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SITE REASSESSMENT REPORT

AIRTRON A DIVISION OF LITTON INDUSTRIES INC.

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HANOVER TOWNSHIP
MORRIS COUNTY

VOLUME 3 OF 3

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL MEASUREMENTS AND SITE ASSESSMENT

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ATTACHMENT K

Remedial Investigation Work Plan Addendum

AIRTRON DIVISION OF LITTON SYSTEMS, INC.
MORRIS PLAINS, NEW JERSEY

JANUARY 12, 2007

Prepared for:

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CERTIFICATIONS

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein including all attached documents, and that based on my inquiry of those individuals responsible for obtaining the submitted information, to the best of my knowledge, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

Name: Joseph P. Kwan

Signature:

Title: Corporate Director, Environmental Remediation

Company Name: Northrop Grumman Space & Mission Systems Corp.

STATE OF OHIO

COUNTY OF Cuyahoga

Sworn to and subscribed before me this 10th day of Jan., 2006.
Witness my hand and official seal.

LINDA M WORDEN
NOTARY PUBLIC
STATE OF OHIO
Cuyahoga County
My Commission Expires
May 17, 2009

Linda M Worden
Notary Public

1.0 INTRODUCTION

Airtron Division of Litton Systems, Inc. (Airtron) is hereby requesting that a Permit-by-Rule (PBR) be issued for an in-situ chemical oxidation (ISCO) pilot test to address residual source area impacts to on-site groundwater at the Airtron property in Hanover Township, New Jersey (the site). The ISCO pilot test will be completed as part of the overall site investigation and remediation being conducted by Airtron under the direction of the New Jersey Department of Environmental Protection (NJDEP). Airtron has previously received multiple PBR approvals during soil remediation activities recently completed at the site for injection of various oxidant recipes and is requesting a streamlined approval through a modification to those existing permits.

Since 1980, this site has been the subject of numerous remedial investigations and remedial actions. Most of the areas of concern (AOCs) have been investigated and remediated and in many cases, the NJDEP has issued No Further Action (NFA) determinations for soil AOCs, or is in the final review prior to issuance of a NFA. However, groundwater (identified as AOC-11) remains impacted by chlorinated volatile organic compounds (CVOCs) and requires further remediation.

Details of the proposed ISCO pilot test are outlined in this Remedial Investigation Workplan (RIWP) Addendum, as required by the Technical Requirements for Site Remediation N.J.A.C. 7:26E (Tech Rule), specifically 7:26E-4.2, which deals with the required elements of a RIWP. As extensive remedial investigation work has been completed for both soil and groundwater, and extensive soil remediation activities have been completed at the site, reference is made to specific documents previously submitted to the NJDEP for supporting documentation where appropriate. The information provided herein, in conjunction with the information previously submitted to the NJDEP and incorporated by reference, provides the necessary background and supporting information for the NJDEP to approve the planned pilot test and issue the necessary PBR.

2.0 SCHEDULE

Upon NJDEP approval and issuance of a PBR for the pilot test, Airtron's contractor, Panther Technologies, Inc. (Panther), will immediately begin work on the pilot test. Pre-design field work has already been initiated with approval by the NJDEP (e-mail from Michael Kenney dated 12 October 2006), including collection of soil and groundwater samples for natural organic demand (NOD) and CVOC analysis. Additional approved work included injection rate testing to confirm the optimal design flow rates for oxidant solutions in different areas on-site. Following approval of this RIWP Addendum, injection well drilling will commence, the batch mixing and injection systems will be installed and injections will begin. The schedule outlined in Appendix A shows major project tasks and the anticipated duration for each task. Panther currently anticipates completion of the pilot test within approximately 6 – 8 months following approval of the RIWP.

3.0 PROJECT PERSONNEL

Panther has completed several remedial components at the site over the past five years with the same Project Team. The Project Team for this phase of work includes the following personnel:

Panther Personnel

- Mr. Peter J. Palko, CHMM, P.E.	Project Director and Health & Safety Coordinator
- Mr. Kevin D. Dyson, P.E.	Project Manager
- Mr. Chuck Elmendorf	Project Regulatory Specialist
- Mr. Mike Appenzeller	Field Supervisor

Throughout the duration of the pilot test, any of the above listed personnel can be reached at Panther's Medford, New Jersey office at (609) 714-2420. Panther will also be supported by a specially trained field crew that is familiar with the handling and injection of oxidants and has been integrally involved in the various phases of field work completed to date. No changes in project personnel are anticipated. If principal personnel on the project were to change, information on the new personnel would be submitted to the NJDEP within 30 days of the change, in accordance with the Tech Rule.

In addition to Panther personnel managing and implementing the ISCO pilot project, ARCADIS G&M, Inc. (ARCADIS) will continue to provide technical support on groundwater quality, geology and hydrogeology matters related to groundwater remediation. ARCADIS' knowledge of the subsurface hydrogeology will be applied to support Panther in ensuring that maximum contact of oxidants with CVOCs is achieved.

4.0 HISTORICAL INFORMATION

The site was developed as a manufacturing facility in 1952 by Monroe Calculating Machine Company (Monroe). Litton Business Systems purchased the property in 1958 and moved the Airtron Division into the facility that year. Airtron manufactured wave guide/microwave components and ingots/wafers used in the semiconductor industry until the cessation of operations. Airtron formally ceased operations on March 30, 2002.

A full description of the historic manufacturing operations and product use was provided in the Site Investigation/Remedial Investigation and Remedial Action Selection Report (SI/RI/RASR) submitted to the Department in July 1998. This Report and other documents submitted to the NJDEP in relation to site remediation are detailed in Table 1, List of Previously Submitted Reports. This table provides a bibliography of key remediation documents submitted to the NJDEP and a general overview of the work completed at the site since 1981.

Several remedial investigations have been conducted at the facility since 1981. Table 1 lists the reports submitted to the NJDEP in association with all the investigations. The referenced documents contain all supporting data including soil and groundwater data for each investigative effort and include historical site plans and aerial photographs.

5.0 SITE CONDITIONS

The description of site conditions and surrounding area presented herein includes a brief description of the former site operations and surrounding land use, local topography and drainage, soils and wetlands, regional geology, regional water supply, site geology and site hydrogeology based on the results of previously completed remedial investigation (RI) activities.

5.1 Site Operations and Surrounding Land Use

The Airtron site is located at 200 Hanover Avenue, Hanover Township, Morris County, New Jersey. A site location map and site plan are presented as Figures 1 and 2, respectively. The site is designated as Block 601, Lot 1, and is located in a mixed commercial, industrial and residential area. Land use within a 1,000-foot radius of the site consists predominantly of commercial and industrial lots. A warehouse, former dump, and bulk petroleum storage facilities are located to the southeast of the facility. A sports arena, a manufacturing facility and an automobile service center are located to the west of the facility across East Hanover Avenue. A former sand and gravel quarry is located to the north and undeveloped woodland to the east. Some residential development exists more than 1,000 feet to the west.

The site is approximately 19 acres in size. There is a single-story building approximately 105,000 ft^2 in size with limited asphalt paved parking areas. The remainder of the site is predominantly wooded or grass covered. A small storage shed is located in the rear parking lot.

5.2 Local Topography and Drainage

The property is topographically level, at an average elevation of approximately 400 feet above mean sea level (MSL). Surrounding land topography generally slopes downward towards the Whippany River, approximately 2,500 feet to the southwest and southeast of the property. The Whippany River flows generally from northwest to southeast through this region.

Site drainage occurs by overland flow across the rear of the property and/or via storm sewer network to Outfall 002 located in the northeast edge of the rear lot. This outfall discharges to a drainage ditch located within the wooded area along the eastern property boundary. The

drainage ditch leaves the site along the southern property line, and becomes an unnamed tributary that discharges to the Whippany River, located in the Passaic River Drainage Basin. The Water Quality Classification of this section of the Whippany River is "freshwater non-trout" (FW2-NT).

Surface water is also present in the northern end of the former sand and gravel quarry north of and adjacent to the site. Based on field observations, this water body appears to be perennial and represents either a reflection of the water table or accumulated precipitation.

5.3 Soils and Wetlands

Existing published information was studied to determine the approximate extent of wetlands on the site and adjacent properties. Amy S. Greene Environmental, Inc. (ASGECI) completed wetlands delineation at the site in April 2002. Vegetation, soils, and hydrology were examined for evidence of wetland characteristics according to methodology outlined in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee on Wetland Delineation, 1989). In order to be identified as wetlands, an area must have hydrophytic vegetation, hydric soils, and be saturated by groundwater or inundated by surface water for two weeks or more during the growing season.

Forested wetlands associated with an unnamed tributary of the Whippany River were identified in the eastern portion of the site during the field investigation. Two wetland lines were used to identify the wetland/upland boundaries. Additional points also identified a forested wetland swale. Wetlands delineation was completed in advance of soil remediation activities in AOCs 1-4 in 2003 due to remediation activities encompassing a portion of the existing wetlands at the rear of the property. Additional information regarding the wetlands delineation, along with the NJDEP Letter of Interpretation and a description of wetlands restoration activities, can be found within previously submitted reports by Panther, including the 2003 Remedial Action Work plan, the October 2004 Remedial Action Report (RAR), the November 2005 RAR and subsequent follow up RAR Addenda.

In summary, hydric soils characterized by low chroma matrix and mottling were identified in the wetland areas delineated within the site. These characteristics were not observed in upland areas of the site. Hydric soil mapped at the site included Ridgebury extremely stony loam 3-8% slopes. The soil within the uplands exhibited a high (bright) chroma matrix indicative of a non-hydric soil. Upland soils present on the site include sand and gravel, Boonton gravelly loam, 3-8% slopes; Hibernia stony loam, 3-11% slopes; and Urban land (New Jersey Department of Environmental Protection [NJDEP] GIS Soil Map, 1996).

5.4 Regional Geology

The site is situated within the western boundary of the Piedmont Physiographic Province (Triassic Lowland Subsection). The Piedmont is an elongated down-faulted basin also referred to as the Newark basin. The Triassic strata dip west-northwest at about 8 to 10 degrees (Nichols 1968). Immediately west of the facility is a major fault that forms the boundary between the Triassic Lowland and the New Jersey Highlands. The New Jersey Highlands are located on an upthrown portion of the fault and consist of Paleozoic and Precambrian gneisses, granites and schists.

The geology of the Morris Plains area consists of a series of glacial units overlying interbedded sedimentary and igneous rock of the Jurassic age (Lyttle and Epstein, 1987). These rocks form part of the Newark Super group and are (from top to bottom) the Boonton Formation, Hook Mountain Basalt, Towaco Formation, Preakness Basalt, Feltville Formation, and Orange Mountain basalt. Combined, these rocks were formerly referred to as the Brunswick Formation. Periods of glaciation occurred during the Pleistocene Epoch, sometime referred to as the Great Ice Age or Glacial Epoch, which began about 2.5 million years ago.

During the Pleistocene period, glaciers advanced and retreated several times. As the sheets of ice retreated, the glaciers dropped debris, creating deposits of sediments consisting of clay and crushed rock of all sizes. This material is typically called till. The thickness of till deposits varies depending upon the degree of ice movement, the amount of materials caught up in the bottom of the ice, and the bedrock topography (Gill and Vecchioli 1965). Till deposits blanket a large portion of Morris County.

5.5 Regional Water Supply

Public water supply in the area is predominantly from groundwater wells that penetrate the glacial valley-fill sediments. Reported specific capacities of production wells in the area range from approximately 10 to 120 gpm per foot of draw down with yields ranging from 150 to 450 gpm (Converse 1981).

5.6 Site Geology

Bedrock at the Airtron site occurs at depth greater than approximately 140 feet and consists of interbedded sandstones and shales associated with the Boonton Formation. The site-specific lithology is interpreted to include four unconsolidated lithological units of glacial origin as described below. The discussion below represents a generalized overview of the lithology. More detailed discussions of the lithology and associated hydrogeology are provided in the SI/RI/RASR (ARCADIS, 1998) the ARCADIS 2003 Interim Data Summary (IDS) Report, and the ARCADIS 2004 IDS Report. Generally, the lithological units observed at the site include the following:

Upper Glacial Till (Unit 1)

The uppermost (surficial) unit is classified as till and the thickness of deposits varies. Several discontinuous lenses of clays, silts, sands and gravelly sands are encountered within this unit. Perched groundwater conditions within this unit have been identified sporadically across the site. Where present, the perched groundwater is observed at depths ranging from 5 feet to 20 feet below ground surface. Overall, the unit is very heterogeneous due to these discontinuous lenses.

Outwash Sands and Gravels/Outwash Transition Zone (Unit 2)

This unit is located below the till and is comprised of outwash sands and gravels transitioning with depth to finer-grained material (sands and silts). The upper unconfined aquifer is present within this unit with depth to water ranging from approximately 30 feet to 40 feet bgs.

Lower Glacial Till (Unit 3)

This unit consists of fine-grained till and dense-stratified silts and is located beneath the outwash sands and gravels. This unit is generally continuous beneath the site and surrounding area and ranges in thickness from approximately 10 to 30 feet.

Lower Outwash Sands and Gravels (Unit 4)

This unit is located approximately 70 feet to 90 feet bgs and is directly beneath the lower glacial till unit. The lower aquifer is present in this unit and occurs under confined conditions. Figures 3 through 6, taken from the ARCADIS 2003 Interim Data Summary (IDS) Report, have been included to illustrate a cross section of the geology at the site.

5.7 Soil Borings

Soil boring logs have been submitted to the NJDEP in various documents, including the SI/RI/RASR (ARCADIS, 1998), the ARCADIS 2003 IDS Report, and the ARCADIS 2004 IDS Report.

5.8 Site Hydrogeology

As briefly noted above, the three hydrogeologic units identified at the Airtron facility are:

- perched groundwater within the upper glacial till (Unit 1);
- upper unconfined aquifer within the shallower outwash deposits (Units 2 &3);
- lower confined aquifer located within the deeper outwash deposits (Unit 4).

The lower glacial till unit acts as an aquitard that separates the lower confined aquifer from the upper unconfined aquifer. This aquitard acts as the base of the upper unconfined aquifer.

Perched groundwater generally occurs as a result of isolated clay lenses or highly compacted till zones that impede the vertical infiltration of water. The perched groundwater is found in isolated areas around the site, with the primary area along the southeastern edge of the rear grassed area. This area is also affected by significant recharge due to surface water runoff. Run-off also

provides the bulk of the water, which appears to sustain local wetlands in conjunction with the low permeability surficial glacial till.

