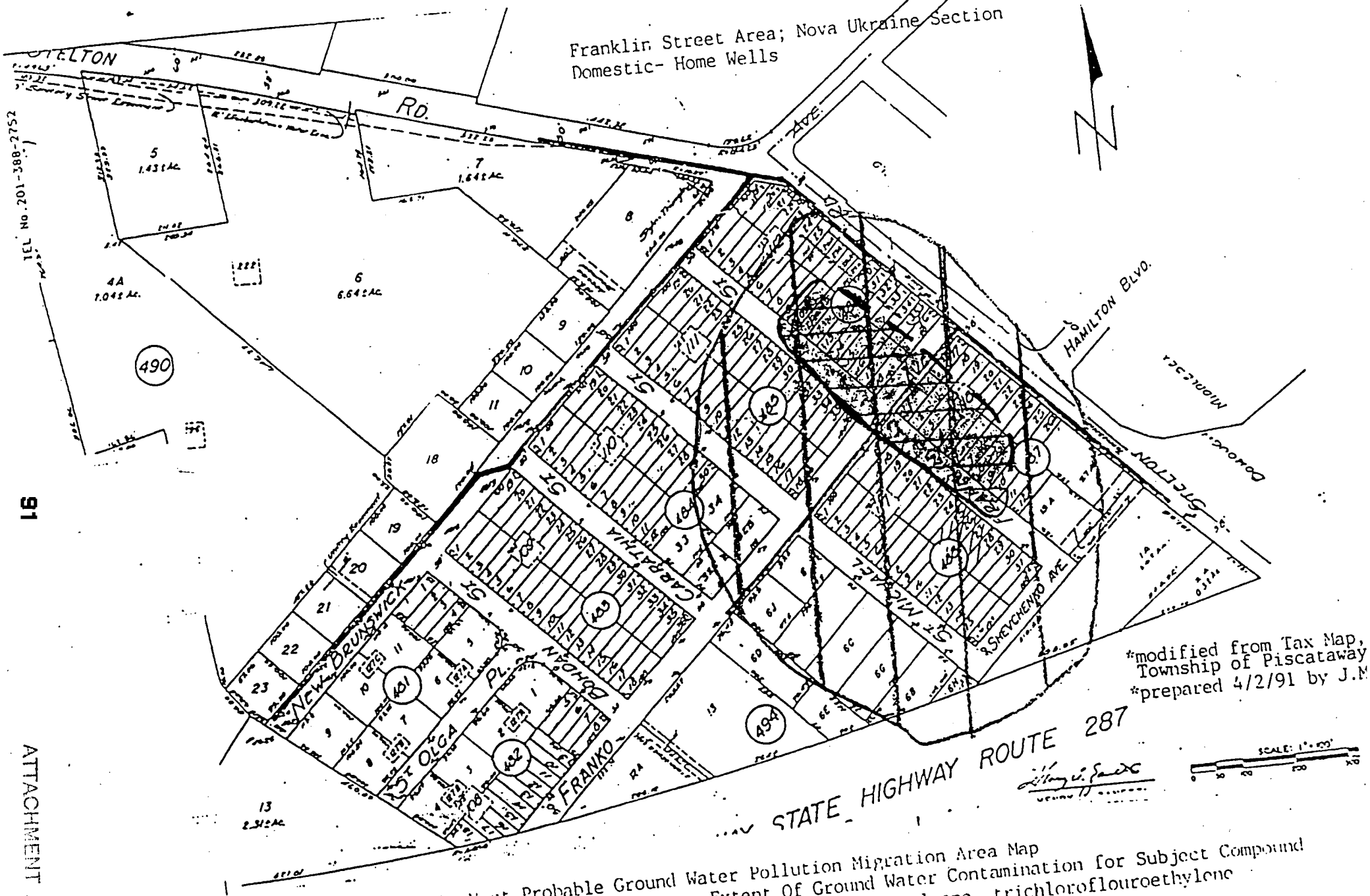


Interim Most Probable Ground Water Pollution Migration Area Map
Developed from Currently Known Extent Of Ground Water Contamination for Subject Compound
Subject Compound is 1,2-Dichloroethylene

FIGURE 13

90

ATTACHMENT

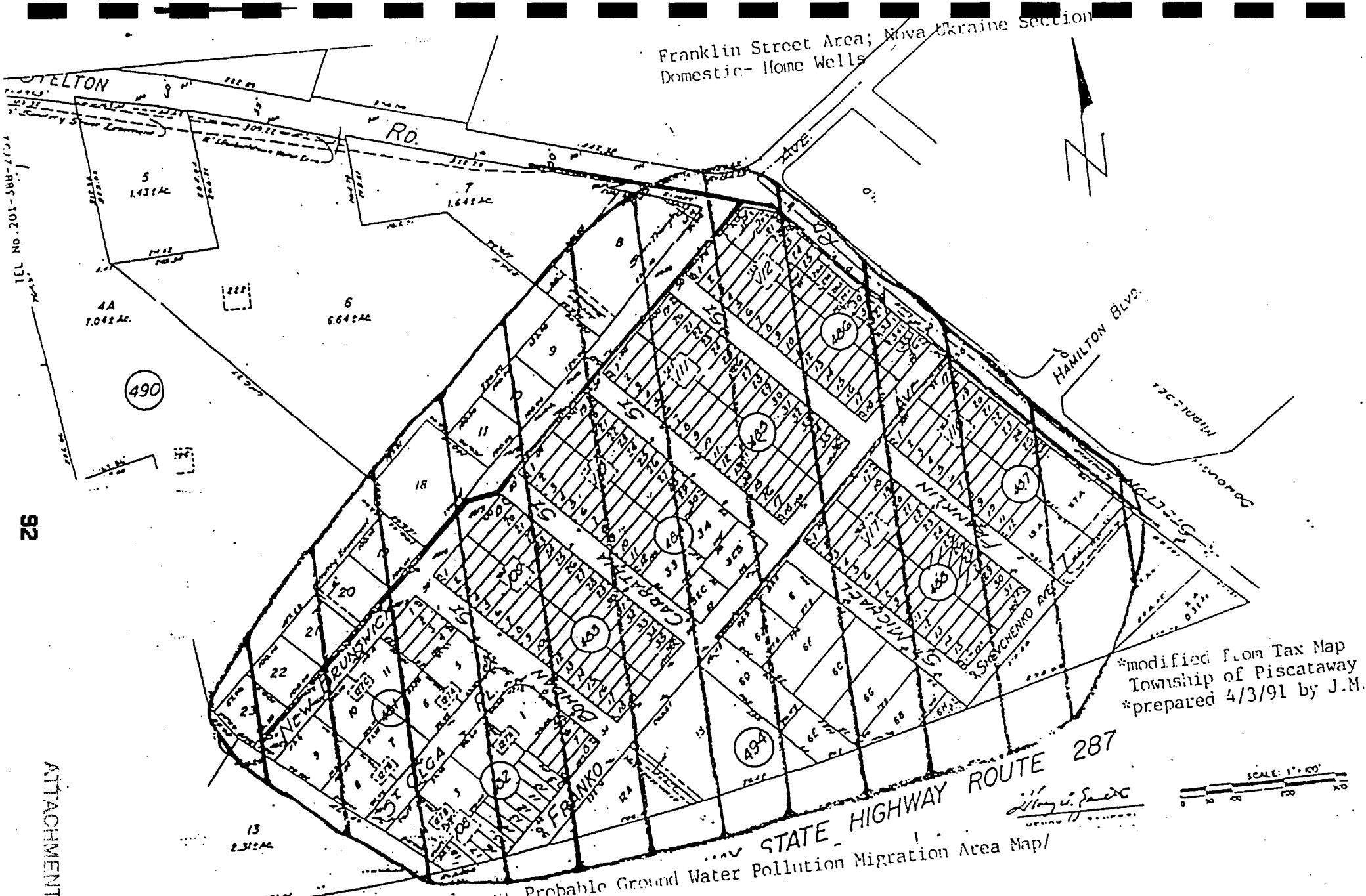


Interim Most Probable Ground Water Pollution Migration Area Map
Developed from Currently Known Extent Of Ground Water Contamination for Subject Compound
Subject Compound is Methyl-tertiary-butyl-ether, toluene, trichloroflouroethylene

FIGURE 14

ATTACHMENT

TEL No. 201-388-2752



Interim-Final Most Probable Ground Water Pollution Migration Area Map/
Interim Ground Water Impact Area

FIGURE 15

ATTACHMENT

ATTACHMENT II
Names, Locations, and Sampling Dates of Home Wells

The redacted information consists of names of private individuals. Disclosure of this information would constitute a clearly unwarranted invasion of personal privacy and thus is exempt from mandatory disclosure by virtue of Exemption 6 of the FOIA, 5 U.S.C. § 552(b)(6).

MIDDLESEX COUNTY HEALTH DEPARTMENT
SAMPLE RESULTS

HOUSE#	OWNER	BLOCK/LOT	SAMPLE DATE	RESULTS	SF ELIGIBLE	SF APP	
STREET: Bohdan Street							
1	Ex. 6 [redacted]	481/1	3/16/90	N/D			
6		483/5	3/12/90	N/D	NO	YES	
7		481/5	3/15/90	Methylene Chloride 0.6			
				cis-1,2-DCE 0.8			
				Chlorobenzene 3.4			
12	Ex. 6 [redacted]	483/10	8/4/89 ?	N/D (not done by MCHD) Done by Tang			
13		482/1	2/27/90	1,1-DCE 0.5			
15		482/5	3/15/90	1,1-DCE 1.9			
				1,1,1-TCA 1.4			
STREET: Carpathia Street							
6	Ex. 6 [redacted]	484/5	3/9/90	PCE 6.4	NO	YES	
7		483/23	1/8/90	PCE 4.6	YES	?	
			2/21/90	PCE 2.7			
10	Ex. 6 [redacted]	484/9	3/8/90	PCE 9.8	NO	YES	
13		483/28	3/12/90	N/D			
14		484/33	3/8/90	N/D			
18		484/32C	3/8/90	N/D			
STREET: Franklin Street							
5	Ex. 6 [redacted]	485/21	2/6/90	PCE 120	YES	YES	1/11/90 by Tang; trans 1,1-DCE 13; 1,1-DCA 1.2; 1,1-DCE 3.1; PCE 10; TCE 6.0; 1,1,1-TCA 1.9
				TCE 6.4			
				1,1-DCE 3.9			
				MTBE 1.8			
				1,1-DCA 2.9			
				cis-1,2-DCE 10.0			
9	Ex. 6 [redacted]	485/25	1/21/90	PCE 28.0	YES	YES	
			2/5/90	PCE 21.6			
10	Ex. 6 [redacted]	486/8	~~8/01/89~~ 8/25/89	PCE 560	YES	YES	also 6/8/89 sample; trans 1,2-DCE 7.2; 1,1,1-TCA 560; TCE 4.4; MTBE 38
			2/13/90	PCE 293			
				TCE 9.6			
				MTBE 28.5			
				cis-1,2-DCE 8.3			1/11/90 by Tang; trans 1,2-DCE 17; PCE 1400
				1,1,1-TCA 1.1			
12	Ex. 6 [redacted]	486/12	2/7/90	PCE 88.0	YES	YES	
				MTBE 58.0			
			4/9/90	PCE 128			
				TCE 1.6			
				MTBE 39.3			
				cis-1,2-DCE 1.8			
15	Ex. 6 [redacted]	485/31	2/6/90	PCE 86.0	YES	?	1/11/90 by Tang; PCE 41; 1,1,1-TCA 0.7
				TCE 0.5			
				MTBE 19.9			
				1,1-DCE 1.1			
				1,1,1-TCA 1.1			
27	Ex. 6 [redacted]	488/21	8/25/89 ?	N/D (not done by MCHD) Done by Tang			
37		488/29	3/5/90	Trichlorofluoromethane 40.0			
STREET: Franko Avenue							
12	Ex. 6 [redacted]	488/17	3/12/90	PCE 0.8	NO	YES	
				MTBE 18.2			
				Trichlorofluoromethane 9.0			
				Chlorobenzene 1.0			

The redacted information consists of names of private individuals. Disclosure of this information would constitute a clearly unwarranted invasion of personal privacy and thus is exempt from mandatory disclosure by virtue of Exemption 6 of the FOIA, 5 U.S.C. § 552(b)(6).

17	Ex. 6	485/14	1/10/90	N/D		
22		494/6	1/10/90	N/D	NO	YES
27		484/32B	3/8/90	N/D	NO	YES
28		494/6J	2/28/90	N/D	NO	YES
31		483/33	1/8/90	N/D	NO	YES
32		494/6D	1/10/90	N/D		
36		494/13	1/10/90	Chloromethane ~~8.7~~ 3.7	NO	YES
39		483/15	1/10/90	N/D	NO	YES
44		494/12A	3/15/90	N/D	NO	YES
STREET: New Brunswick Avenue						
4613	Ex. 6	483/19	1/10/90	PCE 1.4	YES	?
				TCE 0.6		
			2/5/90	PCE 1.1		
				TCE 0.8		
4615	Ex. 6	483/1	1/8/90	N/D		
4619		481/11	2/27/90	N/D	NO	YES
4621		481/10	3/15/90	N/D		
4623		481/9	2/28/90	N/D	NO	YES
4625		490/13	2/28/90	N/D	NO	YES
STREET: St. Michael Street						
5	Ex. 6	484/23	2/27/90	PCE 4.0	YES	YES
				TCE 0.5		
				1,1-DCE 0.7		
			4/26/90	PCE 5.5		
6	Ex. 6	485/5	1/8/90	PCE 4.0	YES	?
				1,1,1-TCA 0.7		
			2/5/90	PCE 2.2		
				1,1,1-TCA 0.6		
10	Ex. 6	485/9	1/8/90	~~N/D~~ 0.8 PCE		YES
11		464/27	2/6/90	PCE 16.2	YES	YES
				MTBE 1.7		
			3/7/90	PCE 20.7		
				MTBE 2.1		
				cis-1,2-DCE 0.5		
23	Ex. 6	494/6F	1/25/90	Trichlorofluoromethane 3.6	NO	YES
28		488/5	1/8/90	TCE 0.5		
31		494/6C	2/27/90	N/D		
37		494/6B	1/10/90	Toluene 32.4		
			2/5/90	N/D		
38	Ex. 6	488/11	1/8/90	TCE 3.5	NO	?
				Trichlorofluoromethane 6.1		
			2/6/90	PCE 0.7		
				Trichlorofluoromethane 6.8		
STREET: St. Olga Place						
47	Ex. 6	481/6	3/21/90	N/D	NO	YES
48		482/2	3/13/90	N/D	NO	YES
53		481/7	3/5/90	N/D		
54		482/3	3/13/90	N/D	NO	YES
60		482/4	3/13/90	N/D	NO	YES
street: Hanover St.						
1254	Ex. 6		8/25/89	chloroform 0.41		

ATTACHMENT J

United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
New Jersey Agricultural
Experiment Station,
Cook College,
Rutgers,
the State University,
and the
New Jersey Department of
Agriculture

Soil Survey of Middlesex County New Jersey

96

from 25 to 70 feet. The areas are irregular in shape and range from 5 to 60 acres.

Typically, the surface layer is dark reddish brown shaly loam about 6 inches thick. The subsoil is dark reddish brown shaly silt loam 6 inches thick. Dark reddish brown shale bedrock at a depth of 12 inches.

Included with this soil in mapping are small areas of soils with slopes greater than 25 percent, some of which are almost vertical bluffs; soils with no surface layer; and areas of exposed bedrock. These inclusions are throughout the unit and make up as much as 45 percent of the unit. They generally are managed the same as this Klinesville soil. Also included are small areas of Nixon and Nixon Variant soils. They make up as much as 20 percent of the unit.

The permeability of this Klinesville soil is moderately rapid. Available water capacity is low. This soil is subject to frost heaving. Organic matter content is moderate. Runoff is rapid, and the hazard of erosion is severe. The rooting depth is restricted by bedrock. In unlimed areas the surface layer is extremely acid and the subsoil is very strongly acid.

The erosion hazard, the available water capacity, and the slope make this soil poorly suited to cultivated crops. The soil is better suited to pasture, hay, trees, and wildlife habitat. Rooting of most types of plants is restricted by the shallow depth to bedrock.

This soil is fairly well suited to trees, and potential productivity is moderate. The rate of seedling mortality is high, and the use of timber harvesting equipment is limited.

The depth to bedrock, the slope, the available water capacity, and the content of rock fragments limit the soil for most urban uses. The bedrock and slope limit the soil as a site for septic tank absorption fields, dwellings with basements, and lawns and landscaping. The rock fragments, slope, and depth to bedrock are major limitations for most recreation uses.