The upper unconfined aquifer (Units 2 &3) has a saturated thickness of approximately 40 to 50 feet and is encountered at approximately 30 to 40 feet bgs across the site (i.e. at the regional water table). This upper aquifer has a gradient of approximately 0.0057 feet per foot with a general regional flow direction to the southwest toward the Whippany River that serves as a regional discharge boundary. As documented in previously submitted reports (e.g., ARCADIS Fall 2005 Semiannual Monitoring Report), on-site groundwater flow patterns are variable and are the results of localized influences superimposed on an overall southwesterly flow direction consistent with regional flow. Localized influences include local recharge effects associated with the former gravel pit to the north and localized water table mounding due to recharge from overlying perched groundwater. Hydraulic conductivity estimates, primarily associated with the upper unconfined aquifer, have been summarized in the ARCADIS 2004 IDS Report. Generally, the deposits making up the upper unconfined aquifer are moderately to highly permeable with hydraulic conductivity estimates generally ranging from 10 to 100 feet/day.

Beneath the upper unconfined unit, the lower confined aquifer (Unit 4) is encountered at approximately 70 to 90 feet bgs and has a horizontal gradient of approximately 0.0125 ft/ft. Relative groundwater elevation data between monitoring wells in the unconfined aquifer and those in the confined aquifer indicate a vertically upward head gradient. Regional flow direction in the confined aquifer is toward the southeast.

Figures 3 thru 6 (previously submitted with the ARCADIS 2003 IDS Report) have been included to illustrate key cross-sections of the underlying hydrogeology at the site. As presented in the ARCADIS 2003 IDS Report, two significant variations to the generalized geologic/ hydrogeologic framework mentioned above occur on-site. As depicted on Figure 4, a distinct lower permeability unit, referred to as the shallow aquitard, was encountered within the shallow portion of the upper unconfined aquifer underlying AOCs 3 and 4. In the northern portion of the site, this lower glacial till/aquitard is not encountered as shown on Figures 5 and 6. In the onsite source area, the basal aquitard encountered within the lower confined aquifer acts as the base of the upper unconfined aquifer. The extents and surface configurations for these aquitards have

been presented in the ARCADIS 2003 IDS Report; an updated western extent for the shallow aquitard was presented in the ARCADIS October 6, 2004 correspondence to the NJDEP.

6.0 DESCRIPTION OF AOC- 11 (GROUNDWATER)

This RIWP Addendum addresses a proposed pilot test for remediation of residual impacted on-site groundwater. Groundwater impacted by former operations at the Airtron facility has been identified as AOC-11 by the NJDEP. The groundwater is impacted by perchloroethene (PCE), trichloroethene (TCE) and associated degradation daughter products at concentrations above the NJDEP groundwater quality criteria for a Class IIA aquifer. As such, the NJDEP requires a remedial action that addresses these contaminants. Groundwater quality has been studied in detail and is well documented at the site. Likewise, the geology and hydrogeology of the site have been studied and are well understood. These previous studies (see Table 1) provide the basis for the currently proposed ISCO pilot test for groundwater. Specifically, the ARCADIS 2003 IDS Report is identified as a key report documenting hydrogeologic and groundwater quality information on-site.

Figures 3 thru 6, fully presented in the previous 2003 IDS report, detail cross sections of the site hydrogeology based on extensive soil borings taken throughout the site. In addition to detailing the site hydrogeology, the figures include the results of discrete groundwater samples collected during source area delineation activities. Figure 6 shows the general on-site CVOC plume configuration within the upper unconfined aquifer, and is the basis for the pilot study design.

Groundwater investigations have been performed in the perched zone, the upper unconfined aquifer and the lower confined aquifer, with the most extensive investigations focused on the upper unconfined aquifer. The results of these investigations are summarized below.

- Groundwater in the perched zone is isolated and movement is very slow. Depth to perched groundwater (where present) ranges from approximately 5 to 20 feet below ground surface (bgs).

- Groundwater in the upper unconfined generally flows to the southwest toward the Whippany River. Depth to water in the upper unconfined aquifer ranges from 30 to 40 ft bgs.

- Groundwater in the lower confined aquifer flows to the southeast. Depth to the lower confined aquifer ranges from 70 to 90 feet bgs.

- The compounds historically detected at the highest concentrations in groundwater are TCE, PCE, cis-1,2-dichloroethylene and vinyl chloride. Perched groundwater and the upper unconfined aquifer have experienced the highest VOC impacts. Only trace levels of CVOCs have been detected in the lower confined aquifer.

- The highest groundwater CVOC concentrations have been detected in monitoring wells installed proximate to AOC-3 and AOC-4. These AOCs were historically associated with the highest CVOC concentrations in soil prior to now-complete soil remediation activities.

- The vertical extent of impacted groundwater has been defined. The offsite, downgradient lateral extent of impacted groundwater is still being investigated in accordance with the approved Supplemental Remedial Investigation Workplan Addendum (SRIW) dated February 5, 2001.

Periodic groundwater quality reports have been prepared and submitted to the NJDEP by ARCADIS. These semiannual monitoring reports present results of the groundwater monitoring program. This program currently consists of effectiveness groundwater monitoring related to an Interim Remedial Measure (IRM), identified below, and source removal (i.e., following recent soil remediation). The Spring 2006 Semiannual Monitoring Report (submitted in October 2006) details the most recent trends in groundwater quality data. These trends have also shown relatively high CVOC impacts immediately downgradient (south) of AOC-12 and downgradient of AOCs 1 and 2.

Airtron installed a groundwater extraction and treatment system in 1995 as an IRM for impacted groundwater. Downgradient recovery well RW-1 continuously operates at a flow rate of approximately 30 gallons per minute (gpm). Collected groundwater is treated on-site via a shallow tray air stripper and is discharged through permitted Outfall 003. Vapor-phase carbon is used to treat the air stream, which is recirculated within the system. The aqueous discharge is monitored in accordance with NJPDES Permit NJ 0025739.

With the exception of a brief shut-down to allow necessary relocation of the groundwater treatment system, Airtron will continue to operate this groundwater IRM during the course of the proposed groundwater pilot test.

7.0 AOC-11 PROPOSED PILOT TEST AND SAMPLING

Airtron has prepared this RIWP based on extensive knowledge gained from previous investigation and remediation at the site, voluminous data that has been collected and compiled by its contractors, and Panther's substantial experience in chemical oxidation of CVOCs in groundwater at similar sites in New Jersey and across the Northeastern United States.

The technical approach described herein for pilot testing activities has been designed to significantly reduce concentrations of CVOCs beneath the former source areas at the site. The design includes a recommended approach to source reduction objectives that will be tested during the pilot test, and the scope of work to implement the pilot test. The implementation schedule has been included as Attachment A of this RIWP Addendum.

7.1 Overview

Several remedial options were considered for residual groundwater at the site as part of an internal remedial options review process. After careful evaluation, Airtron is proposing the ISCO pilot test described in this RIWP Addendum to determine the effectiveness of the technology and to achieve further mass reduction in support of Airtron's overall site remediation objectives.

7.2 Background for Approach

The approach described herein is based upon source area treatment of groundwater beneath AOCs 1, 2, 3, 4 and 12 in the upper aquifer from approximately 40' – 80' below ground surface (bgs) in addition to treatment of the remaining perched horizon near AOC-4 to approximately 25' bgs. The perched horizon has been included because recent groundwater quality trend data indicate that impacted groundwater remaining in the perched horizon following AOC-3/4 soil remediation activities may be acting as a residual source to deeper upper aquifer groundwater. Airtron and its contractors believe this potential exists since soil remediation (and backfilling) activities have altered the shallow subsurface conditions, including the removal of a man-made confining layer encountered at approximately 14' – 16' bgs in AOC-3/4 during lagoon remediation activities. Treatment of the shallow groundwater believed to be "leaking" to the

upper aquifer should help to eliminate, or significantly reduce, the mass of CVOCs observed as relatively high CVOC concentrations that continue to be detected in AIR-MW-404D.

Utilizing the most recent available groundwater sampling data (Spring 2006) from selected onsite wells including AIR-MW-407, AIR-MW-414, AIR-MW-415, AIR-MW-417, AIR-MW-419, AIR-MW-03, AIR-MW-402S, AIR-MW-404D, AIR-MW-302 and AIR-RW-01, the residual mass of CVOCs present in the saturated zone (upper unconfined aquifer and perched horizon) has been estimated and the soil NOD derived from earlier studies was utilized to develop this expedited remedial approach. In addition to the estimated mass and soil NOD calculations, Carus Chemical Company completed a groundwater treatability study documenting the effectiveness of permanganate on destruction of CVOC-impacted groundwater from the Airtron site. The treatability report is provided as Appendix B. Based on all of this information, the dissolved phase mass has been calculated for both the perched and upper aquifer zones, and is presented in Tables 2 and 3, respectively, along with the calculated oxidant demand. These tables depict a proprietary calculator that Panther has used for determination of oxidant needs on similar projects and that has been proven to be accurate based on dozens of successful applications.

7.3 Upper Aquifer Source Area Pilot Test

The primary objective of the approach outlined herein is the destruction of CVOCs remaining in groundwater following the previous remediation of soil impacts in source area AOCs. Although removal of CVOCs from the soil has resulted in decreasing trends in a number of source area monitoring wells (e.g., AIR-MW-414 and AIR-MW-415), the focus of this approach is destruction of remaining CVOCs in groundwater onsite. As shown on Figures 8 and 9, the proposed area of treatment for the perched horizon and upper aquifer includes areas underlying nearly all of the previously identified AOCs onsite (1, 2, 3, 4 and 12).

Upper Aquifer

Within the upper aquifer, there are three primary areas that are targeted for injections during pilot testing activities. The three areas are highlighted on the attached Figure 9. These areas include the northern half of AOC-3, the area beneath AOC-4 and an area extending from approximately

AOC-12 to the MW-417 area. The rationale supporting the division of the upper aquifer into three distinct treatment areas is further described below.

Area 1

- In the vicinity of AOC-12 extending to an area downgradient of MW-419 and MW-417, where the basal aquitard is not present, injection wells will be installed to depths consistent with the majority of CVOC mass (within approximately 20 - 30 feet of the surface of water table, or depths of 40 - 60 feet bgs). As shown on Figures 5 and 6, this addresses shallow water table contamination where no basal aquitard exists, in addition to contamination that currently sits on top of the basal aquitard further downgradient. Injection wells installed within this treatment area will be screened across intervals that currently impacted monitoring wells adjacent to the area are screened across. Injection well depth will increase from north to south across the site ranging from a total depth of approximately 60-feet bgs, with 20-foot of 0.020 slot Schedule 40 PVC near the AOC-12/MW-407 area, to 80-feet bgs with 40-foot of 0.020 slot Schedule 40 PVC nearest the downgradient treatment boundary (adjacent to the storage building near MW-417 and MW-419).

Area 2

- The second treatment area is in the northern half of AOC-3 and targets the lower glacial till unit that is encountered between 40 – 60 feet bgs. During source area investigation activities, elevated concentrations of CVOCs were consistently detected in sand stringers within this lower glacial till unit. Injection wells will be installed in this unit from approximately 40-feet bgs to approximately 55-feet bgs with 15-foot of 0.020 slot Schedule 40 PVC screen. The total depth of 55-feet bgs will allow installation of the injection wells screened into the lower glacial till unit without completely penetrating the base of the lower unit.

Area 3

- Finally, the third area targeted for treatment is in the vicinity of AOC-4 where the lower glacier till unit is present at a substantially deeper depth than in the northern half of AOC-

3. In this area, injection wells will be installed to approximately 70 - 80-feet bgs with approximately 30 – 40-feet of 0.020 slot Schedule 40 PVC.

Overall, up to fifty-four (54) vertical 2-inch Schedule 40 PVC injection wells with screens ranging in depth from approximately 40-feet to a maximum depth of 80-feet bgs with 0.020-slotted screen will be installed to facilitate injection of a nominal 2.5% potassium permanganate solution. As described above, the treatment area for the upper unconfined aquifer has been divided in three distinct treatment zones with varying screen depths and lengths to target high CVOC concentrations. Injection wells will be installed via hollow stem augering (HSA) techniques utilizing 4.25-inch ID augers to allow installation of the 2-inch injection well. Test injection wells installed under a previous approval (e-mail from Michael Kenney dated 12 October 2006) resulted in successful installation of injection wells using HSA methods within two of the three treatment areas (Areas 1 and 2). Following installation, all wells will be developed until fines have been removed from the gravel pack prior to commencement of reagent injections. Select split spoon samples may be collected in some wells to confirm the location of the basal aquitard within Area 2 during injection well installation; however, it is Airtron and Panther's intention to rely on the substantial previous geologic logging and soil boring information to guide the installation of the injection wells.

Consistent with the results of the recently completed qualitative hydraulic injection testing (Attachment C), injection wells will be installed with a 25-foot radius of influence, or on 50-foot centers. During injection testing, substantial groundwater elevation and temperature changes were recorded in monitoring locations greater than 25-feet from the injection well during the injection of potable water at three (3) different flowrates – 5, 7.5 and 10-gallons per minute (gpm). Additionally, no pressure was detected at the wellhead until injection flowrates reached 10-gpm, indicating that the highly permeable upper unconfined aquifer can sustain high injection flowrates. Although sustainable injection flowrates of 10-gpm were recorded, Panther is proposing injection of the 2.5% potassium permanganate solution at flowrates ranging from 5 to approximately 7 gpm per well. Injections will occur into two arrays of twelve to thirteen wells simultaneously or into approximately 25 wells at a given time. Injecting into approximately half of the injection wells will allow downhole monitoring of downgradient injection and monitoring

wells while injections are occurring at upgradient locations. The monitoring of the downgradient locations is discussed in more depth below.

As described on Table 2 and utilizing results from the Carus Chemical Company NOD and groundwater treatability testing, Panther estimates that up to 475,000 pounds of granular potassium permanganate will be required to complete destruction of CVOCs within the source area. Utilizing a standard mass of 0.21 pounds of granular potassium permanganate per gallon of solution, this equates to injection of approximately 20% of the total treatment area pore volume.

Perched Horizon

In the perched aquifer treatment area located adjacent to AOC-4, we propose to install up to twenty-five (25) vertical injection wells screened from approximately 10 - 25 feet bgs within a substantially less permeable unit (i.e., surficial glacial till). Based upon the results of hydraulic testing recently conducted within this area, injection wells will be installed with a radius of influence of 20-feet, or 40-foot on center. Similar to the upper aquifer well installations, all perched horizon injection wells will be installed using HSA methods with 4.25-inch ID augers to allow installation of the 2-inch injection well. Following installation, all wells will be developed to remove fines from the gravel pack prior to the start of reagent injections.

During recently completed injection testing, substantial groundwater mounding and temperature changes were noted 20-feet from the injection test well at injection flowrates of approximately 1.8-gpm, indicating substantial injection influence within the perched horizon. Due to the measured mounding at the initial injection flowrates of 2 – 3 gpm range and wellhead pressures approaching 9-psi, Panther has scaled back the full scale injection design to reduce injection pressures to approximately 7-psi and injection well flowrates to 1 to 2-gpm in order to minimize the potential for excessive mounding of reagents in the treatment area. Based upon the layout provided in Figure 8, Panther anticipates injection of a nominal 5% solution of sodium permanganate into two injection arrays of seven wells per array, or up to fourteen injection wells simultaneously. Sodium permanganate has been selected for the perched horizon due to the relatively low flowrates observed during hydraulic injection testing, and to provide flexibility to increase concentrations and reduce solution injection volumes, if necessary. Monitoring will

occur during injections within monitoring wells screened across the same treatment interval, as discussed below.

As described on Table 3 and utilizing results from the Carus Chemical Company NOD and groundwater treatability testing, Panther estimates that approximately up to 60,000 pounds of sodium permanganate will be required to complete destruction of CVOCs within the perched horizon source area. The total volume of solution proposed for injection into the perched horizon represents approximately 40% of the treatment area pore volume.

7.4 Effectiveness and Downgradient Groundwater Monitoring

In order to determine the effectiveness of the pilot test, select groundwater monitoring wells will be used to monitor depth-to-water, field parameters and/or groundwater quality prior to, during and after the planned injections. The monitoring wells identified on Table 4 will be used to monitor the groundwater quality within the treatment areas as well as groundwater upgradient, downgradient and sidegradient of the pilot test areas. These wells are also identified on Figure 10. As discussed on Table 4, sidegradient wells will be sampled for field parameters only while upgradient and downgradient wells will be analyzed for both field parameters and laboratory parameters.

Field Parameter Monitoring

The purpose of field monitoring is to allow for real time data collection regarding injection influence and oxidant migration through the subsurface. As an example, conductivity, oxidation-reduction potential (ORP) and colorimetric changes are excellent field parameters that can be analyzed in real time to evaluate the injection influences. The real time evaluation of field parameters will allow tracking and redistribution of oxidants (if necessary) within the treatment areas during injection activities. For example, if an area exhibits large changes in conductivity, ORP and changes color to pink or purple in a short amount of time, the remaining oxidants that were planned to be injected into that area can be diverted into another area that may not be exhibiting the same effects from injections.

Additionally, these parameters can be used to track the downgradient effects of injections to allow for controlled injections without impacting the groundwater treatment system. During injection activities, downgradient monitoring and injection wells will be monitored for field parameters to determine the downgradient influence occurring as a result of oxidant injections within the source area. This effective distance will be used to gauge and prevent any potential impacts to AIR-RW-01 that might result from migration of a dilute potassium permanganate solution into the capture zone. Along with conductivity and ORP, colorimetric evaluations will be conducted at each monitoring location by collection of groundwater with a clean bailer and observing colorimetric changes from clear to purple. The advantage of permanganate is that its readily discernible pink to purple color in a dissolved solution allows for visual observation of very low concentrations of permanganate in groundwater. The following photograph demonstrates varying concentrations of permanganate ranging from 0.5 mg/l to 100 mg/l:

Panther will continue to evaluate oxidant influences throughout the duration of the pilot test to address the NJDEP's concern regarding any impacts that potassium permanganate solution may have on the currently operating extraction and treatment system. Based on the distance from the downgradient edge of the treatment zone to AIR-RW-01, it is not expected that residual permanganate solution will migrate the approximate 300-feet to the extraction well. As an additional precaution, Panther has selected wells to be monitored for field parameters and colorimetric monitoring located between the downgradient edge of the treatment zone and AIR-RW-01. Any migration beyond the anticipated treatment area will be detected in these wells first prior to extraction within AIR-RW-01. Any unused permanganate solution that migrates from the source area is expected to be utilized by both the natural and chemical oxidant demands of the aquifer before it reaches the extraction well. As a final precaution, Panther will maintain

onsite the appropriate neutralization agents that can be used to neutralize low concentrations of potassium permanganate solution prior to entry into the treatment system, if required.

Laboratory Analysis

Effectiveness monitoring will be conducted by collecting groundwater samples from each well and analyzing for the parameters shown on Table 4 before the pilot test injections, approximately one month after the injections in all areas are complete, and approximately 6-months following injections. Wells will be sampled by purging three well volumes with monitoring of field parameters of pH, conductivity, dissolved oxygen (DO), temperature and ORP. Groundwater samples will be collected when parameters have stabilized in accordance with the NJDEP Field Sampling Procedures Manual (FSPM). All samples will be analyzed for PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and vinyl chloride (VC) via the modified USEPA Method 8021, consistent with the semi-annual groundwater monitoring program currently approved for the site. Additionally, manganese (Mn) and chlorides (Cl) will be analyzed in groundwater samples similar to other approved NJPDES Discharge to Groundwater (DGW) Permit by Rule (PBR) authorizations previously obtained by Panther on various projects in New Jersey.

Concurrent with and following the completion of the pilot test effectiveness monitoring program described above, groundwater monitoring events will be completed in accordance with the currently approved groundwater monitoring plan. .

7.5 Summary

In summary, we have developed an approach to a pilot study for a reduction of residual source area CVOC-impacted groundwater. As such, Airtron respectfully requests approval of this RIWP for an oxidation pilot test, issuance of a NJPDES DGW PBR for sodium and potassium permanganate injections and approval of the non-conforming injection well design. Monitoring of groundwater will be conducted to ensure that the results of this pilot program are well understood and can be evaluated for future full-scale application, if necessary. Reporting of the results of the pilot-testing program will be included as a component of a future Interim Data Summary Report and/or within the final Remedial Investigation Report to be submitted under separate cover.

8.0 QUALITY ASSURANCE

During the course of work at the site, quality assurance (QA) objectives will be achieved, as with the collection of previous data at the site through a variety of mechanisms including use of the same field crews and laboratory that have been used in past work for all sampling and analytical work. This section presents a brief overview of quality assurance issues related to the pilot scale ISCO implementation as required by the Tech Rule.

Field monitoring of parameters in addition to analytical data will be collected to assess the effectiveness of the ISCO pilot test on groundwater quality. All sampling procedures will be in accordance with the NJDEP FSPM. During each sampling event, an equipment field blank and trip blank will also be collected and analyzed for QA and quality control over sampling procedures.

Data received will be reported according to accepted practices of QA and will be independently reviewed. Any inconsistencies found with the laboratory data packages and the Department's "Reduced Data Deliverable" package requirements will be addressed with the laboratory. NJDEP data validation guidelines and reporting values may be used, if necessary, during data review of the laboratory reports.

All samples collected will be reviewed for completeness and technical compliance with NJDEP requirements. If any data are determined not to be complete and/or technically compliant, the data reviewer will refer to the NJDEP data validation guidance documents for assistance. Organic results will be reviewed using the criteria specified in NJDEP Standard Operating Procedure (SOP) 5.A.13. The review of the data packages will include checking the following:

- review of laboratory narrative summary
- chain-of-custody forms
- holding times
- internal standards
- laboratory control samples
- blank contamination
- spike recoveries
- surrogate recoveries
- precision of duplicate analyses

9.0 HEALTH AND SAFETY

All chemical handling, mixing and injection activities at the Airtron site will be performed by personnel who have received 40-hours of initial training and 8-hours of annual refresher training in accordance with the Occupational Safety and Health Administration's (OSHA's) Hazardous Waste Operation and Emergency Response (HAZWOPER) Standard, 29 CFR 1910.120 (e). All technical personnel also participate in a medical monitoring program for all hazardous waste workers as specified by 29 CFR 1910.120 (f). Technical personnel must be medically fit for duty, as evidence by a physician's written release stating the worker has undergone annual medical monitoring and has passed the medical surveillance examination prior to any site work.

Panther has prepared a site-specific Health and Safety Plan (HASP) that governs field activities at sites where a remedial action is proposed prior to their mobilization. As discussed within the HASP, due to the inherent risks associated with handling and injection of chemical oxidants, all Panther personnel receive specialty chemical handling training from the chemical manufacturers, are required to be in attendance at the morning tool box safety meetings if onsite, complete routine site safety audits and fully understand the emergency contingency plan prepared for the site in event of an emergency. Each HASP is prepared in accordance with the HAZWOPER Standard, OSHA's *Guidance Manual for Hazardous Waste Site Activities*, and other appropriate health and safety standards and procedures. Panther's Site-Specific HASP outline is attached as Appendix D.

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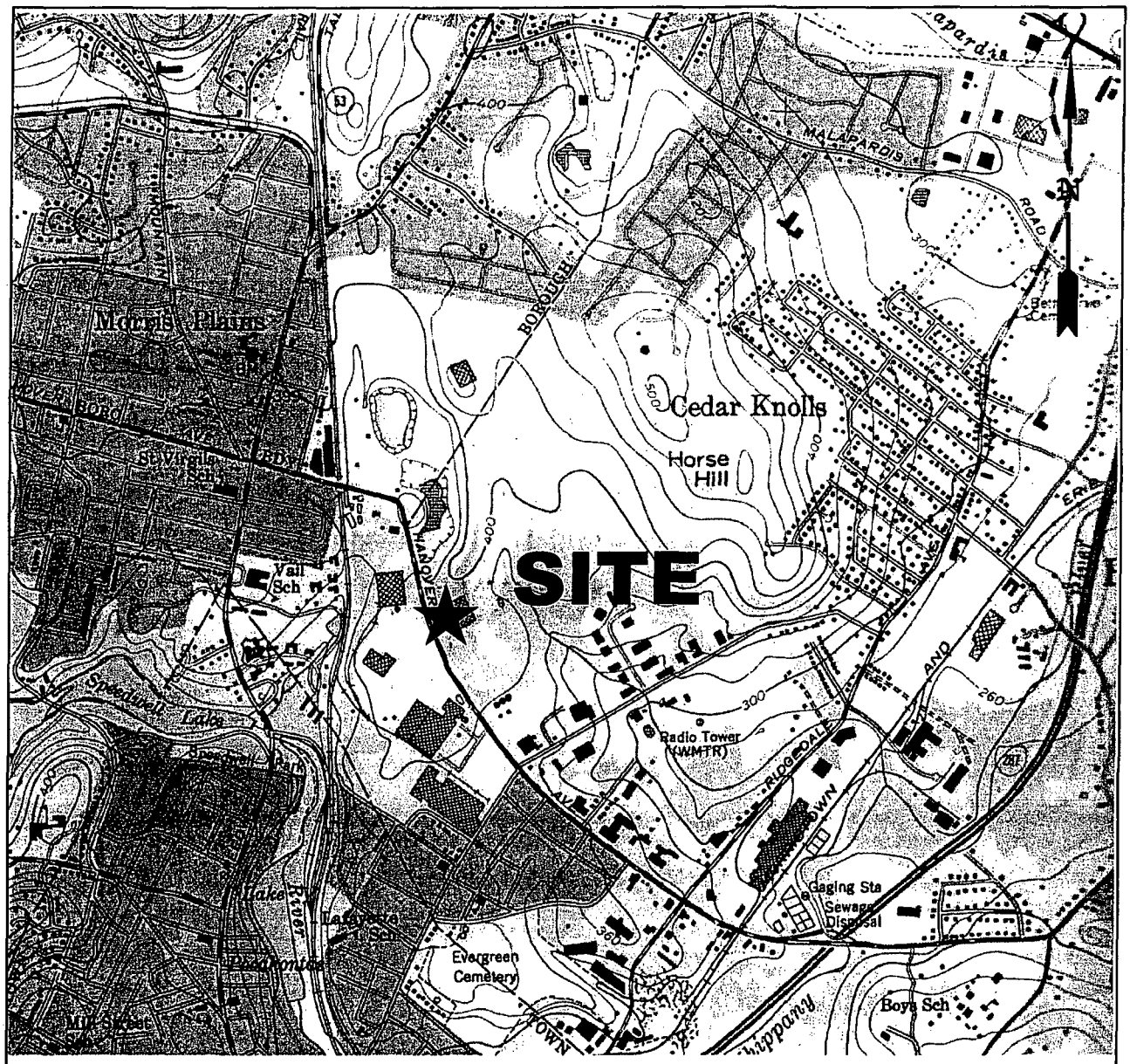


SCALE 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN GN
12° 213 MILS
0°22' 7 MILS

UTM GRID AND 1981
MAGNETIC NORTH

QUADRANGLE LOCATION

SOURCE: USGS 7.5 MIN. MORRISTOWN QUADRANGLE, MORRISTOWN, NJ. 1954, PHOTOREVISED 1981

Title:

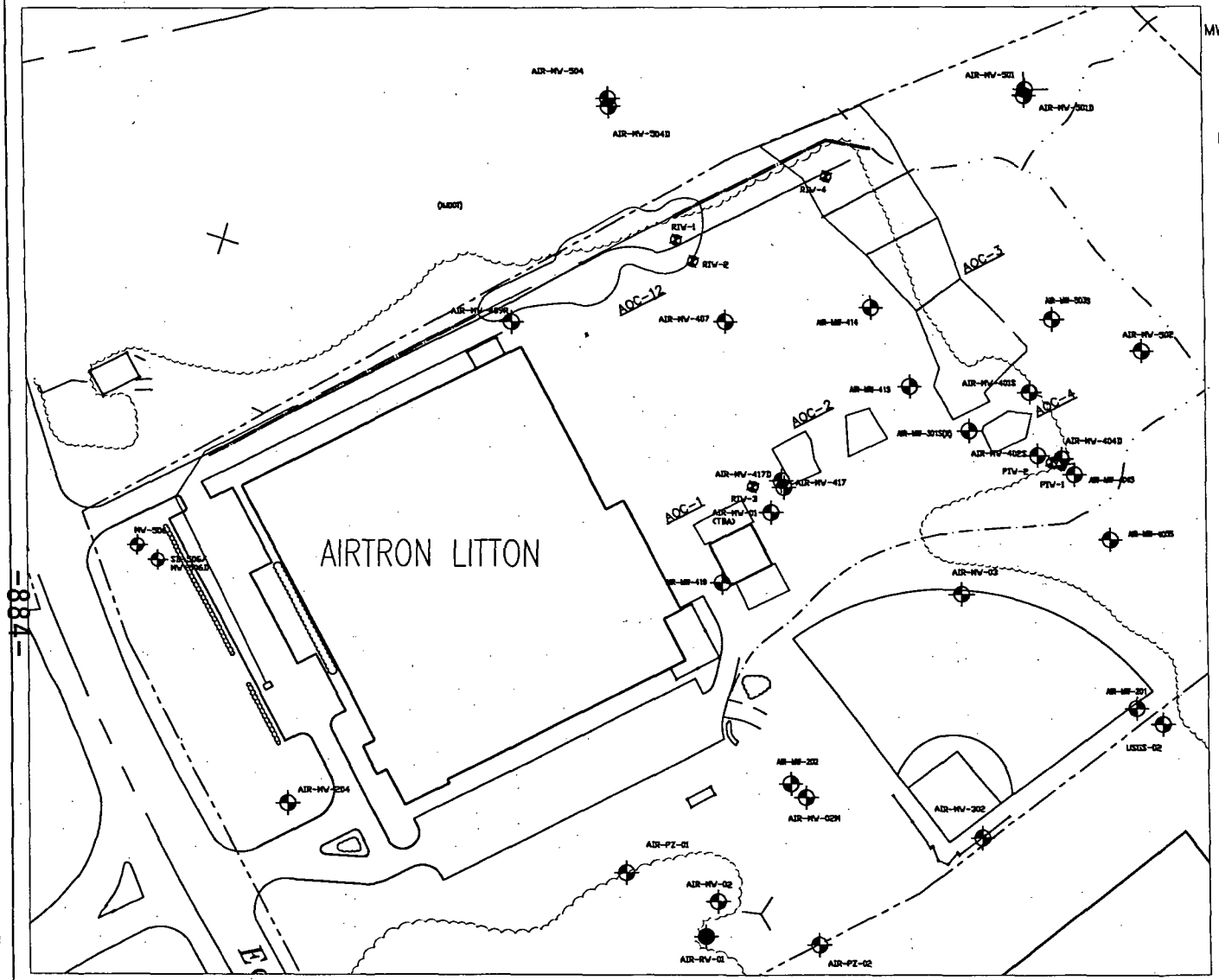
SITE LOCATION MAP

HANOVER TWP.,
MORRIS PLAINS, NJ

Prepared for:

AIRTRON DIVISION OF LITTON SYSTEMS, INC

PANTHER TECHNOLOGIES, INC.	Compiled by: J.C.	Date: 9/13/02	Figure
	Prepared by: D.E.	Scale: SHOWN	1
	Project Mgr: J.C.	Revision:	
	File No. J196002007		



LEGEND

MW-404D — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (UPPER UNCONFINED AQUIFER); PZ INDICATES PIEZOMETER. S INDICATES PERCHED HORIZON WELL

MW-201 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (LOWER CONFINED AQUIFER)

RW-01 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER RECOVERY WELL (RW) OR FORMER PRODUCTION WELL (P)

PROPERTY LINE/BOUNDARY

TOWNSHIP BOUNDARY

SURFACE WATER (STREAM/DRAINAGE SWALE)

100' 0' 100'

Title:

SITE PLAN

MORRIS PLAINS, NEW JERSEY

Prepared For:

AIRTRON DIVISION OF LITTON SYSTEMS, INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 06/06	Figure 2
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	Project Mgr: K.D.D.	Revision: FINAL	
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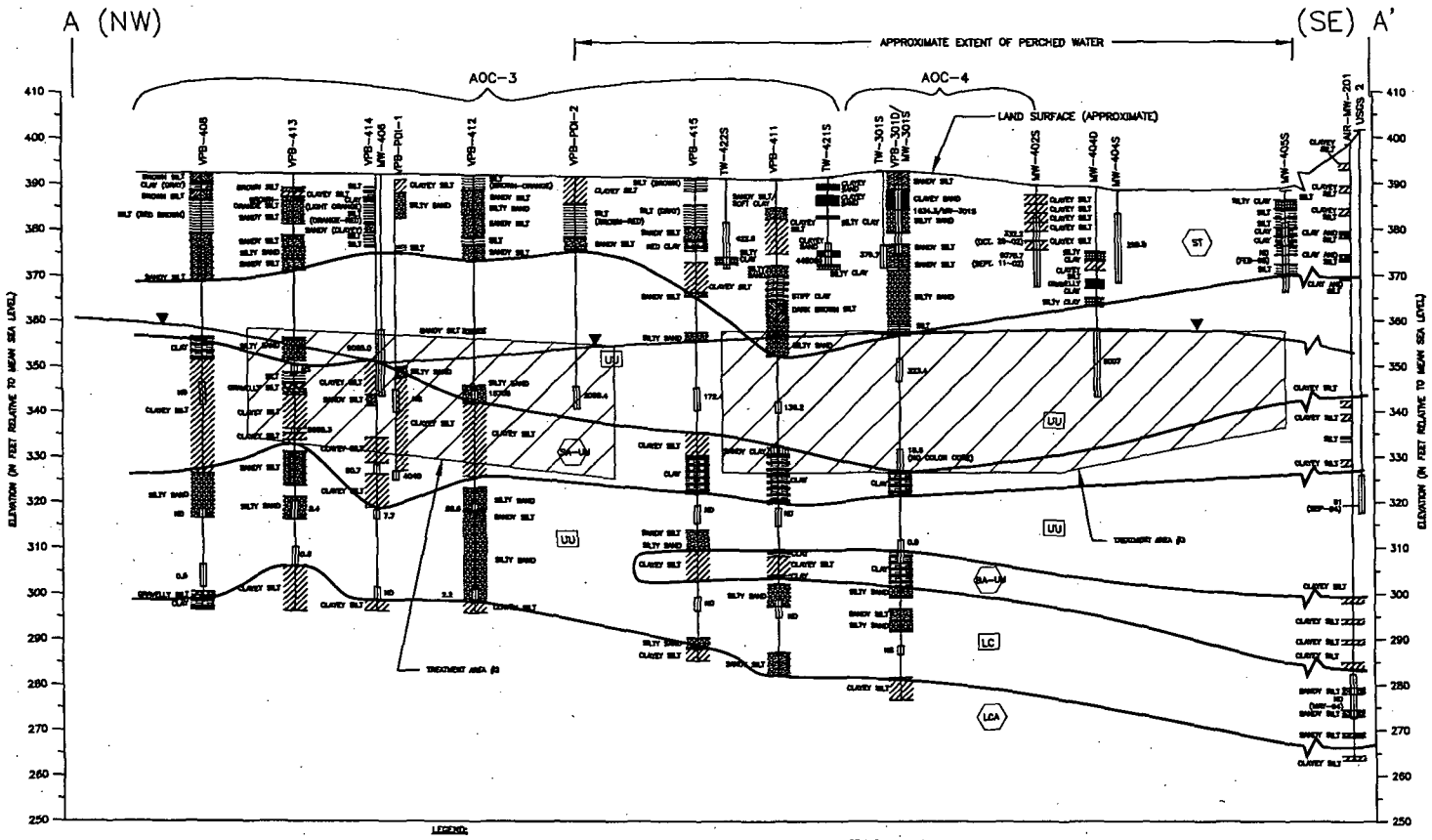


DESIGNATION → VPB-408

LAND SURFACE

CONCENTRATION OF TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC) IN µg/L; ND INDICATES NON-DETECT

SAMPLING INTERVAL (SEE NOTE 4)

END OF BORING

LEGEND:

- MW — MONITORING WELL
- TW — TEMPORARY WELL
- VPB — VERTICAL PROFILE BORING
- UPPER UNCONFINED AQUIFER WATER TABLE
- EXTENT OF PILOT TEST TREATMENT AREA

NOTES:

1. LITHOLOGIC SAMPLES FOR AIR-MW-201, MW-301S, MW-402S, MW-404D, MW-404S, MW405S, MW-406, AND USGS-2 WERE TAKEN WITH A SPLIT SPOON.
2. ALL VERTICAL PROFILE BORINGS WERE INSTALLED USING THE ROTOSONIC DRILLING METHOD.
3. TEMPORARY WELLS WERE INSTALLED USING A GEOPROBE.
4. SAMPLING INTERVAL FOR PERMANENT MONITORING WELLS (MWs) CORRESPONDS TO WELL SCREEN; SAMPLING INTERVAL FOR TEMPORARY WELLS (TWs) AND VERTICAL PROFILE BORINGS CORRESPONDS TO SETTING OF TEMPORARY SCREEN.

5. IDENTIFICATION OF HYDROGEOLOGIC UNITS:

- ST — SURFICIAL TILL
- UU — UPPER UNCONFINED AQUIFER
- SA-UU — SHALLOW AQUITARD – UPPER CONFINED AQUIFER
- BA-UU — BASAL AQUITARD – UPPER UNCONFINED AQUIFER
- LC — LOWER CONFINED AQUIFER
- LCA — AQUITARD WITHIN OR AT TOP OF (LOCALLY) LOWER CONFINED AQUIFER

SOURCE: FIGURE 2, AOC-11 INTERIM DATA SUMMARY, ONSITE SOURCE AREA ACTIVITIES, PHASE 1 SUPPLEMENTAL REMEDIAL INVESTIGATION, AIRTRON DIVISION OF LITTON SYSTEMS, INC., ARCADIS G&M, INC. MAY 15, 2003.

Title:

CROSS SECTION A–A' OF SUBSURFACE GEOLOGY

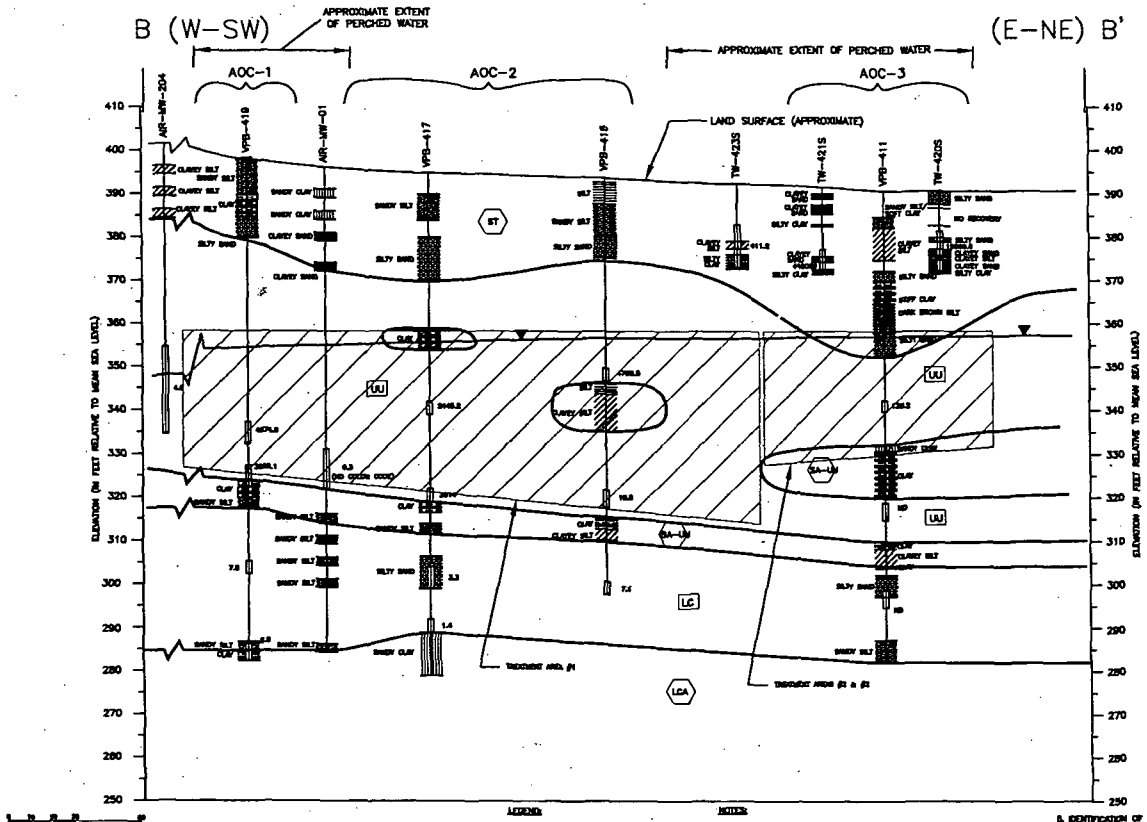
MORRIS PLAINS, NEW JERSEY

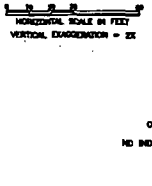
Prepared For:

AIRTRON DIVISION OF LITTON SYSTEMS, INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 11/06	Figure 4
	Prepared by: K.D.D.	Scale: NONE	
	Project Mgr: K.D.D.	Revision: FINAL	
	Proj No: 196008	File No:196008004	

885





LEGEND:

- MW MONITORING WELL
- TW TEMPORARY WELL
- VPB VERTICAL PROFILE BORING
- TCE > 80% OF TVOC
- PCE > 80% OF TVOC
- EVEN MIX PCE TO TCE OF TVOC
- 1,2 DCE > 80% OF TVOC
- UPPER UNCONFINED AQUIFER WATER TABLE

NOTES:

1. LITHOLOGIC SAMPLES FOR AIR-MW-01 AND MW-204 WERE TAKEN WITH A SPLIT SPOON.
2. ALL VERTICAL PROFILE BORINGS WERE INSTALLED USING THE ROTOSONIC DRILLING METHOD.
3. TEMPORARY WELLS WERE INSTALLED USING A GEOPROBE.
4. SAMPLING INTERVAL FOR PERMANENT MONITORING WELLS (MWs) CORRESPONDS TO WELL SCREEN; SAMPLING INTERVAL FOR TEMPORARY WELLS (TWs) AND VERTICAL PROFILE BORINGS CORRESPONDS TO SETTING OF TEMPORARY SCREEN.

5. IDENTIFICATION OF HYDROGEOLOGIC UNITS:

- ST BURIFIAL TILL
- UU UPPER UNCONFINED AQUIFER
- SA-UU SHALLOW AQUITARD – UPPER CONFINED AQUIFER
- SA-LM BASAL AQUITARD – UPPER UNCONFINED AQUIFER
- LC LOWER CONFINED AQUIFER
- LCA AQUITARD WITHIN OR AT TOP OF (LOCALLY) LOWER CONFINED AQUIFER

SOURCE: FIGURE 3, AOC-11 INTERIM DATA SUMMARY, ONSITE SOURCE AREA ACTIVITES, PHASE 1 SUPPLEMENTAL REMEDIAL INVESTIGATION, AIRTRON DIVISION OF LITTON SYSTEMS, INC., ARCADIS G&M, INC. MAY 15, 2003.