Capability subclass: VIe.

KWB—Klinesville-Urban land complex, 0 to 5 percent slopes. This unit consists of nearly level to gently sloping, well drained Klinesville soils and areas that are used for urban development. The unit is on ridges and side slopes principally in Edison, New Brunswick, South Brunswick, North Brunswick, and Piscataway Townships. Slopes are smooth. The areas are irregular in shape and range from 20 to 400 acres. The soils and urbanized areas are in such an intricate pattern that it was not practical to map them separately.

About 40 percent of this unit is Klinesville soils. Typically, they have a surface layer of dark reddish brown shaly loam about 8 inches thick. The subsoil is dark reddish brown shaly silt loam 4 inches thick. Dark reddish brown shale bedrock is at a depth of 12 inches.

About 40 percent of this unit is areas covered mainly by concrete, asphalt, buildings, or other impervious surfaces.

Included with this unit in mapping are small areas of soils with a surface layer of silt loam or sandy loam; Penn soils; areas of soils that have been covered by more than 20 inches of fill material, commonly from adjacent areas of Downer soils that have been cut or graded; and areas where most or all of the surface layer has been removed. Together, they make up as much as 15 percent of the unit and generally are managed the same as this Klinesville soil. Also included are small areas of Reaville silt loam that make up as much as 5 percent of the unit. They are not so well drained as this Klinesville soil. The Reaville soil is commonly in drainageways. The other soils are throughout the unit.

The permeability in this unit is moderately rapid. Runoff is slow, and the hazard of erosion is slight. Available water capacity is low in the undisturbed areas, and it is low to very low in areas dominated by cuts, fills, and structures. Most unlimed areas are very strongly acid.

The undisturbed areas of soils in this unit are mainly in yards and around and between structures. Those areas range from 500 to 7,000 square feet. The soils and fill in those areas are generally suitable for lawns, shade trees, ornamental trees, shrubs and vines, and vegetable gardens. The areas that have been disturbed generally are sandy and droughty and have poor suitability for plants, trees, and grasses.

Capability subclass: VIIs.

LaA—Lakehurst sand, 0 to 3 percent slopes. This soil is nearly level and moderately well drained or somewhat poorly drained. It is on divides and terraces principally in Monroe, East Brunswick, and Old Bridge Townships. The areas are irregular in shape and range from 5 to 100 acres.

Typically, the surface layer is black sand about 3 inches thick. The subsurface layer is light brownish gray sand 18 inches thick. The upper part of the subsoil is mottled, yellowish red sand 3 inches thick. The lower part of the subsoil is mottled, yellow sand 16 inches thick. The substratum is mottled, light gray sand to a depth of 60 inches or more.

Included with this soil in mapping are small areas of Lakewood and Klej soils, soils with a surface layer more than 24 inches thick, and Lakehurst soils with slopes of more than 3 percent. Together, they make up as much as 20 percent of the unit, and they generally are managed the same as this Lakehurst soil. Also included are small areas of soils that have clay beds at a depth of 40 to 60 inches. They are throughout the unit, principally on side slopes, and they make up as much as 20 percent of the unit.

The permeability of this Lakehurst soil is rapid, and available water capacity is low. The seasonal high water

ATTACHMENT K

Summary Report
NJDEP Sampling Episode – Kleiner Metals
Contract Number X-37613

March 2009 - Groundwater Sampling
Kleiner Metals
South Plainfield Borough
Middlesex County, New Jersey

Sampling Date: March 24, 2009
Report Date: April 3, 2009

Submitted by
Josh Hilbert
GHR Consulting Services, Inc.
224 B South Maple Street
Ambler, PA 19002

S:\2009\NJDEP\Kleiner Metals\SAMPLING REPORT.doc

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1. **Executive Summary** 1
2. **Site Description** 1
3. **Description of Sampling and QA/QC Methods Used** 1

Attachments

Appendix A: Scope of Work

Appendix B: Summary of Field Data

1. Executive Summary

On March 24, 2009, GHR Consulting Services, Inc. (GHR) collected groundwater samples under the supervision of the New Jersey Department of Environmental Protection (NJDEP) at the site known as Kleiner Metals, Borough of South Plainfield, New Jersey. Groundwater samples were collected from a total of six (6) monitoring wells located at the site and on surrounding properties. Mr. Steve Hoke, Senior Geologist NJDEP, coordinated the project prior to the on-site work, and provided technical guidance during the actual fieldwork. The GHR sampling personnel included Mr. Josh Hilbert, President, Bill Shick, Environmental Scientist, and David Gustaitis, Environmental Technician.

The scope of work by the NJDEP for this project is presented in Appendix A. The calibration log and the well purge/sampling sheets are included in Appendix B.

The six monitoring wells are 6" in diameter with metal casings. The monitoring wells were purged using the three to five volume purge method. GHR was unable to obtain the minimum purge volumes in two of the wells due to poor recharge rates. Samples were obtained via disposable bailers.

Groundwater samples were collected from monitoring wells designated MW-1, MW-2D, MW-2S, MW-3, MW-4 and MW-5. Quality assurance samples taken included a field blank, a duplicate, a matrix spike (MS) and a matrix spike duplicate (MSD) sample.

2. Site Description

Kleiner Metal Specialties is located in a commercial and industrial area at 4315 New Brunswick Ave. near the town of South Plainfield, in the Borough of South Plainfield, Middlesex County, New Jersey. In early 2009, the NJDEP installed four monitoring wells onsite, and two monitoring wells on an adjacent property.

3. Description of Sampling and QA/QC Methods Used

All sampling activities performed by GHR personnel were conducted in accordance with procedures specified in the NJDEP Field Sampling Procedures Manual or as directed by the NJDEP representative.

After each monitoring well was accessed, the depth to groundwater was gauged and recorded. Purge volumes were then calculated based on the static water column. A three to five volume purge was attempted using a Grundfos Redi-Flo2 submersible pump or a Fultz submersible pump. Check valves were placed at the submersible pumps to prevent back flushing into the monitoring well. After the purging of each monitoring well was completed, GHR personnel obtained a groundwater sample using disposable Teflon bailers with Teflon leaders. GHR personnel then recorded the pH, temperature, specific conductivity, turbidity, oxidation reduction potential (ORP) and dissolved oxygen of the groundwater. Purge water for each monitoring well was filtered through a carbon

vessel provided by Handex Consulting and Remediation before discharging to the ground. A summary of the field data is presented as Appendix B.

Several monitoring wells were characterized by poor recharge rates. These wells were purged of at least one volume, allowed to recharge and then sampled at the direction of Steve Hoke.

QA/QC samples included the following:

FB-1 at MW-1
MS/MSD at MW-2D
DUP at MW-1 (labeled MW-6)

GHR personnel established a purge system decontamination area near each of the sampling locations. The purge tubing from each monitoring well was discarded. GHR personnel wore disposable latex gloves during all sampling activities, and removed all disposables from the site as non-hazardous waste.

APPENDIX A
SCOPE OF WORK

State of New Jersey

JON S. CORZINE
Governor

Department of Environmental Protection
Site Remediation Program
Bureau of Environmental Measurements and Site Assessment
PO Box 407
Trenton, New Jersey 08625-0407
(609) 584-4280

MARK N. MAURIELLO
Acting Commissioner

GHR Consulting Services, Inc.
224 S. Maple Street
Ambler, PA 19002
Attn: Mr. Josh Hilbert

Dear Josh:

The NJDEP, Bureau of Environmental Measurements and Site Assessment (BEMSA) is requesting to engage GHR under the X37613 Field Sampling Services Term Contract. The project, Kleiner Metals, is located in South Plainfield, Middlesex County, New Jersey, and will take place on March 24, 2009. It will consist of collecting 6 monitoring well samples via the traditional 3 to 5 volume purge method. NJDEP will coordinate with Handex to provide a carbon system to treat the purge water. The depths of the monitoring wells are as follows:

1 well - 125'
2 wells - 65'
3 wells - 55'

The line items of the contract and the associated cost breakdown are included in the attached matrix.

Please submit a letter of acceptance to me at your earliest convenience.

If you have any questions, call me at (609) 584-4289.

Sincerely,

Steve Hoke, Senior Geologist
Bureau of Environmental Measurements and Site Assessment

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APPENDIX B
FIELD DATA

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-1**

Sampled By: J.H, B.S, D.G Date: 3/24/2009 Weather: Part Sun Mid 40's-50's

Sample Equipment: Teflon Bailer Evacuation Equipment: Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 55 ft.
Depth to water table (DTW):
(below top of inner casing) 16.65 ft.
Length of water column (LW 38.35 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 56.3 gallons x 3 = 169.0 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	13:20						
End Time	14:45						
Gallons Purged	60						
Spec. Conduc. ((µs/cm))		494					
pH		8.29					
Temp (°C)		13.79					
Turbidity (NTU)		79					
Dissolved Oxygen (mg/L)		6.46					
ORP (mV)		35.7					
Depth to Water		51.70					

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 51.70 ft. (below top of inner casing)
Amount of water removed: 60 gallons
Depth to water before sampling: 51.70 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 15:25 - 15:30

NOTES: **FB - 14:35 - 14:40**
DUP - "MW-6"
At 2 gpm, dry at 13:45. purged 10 more gallons at 14:45
Less than three volumes, sampled with Steve Hoke's permission at 15:25

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-2**

Sampled By: J.H, B.S, D.G Date: 3/24/2009 Weather: Part Sun Mid 40's-50's

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos <or> Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 55 ft.
Depth to water table (DTW):
(below top of inner casing) 21.47 ft.
Length of water column (LW 33.53 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 49.2 gallons x 3 = 147.7 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	9:30						
End Time	12:45						
Gallons Purged	150						
Spec. Conduc. ((µs/cm))				685			
pH				7.20			
Temp (°C)				14.95			
Turbidity (NTU)				10.21			
Dissolved Oxygen (mg/L)				4.12			
ORP (mV)				5.3			
Depth to Water				48.17			

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 48.17 ft. (below top of inner casing)
Amount of water removed: 150 gallons
Depth to water before sampling: 48.17 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 13:00 - 13:05

NOTES: **Pump ran dry at 10:45, resumed at 12:28**

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-2D**

Sampled By: J.H, B.S, D.G Date: 3/24/2009 Weather: Part Sun Mid 40's-50's

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos <or> Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 125 ft.
Depth to water table (DTW):
(below top of inner casing) 24.63 ft.
Length of water column (LW 100.37 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 147.4 gallons x 3 = 442.3 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	11:00						
End Time	12:40						
Gallons Purged	250						
Spec. Conduc. ((µs/cm))				1045			
pH				6.96			
Temp (°C)				14.41			
Turbidity (NTU)				15.1			
Dissolved Oxygen (mg/L)				1.51			
ORP (mV)				-10.4			
Depth to Water				43.10			

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 43.10 ft. (below top of inner casing)
Amount of water removed: 450 gallons
Depth to water before sampling: 43.10 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 12:50 - 12:55

NOTES: **MS/MSD**

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-3**

Sampled By: J.H, B.S, D.G Date: 3/24/2009 Weather: Part Sun Mid 40's-50's

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos <or> Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 65.4 ft.
Depth to water table (DTW):
(below top of inner casing) 29.42 ft.
Length of water column (LW 35.98 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 52.8 gallons x 3 = 158.5 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	8:50						
End Time	10:65						
Gallons Purged	90						
Spec. Conduc. ((µs/cm))		557					
pH		833.00					
Temp (°C)		15.03					
Turbidity (NTU)		35.30					
Dissolved Oxygen (mg/L)		7.62					
ORP (mV)		18.40					
Depth to Water		61.00					

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 61.00 ft. (below top of inner casing)
Amount of water removed: 90 gallons
Depth to water before sampling: 61.00 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 13:30 - 13:35

NOTES: **Stopped purge at 90 gallons as per Steve Hoke.**
Drawdown at 0.25 gpm
Near zero recharge

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-4**

Sampled By: J.H, B.S, D.G Date: 3/24/2009 Weather: Part Sun Mid 40's-50's

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos <or> Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 55 ft.
Depth to water table (DTW):
(below top of inner casing) 32.69 ft.
Length of water column (LW 22.31 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 32.8 gallons x 3 = 98.3 gallons

B. WELL EVACUATION DATA

	Initial	Well Volumes 1	2	3	4	5	Sample
Start Time	13:50						
End Time	14:45						
Gallons Purged	110						
Spec. Conduc. ((µs/cm))				1115			
pH				8.58			
Temp (°C)				15.71			
Turbidity (NTU)				5.22			
Dissolved Oxygen (mg/L)				7.02			
ORP (mV)				39.6			
Depth to Water				44.63			

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 44.63 ft. (below top of inner casing)
Amount of water removed: 110 gallons
Depth to water before sampling: 35.88 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 15:05 - 15:10

NOTES:

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-5**

Sampled By: J.H, B.S, D.G Date: 3/24/2009 Weather: Part Sun Mid 40's-50's

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos <or> Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 65 ft.
Depth to water table (DTW):
(below top of inner casing) 31.85 ft.
Length of water column (LW 33.15 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 48.7 gallons x 3 = 146.1 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	14:00						
End Time	14:56						
Gallons Purged	150						
Spec. Conduc. ((µs/cm))				1259			
pH				7.93			
Temp (°C)				15.67			
Turbidity (NTU)				7.18			
Dissolved Oxygen (mg/L)				1.88			
ORP (mV)				41.7			
Depth to Water				43.50			

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 43.50 ft. (below top of inner casing)
Amount of water removed: 150 gallons
Depth to water before sampling: 37.05 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 15:10 - 15:15

NOTES:

YSI 600XL Calibration Sheet
GHR Consulting Services, Inc.

SITE:	Kleiner Metals
DATE:	3/24/2009
FIELD PERSONNEL:	Bill Shick
START:	8:00
STOP:	8:30

MONITORING EQUIPMENT ID.

MULTI-PARAMETER SONDE	3
HANDHELD UNIT	1
TURBIDITY	1

DISSOLVED OXYGEN

Temperature	
Barometric Pressure	776.00
Saturation Table	102.1
Initial Reading	81.3
DO Charge	46.10
Meter reset to	101.90
Saturation %	

TURBIDITY

Standard	Reading
1.0	0.5
10.0	10.7

ORP

Standard	235
Initial Reading	226.4
Meter reset to	235.0

SPECIFIC CONDUCTIVITY

		Initial Reading	Reset to	Temperature	Lot	Exp. Date	
Standard	10,000	10150	10010	20.26	6017	10/30/2009	
Standard	1,000	1070	NA	20.31	6431	07/14/2009	
Standard							
Standard							

pH CALIBRATION

Buffer	Temp.	Reads	mV	Reset To	Lot	Exp. Date
4	17.71	4.88	106.5	3.97	6508	08/25/2009
7	17.17	6.11	-6.1	6.94	6506	08/23/2009
10	17.60	10.31	-167.9	10.01	6506	08/23/2009

William B. Ulc

Signature of Calibration Technician:

S:\2009\NJDEP\Kleiner Metals\Well Sheets.xls, Cal. sheet

Summary Report
NJDEP Sampling Episode – Kleiner Metals
Contract Number X-37613

September 2009 - Groundwater Sampling
Kleiner Metals
South Plainfield Borough
Middlesex County, New Jersey

Sampling Date: September 9, 2009
Report Date: September 16, 2009

Submitted by
Josh Hilbert
GHR Consulting Services, Inc.
224 B South Maple Street
Ambler, PA 19002

S:\2009\NJDEP\Kleiner Metals\September\SAMPLING REPORT.doc

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2. **Site Description** 1
3. **Description of Sampling and QA/QC Methods Used** 1

Attachments

Appendix A: Scope of Work

Appendix B: Summary of Field Data

1. Executive Summary

On September 9, 2009, GHR Consulting Services, Inc. (GHR) collected groundwater samples under the supervision of the New Jersey Department of Environmental Protection (NJDEP) at the site known as Kleiner Metals, Borough of South Plainfield, New Jersey. Groundwater samples were collected from a total of three (3) monitoring wells located at the site and on surrounding properties. Mr. Steve Hoke, Senior Geologist NJDEP, coordinated the project prior to the on-site work, and provided technical guidance during the actual fieldwork. The GHR sampling personnel included Mr. Josh Hilbert, President, Bill Shick, Environmental Scientist, and David Gustaitis, Environmental Technician.

The scope of work by the NJDEP for this project is presented in Appendix A. The calibration log and the well purge/sampling sheets are included in Appendix B.

Of the three monitoring wells two (MW-6, MW-7) are 6" in diameter with metal casings, and one (MW-6S) is 4" with a metal casing. The monitoring wells were purged using the three to five volume purge method. GHR was unable to obtain the minimum purge volumes in all three wells due to poor recharge rates. Samples were obtained via disposable bailers at the direction of Mr. Hoke.