Title:

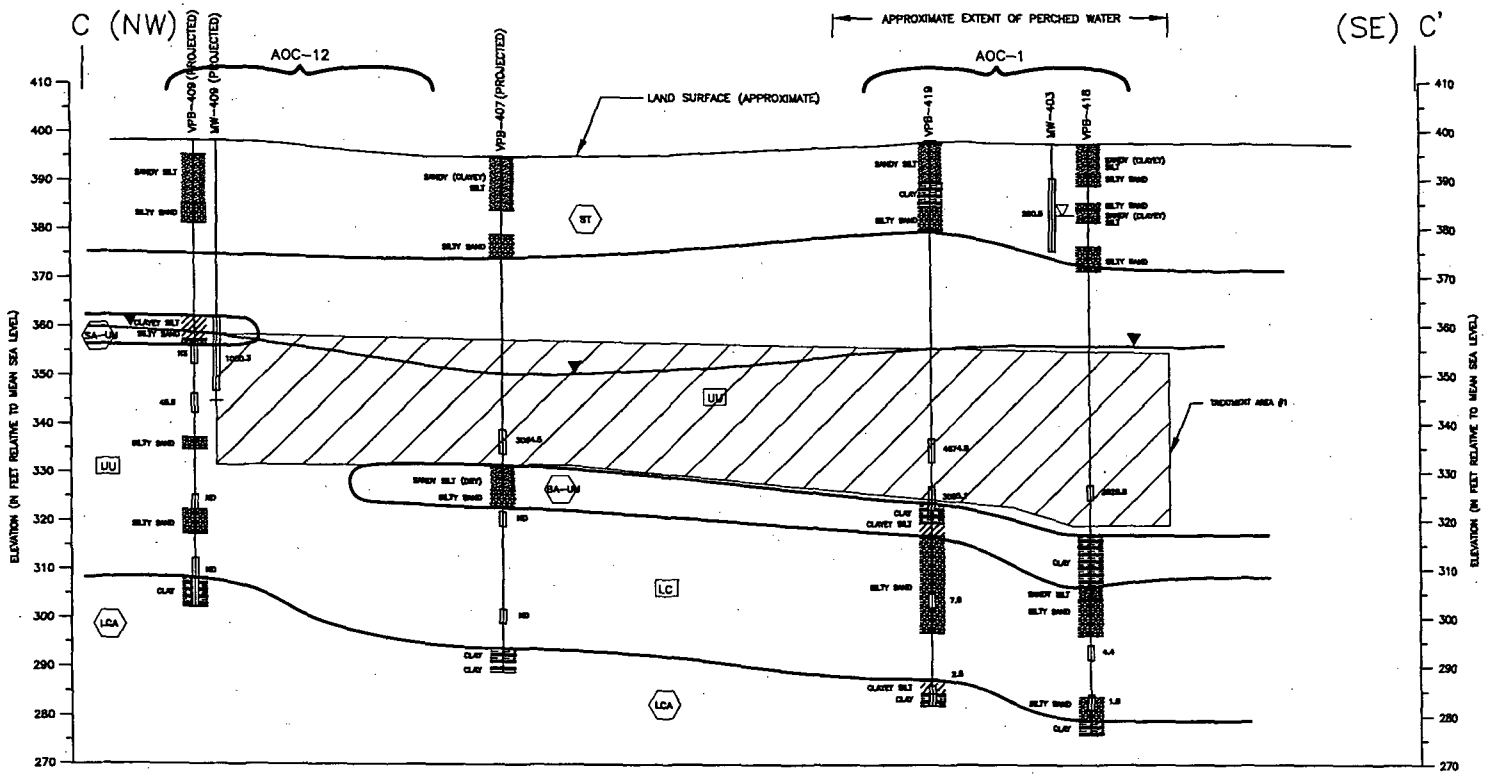
CROSS SECTION B–B' OF SUBSURFACE GEOLOGY

MORRIS PLAINS, NEW JERSEY

Prepared For:

AIRTRON DIVISION OF LITTON SYSTEMS, INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 12/06	Figure 5
	Prepared by: K.D.D.	Scale:	
	Project Mgr: K.D.D.	Revision: FINAL	
	Proj No: 196008	File No: 196008007	



HORIZONTAL SCALE IN FEET
VERTICAL EXAGGERATION = 2X

DESIGNATION → VPB-407
LAND SURFACE
CONCENTRATION OF TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC) IN µg/L; ND INDICATES NON-DETECT
SAMPLING INTERVAL (SEE NOTE 4)
END OF BORING

LEGEND:

- MW — MONITORING WELL
- TW — TEMPORARY WELL
- VPB — VERTICAL PROFILE BORING
- TCE > 60% OF TVOC
- PCE > 60% OF TVOC
- EVEN MIX PCE TO TCE OF TVOC
- 1,2 DCE > 60% OF TVOC
- UPPER UNCONFINED AQUIFER WATER TABLE
- PERCHED WATER LEVEL
- EXTENT OF PILOT TEST TREATMENT ZONE

NOTES:

1. LITHOLOGIC SAMPLES FOR MW-403 WERE TAKEN WITH A SPLIT SPOON.
2. ALL VERTICAL PROFILE BORINGS WERE INSTALLED USING THE ROTOSONIC DRILLING METHOD.
3. TEMPORARY WELLS WERE INSTALLED USING A GEOPROBE.
4. SAMPLING INTERVAL FOR PERMANENT MONITORING WELLS (MWs) CORRESPONDS TO WELL SCREEN; SAMPLING INTERVAL FOR TEMPORARY WELLS (TWs) AND VERTICAL PROFILE BORINGS CORRESPONDS TO SETTING OF TEMPORARY SCREEN.
5. IDENTIFICATION OF HYDROGEOLOGIC UNITS:
   - ST — SURFICIAL TILL
   - UU — UPPER UNCONFINED AQUIFER
   - SA-UM — SHALLOW AQUITARD – UPPER CONFINED AQUIFER
   - SA-UL — BASAL AQUITARD – UPPER UNCONFINED AQUIFER
   - LC — LOWER CONFINED AQUIFER
   - LCA — AQUITARD WITHIN OR AT TOP OF (LOCALLY) LOWER CONFINED AQUIFER

SOURCE: FIGURE 4, AOC-11 INTERIM DATA SUMMARY, ONSITE SOURCE AREA ACTIVITIES, PHASE 1 SUPPLEMENTAL REMEDIAL INVESTIGATION, AIRTRON DIVISION OF LITTON SYSTEMS, INC., ARCADIS G&M, INC. MAY 15, 2003.

Title:

CROSS SECTION C–C' OF SUBUSRFACE GEOLOGY

MORRIS PLAINS, NEW JERSEY

Prepared For:
AIRTRON DIVISION OF LITTON SYSTEMS INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 12/06	Figure
	Prepared by: K.D.D.	Scale: SHOWN	6
	Project Mgr: K.D.D.	Revision: FINAL	
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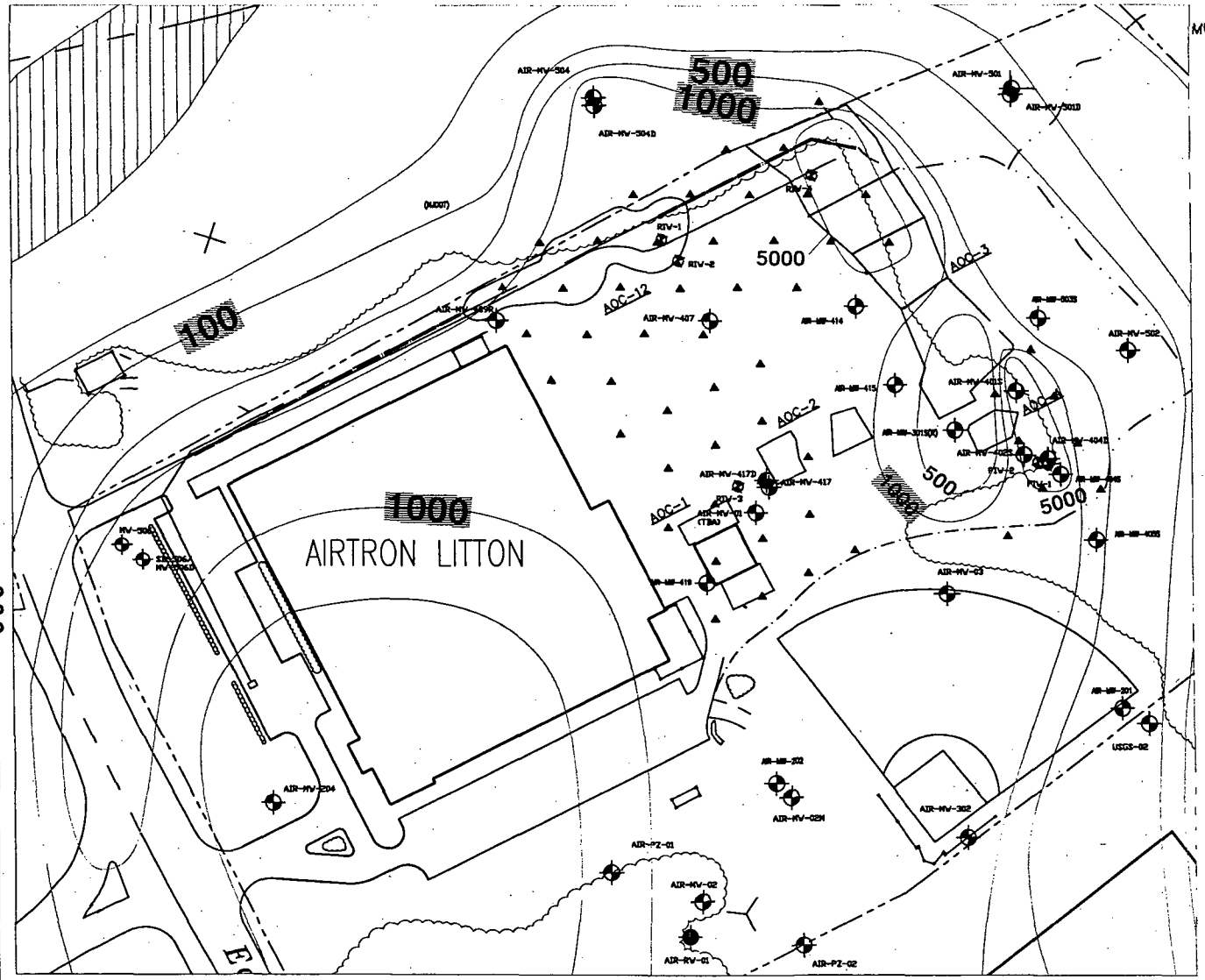


LEGEND

MW-404D — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (UPPER UNCONFINED AQUIFER); PZ INDICATES PIEZOMETER. S INDICATES PERCHED HORIZON

MW-201 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (LOWER CONFINED AQUIFER)

RW-01 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER RECOVERY WELL (RW) OR FORMER PRODUCTION WELL (P)

▲ APPROXIMATE LOCATION OF PROPOSED VERTICAL INJECTION WELL TO MAXIMUM 80-FEET BGS DEPTH (UP TO 54 LOCATIONS)

PROPERTY LINE/BOUNDARY

TOWNSHIP BOUNDARY

SURFACE WATER (STREAM/DRAINAGE SWALE)

—500— ARCADIS SUPPLIED TVOC CONTOUR (PPB) (DASHED WHERE INFERRED – OCTOBER 2005 IDS REPORT)

NOTE: PERCHED HORIZON INJECTION WELLS ARE NOT SHOWN ON THIS DRAWING. SEE FIGURE 8.

100' 0' 100'

SOURCE: AOC-11 INTERIM DATA SUMMARY, ONSITE SOURCE AREA ACTIVITIES, PHASE 1 SUPPLEMENTAL REMEDIAL INVESTIGATION, AIRTRON DIVISION OF LITTON SYSTEMS, INC., ARCADIS G&M, INC. OCTOBER 2005.

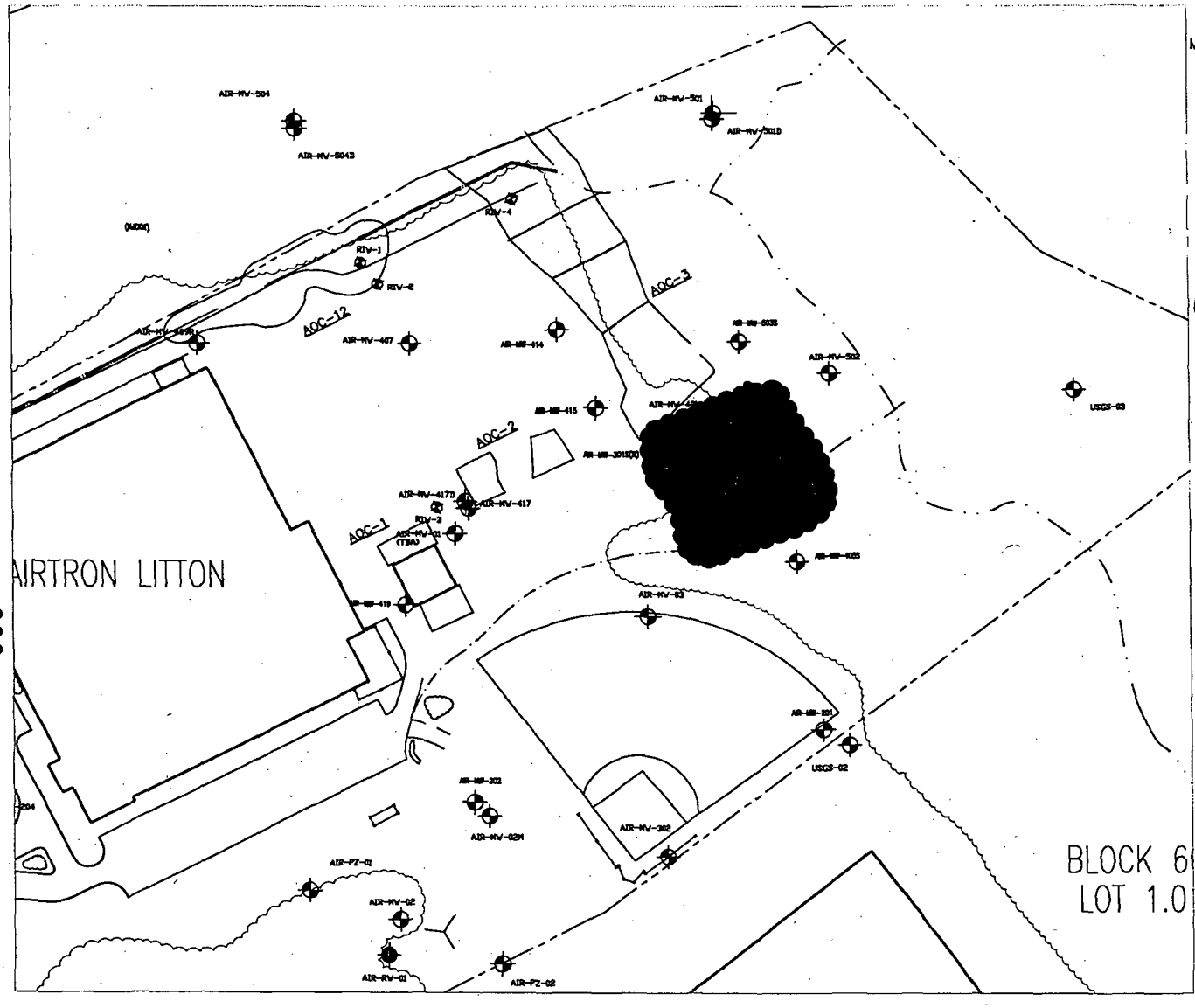
Title:

GROUNDWATER ISOCONCENTRATION MAP

MORRIS PLAINS, NEW JERSEY

Prepared For:
AIRTRON DIVISION OF LITTON SYSTEMS, INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 06/06	Figure 7
	Prepared by: K.D.D.	Scale: SHOWN	
	Project Mgr: K.D.D.	Revision: FINAL	
	Proj No: 196006	File No:	



SOURCE: ARCADIS, "SUMMARY OF 2005 GROUNDWATER QUALITY RESULTS AND INTERIM PROPOSED EXPLORATIONS," 2/10/2006

LEGEND

MW-404D — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (UPPER UNCONFINED AQUIFER); PZ INDICATES PIEZOMETER S INDICATES PERCHED HORIZON

MW-201 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (LOWER CONFINED AQUIFER);

● APPROXIMATE LOCATION OF PERCHED AQUIFER INJECTION WELLS TO 25' BGS (UP TO 25 TOTAL – 14 SHOWN).