Groundwater samples were collected from monitoring wells designated MW-6, MW-6S, and MW-7. Quality assurance samples taken included both a field blank and duplicate sample.

Depth to water measurements were recorded for other wells associated with the site. GHR gauged MW-1, MW-2, MW-3, MW-4, and MW-5.

2. Site Description

Kleiner Metal Specialties is located in a commercial and industrial area at 4315 New Brunswick Ave. near the town of South Plainfield, in the Borough of South Plainfield, Middlesex County, New Jersey. In early 2009, the NJDEP installed four monitoring wells onsite, and two monitoring wells on an adjacent property. In August 2009, the NJDEP installed three more wells on adjacent properties.

3. Description of Sampling and QA/QC Methods Used

All sampling activities performed by GHR personnel were conducted in accordance with procedures specified in the NJDEP Field Sampling Procedures Manual or as directed by the NJDEP representative.

After each monitoring well was accessed, the depth to groundwater was gauged and recorded. Purge volumes were then calculated based on the static water column. A three to five volume purge was attempted using a Grundfos Redi-Flo2 submersible pump or a Fultz submersible pump. Check valves were placed at the submersible pumps to prevent back flushing into the monitoring well. After the purging of each monitoring well was completed, GHR personnel obtained a groundwater sample using disposable Teflon bailers with Teflon leaders. Using a YSI 600XL multi-parameter sonde (calibration sheet attached in

sonde (calibration sheet attached in Appendix B), GHR personnel then recorded the pH, temperature, specific conductivity, turbidity, oxidation reduction potential (ORP) and dissolved oxygen of the groundwater. Purge water for each monitoring well was filtered through a carbon vessel provided by Handex Consulting and Remediation before discharging to the ground. A summary of the field data is presented as Appendix B.

All three monitoring wells were characterized by poor recharge rates. These wells were purged of at least one volume, allowed to recharge and then sampled at the direction of Steve Hoke.

QA/QC samples included the following:

FB-1 (Bailer) at MW-7
Duplicate at MW-6S (labeled MW-8)

GHR personnel established a purge system decontamination area near each of the sampling locations. The purge tubing from each monitoring well was discarded. GHR personnel wore disposable latex gloves during all sampling activities, and removed all disposables from the site as non-hazardous waste.

Additional on and off-site wells were accessed by Mr. Hoke, and gauged at his direction. The measurements are summarized in the following table:

Well I.D	Depth to water (Ft.)
MW-1	16.64
MW-2	22.00
MW-3	30.10
MW-4	32.75
MW-5	33.87

APPENDIX A
SCOPE OF WORK

State of New Jersey

JON S. CORZINE
Governor

Department of Environmental Protection
Site Remediation Program
Bureau of Environmental Measurements and Site Assessment
PO Box 407
Trenton, New Jersey 08625-0407
(609) 584-4280

MARK N. MAURIELLO
Acting Commissioner

GHR Consulting Services, Inc.
224 S. Maple Street
Ambler, PA 19002
Attn: Mr. Josh Hilbert

Dear Josh:

The NJDEP, Bureau of Environmental Measurements and Site Assessment (BEMSA) is requesting to engage GHR under the X37613 Field Sampling Services Term Contract. The project, Kleiner Metals, is located in South Plainfield, Middlesex County, New Jersey, and will take place on September 10, 2009. It will consist of collecting 3 monitoring well samples via the traditional 3 to 5 volume purge method. NJDEP will coordinate with Handex to provide a carbon system to treat the purge water. The depths of the monitoring wells are as follows:

1 well - 20'
2 wells - 55'

The line items of the contract and the associated cost breakdown are included in the attached matrix.

Please submit a letter of acceptance to me at your earliest convenience.

If you have any questions, call me at (609) 584-4288.

Sincerely,

Frank Dorce for SH

Steve Hoke, Senior Geologist
Bureau of Environmental Measurements and Site Assessment

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APPENDIX B
FIELD DATA

YSI 600XL Calibration Sheet
GHR Consulting Services, Inc.

SITE:	Kleiner Metals
DATE:	6/9/2009
FIELD PERSONNEL:	Bill Shick
START:	8:15
STOP:	8:30

MONITORING EQUIPMENT ID.	
MULTI-PARAMETER SONDE	3
HANDHELD UNIT	1
TURBIDITY	1

DISSOLVED OXYGEN	
Temperature	21.51
Barometric Pressure	771.20
Saturation Table	8.8
Initial Reading	10.12
DO Charge	57.40
Meter reset to	8.96
Saturation %	101.5

TURBIDITY	
Standard	Reading
1.0	0.85
10.0	10

ORP	
Standard	235
Initial Reading	236.5
Meter reset to	235.0

SPECIFIC CONDUCTIVITY

		Initial Reading	Reset to	Temperature	Lot	Exp. Date	
Standard	10,000	9860	10002	21.84	6017	10/30/2009	
Standard	1,000	1018	NA	21.65	6661	10/30/2009	
Standard							
Standard							

pH CALIBRATION

Buffer	Temp.	Reads	mV	Reset To	Lot	Exp. Date
4	21.79	4.05	143.8	4.00	6716	11/25/2009
7	21.64	7.07	-12.8	7.00	6730	12/05/2009
10	21.73	10.06	-171.6	10.00	6704	10/30/2009

Signature of Calibration Technician:

S:\2009\NJDEP\Kleiner Metals\September\Well Sheets.xls, Cal. sheet

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-6**

Sampled By: J.H, B.S, D.G Date: 6/9/2009 Weather: Cloudy, slight drizzle

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 65 ft.
Depth to water table (DTW):
(below top of inner casing) 29.84 ft.
Length of water column (LW 35.16 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 51.6 gallons x 3 = 154.9 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	10:25						
End Time	12:05						
Gallons Purged	110						
Spec. Conduc. ((µs/cm))			966				
pH			8.41				
Temp (°C)			16.46				
Turbidity (NTU)			130				
Dissolved Oxygen (mg/L)			2.45				
ORP (mV)			132.0				
Depth to Water			63.80				

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 63.80 ft. (below top of inner casing)
Amount of water removed: 110 gallons
Depth to water before sampling: 49.18 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 13:10 - 13:15

NOTES:

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-6S**

Sampled By: J.H, B.S, D.G Date: 6/9/2009 Weather: Cloudy, slight drizzle

Sample Equipment: Teflon Bailer Evacuation Equipment: Fultz Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 19 ft.
Depth to water table (DTW):
(below top of inner casing) 5.75 ft.
Length of water column (LW 13.25 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

4" diameter wells = 0.6528 x (LWC) = 8.6 gallons x 3 = 25.9 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	10:15						
End Time	12:00						
Gallons Purged	14						
Spec. Conduc. ((µs/cm))			767				
pH			7.68				
Temp (°C)			19.51				
Turbidity (NTU)			34				
Dissolved Oxygen (mg/L)			7.58				
ORP (mV)			149.4				
Depth to Water			18.1				

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: 18.10 ft. (below top of inner casing)
Amount of water removed: 14 gallons
Depth to water before sampling: 14.20 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 13:05 - 13:10

NOTES: **DUP (MW-8) - 13:00 - 13:05**

GHR Consulting Services, Inc.
NJDEP 3-5 Volume Well Purge Sheet

SAMPLE LOCATIONS: **Kleiner Metals** WELL NUMBER: **MW-7**

Sampled By: J.H, B.S, D.G Date: 6/9/2009 Weather: Cloudy, slight drizzle

Sample Equipment: Teflon Bailer Evacuation Equipment: Grundfos Equipment #

A. WATER TABLE

Well Depth:
(below top of inner casing) 65 ft.
Depth to water table (DTW):
(below top of inner casing) 24.77 ft.
Length of water column (LW 40.23 ft.

Well Elevation:
(Rel. Mean Sea Level) ft.
Water table elevation
(Rel. Mean Sea Level) ft.

6" diameter wells = 1.4688 x (LWC) = 59.1 gallons x 3 = 177.3 gallons

B. WELL EVACUATION DATA

		Well Volumes					
	Initial	1	2	3	4	5	Sample
Start Time	8:15						
End Time	9:30						
Gallons Purged	100						
Spec. Conduc. ((µs/cm))			1082				
pH			6.89				
Temp (°C)			15.92				
Turbidity (NTU)			220				
Dissolved Oxygen (mg/L)			1.00				
ORP (mV)			-22.4				
Depth to Water			34.5				

Probe type:
Appearance at start:
Appearance at end:

Other Observations:

Depth to water after purging: ft. (below top of inner casing)
Amount of water removed: 100 gallons
Depth to water before sampling: 34.50 ft. (below top of inner casing)

Parameters Sampled For: Sample Time: 11:20 - 11:25

NOTES: **F.B (Bailer) - 11:05 - 11:10**

ATTACHMENT L

Case Narrative:
Kleiner Specialty Metals #09030055

The National Environmental Laboratory Accreditation Conference (NELAC) is a voluntary environmental laboratory accreditation association of State and Federal agencies. NELAC established and promoted a national accreditation program that provides a uniform set of standards for the generation of environmental data that are of known and defensible quality. The EPA Region 2 Laboratory is NELAC accredited. The Laboratory tests that are accredited have met all the requirements established under the NELAC Standards.

Comment(s):

No comment.

Data Qualifier(s):

U- The analyte was not detected at or above the Reporting Limit.
J- The identification of the analyte is acceptable; the reported value is an estimate.
K- The identification of the analyte is acceptable; the reported value may be biased high.
L- The identification of the analyte is acceptable; the reported value may be biased low.
NJ-There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification. The reported value is an estimate.

Reporting Limit(s):

The Laboratory was able to achieve the Contract Required Quantitation Limits (CRQLs), where applicable, for each analyte requested.

Method:

All methods that are NELAC accredited in the Laboratory are noted with "NELAC" at the end of the method reference.

- Volatiles Analysis, EPA Method 624 (SOP C-89; Purge & Trap GC/MS Method) (NELAC)

Approval: Gregory A. Santa Date: 5-14-2009

U.S. Environmental Protection Agency
Region 2 Laboratory
2890 Woodbridge Avenue
Edison, NJ 08837

Data Report: KLEINER METALS

Project Number: 09030055

Program: Y206E

Project Leader: STEVEN HOKE

Remark Codes	Explanation
U	THE ANALYTE WAS NOT DETECTED AT OR ABOVE THE REPORTING LIMIT.
J	THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE IS AN ESTIMATE.
UJ	THE ANALYTE WAS NOT DETECTED AT OR ABOVE THE REPORTING LIMIT. THE REPORTING LIMIT IS AN ESTIMATE.
N	THERE IS PRESUMPTIVE EVIDENCE THAT THE ANALYTE IS PRESENT; THE ANALYTE IS REPORTED AS A TENTATIVE IDENTIFICATION.
NJ	THERE IS PRESUMPTIVE EVIDENCE THAT THE ANALYTE IS PRESENT; THE ANALYTE IS REPORTED AS A TENTATIVE IDENTIFICATION. THE REPORTED VALUE IS AN ESTIMATE.
R	THE PRESENCE OR ABSENCE OF THE ANALYTE CANNOT BE DETERMINED FROM THE DATA DUE TO SEVERE QUALITY CONTROL PROBLEMS. THE DATA ARE REJECTED AND CONSIDERED UNUSABLE.
K	THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE MAY BE BIASED HIGH. THE ACTUAL VALUE IS EXPECTED TO BE LESS THAN THE REPORTED VALUE.
L	THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE MAY BE BIASED LOW. THE ACTUAL VALUE IS EXPECTED TO BE GREATER THAN THE REPORTED VALUE.
NV	NOT VALIDATED
INC	RESULT NOT ENTERED

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01444 Field/Station ID: MW-1 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	27		ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	7.0		ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	1,600		ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	620		ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	6.5		ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	4,800		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	6.5		ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01444 Field/Station ID: MW-1 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	18		ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL01445 Field/Station ID: MW-2 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	110		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01445 Field/Station ID: MW-2 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01446 Field/Station ID: MW-2D Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	22	K	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL-TERT-BUTYL ETHER	430		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	11		ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	7.2		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L

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Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01446 Field/Station ID: MW-2D Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L
	1-PROPENE, 2-METHYL ; RT=1.89	17	NJ	ug/L
	2-PROPANOL, 2-METHYL ; RT=3.55	250	NJ	ug/L

AL01447 Field/Station ID: MW-3 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

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Survey Name: KLEINER METALS

Project Number: 09030055

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AL01447 Field/Station ID: MW-3 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	140		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L

fer to Page 1 for an explanation of Remark Codes

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Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01447 Field/Station ID: MW-3 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L
	1-PROPENE, 2-METHYL ; RT=1.89	6.8	NJ	ug/L
	2-PROPANOL, 2-METHYL ; RT=3.56	44	NJ	ug/L

AL01448 Field/Station ID: MW-4 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

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Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01448 Field/Station ID: MW-4 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL01449 Field/Station ID: MW-5 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01449 Field/Station ID: MW-5 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	12	K	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	11		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	5.4		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

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Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01449 Field/Station ID: MW-5 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL01450 Field/Station ID: MW-6 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description: FIELD DUPLICATE

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	26		ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	5.9		ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L

er to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01450 Field/Station ID: MW-6 Date Received: 3/25/2009
Matrix: Aqueous

Sample Description: FIELD DUPLICATE

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	1,700		ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	590		ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	6.0		ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	5,200		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	6.1		ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	17		ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01451 Field/Station ID: FB Date Received: 3/25/2009
Matrix: Aqueous

Sample Description: RINSATE

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L

fer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01451 Field/Station ID: FB Date Received: 3/25/2009
Matrix: Aqueous

Sample Description: RINSATE

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL01452 Field/Station ID: TB Date Received: 3/25/2009
Matrix: Aqueous

Sample Description: TRIP BLANK

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09030055

*Sorted By Sample ID

AL01452 Field/Station ID: TB
Matrix: Aqueous

Date Received: 3/25/2009

Sample Description: TRIP BLANK

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

fer to Page 1 for an explanation of Remark Codes

Project Approval: _____ **Date:** 5-14-09

Case Narrative:
Kleiner Metal Specialties #09090009

The National Environmental Laboratory Accreditation Conference (NELAC) is a voluntary environmental laboratory accreditation association of State and Federal agencies. NELAC established and promoted a national accreditation program that provides a uniform set of standards for the generation of environmental data that are of known and defensible quality. The EPA Region 2 Laboratory is NELAC accredited. The Laboratory tests that are accredited have met all the requirements established under the NELAC Standards.

Comment(s):

No comment.

Data Qualifier(s):

U- The analyte was not detected at or above the Reporting Limit.
J- The identification of the analyte is acceptable; the reported value is an estimate.
K- The identification of the analyte is acceptable; the reported value may be biased high.
L- The identification of the analyte is acceptable; the reported value may be biased low.
NJ-There is presumptive evidence that the analyte is present; the analyte is reported as a tentative identification. The reported value is an estimate.

Reporting Limit(s):

The Laboratory was able to achieve the Contract Required Quantitation Limits (CRQLs), where applicable, for each analyte requested.

Method:

All methods that are NELAC accredited in the Laboratory are noted with "NELAC" at the end of the method reference.