ANTICIPATED AREAL EXTENT OF PERMANGANATE TREATMENT

PROPERTY LINE/BOUNDARY

TOWNSHIP BOUNDARY

SURFACE WATER (STREAM/DRAINAGE SWALE)

NOTE: UPPER AQUIFER INJECTION WELLS ARE NOT SHOWN ON THIS DRAWING. SEE FIGURE 9.

100' 0' 100'

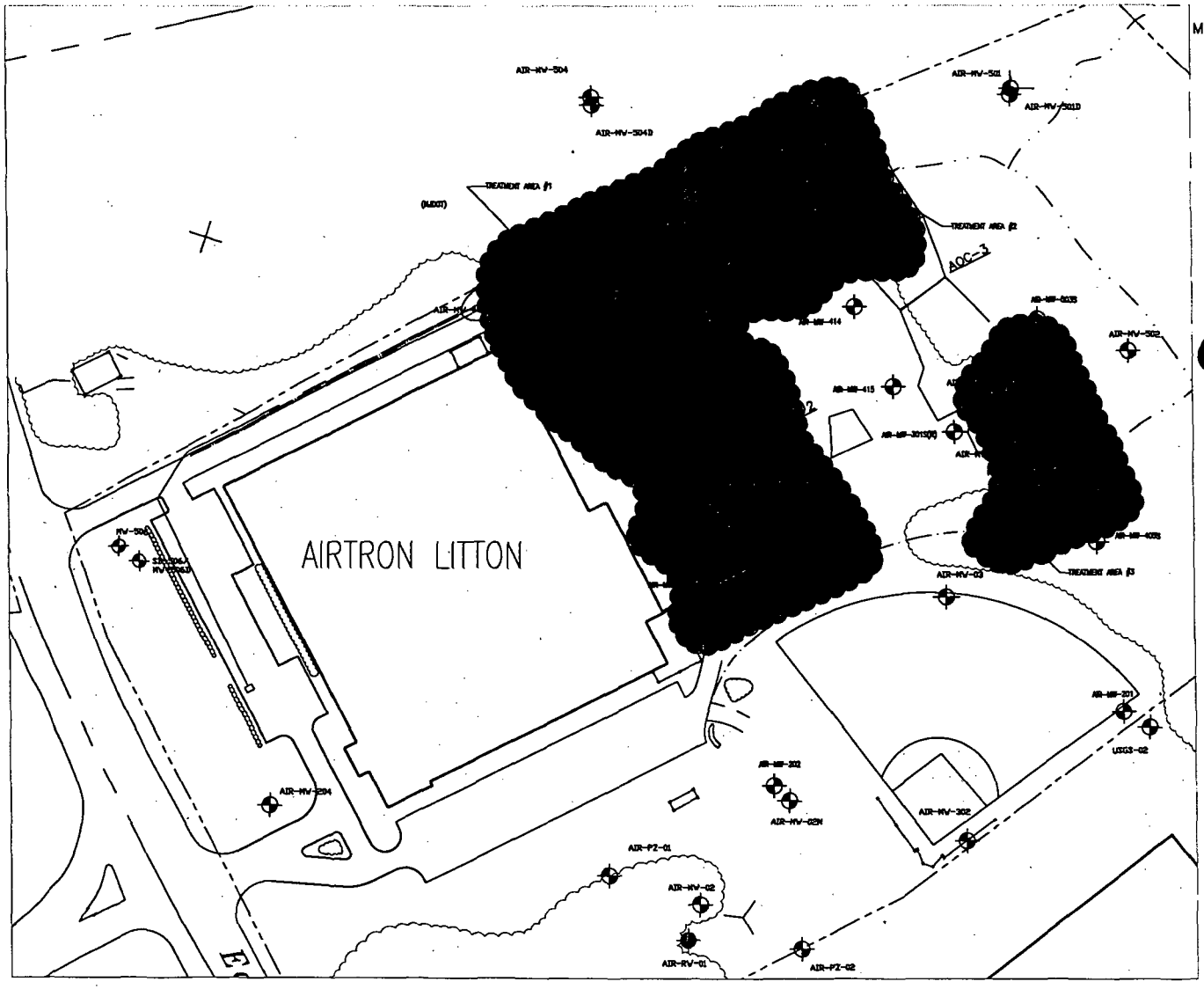
Title:

ISCO SITE PLAN
SHOWING PERCHED HORIZON
INJECTION WELL LOCATIONS

MORRIS PLAINS, NEW JERSEY

Prepared For:
AIRTRON DIVISION OF LITTON SYSTEMS, INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 06/06	Figure 8
	Prepared by: K.D.D.	Scale: SHOWN	
	Project Mgr: K.D.D.	Revision: FINAL	
	Proj No: 196006	File No:	



LEGEND

MW-404D — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (UPPER UNCONFINED AQUIFER); PZ INDICATES PIEZOMETER S INDICATES PERCHED HORIZON

MW-201 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (LOWER CONFINED AQUIFER);

RW-01 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER RECOVERY WELL (RW) OR FORMER PRODUCTION WELL (P)

▲ APPROXIMATE LOCATION OF PROPOSED VERTICAL INJECTION WELL TO APPROXIMATELY 80-FEET BGS (UP TO 54 LOCATIONS)

ANTICIPATED AREAL EXTENT OF PERMANGANATE TREATMENT

PROPERTY LINE/BOUNDARY

TOWNSHIP BOUNDARY

SURFACE WATER (STREAM/DRAINAGE SWALE)

NOTE: PERHCED INJECTION WELLS NOT SHOWN ON THIS DRAWING. SEE FIGURE 8.

100' 0' 100'

SOURCE: ARCADIS, "SUMMARY OF 2005 GROUNDWATER QUALITY RESULTS AND INTERIM PROPOSED EXPLORATIONS," 2/10/2006

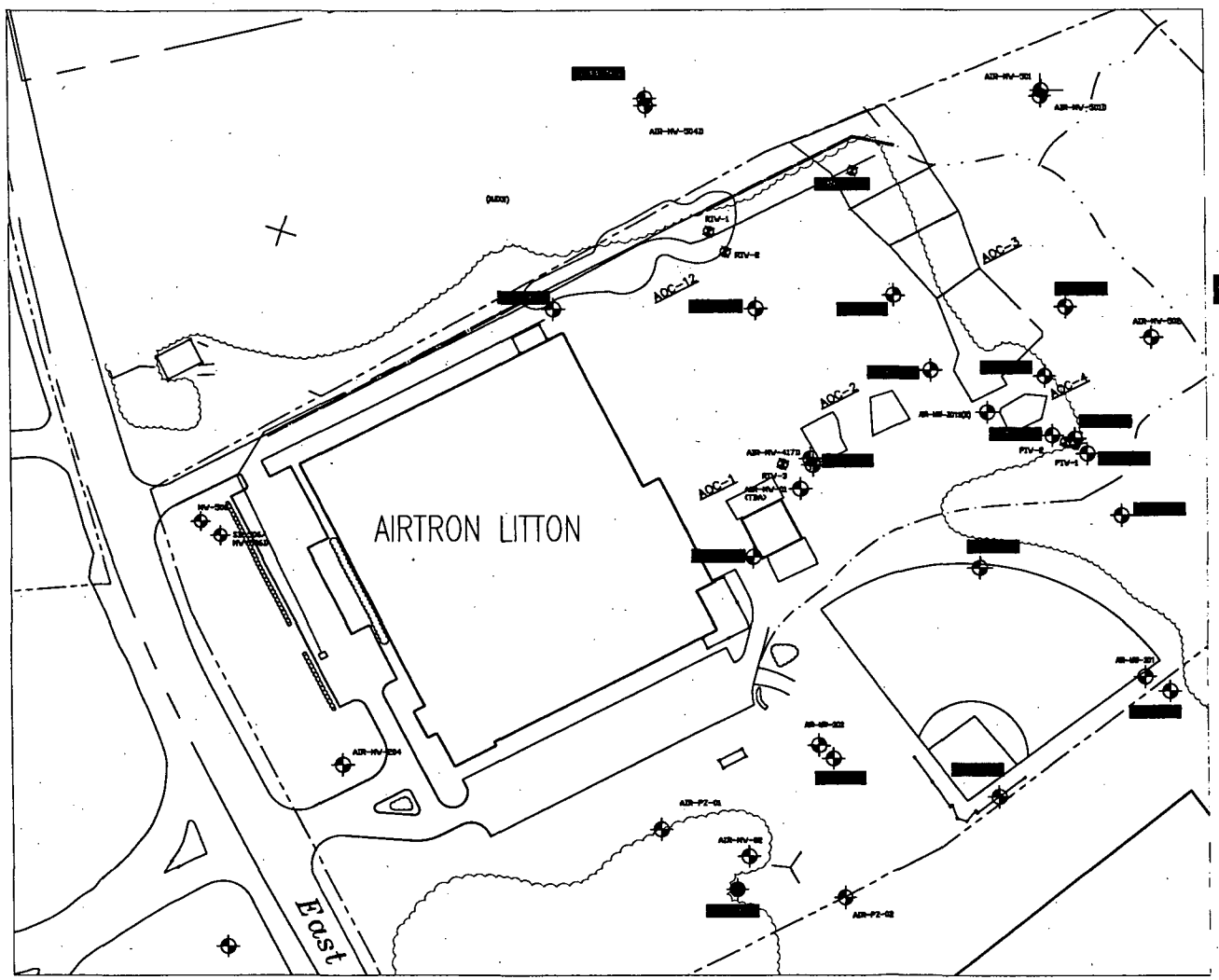
Title:

ISCO SITE PLAN
SHOWING UPPER AQUIFER
INJECTION WELL LOCATIONS

MORRIS PLAINS, NEW JERSEY

Prepared For:
AIRTRON DIVISION OF LITTON SYSTEMS, INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 06/06	Figure 9
	Prepared by: K.D.D.	Scale: SHOWN	
	Project Mgr: K.D.D.	Revision: FINAL	
	Proj No: 196006	File No:	



LEGEND

MW-404D — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (UPPER UNCONFINED AQUIFER); PZ INDICATES PIEZOMETER S INDICATES SHALLOW WELL

MW-201 — LOCATION AND DESIGNATION OF EXISTING GROUNDWATER MONITORING WELL (LOWER CONFINED AQUIFER)

RW-01 — LOCATION AND DESIGNATION OF EXISTING GROUNOWATER RECOVERY WELL (RW) OR FORMER PRODUCTION WELL (P)

PROPOSED REMEDIAL EFFECTIVENESS MONITORING POINT (19 TOTAL)

PROPERTY LINE/BOUNDARY

TOWNSHIP BOUNDARY

SURFACE WATER (STREAM/DRAINAGE SWALE)

100' 0' 100'

Title:

ISCO SITE PLAN
GROUNDWATER MONITORING NETWORK

MORRIS PLAINS, NEW JERSEY

Prepared For:
AIRTRON DIVISION OF LITTON SYSTEMS INC.

PANTHER TECHNOLOGIES, INC.	Compiled by: K.D.D.	Date: 06/06	Figure 10
	Prepared by: K.D.D.	Scale: SHOWN	
	Project Mgr: K.D.D.	Revision: FINAL	
	Proj No: 196006	File No:	

SOURCE: ARCADIS, "SUMMARY OF 2005 GROUNDWATER QUALITY RESULTS AND INTERIM PROPOSED EXPLORATIONS," 2/10/2006

Table 1. List of Previous Reports; Airtron Division of Litton Systems, Inc., Morris Plains, NJ

- Converse, Ward, Davis, Dixon, Inc. 1981. Final Report of Groundwater Monitoring Program, Litton Industries - Airtron Division. Dated August 10, 1981.
- Converse Consultants, Inc. 1982. Report on Aquifer Test Using Mennen Production Well. Prepared for Airtron, Morris Plains, New Jersey. Dated August 16, 1982.
- Converse Environmental East. 1987a. Soil and Groundwater Remedial Investigation, Phase I Results, Litton Industries, Inc., Airtron Division, Hanover Township, New Jersey. Dated November 24, 1987.
- Converse Environmental East. 1987b. Addendum 2 – NJDEP Well Records/Well Inventory, Litton Industries, Inc., Airtron Division, Hanover Township, New Jersey. Dated November 24, 1987.
- Converse Environmental East. 1990. Report on Phase II Soil and Groundwater Investigation. Prepared for Litton Industries - Airtron Division. Dated April 19, 1990.
- SCS Engineers. 1991 Soil Vapor Extraction Test Program at Litton-Airtron Facility, Hanover, New Jersey. Dated March 5, 1991.
- Airtron/NJDEP. 1992. Administrative Consent Order, executed December 16, 1992. **NOTE**: ACO Amendments dated March 21, 2001 and October 26, 2001 [driven by ISRA obligations].
- ACO Quarterly Progress Reports (originally submitted by Litton/Airtron; ARCADIS began submitting on behalf Litton/Airtron starting 3Q-1997 (PR#19) up through present)
- SCS Engineers. 1993. Phase I Remedial Investigation Work Plan for Litton-Airtron. Dated October 25, 1993.
- SCS Engineers. 1993. Interim Remedial Measures Work Plan for Airtron Division of Litton Systems, Inc. Dated December 9, 1993.
- SCS Engineers. 1994. Remedial Investigation Report (Draft) for the Airtron Division of Litton Systems, Inc. Prepared for Airtron Division of Litton Systems, Inc. Dated August 15, 1994
- SCS Engineers/Litton-Airtron. 1995. Litton-Airtron's Response to November 4, 1994 NJDEP Comments. Dated January 8, 1995
- SCS Engineers. 1995. Summary Report of the Interim Remedial Measures at Litton-Airtron. Dated April 27, 1995.
- SCS Engineers. 1995. Phase II Remedial Investigation Work Plan for Litton-Airtron (Draft). Dated April 27, 1995.
- SCS Engineers. 1996. Twelve-Month Pump-and-Treat Evaluation Report. Dated September 9, 1996
- SCS Engineers. Groundwater Remediation Effectiveness Monitoring Program semi-annual sampling results: April 1996, October 1996, and April 1997 sampling rounds.

Table 1. List of Previous Reports; Airtron Division of Litton Systems, Inc., Morris Plains, NJ

- ARCADIS. Groundwater Remediation Effectiveness Monitoring Program semi-annual sampling results: December 1997 through present sampling rounds (typically every April/October with report submitted every June/December). Fall 2004 Monitoring Report was the first that combined IRM effectiveness monitoring with post source (soil) removal effectiveness monitoring, up through present:
    - ARCADIS G&M, Inc. 2005. Fall 2004 Semi-Annual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated February 4, 2005.
    - ARCADIS G&M, Inc. 2005. Spring 2005 Semi-Annual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated June 20, 2005.
    - ARCADIS G&M, Inc. 2006. Fall 2005 Semi-Annual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated March 22, 2006.
    - ARCADIS G&M, Inc. 2006. Spring 2006 Semiannual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 3, 2006.
- SCS Engineers. 1997. Site Investigation/Remedial Investigation Work Plan for Litton – Airtron. Dated March 31, 1997.
- SCS Engineers. 1997. Site Investigation/Remedial Investigation Work Plan for Litton - Airtron, March 31, 1997 (revised July 30, 1997).
- ARCADIS Geraghty & Miller, Inc. 1998. Site Investigation/Remedial Investigation and Remedial Action Selection Report, Airtron Division of Litton Systems, Inc. Dated July 1, 1998.
- ARCADIS Geraghty & Miller, Inc. 1999. Site Investigation/Remedial Investigation Report Addendum, Airtron Division of Litton Systems, Inc. Dated February 3, 1999.
- ARCADIS Geraghty & Miller, Inc. 1999a. Supplemental Site Investigation/Remedial Investigation Report Addendum, Airtron Division of Litton Systems, Inc. Dated September 14, 1999.
- ARCADIS Geraghty & Miller, Inc. 1999b. Remedial Action Workplan, Airtron Division of Litton Systems, Inc. Dated September 14, 1999.
- ARCADIS Geraghty & Miller, Inc. 1999c. Supplemental Remedial Investigation Workplan (SRIW), Airtron Division of Litton Systems, Inc. Dated September 14, 1999.
- ARCADIS Geraghty & Miller, Inc. 2001a. Supplemental Remedial Investigation Workplan (SRIW) Addendum, Airtron Division of Litton Systems, Inc. Dated February 5, 2001.
- ARCADIS Geraghty & Miller, Inc. 2001b. Remedial Action Workplan (RAW) Addendum, Airtron Division of Litton Systems, Inc. Dated February 5, 2001.

Table 1. List of Previous Reports; Airtron Division of Litton Systems, Inc., Morris Plains, NJ

- Northrop Grumman Component Technologies (NGCT). 2002. Correspondence Re: NJDEP March 19, 2002 Correspondence Regarding Supplemental Remedial Investigation Workplan (SRIW) Addendum dated 5 February 2001. Dated April 29, 2002.

- NGCT. 2002. Correspondence Re: NJDEP March 28, 2002 Correspondence Regarding Remedial Action Work Plan (RAWP) Addendum dated 5 February 2001. Dated May 3, 2002.

- NGCT. 2002. Correspondence Re: Airtron's May 3, 2002 Response to NJDEP March 28, 2002 Correspondence Regarding Remedial Action Work Plan (RAWP) Addendum dated 5 February 2001. Dated June 17, 2002.

- ARCADIS G&M, Inc. 2002. AOC-6 Stream Sediment Sampling Summary, Airtron Division of Litton Systems, Inc. Hanover, New Jersey. Dated October 11, 2002.

- Panther Technologies, Inc. 2003. Revised Remedial Action Work Plan (RAWP) Addendum, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey. Dated February 10, 2003.

- ARCADIS G&M, Inc. 2003. AOC-11 Interim Data Summary, On-Site Source Area Activities, Phase 1 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc. Hanover, New Jersey. Dated May 15, 2003.

- ARCADIS G&M, Inc. 2003. Phase 2 Supplemental Remedial Investigation Work Plan for AOC-6 (Stream Sediment), Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated August 8, 2003.

- ARCADIS G&M, Inc. 2003. DRAFT Summary Outline of Modified SRI Phase 1 Scope of Work for AOC-11 Groundwater, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated September 9, 2003.

- ARCADIS G&M, Inc. 2003. Site Investigation Report, Airtron Division of Litton Systems, Inc., Morris Plains, NJ. Dated October 17, 2003.

- Brown and Caldwell. 2004. Work Plan, Indoor Air Sampling Program, Monitor Warehouse, Morris Plains, New Jersey. Dated May 2004. [Cover letter to NJDEP dated May 28, 2004. Work Plan prepared on behalf of Litton Systems, Inc., Airtron Division]

- Panther Technologies, Inc. 2004. Remedial Action Work Plan Addendum – AOC-12, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated September 30, 2004.

- Brown and Caldwell. 2004. Correspondence to NJDEP Re: Addendum – Work Plan for Indoor Air Sampling at the Monitor Warehouse, Morris Plains, New Jersey. Dated October 4, 2004.

- ARCADIS G&M, Inc. 2004. Correspondence to NJDEP Re: Interim Summary of 2004 Well Search, AOC-11 (Groundwater) Phase 1 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 4, 2004.

- ARCADIS G&M, Inc. 2004. Correspondence to NJDEP Re: Interim Summary of 2004 Source Area Vicinity Groundwater Conditions, AOC-11 (Groundwater) Phase 1 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 6, 2004.

Table 1. List of Previous Reports; Airtron Division of Litton Systems, Inc., Morris Plains, NJ

- ARCADIS G&M, Inc. 2004. AOC-6 Phase 2 Supplemental Remedial Investigation (SRI) Report, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 7, 2004.

- Panther Technologies, Inc. 2004. Remedial Action Report , Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated October 11, 2004. [Submitted to NJDEP on 10/26/04].

- ARCADIS G&M, Inc. 2004. Facility Indoor Air and Sub-Slab Sampling Work Plan, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated December 3, 2004.

- ARCADIS G&M, Inc. 2004. AOC-11 Interim Data Summary (October 2003 – August 2004), Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated December 15, 2004.

- ARCADIS G&M, Inc. 2005. October 2005 Interim Data Summary, AOC-11 (Groundwater) Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated 12 October 2005.

- Panther Technologies, Inc. 2005. Site-Wide Soil Remedial Action Report (RAR), Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated November 2005.

- ARCADIS G&M, Inc. 2006. Addendum to October 2005 Interim Data Summary, AOC-11 (Groundwater) Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated 14 March 2006.

- ARCADIS G&M, Inc. 2006. Vapor Intrusion Evaluation Report for 200 and 220 East Hanover Avenue, AOC-13 Remedial Investigation, Airtron Division of Litton Systems, Inc. Dated 20 June 2006.

- Panther Technologies, Inc. 2006. Remedial Action Report (RAR) Addendum, November 2005 Site-Wide Soil RAR, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, NJDEP Preferred ID No. 016698. Dated July 2006.

- Panther Technologies, Inc. 2006. Site-Wide Soil Remedial Action Report (RAR) Addendum #3, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated December 2006.

Table 2. Perched Horizon Permanganate Design Requirements. Airtron Division of Litton Systems, Inc. Morris Plains, New Jersey.

Groundwater (Dissolved) Contaminant Mass (lbs)		Unsaturated Soil Sorbed Mass Calculation (lbs)		Saturated Soil Sorbed Mass Calculation (lbs)	
Length of Plume (ft)	100	Length of Soil Contamination (ft)	0	Length of Soil Contamination (ft)	100
Width of Plume(ft)	100	Width of Impacted Zone (ft)	0	Width of Impacted Zone (ft)	100
Saturated Thickness (ft)	15	Impacted Zone Thickness (ft)	0	Impacted Zone Thickness (ft)	15
Porosity (%)	0.30	Porosity (%)	0.70	Porosity (%)	0.70
Pore Volume (gal)	336,600.0	Mass of Impacted Soil (lbs)	0.0	Mass of Impacted Soil (lbs)	12,442,500.00
Constituents of Concern (mg/l):		**Constituents of Concern (mg/kg):**		**Constituents of Concern (mg/kg):**	
Tetrachloroethene	12	Tetrachloroethene	0	Tetrachloroethene	1.00
Trichloroethene	2	Trichloroethene	0	Trichloroethene	1.00
Dichloroethenes	2	Dichloroethenes	0	Dichloroethenes	1.00
Vinyl Chloride	2	Vinyl Chloride	0	Vinyl Chloride	1.00
1,1,1-Trichloroethane	0	1,1,1-Trichloroethane	0	1,1,1-Trichloroethane	0.00
1,1-Dichloroethane	0	1,1-Dichloroethane	0	1,1-Dichloroethane	0.00
Chloroethane	0	Chloroethane	0	Chloroethane	0.00
Benzene	0	Benzene	0	Benzene	0.00
Toluene	0	Toluene	0	Toluene	0.00
Ethylbenzene	0	Ethylbenzene	0	Ethylbenzene	0.00
Xylenes	0	Xylenes	0	Xylenes	0.00
MTBE	0	MTBE	NA	MTBE	NA
Phenol	0	Phenol	0	Phenol	0.00
Napthalene	0	Napthalene	0	Napthalene	0.00
Phenanthrene	0	Phenanthrene	0	Phenanthrene	0.00
Pyrene	0	Pyrene	0	Pyrene	0.00
Iron (Fe^{+2}) (mg/l)	0	Iron (Fe^{+2})	NA	Iron (Fe^{+2})	NA
Manganese (Mn^{+2}) (mg/l)	0	Manganese (Mn^{+2})	NA	Manganese (Mn^{+2})	NA
TICs	0	TICs	0	TICs (mg/kg)	0.00
Natural Oxidant Demand (g/L)	0.200	Natural Oxidant Demand (g/kg)	0.0	Natural Oxidant Demand (g/kg)	4.30
Natural Oxidant Demand (mg/L)	200.00	Natural Oxidant Demand (mg/kg)	0.0	Natural Oxidant Demand (mg/kg)	4,300.00
Chemical Oxidant Demand (mg/l)	34.40	Chemical Oxidant Demand (mg/kg)	0.0	Chemical Oxidant Demand (mg/kg)	12.40
Total Oxidant Demand (mg/l)	234.40	Total Oxidant Demand (mg/kg)	0.0	Total Oxidant Demand (mg/kg)	4,312.40
NOD Mass (lb)	560.51	NOD Mass (lb)	0.00	NOD Mass (lb)	53,567.03
COD Mass (lb)	96.41	COD Mass (lb)	0.00	COD Mass (lb)	339.84
Total Oxidant Demand (lb)	656.91	Total Oxidant Demand (lb)	0.00	Total Oxidant Demand (lb)	53,906.87

2.0 Total Oxidant Requirements

Site Oxidant Demand (lb)	54,563.78
Safety Factor	1.05
Permanganate Required (lb)	57,291.97

Solution Volume:	272,819 Gallons of 2.5%		
Flowrate (gpm)	1.5	No. of Wells	7
Injection Timeframe (min)	25982.8		
# of Pumping Systems	2		
Total Days for Injection	36.1		

Key Assumptions:

1) Calculator utilizes published permanganate demands.
2) Avergae Carus Reported NOD of 4.3 g/kg for soil for SB-NOD-3 (10 - 20'), PIW-1 20-22, PIW-2 22-24 and PIW-2 20-22.
3) Carus published 0.21 lbs/gal in 2.5% solution.

-896-

Table 3. Upper Aquifer Permanganate Design Requirements. Airtron Division of Litton Systems, Inc. Morris Plains, New Jersey

Groundwater (Dissolved) Contaminant Mass (lbs)		Unsaturated Soil Sorbed Mass Calculation (lbs)		Saturated Soil Sorbed Mass Calculation (lbs)	
Length of Plume (ft)	400	Length of Soil Contamination (ft)	0	Length of Soil Contamination (ft)	400
Width of Plume(ft)	400	Width of Impacted Zone (ft)	0	Width of Impacted Zone (ft)	400
Saturated Thickness (ft)	30	Impacted Zone Thickness (ft)	0	Impacted Zone Thickness (ft)	30
Porosity (%)	0.30	Porosity (%)	0.70	Porosity (%)	0.70
Pore Volume (gal)	10,771,200.0	Mass of Impacted Soil (lbs)	0.0	Mass of Impacted Soil (lbs)	398,160,000.00
Constituents of Concern (mg/l):		**Constituents of Concern (mg/kg):**		**Constituents of Concern (mg/kg):**	
Tetrachloroethene	3.5	Tetrachloroethene	0	Tetrachloroethene	1
Trichloroethene	1	Trichloroethene	0	Trichloroethene	1
Dichloroethenes	1	Dichloroethenes	0	Dichloroethenes	1
Vinyl Chloride	1	Vinyl Chloride	0	Vinyl Chloride	1
1,1,1-Trichloroethane	0	1,1,1-Trichloroethane	0	1,1,1-Trichloroethane	0
1,1-Dichloroethane	0	1,1-Dichloroethane	0	1,1-Dichloroethane	0
Chloroethane	0	Chloroethane	0	Chloroethane	0
Benzene	0	Benzene	0	Benzene	0
Toluene	0	Toluene	0	Toluene	0
Ethylbenzene	0	Ethylbenzene	0	Ethylbenzene	0
Xylenes	0	Xylenes	0	Xylenes	0
MTBE	0	MTBE	NA	MTBE	NA
Phenol	0	Phenol	0	Phenol	0
Napthalene	0	Napthalene	0	Napthalene	0
Phenanthrene	0	Phenanthrene	0	Phenanthrene	0
Pyrene	0	Pyrene	0	Pyrene	0
Iron (Fe^{+2}) (mg/l)	0	Iron (Fe^{+2})	NA	Iron (Fe^{+2})	NA
Manganese (Mn^{+2}) (mg/l)	0	Manganese (Mn^{+2})	NA	Manganese (Mn^{+2})	NA
TICs	0	TICs	0	TICs (mg/kg)	0
Natural Oxidant Demand (g/L)	0.200	Natural Oxidant Demand (g/kg)	0.0	Natural Oxidant Demand (g/kg)	1.06
Natural Oxidant Demand (mg/L)	200.00	Natural Oxidant Demand (mg/kg)	0.0	Natural Oxidant Demand (mg/kg)	1,060
Chemical Oxidant Demand (mg/l)	14.80	Chemical Oxidant Demand (mg/kg)	0.0	Chemical Oxidant Demand (mg/kg)	12.40
Total Oxidant Demand (mg/l)	214.80	Total Oxidant Demand (mg/kg)	0.0	Total Oxidant Demand (mg/kg)	1,072.40
NOD Mass (lb)	17936.18	NOD Mass (lb)	0.00	NOD Mass (lb)	422,556.67
COD Mass (lb)	1327.28	COD Mass (lb)	0.00	COD Mass (lb)	10,874.85
Total Oxidant Demand (lb)	19263.46	Total Oxidant Demand (lb)	0.00	Total Oxidant Demand (lb)	433,431.52

2.0 Total Oxidant Requirements

Site Oxidant Demand (lb)	**452,694.98**	Solution Volume:	2,263,475 Gallons of 2.5%		
Safety Factor	1.05	Flowrate (gpm)	5	No. of Wells	12
		Injection Timeframe (min)		37724.582	
Permanganate Required (lb)	**475,329.73**	# of Pumping Systems		2	
		Total Days for Injection		52.4	

Key Assumptions:

1) Calculator utilizes published permanganate demands.
2) Carus Reported Average NOD of 1.06 g/kg for soil using . SB-NOD-4, SB-NOD-1 (40 - 45'), SB-NOD-1 (48 - 52.5') SB-NOD-2 (28 - 30') and SB-NOD-3 (36 - 38')
3) Carus published 0.21 lbs/gal in 2.5% solution.