- Volatiles Analysis, EPA Method 624 (SOP C-89; Purge & Trap GC/MS Method) (NELAC)

Approval: J.R. [illegible] Date: 9-25-09

U.S. Environmental Protection Agency
Region 2 Laboratory
2890 Woodbridge Avenue
Edison, NJ 08837

Data Report: KLEINER METALS

Project Number: 09090009

Program: Y206E

Project Leader: STEVEN HOKE

Remark Codes	Explanation
U	THE ANALYTE WAS NOT DETECTED AT OR ABOVE THE REPORTING LIMIT.
J	THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE IS AN ESTIMATE.
UJ	THE ANALYTE WAS NOT DETECTED AT OR ABOVE THE REPORTING LIMIT. THE REPORTING LIMIT IS AN ESTIMATE.
N	THERE IS PRESUMPTIVE EVIDENCE THAT THE ANALYTE IS PRESENT; THE ANALYTE IS REPORTED AS A TENTATIVE IDENTIFICATION.
NJ	THERE IS PRESUMPTIVE EVIDENCE THAT THE ANALYTE IS PRESENT; THE ANALYTE IS REPORTED AS A TENTATIVE IDENTIFICATION. THE REPORTED VALUE IS AN ESTIMATE.
R	THE PRESENCE OR ABSENCE OF THE ANALYTE CANNOT BE DETERMINED FROM THE DATA DUE TO SEVERE QUALITY CONTROL PROBLEMS. THE DATA ARE REJECTED AND CONSIDERED UNUSABLE.
K	THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE MAY BE BIASED HIGH. THE ACTUAL VALUE IS EXPECTED TO BE LESS THAN THE REPORTED VALUE.
L	THE IDENTIFICATION OF THE ANALYTE IS ACCEPTABLE; THE REPORTED VALUE MAY BE BIASED LOW. THE ACTUAL VALUE IS EXPECTED TO BE GREATER THAN THE REPORTED VALUE.
NV	NOT VALIDATED
INC	RESULT NOT ENTERED

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05660 Field/Station ID: FB
Matrix: Aqueous

Date Received: 9/9/2009

Sample Description: FIELD BLANK

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05660 Field/Station ID: FB Date Received: 9/9/2009
Matrix: Aqueous

Sample Description: FIELD BLANK

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL05661 Field/Station ID: MW-6 Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	170		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L

fer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05661 Field/Station ID: MW-6 Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	25		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05662 Field/Station ID: MW-6S Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	130		ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	8.8		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	110		ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	39		ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	2,200		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L

fer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05662 Field/Station ID: MW-6S Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL05663 Field/Station ID: MW-7 Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	7.9		ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05663 Field/Station ID: MW-7 Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	170		ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	93		ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	200		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

fer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05664 Field/Station ID: MW-8 Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	130		ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	8.9		ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L
156-59-2	CIS-1,2-DICHLOROETHENE	110		ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	40		ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	2,200		ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05664 Field/Station ID: MW-8 Date Received: 9/9/2009
Matrix: Aqueous

Sample Description:

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

AL05665 Field/Station ID: TB Date Received: 9/9/2009
Matrix: Aqueous

Sample Description: TRIP BLANK

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

CAS Number	Analyte Name	Result	Remark Codes	Units
75-71-8	DICHLORODIFLUOROMETHANE	---	5.0U	ug/L
74-87-3	CHLOROMETHANE	---	5.0U	ug/L
75-01-4	VINYL CHLORIDE	---	5.0U	ug/L
74-83-9	BROMOMETHANE	---	5.0U	ug/L
75-00-3	CHLOROETHANE	---	5.0U	ug/L
75-69-4	TRICHLOROFLUOROMETHANE	---	5.0U	ug/L
75-35-4	1,1-DICHLOROETHENE	---	5.0U	ug/L
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	---	5.0U	ug/L
75-15-0	CARBON DISULFIDE	---	5.0U	ug/L
67-64-1	ACETONE	---	10U	ug/L
79-20-9	METHYL ACETATE	---	5.0U	ug/L
75-09-2	METHYLENE CHLORIDE	---	5.0U	ug/L
156-60-5	TRANS-1,2-DICHLOROETHENE	---	5.0U	ug/L
1634-04-4	METHYL TERT-BUTYL ETHER	---	5.0U	ug/L
75-34-3	1,1-DICHLOROETHANE	---	5.0U	ug/L

U.S. EPA Region 2 Laboratory
Data Report

Survey Name: KLEINER METALS

Project Number: 09090009

*Sorted By Sample ID

AL05665 Field/Station ID: TB
Matrix: Aqueous

Date Received: 9/9/2009

Sample Description: TRIP BLANK

Analysis Type: VOA SOM1.1-LOW GCMS AQUEOUS

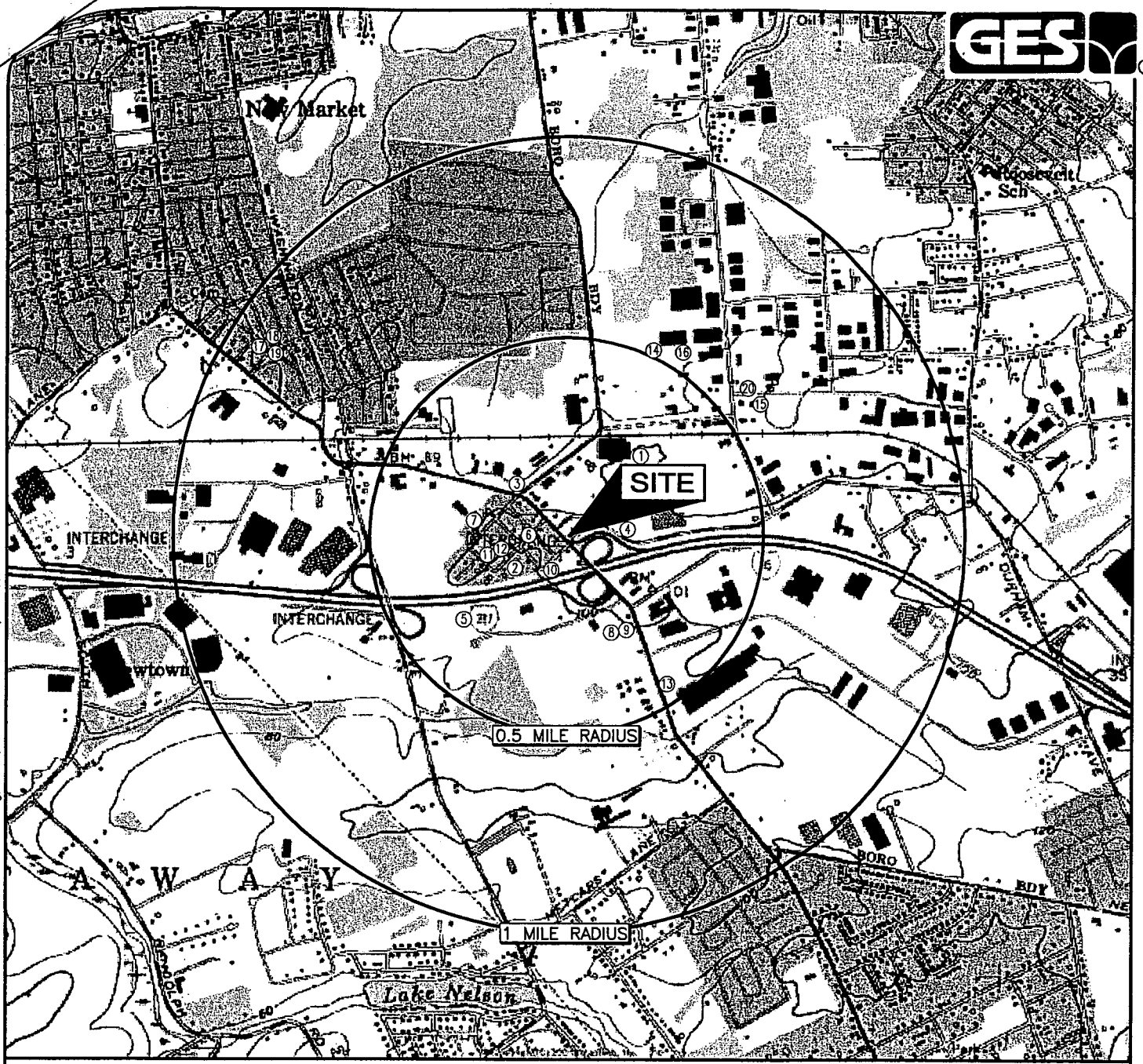
CAS Number	Analyte Name	Result	Remark Codes	Units
156-59-2	CIS-1,2-DICHLOROETHENE	---	5.0U	ug/L
78-93-3	2-BUTANONE	---	10U	ug/L
74-97-5	BROMOCHLOROMETHANE	---	5.0U	ug/L
67-66-3	CHLOROFORM	---	5.0U	ug/L
71-55-6	1,1,1-TRICHLOROETHANE	---	5.0U	ug/L
110-82-7	CYCLOHEXANE	---	5.0U	ug/L
56-23-5	CARBON TETRACHLORIDE	---	5.0U	ug/L
71-43-2	BENZENE	---	5.0U	ug/L
107-06-2	1,2-DICHLOROETHANE	---	5.0U	ug/L
79-01-6	TRICHLOROETHENE	---	5.0U	ug/L
78-87-5	1,2-DICHLOROPROPANE	---	5.0U	ug/L
75-27-4	BROMODICHLOROMETHANE	---	5.0U	ug/L
10061-01-5	CIS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
108-10-1	4-METHYL-2-PENTANONE	---	10U	ug/L
108-88-3	TOLUENE	---	5.0U	ug/L
10061-02-6	TRANS-1,3-DICHLOROPROPENE	---	5.0U	ug/L
79-00-5	1,1,2-TRICHLOROETHANE	---	5.0U	ug/L
127-18-4	TETRACHLOROETHENE	---	5.0U	ug/L
108-87-2	METHYLCYCLOHEXANE	---	5.0U	ug/L
124-48-1	DIBROMOCHLOROMETHANE	---	5.0U	ug/L
106-93-4	1,2-DIBROMOETHANE	---	5.0U	ug/L
591-78-6	2-HEXANONE	---	10U	ug/L
108-90-7	CHLOROBENZENE	---	5.0U	ug/L
79-34-5	1,1,2,2-TETRACHLOROETHANE	---	5.0U	ug/L
100-41-4	ETHYLBENZENE	---	5.0U	ug/L
1330-20-7	M/P-XYLENE	---	5.0U	ug/L
95-47-6	O-XYLENE	---	5.0U	ug/L
100-42-5	STYRENE	---	5.0U	ug/L
75-25-2	BROMOFORM	---	5.0U	ug/L
98-82-8	ISOPROPYLBENZENE	---	5.0U	ug/L
541-73-1	1,3-DICHLOROBENZENE	---	5.0U	ug/L
106-46-7	1,4-DICHLOROBENZENE	---	5.0U	ug/L
95-50-1	1,2-DICHLOROBENZENE	---	5.0U	ug/L
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	---	5.0U	ug/L
0120-82-1	1,2,4-TRICHLOROBENZENE	---	5.0U	ug/L
87-61-6	1,2,3-TRICHLOROBENZENE	---	5.0U	ug/L

Refer to Page 1 for an explanation of Remark Codes

U.S. EPA Region 2 Laboratory
Data Report

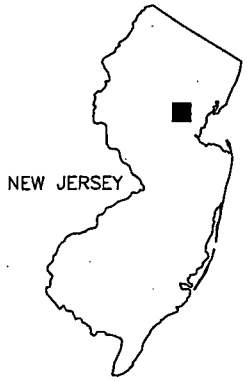
Project Approval: _____ **Date:** 9-25-09

ATTACHMENT M



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1981
PLAINFIELD, NEW JERSEY
CONTOUR INTERVAL = 20'

(XX) – WELL IDENTIFICATION
1–12 – DOMESTIC SUPPLY WELLS
13–16, 20 – INDUSTRIAL SUPPLY WELL
17–19 – PUBLIC SUPPLY WELL



QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	WELL LOCATION MAP
CHECKED BY:	GPMI SERVICE STATION #57335 4501 STELTON ROAD SOUTH PLAINFIELD, NEW JERSEY
REVIEWED BY:	
NORTH	Groundwater & Environmental Services, Inc. 1340 CAMPUS PARKWAY, NEPTUNE, NJ 07753

SCALE IN FEET	DATE	FIGURE
0 – 2000	6–18–08	1

M:\Graphics\0300-Wall\Getty\Getty Petroleum Marketing\57335 South Plainfield\57335 South Plainfield SLM.dwg, Model, 6/18/2008 1:45:02 PM, WShea

SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE CHARACTERISTICS
Avon Sanitary Landfill - 09/08/93

Source: 4 Waste Pile

Source Hazardous Waste Quantity Value: 60.00

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value

CONFIDENTIAL
NOT TO BE RELEASED
TO THE PUBLIC

The redacted information consists of names of private individuals. Disclosure of this information would constitute a clearly unwarranted invasion of personal privacy and thus is exempt from mandatory disclosure by virtue of Exemption 6 of the FOIA, 5 U.S.C. § 552(b)(6).

TABLE 1
WELL SEARCH SUMMARY
GPMI SERVICE STATION #57335
4501 STELTON RD
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

WLM ID	Owner's Name	Well Location	Lot	Block	Distance from site (feet)	Direction from site N,S,E,W	Depth of well (feet)	Screen length (feet)	Pumping rate (gpm)	Date Installed	Use	Well Permit Number	Data Source
1)	Ex. 6 [redacted]	Shevchenko Avenue South Plainfield	NA	NA	1,100 (A)	E	90	NA	3	NA	D	25-3406	M
2)		Franko Place and Stelton Road Piscataway	NA	NA	1,300 (A)	SW	90	NA	5	NA	D	25-3973	M
3)		New Brunswick Avenue and Stelton Road Piscataway	NA	NA	1,100 (A)	NW	100	NA	6	NA	D	25-5328	M
4)		Shevchenko Ave S. Plainfield	NA	NA	500 (A)	E	100	NA	6	NA	D	25-5743	M
5)		Vicinity of Rt 287 Piscataway	NA	NA	1,500 (A)	WSW	150	119	10	5/22/1957	D	25-6464	M
6)		Saint Michael Street Piscataway	NA	NA	900 (A)	WNW	143	119	15	NA	D	25-8615	M
7)		7 Carpathia St Piscataway	NA	NA	1,123	WSW	200	175	15	NA	D	25-8616	M
8)		Stelton Road Piscataway	NA	NA	1,300 (A)	E	130	102	10	NA	D	25-10098	M
9)	All American Homes Inc.	Stelton Rd Piscataway	NA	NA	1,600(A)	E	122	92	8	7/5/1962	D	25-10635	M
10)	Ex. 6 [redacted]	38 Saint Michael Street Piscataway	31-A2	484	548	W	190	140	40	8/25/1979	D	25-20883	M

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TABLE 1
WELL SEARCH SUMMARY
GPMI SERVICE STATION #57335
4501 STELTON RD
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

WLM ID	Owner's Name	Well Location	Lot	Block	Distance from site (feet)	Direction from site N,S,E,W	Depth of well (feet)	Screen length (feet)	Pumping rate (gpm)	Date Installed	Use	Well Permit Number	Data Source
11)	Ex. 6 [redacted]	18 Carpathia St Piscataway	32-B	484	875	WSW	210	160	NA	8/22/1985	D	25-26562	M
12)	[redacted]	14 Carpathia St Piscataway	NA	NA	949	WSW	138	98	6	11/7/1957	D	26-1721	M
13)	Parkway Plastics	Stelton Rd Piscataway	NA	NA	2,200 (A)	NW	340	318	150	2/17/1960	I	21-9156	M
14)	Ferro Corporation	3900 South Clinton Ave Well IW	NA	NA	2,596	NE	NA	NA	325	NA	I	25-64952	CS
15)	LR Metal Treating	3651 South Clinton Ave Well 1	NA	NA	2,944	NE	200	NA	100	NA	I	45-49251	CS
16)	Ferro Corporation	3900 South Clinton Ave Well PW	NA	NA	2,596	NE	350	310	325	NA	I	45-49678	CS
2008 Update:													
17)	Middlesex Water Company	Maple Avenue Sprink Lake County Park South Plainfield	1	185	5,100 (A)	NW	501	NA	585	NA	P	25-66176	CS
18)	Middlesex Water Company	Maple Avenue Sprink Lake County Park South Plainfield	7	198	5,100 (A)	NW	504	NA	500	NA	P	25-66177	CS

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TABLE 1
WELL SEARCH SUMMARY
GPMI SERVICE STATION #57335
4501 STELTON RD
SOUTH PLAINFIELD, MIDDLESEX COUNTY, NEW JERSEY

WLM ID	Owner's Name	Well Location	Lot	Block	Distance from site (feet)	Direction from site N,S,E,W	Depth of well (feet)	Screen length (feet)	Pumping rate (gpm)	Date Installed	Use	Well Permit Number	Data Source
19)	Middlesex Water Company	Maple Avenue Well #1 South Plainfield	19	208	5,100 (A)	NW	351	NA	700	NA	P	25-66179	CS
20)	Ex. 6	3651 S. Clinton Avenue South Plainfield	3	447	2,944	NE	NA	NA	NA	NA	I	25-70143	CS

NA =Not Available
gpm =Gallons per Minute
A =Approximate Location
D =Domestic
P =Public Supply
C =Commercial
I =Industrial
Ag =Agricultural
Irr =Irrigation
O =Other
NIU =Not in Use
M =Manual Well Search
H =Homeowner
CS =Computer Search

155

ATTACHMENT N

To: **Edison Stamping Metals and UTI- Kleiner Files**
From: Steve Hoke, Bureau of Site Assessment
Subject: Public Water Supply Wells in the Vicinity of EMS and UTI-Kleiner

The Elizabethtown Water Department supplies water to an approximate population of 609,441. Of its total 52 million gallon per day capacity, 85% is obtained from surface water sources. Ground water is obtained from 129 active wells. It is assumed that each well is providing 1/129 of the total supply to 15% of the total population served by the company.

Population Served: 609,441
15% of the total population served: 91,416 129 active wells

Each well serves 709 people

0 – 0.25 miles	0 wells	
0.25 – 0.50 miles	0 wells	
0.50 – 1 miles	0 wells	
1.0 – 2.0 miles	0 wells	
2.0 – 3.0 miles	4 wells	4 wells x 709 people per well = 2,836
3.0 – 4.0 miles	15 wells	15 wells x 709 people per well = 10,635

The Middlesex Water Department supplies water to an approximate population of 325,000. Of its total 42 million gallon per day capacity, 57% is obtained from surface water sources. Ground water is obtained from 31 active wells. It is assumed that each well is providing 1/31 of the total supply to 43% of the total population served by the company.

Population Served: 325,000
43% of the total population served: 139,750 31 active wells

Each well serves 4,508 people

0 – 0.25 miles	0 wells	
0.25 – 0.50 miles	0 wells	
0.50 – 1 miles	0 wells	
1.0 – 2.0 miles	0 wells	
2.0 – 3.0 miles	8 wells	8 wells x 4,508 people per well = 36,064
3.0 – 4.0 miles	17 wells	17 wells x 4,508 people per well = 76,636

STATE OF NEW JERSEY
DEPARTMENT OF THE PUBLIC ADVOCATE

About Middlesex Water Company

Company: Middlesex Water Company

Summary: Organized in 1897, the New Jersey water utility, (the Middlesex System), provides water services to approximately 58,000 retail customers primarily in central New Jersey. These retail customers are located in Woodbridge Township, the Boroughs of Metuchen and Carteret, portions of Edison Township, portions of the Borough of South Plainfield, the City of South Amboy in Middlesex County, and portions of the Township of Clark in Union County. The company also provides water services under contract to municipalities in central New Jersey with a population of 267,000. These customers include the Township of Edison, the Boroughs of Highland Park and Sayreville, the Old Bridge Municipal Utilities Authority and the Marlboro Township Municipal Utilities Authority. The company also provides treatment and pumping service to the Township of East Brunswick under special contract.

Main Page: http://www.middlesexwater.com/

News: http://www.snl.com/irweblinkx/news.aspx?iid=4104374

Contact page: http://www.middlesexwater.com/hirez/customerService.htm

Phone: 1-732-634-1500

Environmental Matters: None listed.

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Department of the Public Advocate
240 West State Street
PO BOX 851
Trenton, NJ 08625-0851
Phone: (609) 826-5090 | Fax: (609) 984-4747
New Jersey Department of the Public Advocate

SECTION IV – DESCRIPTION OF WATER SYSTEM

NJ American Water Company - Elizabethtown Division
PWID # 2004002

600 South Avenue
Westfield, NJ 07090
(908)654-1234

NJ American Water Company - Elizabethtown Division is a public community water system consisting of

49 Entry Points to the Distribution System (EPTDS)
- 129 wells
- 0 wells under the influence of surface water
- 7 surface water intake(s)
- 1 purchased ground water
- 6 purchased surface water

Table 6 below contains the municipalities and the population within each of these municipalities served by NJ American Water Company - Elizabethtown Division.

Table 6: Municipalities and Population Served

Municipality	County	Population Served - 2003
Raritan Twp.	Hunterdon	10110
Readington Twp.	Hunterdon	3429
Tewksbury Twp.	Hunterdon	399
Hopewell Twp.	Mercer	57
Lawrence Twp.	Mercer	8022
Princeton Boro	Mercer	7176
Princeton Twp.	Mercer	16062
West Windsor Twp.	Mercer	20505
Cranbury Twp.	Middlesex	2805
Dunellen Boro	Middlesex	6717
Edison Twp.	Middlesex	4332
Middlesex Boro	Middlesex	13731
Piscataway Twp.	Middlesex	36633
Plainsboro Twp.	Middlesex	11775
South Brunswick Twp.	Middlesex	810
South Plainfield Boro	Middlesex	13365
Chester Boro	Morris	84
Bedminster Twp.	Somerset	231
Bound Brook Boro	Somerset	8574
Branchburg Twp.	Somerset	10338
Bridgewater Twp.	Somerset	36456
Franklin Twp.	Somerset	726
Green Brook Twp.	Somerset	6795
Hillsborough Twp.	Somerset	27666
Manville Boro	Somerset	11331
Millstone Boro	Somerset	255
Montgomery Twp.	Somerset	13515

Municipality	County	Population Served - 2003
North Plainfield Boro	Somerset	15120
Peapack-Gladstone	Somerset	2385
Raritan Boro	Somerset	6906
So. Bound Brook Boro	Somerset	3702
Somerville Boro	Somerset	10512
Warren Twp.	Somerset	10755
Watchung Boro	Somerset	4497
Clark Twp.	Union	15108
Cranford Twp.	Union	23193
Fanwood Boro	Union	7740
Garwood Boro	Union	4668
Hillside Twp.	Union	18192
Kenilworth Boro	Union	9399
Linden City	Union	35361
Mountainside Boro	Union	7680
Plainfield City	Union	31371
Roselle Boro	Union	16224
Roselle Park Boro	Union	10473
Scotch Plains Twp.	Union	22782
Union Twp.	Union	51576
Westfield Town	Union	29898

609,441

SECTION V - INVENTORY OF TREATMENT PLANTS AND DRINKING WATER SOURCES

SECTION V - SYSTEM INVENTORY FOR: NJ American Water Company - Elizabethtown Division

Table 7 provides the NJ American Water Company - Elizabethtown Division's treatment plant(s); source(s); the sources' location(s); whether the source(s) are ground water, surface water, or a purchased supply; and the sources' capacity(s). The first column contains the EPTDS ID and sources contributing to the same EPTDS are identified by the same number. An EPTDS is the entry point to the distribution system, and for most community water systems this location is after the water is treated at a treatment plant.

In the case of a ground water source, the well's confinement status and well permit number are provided.

Table 7: Drinking Water Source and EPTDS Inventory

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
01	001	MT STA COMP DEL	T	P				
01	002	WELL 1/FIELD LANE	G	P	Brunswick aquifer	0.432	45-44720	U
01	003	WELL 2/FIELD LANE	G	P	Brunswick aquifer	0.2016	45-44719	U
01	004	WELL 3/FIELD LANE	G	W		0	45-44718	U
02	005	ELKS WELL	T	Y				
02	006	ELKS WELL/2327 FEATHERBED LANE	G	Y	glacial sand and gravel	0.4147	26-04751	U
03	007	GREENBROOK PLANT - JEFFERSON A	T	P				
03	008	GB WELL 1/WASHINGTON AVE	G	P	Brunswick aquifer	0.2952	45-00023	U
03	009	ROCK AVENUE WELL/115 ROCK AVE.	G	P	Brunswick aquifer	0.2707	25-12665	U
03	010	GB WELL 11/WASHINGTON AVE.	G	P	Brunswick aquifer	0.3917	25-02717	U
03	011	GB WELL 2/WASHINGTON AVE.	G	P	Brunswick aquifer	0.694	45-00024	U
03	012	GB WELL 3/WASHINGTON AVE.	G	P	Brunswick aquifer	0.1296	45-00025	U
03	013	GB WELL 4/WASHINGTON AVE	G	P	Brunswick aquifer	0.504	45-00026	U
03	014	GB WELL 5/WASHINGTON AVE.	G	P	Brunswick aquifer	0.3542	25-00572	U
03	015	GB WELL6/WASHINGTON AVE.	G	P	Brunswick aquifer	0.4593	25-00632	U
03	016	GB WELL7/WASHINGTON AVE.	G	P	Brunswick aquifer	0.3053	25-00633	U
03	017	GB WELL 8/WASHINGTON AVE.	G	P	Brunswick aquifer	0.3672	25-02715	U

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
03	018	GB WELL9/WASHINGTON AVE.	G	P	Brunswick aquifer	0.5011	25-02716	U
04	020	QUINTON AVE WELL/KENILWORTH	T	P				
04	021	QUINTON AVE. WELL/660 QUINTON	G	P	Brunswick aquifer	0.2851	46-00014	U
05	022	RICHFIELD AVE WELL	T	U				
05	023	RICHFIELD AVE. WELL/654 RICHFI	G	P	Brunswick aquifer	0.2361	46-00015	U
06	024	SEBRINGS MILLS WELL FIELD	T	Y				
06	025	SM WELL 4/110SEBRINGS MILL	G	W	Brunswick aquifer	0.1728	25-11582	U
06	026	SM WELL 6	G	W	Brunswick aquifer	0.2304	45-00043	U
06	027	SM WELL 7	G	W	Brunswick aquifer	0.1728	25-11367	U
06	028	SM WELL 8	G	W	Brunswick aquifer	0.1728	25-13397	U
07	029	PAPEN ROAD WELL PLANT	T	P				
07	030	PAPEN ROAD WELL	G	P	Brunswick aquifer	0.2779	25-13435	U
08	223	WELLS ROAD PLANT	T	P				
09	031	CHARLES ST COMP DEL	T	P				
09	032	BRISTOL RD. WELL/211 SHEFFIELD	G	P	Brunswick aquifer	0.1901	25-09206	U
09	033	CHAS. ST. WELL1/1021 CHARLES S	G	P	Brunswick aquifer	0.527	25-00872	U
09	034	CHARLES ST. WELL 2/1051 CHARLE	G	P	Brunswick aquifer	0.1685	45-00004	U
10	036	CENTRAL AVE. WELL/269 CENTRAL	G	W	Brunswick aquifer	0.2736	25-09083	U
11	298	CRANBURY #1A/MAPLEWOOD AVE.	G	P	middle Potomac-Raritan-Magothy aquifer	0.1728	28-07800	U
11	299	CRANBURY #2/MAPLEWOOD AVE.	G	W	upper Potomac-Raritan-Magothy aquifer	0.0576	48-00064	U
11	300	CRANBURY #3/MAPLEWOOD AVE.	G	P	middle Potomac-Raritan-Magothy aquifer	0.576	28-04559	U
11	305	MAPLEWOOD AVE. - CRANBURY PLAN	T	Y				
12	039	BOARD OF ED WELL	T	Y				
12	040	BOARD OF ED WELL/PARKVIEW AVE	G	W	Brunswick aquifer	0.3672	45-00022	U
13	041	ROCKVIEW AVE WELL	T	Y				
13	042	ROCKVIEW AVE WELL	G	W	Brunswick aquifer	0.1728	25-13898	U
14	043	ROCKVIEW TERR WELL	T	Y				

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
14	044	ROCKVIEW TERR WELL	G	W	Brunswick aquifer	0.288	25-13106	U
15	045	MONTGOMERY TWP./RT 206/SUNSET	T	P				
15	046	MONTGOMERY TWP WELL 2/BRIDGEPO	G	P	Brunswick aquifer	0.2563	28-05511	U
16	061	ROCK AVENUE WELL/PISCATAWAY	T	P				
16	062	ROCK AVE. WELL/PISCATAWAY	G	P	Brunswick aquifer	0.216	25-13248	U
17	047	NETHERWOOD PLANT	T	P				
17	048	NETHERWOOD WELL1/1341 NORTH AV	G	P	Brunswick aquifer	0.2376	45-00009	U
17	049	NETHERWOOD WELL 10	G	P	Brunswick aquifer	0.455	45-00018	U
17	050	NETHERWOOD WELL 11	G	P	Brunswick aquifer	0.1958	45-00019	U
17	051	NETHERWOOD WELL 2	G	P	Brunswick aquifer	0.1296	45-00010	U
17	052	NETHERWOOD WELL 3	G	P	Brunswick aquifer	0.2721	45-00011	U
17	053	NETHERWOOD WELL 4	G	P	Brunswick aquifer	0.3945	45-00012	U
17	055	NETHERWOOD WELL 5	G	P	Brunswick aquifer	0.2145	45-00013	U
17	056	NETHERWOOD WELL 6	G	P	Brunswick aquifer	0.3053	45-00014	U
17	057	NETHERWOOD WELL 7	G	P	Brunswick aquifer	0.504	45-00015	U
17	058	NETHERWOOD WELL 8	G	P	Brunswick aquifer	0.2966	45-00016	U
17	059	NETHERWOOD WELL 9	G	P	Brunswick aquifer	0.4392	45-00017	U
17	060	GEORGE ST. WELL	G	P	Brunswick aquifer	0.1296	45-00021	U
17	328	NETHERWOOD 12	G	P	Brunswick aquifer	0.4334	45-00020	U
18	063	CITY OF PLAINFIELD WELL	T	Y				
18	064	CITY OF PLAINFIELD WELL	G	W	Brunswick aquifer	0.9417	45-00027	U
19	065	FIFTH ST WELL	T	S				
19	066	FIFTH ST WELL	G	W	Brunswick aquifer	0.2779	25-12961	U
20	067	PROSPECT AVE WELL	T	P				
20	068	PROSPECT AVE WELL	G	P	Brunswick aquifer	0.2016	25-09037	U
21	069	WATCHUNG AVE WELL	T	Y				
21	070	WATCHUNG AVE, WELL/1656 WATCHU	G	W	Brunswick aquifer	0.4301	25-08185	U
22	071	PLAINSBORO WELL 1/DEER CREEK R	T	S				
22	072	PLAINSBORO WELL 1	G	P	middle Potomac-Raritan-Magothy aquifer	0.504	28-09278	U

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
23	073	PLAINSBORO WELL2/JEFFERS WELL	T	Y				
23	074	PLAINSBORO WELL 2	G	P	Stockton Formation	0.3038	28-11477	U
25	077	STONY BROOK PLANT	T	P				
25	078	SB WELL 2/WEST DRIVE	G	P	Stockton Formation	0.504	48-00008	U
25	079	SB WELL 3 /WEST DRIVE	G	P	Stockton Formation	0.2304	48-00009	U
25	080	SB WELL 4/WEST DRIVE	G	P	Stockton Formation	0.1728	48-00010	U
25	081	SB WELL 6/WEST DRIVE	G	P	Stockton Formation	0.2592	48-00011	U
25	082	SB WELL 7A/WEST DRIVE	G	P	Stockton Formation	0.8639	28-20986	U
25	083	SB WELL 8/WEST DRIVE	G	P	Stockton Formation	0.3231	48-00013	U
28	088	HARRISON ST. PLANT	T	Y				
28	089	HARRISON ST WELL 1	G	W	Stockton Formation	0.0668	48-00005	U
28	090	HARRISON ST. WELL 3	G	Y	Brunswick aquifer	0.0636	28-04371	U
28	091	HARRISON ST WELL 4	G	W	Stockton Formation	0.1068	48-00006	U
28	092	HARRISON ST WELL 5	G	W	Stockton Formation	0.1596	48-00007	U
28	093	HARRISON ST WELL 6	G	W	Stockton Formation	0.3211	28-01886	U
28	094	HARRISON ST WELL 7	G	W	Stockton Formation	0.288	28-04999	U
28	095	HARRISON ST. WELL 8	G	Y	Stockton Formation	0.2304	28-05073	U
30	097	ST WALBURGA WELL 1	T	Y				
30	098	ST WALBRUGA WELL 1/PINE ST & R	G	W	Brunswick aquifer	0.504	26-02302	U
31	099	ST WALBURGA WELL 2	T	Y				
31	100	ST WALBRUGA WELL 2/WHEATSHEAF	G	W	Brunswick aquifer	0.288	26-02360	U
32	101	ST WALBURGA WELL 3	T	Y				
32	102	ST WALBRUGA WELL 3/PINE ST & 9	G	W	Brunswick aquifer	0.5184	26-02412	U
33	103	ST WALBURGA WELL 4	T	Y				
33	104	ST WALBURGA WELL 4 /940 WHEATS	G	W	Brunswick aquifer	0.648	26-02463	U
34	105	CHANDLER AVE WELL	T	Y				
34	106	CHANDLER AVE WELL	G	W	Brunswick aquifer	0.432	26-02393	U
35	107	FIRST AVE WELL	T	Y				
35	108	FIRST AVE WELL	G	W	Brunswick aquifer	0.648	26-01696	U
36	109	ABERDEEN RD WELL	T	P				

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
36	110	ABERDEEN RD WELL	G	P	Brunswick aquifer	0.5616	25-12631	U
37	111	GLENSIDE AVE WELL	T	U				
37	112	GLENSIDE AVE WELL	G	P	Brunswick aquifer	0.2448	25-07173	U
38	113	JERUSALEM ROAD PLANT	T	P				
38	114	JERUSALEM RD WELL 1	G	P	Brunswick aquifer	0.2865	25-00130	U
38	115	JERUSALEM RD WELL 3	G	P	Brunswick aquifer	0.1152	25-00800	U
38	116	JERUSALM RD WELL 2	G	P	Brunswick aquifer	0.2145	25-00649	U
39	117	MORSE AVE WELL	T	W				
39	118	MORSE AVE WELL/PLAINFIELD &MOR	G	W	Brunswick aquifer	0.1728	25-09281	U
40	119	MAPLE GLEN	T	P				
40	120	MAPLE GLEN WELL/NORTH MAIN ST.	G	P	Brunswick aquifer	0.144	24-07896	U
41	121	CLINTON AVE WELL	T	P				
41	122	CLINTON AVE WELL	G	P	Brunswick aquifer	0.5285	25-13354	U
42	123	EIGHTH ST WELL	T	P				
42	124	EIGTH ST WELL	G	P	Brunswick aquifer	0.3456	25-12632	U
43	125	SPRINGFIELD PLANT	T	Y				
43	126	SF WELL 23	G	W		0.072	46-41807	U
43	127	SF WELL 7	G	W	Brunswick aquifer	0.144	46-00044	U
43	128	SF WELL 11	G	W	Brunswick aquifer	0.288	46-00048	U
43	129	SF WELL 12R	G	W	Brunswick aquifer	0.144	46-00049	U
43	131	SF WELL 2A	G	W	Brunswick aquifer	0.36	46-00041	U
43	132	SF WELL 21R	G	W	Brunswick aquifer	0.288	46-00050	U
43	133	SF WELL 29	G	W		0.144	46-41809	U
43	134	SF WELL 17	G	W		0	46-41806	U
43	135	SF WELL 32	G	W		0.144	46-41810	U
43	136	SF WELL 36	G	W	Brunswick aquifer	0.144	46-00052	U
43	137	SF WELL 43	G	W		0	46-41805	U
43	138	SF WELL 41	G	W		0.288	46-41811	U
43	139	SF WELL 42	G	W	Brunswick aquifer	0.18	46-00053	U
43	140	SF WELL 44	G	W		0.216	46-41812	U
43	141	SF WELL 47	G	W	Brunswick aquifer	0.18	46-00054	U

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
43	142	SF WELL 48	G	W	Brunswick aquifer	0.144	46-00055	U
43	143	SF WELL 25	G	W		0.144	46-41808	U
43	144	SF WELL 5A	G	W	Brunswick aquifer	0.216	46-00042	U
43	145	SF WELL 24	G	W	Brunswick aquifer	0.144	46-00051	U
43	146	SF WELL 53	G	W	Brunswick aquifer	0.144	46-00057	U
43	147	SF WELL 54	G	W	Brunswick aquifer	0.36	46-00058	U
43	148	SF WELL 55	G	W	Brunswick aquifer	0.72	46-00059	U
43	150	SF WELL 8R	G	W	Brunswick aquifer	0.216	46-00046	U
43	151	SF WELL 9R	G	W	Brunswick aquifer	0.288	46-00047	U
43	152	SPRINGFIELD WELL 1	G	W	Brunswick aquifer	0.144	46-00039	U
43	153	SPRINGFIELD WELL 1A	G	W	Brunswick aquifer	0.36	46-00040	U
43	154	WELL 6A	G	W	Brunswick aquifer	0.432	46-00043	U
43	326	SPRINGFIELD 2L	G	W		0	26-04081	U
43	327	SPRINGFIELD 6L	G	W	Brunswick aquifer	0.288	26-04083	U
43	334	SF WELL 52	G	W		0	46-41813	U
44	156	POTTERSVILLE WELL	T	Y				
44	157	POTTERSVILLE WELL/HOMESTEAD RD	G	P	igneous and metamorphic rocks	0.0763	25-15051	U
45	158	HUMMOCKS STATION PLANT	T	P				
45	159	HUM WELL H2	G	P	glacial sand and gravel	0.1181	26-04830	U
45	160	HUM WELL 17	G	P	glacial sand and gravel	0.1541	46-00032	U
45	161	HUM WELL 4A	G	P	glacial sand and gravel	0.2448	46-00021	U
45	162	HUM WELL 6AR	G	P	glacial sand and gravel	0.432	46-00024	U
45	163	HUM WELL 7A	G	P	Brunswick aquifer	0.216	46-00025	U
45	164	HUM WELL 8A	G	P	glacial sand and gravel	0.36	46-00026	U
45	165	HUM WELL 5A	G	P	glacial sand and gravel	0.216	46-00023	U
45	166	HUMMOCKS RANNEY WELL 1/MORRIS	G	P	glacial sand and gravel	1.4399	26-12730	U
47	189	MONTGOMERY TWP WELL 1	T	S				
47	190	MONT. TWP WELL 1/ RUTLAND RD	G	P	Brunswick aquifer	0.2664	28-05407	U
49	193	ELM ST WELL	T	Y				
49	194	ELM ST WELL	G	W	Brunswick aquifer	0.504	25-08087	U

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
50	195	PROSPECT ST WELL	T	Y				
50	196	PROSPECT ST WELL	G	W	Brunswick aquifer	0.2304	25-12960	U
51	197	WESTFIELD OFFICE #1	T	Z				
53	200	WITTKE PLANT	T	Y				
53	201	WITTKE WELL 1	G	W	Brunswick aquifer	0.2448	25-04639	U
53	202	WITTKE WELL 2	G	W	Brunswick aquifer	0.7487	25-05083	U
55	203	JEFFERSON PARK PLANT	T	U				
55	204	JEFFERSON PARK WELL 1	G	P	middle Potomac-Raritan-Magothy aquifer	0.7788	28-05368	U
55	205	JEFFERSON PARK WELL 2	G	P	middle Potomac-Raritan-Magothy aquifer	0.5866	28-06455	U
59	206	RARITAN-MILLSTONE WATER TREATM	T	P				
59	207	RARITAN RIVER	S	P	Raritan River	50	elizin4	
59	207	RARITAN RIVER	S	P	Raritan River	50	elizin2	
59	207	RARITAN RIVER	S	P	Raritan River	50	elizin1	
59	207	RARITAN RIVER	S	P	Raritan River	50	elizin3	
59	208	MILLSTONE RIVER	S	P	Millstone River	25	elizmill	
59	209	DELAWARE - RARITAN CANAL	S	P	Delaware & Raritan Canal	32	elizin5	
65	308	ELIZABETH WATER DEPARTMENT	P	P				
66	310	FLEMLINGTON WATER COMPANY	P	P				
67	312	FRANKLIN TWP.	P	P				
68	314	MONROE TWP.	P	P				
69	321	NEW JERSEY AMERICAN WATER CO.	P	P				
70	323	NEWARK WATER CO.	W	P				
71	325	SOUTH BRUNSWICK	P	P				
73	331	CANAL ROAD WTP	T	P				
73	332	RARITAN RIVER	S	P	Raritan River	40	elizcnrd	
75	339	WELL C-1	G	P	Brunswick aquifer	0.1843	25-11880	U
75	340	WELL C-2	G	P	Brunswick aquifer	0.1857	25-12662	U
75	342	PLANT/DUKES PKWY & N 6TH AVE(M	T	P				

*KEY

Water System Component

G = Ground Water, P = Purchased Surface Water, S = Surface Water, T = Treatment Plant (EPTDS), U = Ground Water Under The Direct Influence of Surface Water, W = Purchased Ground Water. For a complete definition of each source of drinking water, please refer to the Glossary at the end of this report.

Confinement Status

C = Confined, U = Unconfined. For a definition of a confined and an unconfined aquifer please refer to the Glossary at the end of this report. K = Unknown, S = Semi-confined. For the purposes of SWAP both K and S were treated as unconfined wells.

Source Status

C = Recharge, E = Emergency, I= Interim, O = Other, P= Permanent, R= Reserve, S= Seasonal, U = Not in Use/Capped, V = Abandoned/Not Capped, W = Not in Use/Unspecified, X = Not in Use/Mechanical, Y = Not in Use/Contaminated. For a complete definition of each well status category, please refer to the Glossary at the end of this report.

Source

For ground water sources, the name of the aquifer is provided. For surface water sources, the name of the surface water body on which the intake is located is given.

The NJ American Water Company - Elizabethtown Division contains 49 EPTDS as illustrated in Table 7 (identified by a "T" in the water system component column). Often public water systems treat source water at the EPTDS to ensure the drinking water provided to the public meets Federal and State Drinking Water Standards. Please refer to Appendix A- Attachment 5 for information on the public water system's treatment process.

SECTION IV – DESCRIPTION OF WATER SYSTEM

Middlesex Water Company
PWID # 1225001

1500 Ronson Road
Iselin, NJ 08830
(732)634-1500

Middlesex Water Company is a public community water system consisting of

6 Entry Points to the Distribution System (EPTDS)
- 31 wells
- 0 wells under the influence of surface water
- 1 surface water intake(s)
- 1 purchased ground water
- 1 purchased surface water

Table 6 below contains the municipalities and the population within each of these municipalities served by Middlesex Water Company.

Table 6: Municipalities and Population Served

Municipality	County	Population Served - 2003
Carteret Boro	Middlesex	
Metuchen Boro	Middlesex	
South Amboy City	Middlesex	
South Plainfield Boro	Middlesex	
Woodbridge Twp.	Middlesex	
Clark Twp.	Union	

SECTION V - INVENTORY OF TREATMENT PLANTS AND DRINKING WATER SOURCES

SECTION V - SYSTEM INVENTORY FOR: Middlesex Water Company

Table 7 provides the Middlesex Water Company's treatment plant(s); source(s); the sources' location(s); whether the source(s) are ground water, surface water, or a purchased supply; and the sources' capacity(s). The first column contains the EPTDS ID and sources contributing to the same EPTDS are identified by the same number. An EPTDS is the entry point to the distribution system, and for most community water systems this location is after the water is treated at a treatment plant.

In the case of a ground water source, the well's confinement status and well permit number are provided.

Table 7: Drinking Water Source and EPTDS Inventory

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
01	001	CARL J OLSON SURFACE WTP	T	P				
01	002	DELAWARE AND RARITAN CANAL	S	P	Delaware & Raritan Canal	25	middlesx	
02	005	PARK AVE TREATMENT	T	P				
02	006	PARK AVE WELL 18	G	P	glacial sand and gravel	1.2268	45-00274	U
02	007	PARK AVE WELL 19	G	P	glacial sand and gravel	0.7214	45-00275	U
02	008	PARK AVE WELL 20	G	P	glacial sand and gravel	1.2239	45-00276	U
02	009	PARK AVE WELL 21	G	P	glacial sand and gravel	1.1721	45-00277	U
02	010	PARK AVE WELL 22	G	P	Brunswick aquifer	0.2448	45-00278	U
02	011	PARK AVE WELL 23	G	P	glacial sand and gravel	1.2384	25-09763	U
02	012	PARK AVE WELL 24	G	P	glacial sand and gravel	1.2153	45-00279	U
02	013	PARK AVE WELL 25	G	P	Brunswick aquifer	1.224	25-11815	U
02	014	PARK AVE WELL 26	G	P	Brunswick aquifer	0.4925	25-11816	U
02	015	PARK AVE WELL 27	G	P	Brunswick aquifer	0.3787	25-11822	U
02	016	PARK AVE WELL 28	G	P	Brunswick aquifer	0.36	25-12119	U
02	017	PARK AVE WELL 29	G	P	Brunswick aquifer	0.9979	25-12120	U
02	018	PARK AVE WELL 30	G	P	Brunswick aquifer	0.491	25-12130	U
02	019	PARK AVE WELL 31	G	P	Brunswick aquifer	0.612	25-12461	U
02	020	PARK AVE WELL 32	G	P	Brunswick aquifer	0.36	25-12131	U
02	054	SPRAGUE WELL 1	G	P	glacial sand and gravel	0.9317	25-09603	U
02	055	SPRAGUE WELL 2	G	P	glacial sand and gravel	1.3954	25-11464	U
05	025	MAPLE AVE TREATMENT	T	P				

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
05	026	MAPLE AVE	G	P	Brunswick aquifer	1.0094	25-10001	U
06	027	SPRING LAKE TREATMENT	T	P				
06	028	SPRING LAKE 5	G	P	Brunswick aquifer	0.6235	25-11823	U
06	029	SPRING LAKE 6	G	P	Brunswick aquifer	0.5832	25-11828	U
06	030	SPRING LAKE 8	G	P	Brunswick aquifer	0.7819	25-12364	U
06	031	SPRING LAKE 9	G	P	Brunswick aquifer	0.275	25-12365	U
07	032	TINGLEY NO TREATMENT	T	P				
07	033	TINGLEY NORTH WELL 1	G	P	Brunswick aquifer	0.913	25-00408	U
07	034	TINGLEY NORTH WELL 2	G	P	Brunswick aquifer	0.3874	25-03970	U
07	035	TINGLEY NORTH WELL 3	G	P	Brunswick aquifer	0.648	25-02008	U
07	036	TINGLEY NORTH WELL 4	G	P	Brunswick aquifer	1.08	25-02009	U
08	037	TINGLEY SO TREATMENT	T	P				
08	038	TINGLEY SO WELL 5	G	P	Brunswick aquifer	0.432	25-04516	U
08	039	TINGLEY SO WELL 6	G	P	Brunswick aquifer	0.3902	25-04517	U
08	040	TINGLEY SO WELL 7	G	P	Brunswick aquifer	0.2232	25-05432	U
08	041	TINGLEY SO WELL 8	G	P	Brunswick aquifer	0.4334	25-05637	U
08	042	TINGLEY SO WELL 9	G	P	Brunswick aquifer	0.3586	25-05965	U
13	053	ELIZABETHTOWN WC	P	P				
14	058	SAYREVILLE WD (MERGED FROM 1220001)	W	E				

*KEY

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For ground water sources, the name of the aquifer is provided. For surface water sources, the name of the surface water body on which the intake is located is given.

The Middlesex Water Company contains 6 EPTDS as illustrated in Table 7 (identified by a "T" in the water system component column). Often public water systems treat source water at the EPTDS to ensure the drinking water provided to the public meets Federal and State Drinking Water Standards. Please refer to Appendix A- Attachment 5 for information on the public water system's treatment process.

Your Drinking Water Meets or is Better Than State and Federal Primary Standards for Drinking Water Quality

Dear Customer,

Middlesex Water Company is pleased to present you with a copy of our Annual Water Quality Report which provides important information about the source, treatment and quality of our water, which is better than State and Federal Standards for drinking water quality.

Water is vital to life! It delivers public health protection, fire protection, quality of life and the framework for a vibrant economy. We take our role as water providers seriously and are committed to delivering a safe and reliable drinking water supply. We continue to invest in our drinking water infrastructure and provide the training our employees need to ensure quality water service 24 hours a day, 365 days a year.

The enclosed report contains information on the quality of water delivered to you in 2008. We are pleased to tell you we had no Safe Drinking Water Act violations in 2008. We encourage you to learn more about the quality of your drinking water by reviewing this report or viewing it online at www.middlesexwater.com. You may obtain additional information about drinking water regulatory programs by contacting the Environmental Protection Agency (EPA) Safe Drinking Water Hotline at (800) 426-4791. If you have any questions or would like to learn about opportunities for public participation in decisions about our drinking water, please call Frank Falco, Director of Production at (732) 634-1500 Ext. 1610.

Thank you for being a customer of Middlesex Water Company. We invite you to join with us in ensuring a plentiful water supply for future generations by using water wisely.

Dennis W. Doll

Dennis W. Doll, President and Chief Executive Officer

Water...When You Need It!

The Middlesex system produced 16.8 billion gallons of water in 2008. We utilize both surface and groundwater supplies during various times of the year and customers may receive either or a blend of both sources depending upon location and demands. Middlesex Water Company's water supplies are not fluoridated. Surface water is obtained from the Delaware and Raritan Canal (D&R Canal), which is owned by the State of New Jersey and operated by the New Jersey Water Supply Authority. This source is supplemented by supplies from the Round Valley and Spruce Run Reservoir System. Surface water sources provide 70 percent of the water distributed by the system. The remainder comes from our wells (23 percent) and purchased water (7 percent).

The Company obtains groundwater from its Park Avenue, Maple Avenue and Spring Lake Wellfields in South Plainfield and from its Tingley Lane Wellfields in North and South Edison. The Middlesex System has 31 wells, which, in 2008, produced over 3.8 billion gallons of water. Groundwater comes from an underground source of water known as the Brunswick Aquifer. Water quality is monitored at the Plant, at each wellfield, and throughout the distribution system to determine that water delivered to our consumers meets federal and state drinking water quality standards. During water emergencies, Middlesex Water Company can suspend, increase or decrease supplies from any of its sources.

Source Water Assessment

The New Jersey Department of Environmental Protection (NJDEP) has implemented the Source Water Assessment Program, available at www.state.nj.us/dep/swap or by contacting the NJDEP, Bureau of Safe Drinking Water at 609-292-5550. A summary of this report to study existing and potential threats to the quality of public drinking water sources in the state is found below.

Susceptibility Chart Definitions

Pathogens - Organisms such as bacteria and viruses.
Nutrients - Compounds such as phosphorus and nitrogen that aid in the growth of organisms.
Volatile Organic Compounds (VOCs) - Man-made chemicals used as solvents, degreasers and gasoline components such as MTBE.
Pesticides - Man-made chemicals used to control pests and weeds such as Atrazine.
Inorganics - Mineral-based, man-made and naturally occurring, compounds such as arsenic and nitrates.
Radionuclides - Radioactive, man-made and naturally occurring, substances such as radium and uranium.
Radon - Naturally occurring gas.
Disinfection Byproduct Precursors - Naturally occurring organic matter, mainly in surface waters, that when combined with disinfectants, such as chlorine, produce unwanted byproducts.

A public water system's susceptibility rating (Low, Medium or High) is a combination of two factors:
- How sensitive the water supply is to potential contamination.
- How often a contaminant is used or exists near the source water.

The ratings are based on the potential for a contaminant to be at or above 50% of the MCL (High), between 10% and 50% of the MCL (Medium) and less than 10% of the MCL (Low).

DEP considered all surface water highly susceptible to pathogens, therefore, all intakes received a high rating for the pathogen category. For the purpose of the Source Water Assessment Program, radionuclides are more of a concern for groundwater than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, the DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

Susceptibility Ratings for the Middlesex Water Company System

The table below illustrates the susceptibility ratings for each contaminant category for each source in the system. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

Parameter	31 Wells	Surface Water Intake
Pathogens	Medium - 29 Low - 2	High
Nutrients	High - 10 Medium - 21	High
Pesticides	Medium - 4 Low - 27	Medium
VOCs	High - 31	Medium
Inorganics	High - 14 Medium - 17	High
Radionuclides	High - 3 Medium - 28	Low
Radon	High - 31	Low
Disinfection Byproduct Precursors	High - 14 Medium - 17	High

Required Additional Health Information

Special Considerations Regarding Children, Pregnant Women, Nursing Mothers, and Others

Children may receive a slightly higher amount of a contaminant present in the water than do adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than do adults. For this reason, reproductive or developmental effects are used for calculating a drinking water standard if these effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical (for example, lack of data on reproductive or developmental effects), an extra uncertainty factor may be incorporated into the calculation of the drinking water standard, this making the standard more stringent, to account for additional uncertainties regarding these effects. In the cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

A Word of Caution

Our treatment systems are designed and operated to produce water that meets all state and federal standards. Many substances and microscopic organisms found in water may be a concern if they occur at high concentrations. For some contaminants, MCL levels have not been set because the EPA has not determined at what level they pose a public health risk. This is often because a reliable detection method is unavailable and/or because the contaminant is rarely found in treated water.

Some naturally occurring organisms commonly found in the natural water supplies may not be eliminated during the treatment process. This means that even a well-run system may contain low levels of microscopic organisms. The levels, however, are normally of little concern to healthy individuals. It should be noted, however, that under certain circumstances, these organisms might amplify to dangerous levels within a customer's own water supply system. All customers, including residential, commercial and industrial customers, and other large facilities such as schools, hospitals and hotels/motels, should follow appropriate procedures for maintaining their own internal plumbing systems and appliances. If you have any concerns about these matters, please call the **EPA Safe Drinking Water Hotline at (800) 426-4791.**

For Your Safety – A Message for People with Compromised Immune Systems

Although our drinking water meets all state and federal regulations, some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised individuals such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These individuals should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial pathogens are available from the **EPA Safe Drinking Water Hotline at (1-800 426-4791).**

This report contains important information about your drinking water. If you do not understand it, please have someone translate it for you.

這份報告是有關您飲水的重要資料。
請找人翻譯，或請懂的人解釋給您聽。

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

Please share this report with others. Landlords, businesses, schools, hospitals, and other groups are encouraged to share this Water Quality Report with all water users at their locations.

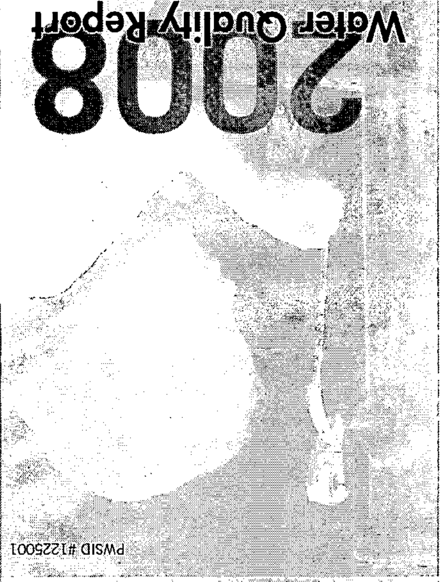
MIDDLESEX WATER COMPANY
1500 Ronson Road
Iselin, New Jersey 08830
(732) 634-1500

PWSID# 1225001

Online bill payment is now available.
Visit www.middlesexwater.com for details

PWSID #1225001

2008 Water Quality Report



MIDDLESEX WATER COMPANY

What the Numbers Mean to You: The table shows the results of our monitoring during 2008. We have learned through our testing that some contaminants have been detected, however, these contaminants were detected well below the levels set by the EPA to protect public health.

For a complete list of monitored contaminants, contact Middlesex Water Company at (732) 634-1500. As you can see, the Middlesex Water system had no MCL violations. The EPA has determined that your water is safe at these levels. The State requires water systems to monitor for certain contaminants less than once a year because the concentration of these contaminants is not expected to vary significantly from year to year. Therefore, some of these data may represent prior period testing that is considered representative of water quality. The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for some compounds because previous results have consistently been below the MCL. Middlesex Water Company received waivers for the following contaminants in both its surface and groundwater supplies: Synthetic Organic Chemicals and Nitrites.

Definitions & Abbreviations used below:

Primary Standards: Standards which relate to public health. **MCLG:** Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. **MCL:** Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. **MRDL:** Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. **MRDLG:** Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

Waiver: State permission to reduce monitoring frequency because previous results have consistently been below the MCL. **PPB:** Parts Per Billion. 1 part per billion corresponds to 1 minute in 2000 years or 1 penny in $10 million. **PPM:** Parts Per Million. 1 part per million corresponds to 1 minute in 2 years or 1 penny in $10 thousand. **mrem/year:** Millirems per year. A measure of radiation absorbed by the body. **N/A:** Not Applicable. **ND:** None Detectable at testing limit. **NR:** Not Reported. **<:** Less Than. **AL:** Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow. **CNR:** Currently Not Regulated. **NTU:** Nephelometric Turbidity Unit. Used to measure cloudiness in drinking water. We monitor turbidity because it is a good indicator that our filtration system is functioning properly. High turbidity can hinder the effectiveness of disinfectants. **pCi/l:** Picocuries per Liter. A measure of the radioactivity in water.

ANNUAL WATER QUALITY RESULTS - 2008

Parameter	Units	MCL (State/Federal Standard)	MCLG (Ideal Goal)	Surface Water	Groundwater North Tingley Lane/ NJ American Water	Groundwater South Tingley Lane	Groundwater Park Ave./Maple Ave./ Spring Lake	Major Sources in Drinking Water	MCL Violation Yes/No
Inorganic									
Arsenic (Note 1 & 3)	ppb	5	N/A	ND	ND	3	ND	Erosion of natural deposits	No
Barium	ppm	2	2	0.02	ND	0.03	0.07	Discharge from metal refineries	No
Lead (Note 2)	ppb	AL=15	0	1.0 No Samples over AL	1.0	1.0	1.0	Corrosion of household plumbing	No
Copper (Note 2)	ppm	AL=1.3	1.3	0.323 No Samples over AL	0.323	0.323	0.323	Corrosion of household plumbing	No
Nitrate	ppm	10	10	1.1	1.5	1.7	3.9	Erosion of natural deposits	No
Microbiological									
Total Coliform Bacteria	MCL: Found in >5% of samples		0	1.0%	1.0%	1.0%	1.0%	Naturally present in the environment	No
Fecal Coliform	N/A	N/A	0	ND	ND	ND	ND	Human and animal fecal waste	No

Parameter	Units	MCL (State/Federal Standard)	MCLG (Ideal Goal)	Highest Level Used For Compliance	Range	Highest Level Used For Compliance	Range	Highest Level Used For Compliance	Range	Highest Level Used For Compliance	Range	Major Sources in Drinking Water	MCL Violation Yes/No
Volatile Organic Chemicals													
Trichloroethylene (Notes 3 & 4)	ppb	1	0	ND		0.40	0.04-0.06	0.6	0.5-0.8	ND		Discharge from metal degreasing sites	No
Turbidity	NTU's	TT (Note 5)	N/A	100%	0.03-0.48		0.07-0.43		N/A	N/A		Soil runoff	N/A
Radiological (Note 6)													
Radium 226 & 228	pCi/l	5	0	ND			ND		ND	ND		Erosion of natural deposits	No
Beta & Photon emitters (Note 7)	pCi/l	50	0	4.0			4.9-8		8.4	7.6		Decay of natural and man-made deposits	No
Gross Alpha emitters (Note 8)	pCi/l	15	0	ND		5.7	4.5-6.9		9.3	4.5		Erosion of natural deposits	No
Uranium (Note 9)	ppb	30	0	ND		8.5	7-10		15.5	3.0		Erosion of natural deposits	No
Disinfection By-Products													
Total Trihalomethanes (Note 4)	ppb	80	N/A	39.0	16.1-85.7	39.0	ND-4.2	39.0	2.7-7.1	39.0	ND-17.6	By-product of drinking water chlorination	No
Chloroform	ppb	N/A	N/A		9.7-72.3		ND		ND		ND-0.5	By-product of drinking water chlorination	No
Bromodichloromethane	ppb	N/A	0		3.0-12.9		ND-0.3		ND-0.4		ND-1.5	By-product of drinking water chlorination	No
Dibromochloromethane	ppb	N/A	60		0.3-3.2		ND-0.9		0.4-1.7		ND-1.7	By-product of drinking water chlorination	No
Bromoform	ppb	N/A	0		ND-1.2		ND-3.4		2.3-5.4		ND-10.9	By-product of drinking water chlorination	No
Total Haloacetic Acids (Note 4)	ppb	60	N/A	27.0	12.3-54.4	27.0	ND	27.0	ND	27.0	ND	By-product of drinking water chlorination	No
Monochloracetic Acid	ppb	N/A	N/A		ND		ND		ND		ND	By-product of drinking water chlorination	No
Dichloroacetic Acid	ppb	N/A	0		4.5-24.5		ND		ND		ND	By-product of drinking water chlorination	No
Trichloroacetic Acid	ppb	N/A	300		6.5-29.9		ND		ND		ND	By-product of drinking water chlorination	No
Bromoacetic Acid	ppb	N/A	N/A		ND		ND		ND		ND	By-product of drinking water chlorination	No
Dibromoacetic Acid	ppb	N/A	N/A		ND		ND		ND		ND	By-product of drinking water chlorination	No
Disinfectant Residuals (Note 9)	ppm	4ppm MRDL	4ppm MRDLG	0.66	ND-1.6	0.66	ND-1.1	0.66	ND-1.1	0.66	ND-1.1	Result of water disinfection	No
Additional Monitoring													
Additional contaminants for which we monitor that are currently not regulated by the EPA													
Perchlorate (Note 10)	ppb	CNR	N/A		–		0.8-4.0		ND		–	Oxygen additive in solid fuel propellant for rockets	N/A
PFOA (Note 11)	ppb	CNR	N/A		–		0.038		0.019		–	Discharge from Industrial Chemical Factories	N/A
PFOS (Note 11)	ppb	CNR	N/A		–		0.036		ND		–	Discharge from Industrial Chemical Factories	N/A
PFBA (Note 11)	ppb	CNR	N/A		–		0.18		ND		–	Discharge from Industrial Chemical Factories	N/A

Unregulated Contaminant Monitoring Rule (UCMR-2)
During 2008, New Jersey American Water participated in the Unregulated Contaminant Monitoring Rule. Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted. For testing conducted in the Raritan System, the following substance was found.

Contaminant	Units	Range Detected	Use or Environmental Source
N-nitrosopyrrolidine (NP-YR)	ppb	ND-0.0172	Nitrosamines can form as intermediates and by-products in chemical synthesis and manufacture of rubber, leather, and plastics; can form spontaneously by reaction of precursor amines with nitrosating agents (nitrate and related compounds), or by action of nitrate-reducint bacteria. Foods such as bacon and malt beverages can contain nitrosamines; there is also evidence that they form in the upper GI tract.

Note 1: Middlesex Water Company is on reduced monitoring, once per three-year cycle. The listed Arsenic concentrations are from 2005.
Note 2: Middlesex Water Company is on reduced monitoring, once per three-year cycle. The listed Lead and Copper concentrations are the 90th Percentile Value from 2007. The highest level detected was 6 ppb for Lead and 0.491 ppm for Copper.
Note 3: MCLs for these chemicals were set by the NJDEP below those set by the EPA.
Note 4: Compliance is based on running annual average of quarterly sampling.
Note 5: TT (Treatment Technique) - A required process intended to reduce the level of a contaminant in drinking water. The TT does not apply to groundwater.
Turbidity MCL - The Turbidity level must be less than or equal to 0.3 ntu's in 95% of the samples taken every month and at no time exceed 1 ntu.
Note 6: North Tingley Lane/NJ American Water data is from 2005. The data for all other sites is from 2008.
Note 7: EPA considers 50 pCi/l to be the level of concern for Beta Particles.
Note 8: The Gross Alpha compliance is determined minus the Radon and Uranium contribution.
Note 9: MRDL and MRDLG are Maximum Disinfectant (Chlorine Residual) levels.
Note 10: North Tingley Lane/NJ American Water and South Tingley Lane were sampled in 2008. Spring Lake and Maple Avenue were not used in 2008, all others were previously ND.
Note 11: PFOA, PFOS and PFBA are a group of Perfluorinated compounds widely found in the environment. The health risk has not been determined but NJDEP has identified a guidance level of 0.040 ppb for PFOA ONLY.

HEALTH INFORMATION – Health Effects of Detected Contaminants (Required Language)

Arsenic - Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Lead - Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Copper - Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Nitrate - Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Trichloroethylene - Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Turbidity - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites, which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
Total Coliform Bacteria - Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present.
Fecal Coliform - Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.
Radium 226 & 228 - Some people who drink water containing radium 226 or 228 in excess of the MCL over many years have an increased risk of getting cancer.
Beta & Photon emitters - Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Gross Alpha emitters - Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium - Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Total Trihalomethanes - Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys or central nervous systems and may have an increased risk of getting cancer.

Ensuring Water Quality

To ensure that tap water is safe to drink, the EPA and the DEP Bureau of Safe Drinking Water prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the **EPA Safe Drinking Water Hotline at (800) 426-4791.**

What Substances May Be Found in the Source Water Before It Is Treated?

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water moves over land or through the ground, it dissolves naturally occurring minerals and organics and can pick up substances resulting from the presence of animal or human activity. Substances that may be present in source waters prior to the treatment process include:

Microbial Contaminants: Such as viruses and bacteria, which may come from sewage treatment plants, septic systems, livestock and wildlife.
Inorganic Contaminants: Such as salts and metals, which can be naturally occurring or result from storm water runoff, wastewater discharges, or farming.
Pesticides and Herbicides: Which may come from a variety of sources such as agriculture, storm water runoff, and residential usés.
Organic Chemical Contaminants: Including natural, synthetic and volatile organic chemicals, which are by-products of nature and industrial processes and petroleum production and can also come from gas stations, storm water runoff and septic systems.
Radioactive Contaminants: Which can be naturally occurring or may be the result of oil and gas production and mining activities.

About Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Middlesex Water is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http:/www.epa.gov/safewater/lead.

ATTACHMENT O

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NOAA's National Weather Service
Hydrometeorological Design Studies Center
Precipitation Frequency Data Server (PFDS)

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  - PFDS Perform.
- PF Documents

Probable Maximum Precipitation (PMP)
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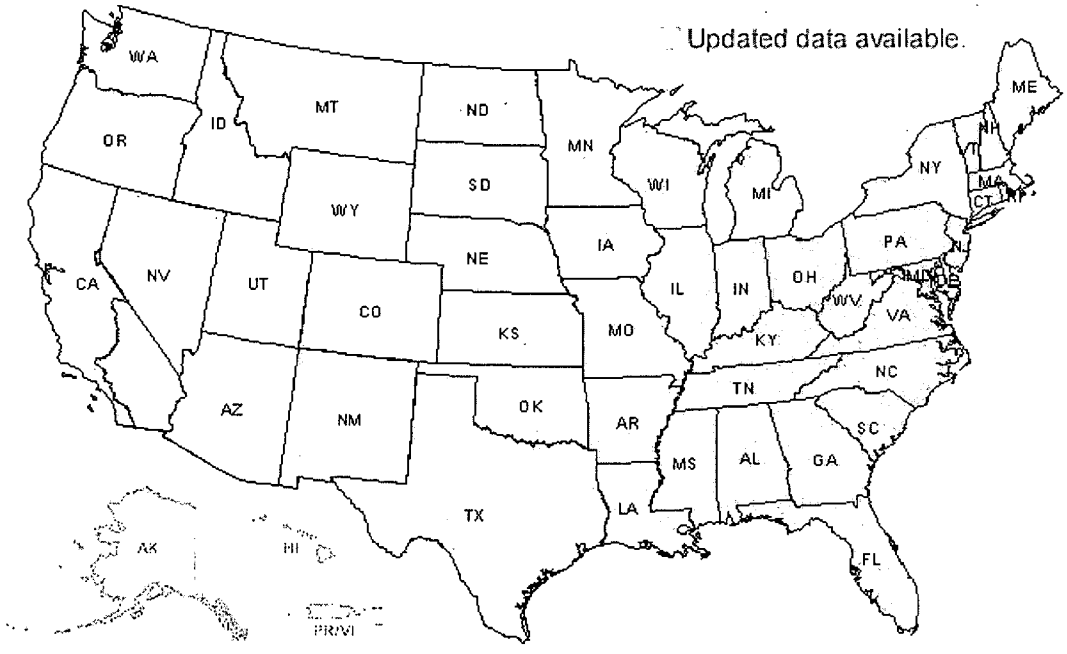
State: New Jersey Load

new NOAA Atlas 14 Volume 4 for the Hawaiian Islands is now available (3/30/2009).

Updated data available.



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National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
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POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

PLAINFIELD, NEW JERSEY (28-7079) 40.6036 N 74.4025 W 124 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 2, Version 3
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2004

Extracted: Mon Jul 20 2009

Confidence Limits | Seasonality | Location Maps | Other Info. | GIS data | Maps | Docs | Return to State Map

Precipitation Frequency Estimates (inches)

AEP* (1-in-Y)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
2	0.37	0.59	0.74	1.02	1.28	1.57	1.75	2.24	2.77	3.12	3.66	4.07	4.76	5.42	7.27	9.02	11.41	13.64
5	0.46	0.74	0.93	1.33	1.70	2.11	2.35	3.01	3.74	4.25	4.97	5.47	6.28	7.05	9.21	11.20	13.98	16.54
10	0.52	0.83	1.05	1.52	1.98	2.49	2.78	3.58	4.48	5.11	5.95	6.50	7.39	8.20	10.52	12.59	15.58	18.31
25	0.59	0.94	1.19	1.76	2.34	3.00	3.35	4.35	5.52	6.38	7.33	7.93	8.91	9.78	12.20	14.30	17.52	20.37
50	0.63	1.01	1.27	1.92	2.60	3.40	3.80	4.98	6.41	7.44	8.48	9.09	10.13	11.02	13.46	15.54	18.89	21.80
100	0.68	1.08	1.36	2.08	2.87	3.81	4.27	5.66	7.36	8.63	9.74	10.33	11.44	12.33	14.73	16.75	20.21	23.13
200	0.72	1.14	1.43	2.23	3.13	4.24	4.75	6.38	8.42	9.96	11.12	11.68	12.83	13.72	16.02	17.93	21.47	24.36
500	0.77	1.21	1.53	2.43	3.48	4.85	5.43	7.43	10.00	11.95	13.15	13.61	14.83	15.67	17.74	19.44	23.07	25.87
1000	0.80	1.26	1.59	2.57	3.75	5.33	5.97	8.29	11.34	13.67	14.86	15.22	16.46	17.25	19.08	20.56	24.22	26.93

* These precipitation frequency estimates are based on an annual maxima series. **AEP** is the Annual Exceedance Probability.
Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting forces estimates near zero to appear as zero.

*** Upper bound of the 90% confidence interval**
Precipitation Frequency Estimates (inches)

AEP** (1-in-Y)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
2	0.40	0.65	0.81	1.12	1.41	1.74	1.94	2.48	3.07	3.40	4.01	4.43	5.14	5.83	7.75	9.51	11.99	14.30
5	0.51	0.81	1.03	1.46	1.87	2.34	2.62	3.33	4.15	4.62	5.43	5.96	6.79	7.58	9.81	11.80	14.69	17.34
10	0.57	0.91	1.16	1.67	2.18	2.76	3.09	3.95	4.95	5.56	6.49	7.08	7.98	8.82	11.21	13.27	16.38	19.19
25	0.64	1.03	1.30	1.93	2.57	3.31	3.71	4.79	6.08	6.92	8.00	8.62	9.62	10.52	13.01	15.08	18.42	21.38
50	0.69	1.10	1.40	2.11	2.85	3.75	4.21	5.48	7.04	8.07	9.26	9.90	10.95	11.87	14.37	16.41	19.88	22.89
100	0.74	1.18	1.49	2.28	3.15	4.21	4.72	6.22	8.08	9.36	10.65	11.26	12.39	13.31	15.75	17.71	21.30	24.31
200	0.79	1.25	1.57	2.45	3.44	4.69	5.26	7.01	9.25	10.82	12.19	12.76	13.93	14.85	17.17	19.00	22.67	25.65
500	0.84	1.33	1.68	2.67	3.83	5.37	6.03	8.17	10.98	13.03	14.48	14.94	16.19	17.05	19.10	20.69	24.44	27.32
1000	0.89	1.40	1.75	2.84	4.14	5.92	6.64	9.13	12.46	14.95	16.44	16.80	18.07	18.87	20.63	21.96	25.75	28.52

* The **upper** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **greater** than.
** These precipitation frequency estimates are based on an annual maxima series. **AEP** is the Annual Exceedance Probability.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

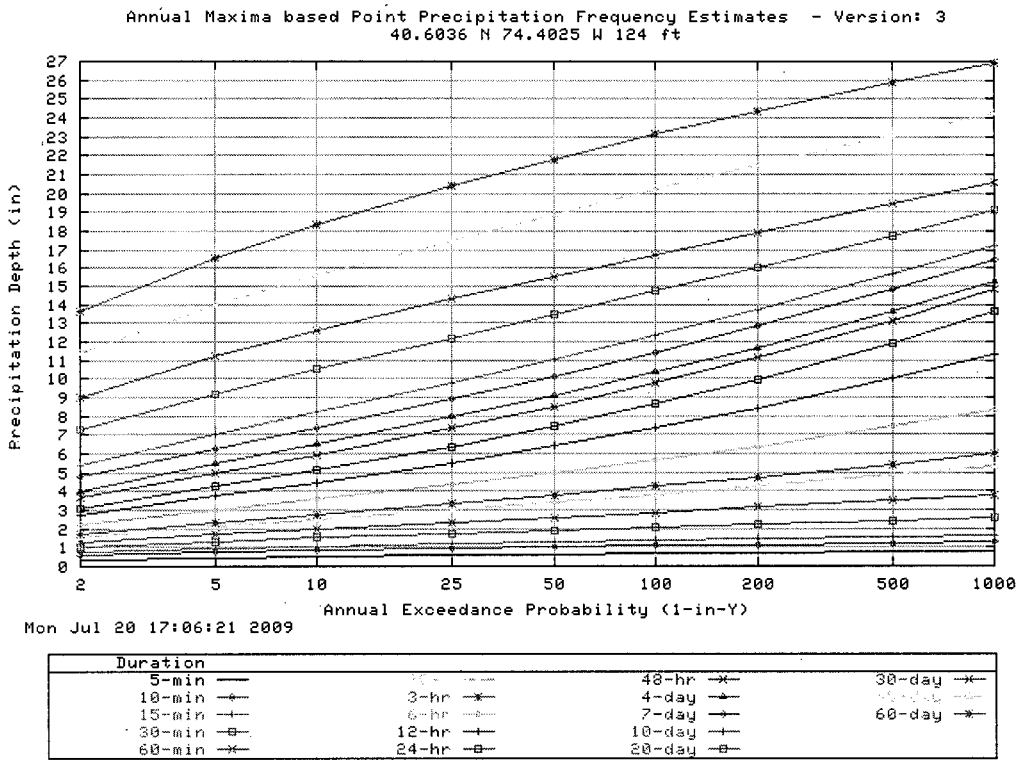
*** Lower bound of the 90% confidence interval**
Precipitation Frequency Estimates (inches)

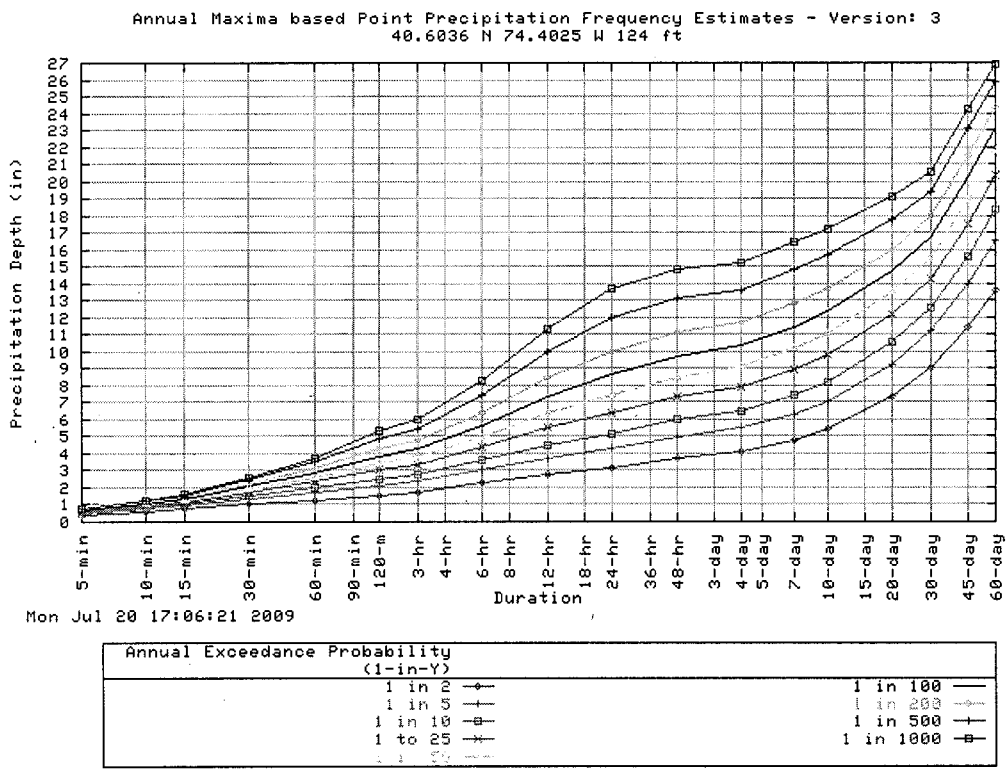
AEP** (1-in-Y)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
2	0.34	0.54	0.67	0.93	1.17	1.42	1.59	2.03	2.51	2.88	3.37	3.75	4.42	5.06	6.84	8.54	10.84	13.01
5	0.42	0.67	0.85	1.21	1.55	1.91	2.13	2.72	3.38	3.92	4.56	5.04	5.82	6.56	8.65	10.59	13.27	15.77
10	0.47	0.76	0.96	1.38	1.80	2.25	2.51	3.22	4.03	4.70	5.44	5.97	6.83	7.62	9.86	11.89	14.77	17.44
25	0.53	0.85	1.07	1.59	2.12	2.69	3.01	3.88	4.93	5.82	6.67	7.24	8.18	9.03	11.38	13.47	16.56	19.37
50	0.57	0.91	1.15	1.73	2.34	3.03	3.39	4.42	5.67	6.74	7.67	8.26	9.25	10.12	12.52	14.60	17.81	20.68
100	0.61	0.96	1.22	1.86	2.57	3.37	3.78	4.97	6.44	7.75	8.73	9.31	10.36	11.24	13.63	15.69	19.01	21.89
200	0.64	1.01	1.28	1.99	2.79	3.73	4.18	5.55	7.27	8.83	9.85	10.42	11.52	12.40	14.74	16.72	20.13	23.00
500	0.68	1.07	1.35	2.14	3.07	4.21	4.72	6.37	8.47	10.42	11.46	11.97	13.12	13.98	16.18	18.02	21.51	24.32
1000	0.70	1.11	1.39	2.25	3.29	4.59	5.14	7.03	9.47	11.74	12.78	13.23	14.39	15.22	17.26	18.94	22.48	25.23

* The **lower** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **less** than.
** These precipitation frequency estimates are based on an annual maxima series. **AEP** is the Annual Exceedance Probability.

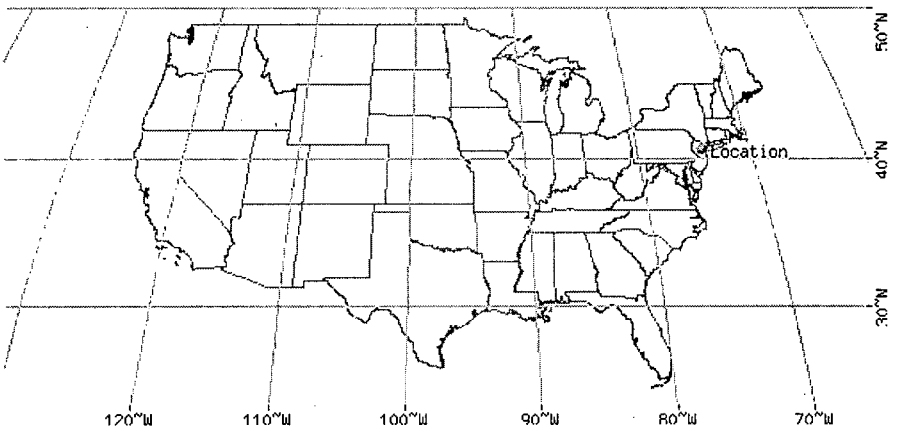
Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

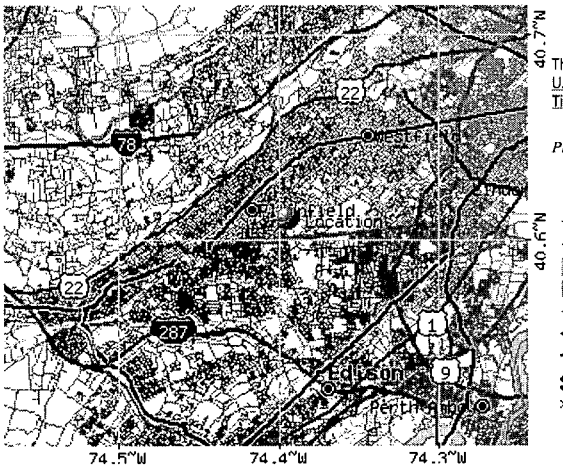
Text version of tables





Maps -





These maps were produced using a direct map request from the U.S. Census Bureau Mapping and Cartographic Resources Tiger Map Server.

Please read disclaimer for more information.

LEGEND

- State
- County
- Indian Resv
- Lake/Pond/Ocean
- Street
- Expressway
- Highway
- Connector
- Stream
- Military Area
- National Park
- Other Park
- City
- County

Scale 1:228583 (0 2 4 6 8 mi; 0 2 4 6 8 10 km)

*average--true scale depends on monitor resolution

Other Maps/Photographs -

View USGS digital orthophoto quadrangle (DOQ) covering this location from TerraServer; **USGS Aerial Photograph** may also be available from this site. A DOQ is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed. It combines the image characteristics of a photograph with the geometric qualities of a map. Visit the USGS for more information.

Watershed/Stream Flow Information -

Find the Watershed for this location using the U.S. Environmental Protection Agency's site.

Climate Data Sources -

Precipitation frequency results are based on data from a variety of sources, but largely NCDC. The following links provide general information about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study, please refer to NOAA Atlas 14 Document.

Using the **National Climatic Data Center's (NCDC)** station search engine, locate other climate stations within:

+/-30 minutes ...OR... +/-1 degree of this location (40.6036/-74.4025). Digital ASCII data can be obtained directly from **NCDC**.

Hydrometeorological Design Studies Center
DOC/NOAA/National Weather Service
1325 East-West Highway
Silver Spring, MD 20910

(301) 713-1669
Questions?: HDSC.Questions@noaa.gov

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