Table 4. Summary of ISCO Pilot Test Groundwater Monitoring. Airtron Division of Litton Systems, Inc. Morris Plains, New Jersey

	Monitor Well Designation	Screened Aquifer	Screened Interval	Field Parameters						Lab Parameters		
				pH	Color	Cond	ORP	Temp	DTW	VOCs	Mn	Chloride
	Upgradient of Treatment Area											
1	AIR-MW-504	UU	35-45	√	√	√	√	√	√	√	√	√
2	AIR-MW-503S	Perched	10-20	√	√	√	√	√	√	√	√	√
	Within Treatment Area											
3	AIR-MW-401S	Perched	7-22	√	√	√	√	√	√	√	√	√
4	AIR-MW-402S	Perched	7-22	√	√	√	√	√	√	√	√	√
5	AIR-MW-404S	Perched	5-20	√	√	√	√	√	√	√	√	√
6	AIR-MW-404D	UU	31-46	√	√	√	√	√	√	√	√	√
7	AIR-MW-419	UU	58-68	√	√	√	√	√	√	√	√	√
8	AIR-MW-407	UU	51-61	√	√	√	√	√	√	√	√	√
9	AIR-MW-417	UU	46-56	√	√	√	√	√	√	√	√	√
10	AIR-MW-414	UU	38-48	√	√	√	√	√	√	√	√	√
11	AIR-MW-409R	UU	40-50	√	√	√	√	√	√	√	√	√
12	AIR-MW-415	UU	40.5-50.5	√	√	√	√	√	√	√	√	√
13	RIW-4	UU	40-55	√	√	√	√	√	√	√	√	√
	Downgradient of Treatment Area											
14	AIR-MW-03	UU	55-65	√	√	√	√	√	√	√	√	√
15	AIR-MW-405S	Perched	7-22	√	√	√	√	√	√	√	√	√
16	AIR-MW-302	UU	38-68	√	√	√	√	√		√	√	√
17	AIR-RW-01	UU	50-90		√					√	√	√
18	USGS-02	UU	76-84	√	√	√	√	√		√	√	√
19	AIR-MW-02M	UU	49-69	√	√	√	√	√		√	√	√
	Sidegradient of Treatment Area											
20	AIR-MW-501	UU	35-45						√			
21	AIR-MW-502	UU	36-46						√			

Notes:

-Above wells to be sampled prior to injections to establish a baseline for the pilot test.

-First post-injection sampling will take place one month after all injections are complete.

-The final Pilot Test effectiveness sampling event will be conducted 6-months following injections. Thereafter, any effectiveness will be documented during the currently approved semi-annual Source Area Effectivenss monitoring program.

PANTHER TECHNOLGIES, INC.

ATTACHMENT L

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Airtron Division of Litton Systems, Inc.

Revised AOC-13 Remedial Investigation Work Plan

7 May 2007

Vapor Intrusion Evalution

ARCADIS

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Revised AOC-13 Remedial Investigation Work Plan

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1. Introduction

On behalf of the Airtron Division of Litton Systems, Inc. (Airtron), ARCADIS of New York, Inc. (ARCADIS) has prepared this Remedial Investigation Work Plan (RIWP) to evaluate the potential for vapor intrusion at certain properties downgradient of the Airtron facility. Impacted groundwater has been identified as Area of Concern (AOC)-11 by the NJDEP. Additional investigation of the vapor intrusion pathway (identified by the New Jersey Department of Environmental Protection (NJDEP) as AOC-13) was requested by the NJDEP based on the results of the Vapor Intrusion Pathway Evaluation Report (VIPER) submitted in June 2006 (ARCADIS G&M, Inc. 2006).

This RIWP is designed to confirm the conceptual site model (CSM) for AOC-13 developed based on subslab soil gas and indoor air data collected at the Warehouse and the Airtron facility. In addition, as required by the NJDEP (2005a) Vapor Intrusion Guidance (VI Guidance), Airtron has identified buildings within 100 feet of the currently delineated plume (AOC-11), as shown on Figure 2 and presented in greater detail in Section 3 (Description of AOC-13). This RIWP focuses on two of those identified buildings, as well as a residential area located further south. Consistent with the VI Guidance, and as further discussed below, these two buildings have been selected as representative "worst-case" areas/buildings. The investigation and results from these buildings will be applied to other properties within AOC-13, as appropriate (NJDEP 2005a, p. 31). This RIWP also outlines a sequential approach for assessing the potential for vapor intrusion within other off-site residential areas further south.

This RIWP is prepared in accordance with NJDEP (2005a) VI Guidance, Technical Requirements for Site Remediation (NJDEP 2005b, latest amendments), and *Field Sampling Procedures Manual* (NJDEP 2005c). As described below, this RIWP presents a brief summary of the site background and history, project personnel, the overall approach for evaluating the potential for vapor intrusion including proposed sampling locations and sampling methodology, and the remedial investigation report content and schedule.

2. Site Background and History

Section 2 presents the environmental setting and site history as related to the Airtron facility and the identified AOCs. As applicable, detailed historical and site information previously submitted to NJDEP is incorporated by reference.

2.1 Environmental Setting

The Airtron facility (Airtron or Site) is located at 200 East Hanover Avenue, Morris Plains, Morris County, New Jersey (Figure 1) and is designated as Block 601, Lot 1 on the Hanover Township tax map. The Site comprises approximately 19 acres within an area of mixed commercial, industrial and residential use. Land use within a 1,000-foot radius of Airtron consists predominantly of commercial and industrial lots. A warehouse, former dump (on AT&T property), bulk petroleum storage facilities (i.e., Petro Oil), and a manufacturing facility (Fabricated Plastics) are located to the southeast of Airtron. The William G. Mennen Sports Arena (Mennen Arena), a manufacturing facility (Colgate-Palmolive), and an automobile service center are located to the west/southwest of Airtron across East Hanover Avenue. The automobile service center was a former manufacturing facility (Champion). A former sand and gravel quarry is located to the north and undeveloped woodland is located to the east.

Further south of Airtron and Colgate-Palmolive, the area transitions to commercial buildings and residential homes. The One Cory Road Associates (One Cory Road) building (formerly a Union Carbide facility) is located south/southeast of Colgate-Palmolive, approximately 1,500 feet from the Airtron facility. Immediately south of the One Cory Road building, the area is primarily residential (beginning approximately 2,000 feet from the Airtron facility). A complete identification of all buildings within 100 feet of the currently delineated plume (AOC-11) is shown on Figure 2 and presented in greater detail in Section 3 (Description of AOC-13). No sensitive receptors have been identified within 1,000 feet of the Airtron facility or within 100 feet of the currently delineated groundwater plume (AOC-11). A school (Morris School District: Lafayette Learning Center) is located approximately 1,700 feet southeast of the One Cory Road building, and approximately 3,500 feet from the Airtron facility (see Figure 2).

2.2 Site History

The Airtron facility was initially constructed in 1952 by Monroe Calculating Machine Company (Monroe) for the manufacturing of mechanical adding machines, including fabrication (sheet metal stamping and alloy casting) and assembly operations. Litton Business Systems purchased the property from Monroe in 1958 and moved the Airtron Division into the Airtron facility that year. Airtron used the facility to produce high technology waveguide and microwave components and gallium arsenide ingots and wafers for semiconductor substrate. Both products were used in the commercial, semiconductor, and defense industries. Production activities included manufacturing,

engineering, and research and development of these products. Production activities at Airtron formally ceased on March 30, 2002.

A full description of the historic manufacturing operations and product use was provided to NJDEP in the Site Investigation/Remedial Investigation and Remedial Action Selection Report submitted in July 1998 (ARCADIS Geraghty & Miller, Inc, 1998).

2.3 Summary of Historical Aerial Photographs

A review and analysis of historical aerial photographs was conducted and submitted to NJDEP by SCS Engineers (1997) in a Site Investigation/Site Remediation (SI/RI) Workplan. This provided the basis for early remedial investigations at the Airtron facility.

2.4 Summary of Previous Investigations

Pursuant to a 1992 Administrative Consent Order (ACO) with the NJDEP, Airtron has conducted various investigation and remediation activities to address constituents detected in groundwater and soils. A summary of these investigations, including site characterization and remediation documents submitted to the NJDEP, is detailed in Table 1 and incorporated by reference to this RIWP. Specifically, Table 1 provides a bibliography of reports and other key documents submitted to the NJDEP that provide a general overview of the Site remediation work completed since 1981. Contained in these references is information on the physical conditions of the Site, including a general description of soils; the usage, distance to, flow direction and names of surface water bodies within one-half mile of the Airtron facility; copies of boring logs; wetlands information; and information on geology and hydrogeology at the Site and within the surrounding area.

As discussed in Section 1, investigation of AOC-11 (i.e., groundwater) is a primary driver in the identification of AOC-13. Specific information on AOC-11 is provided in recent reports and interim data submittals (ARCADIS Geraghty & Miller, Inc. 1998; ARCADIS G&M, Inc. 2003, ARCADIS G&M, Inc. 2004, ARCADIS G&M, Inc. 2005, and ARCADIS of New York, Inc. 2007). A brief summary of AOC-11 and its status is provided as follows. On-site and off-site groundwater is impacted by VOCs (primarily tetrachloroethene [PCE], trichloroethene [TCE] and related breakdown products) at concentrations above the NJDEP Class II-A groundwater quality criteria. On-site groundwater conditions at the Airtron facility have been well-documented and

upgradient delineation has been completed. Off-site groundwater conditions continue to be investigated and are primarily focused on delineating the downgradient extent of VOC-impacted groundwater within the upper unconfined aquifer.

Off-site, AOC-11 consists of a northern lobe and a southern lobe, previously identified as Off-Site Areas A and B, respectively. The northern lobe of AOC-11 has been identified as areas southwest of Monitoring Wells MEN-MW-7, MEN-MW-14, and MEN-MW-15 (see Figure 2 for well locations) and is characterized by relatively lower concentrations of dissolved-phase VOCs (i.e., total VOCs less than 500 ppb). The southern lobe of AOC-11 has been identified as areas southwest of Monitoring Well MEN-MW-5 (see Figure 2 for well location). The southern lobe is characterized by relatively higher concentrations of dissolved-phase VOCs (i.e., total VOCs greater than 500 ppb). Based on the most recent groundwater quality data (ARCADIS of New York, Inc. 2007), TCE appears to be driving the furthest lateral extent of the groundwater plume.

Soil remediation activities have recently been completed on-site (Panther Technologies, Inc. 2005). These soil remediation activities focused on treatment and/or removal of VOC-impacted soils that have been identified as sources to the underlying VOC-impacted groundwater. The recent remediation of these soil source areas (designated as AOCs 1, 2, 3, 4, and 12) is expected to have a beneficial impact on underlying groundwater quality. In addition, Airtron has been operating an on-site groundwater pump-and-treat system since 1995, as an Interim Remedial Measure (IRM). This IRM pump-and-treat system serves to prevent further off-site migration of VOC-impacted groundwater and remove dissolved-phase VOC mass from the upper unconfined aquifer. Semiannual groundwater monitoring programs designed to evaluate the effectiveness of both the IRM and source removal are in place and continue.

Related to AOC-13, ARCADIS completed a vapor intrusion evaluation of the Airtron facility and Warehouse in 2006 (ARCADIS G&M, Inc. 2006). This report demonstrated that the vapor intrusion pathway was incomplete at the Warehouse, but that further evaluation was likely necessary at the Airtron facility. A complete description of the sampling approach and results is available in the VIPER submitted to NJDEP (ARCADIS G&M, Inc. 2006).

3. Description of AOC-13

This RIWP addresses the further investigation of the vapor intrusion pathway, identified as AOC-13. NJDEP specifically identified indoor air as an AOC to be evaluated by Airtron in an August 10, 2004 letter (NJDEP 2004) and noted that other buildings within the groundwater plume (AOC-11) should be evaluated for the need for further sampling. As a result, AOC-13 is defined based on the extent of the delineated groundwater plume. A full description of AOC-11 as currently delineated is provided in the October 2005 Interim Data Summary (ARCADIS G&M, Inc. 2005) supplemented with the 2006 Interim Data Summary (ARCADIS of New York, Inc. 2007). Because complete delineation of AOC-11 is still on-going, full delineation of AOC-13 is also in progress.

Based on Figure 2, the following buildings or areas are identified as within 100 feet of the currently delineated plume: Airtron, Warehouse building, Colgate-Palmolive facility, One Cory Road building, Mennen Arena, Petro Oil building, and an area along portions of Cory Road and Emmett Avenue. For purposes of the AOC-13 remedial investigation, the currently delineated plume for AOC-11 shown on Figure 2 is the distribution of TCE in the shallow portion (water-table vicinity) of the upper unconfined aquifer. This delineation is based on groundwater quality data from both historical monitoring wells screened within 20 feet of the water table and temporary vertical profile borings (VPBs) from the shallowest sampling intervals. All information on wells and VPBs included in the delineation has been previously presented to the NJDEP in recent AOC-11 remedial investigation data submittals (ARCADIS G&M, Inc. 2004; ARCADIS G&M, Inc. 2005; ARCADIS of New York, Inc. 2007).

As noted, of the six commercial/industrial buildings identified as within 100 feet of the currently delineated plume, both Airtron and the Warehouse building have been the subject of previous AOC-13 sampling and reporting. For purposes of this RIWP, two additional commercial/industrial buildings have been selected for sampling and further assessment: the Colgate-Palmolive facility and the One Cory Road building. Excluding the buildings that were the subject of the prior VIPER report, these two buildings are located over the highest relative concentrations associated with AOC-11. This approach is consistent with the NJDEP (2005a) VI Guidance, which allows the investigation of AOC-13 to begin with an evaluation of the estimated representative "worst-case" conditions (NJDEP 2005a, p. 31), with decisions regarding additional sampling to be made sequentially thereafter. As such, although additional sampling of other commercial/industrial buildings within AOC-13 is not included in this RIWP, Airtron will consider whether such sampling is necessary at the completion of this

investigation. As detailed in Section 5.2.3 (Other Off-Site Areas), a sequential approach is outlined for assessing potential vapor intrusion in the area south of the One Cory Road building where continued AOC-11 characterization and delineation activities are proposed (ARCADIS of New York, Inc. 2007).

Evaluation of the vapor intrusion pathway downgradient of the northern lobe is not specifically planned as part of this RIWP. The collection of groundwater quality data as part of currently approved delineation activities for the northern lobe of the plume is currently being coordinated. In this area, groundwater quality results, once obtained and reviewed, will be assessed as to the potential for vapor intrusion. Further sampling, if necessary, will be identified at that time.

As part of the current evaluation and delineation of AOC-13, groundwater data used to delineate AOC-11 near Colgate-Palmolive and One Cory Road were compared to NJDEP groundwater screening levels (GWSLs). If available, data were limited to results from the shallow portion of the upper unconfined aquifer, as these concentrations are expected to control the potential for vapor intrusion. The results of this comparison are provided in Table 2. As shown in Table 2, only TCE and PCE were detected above GWSL. All other constituents were either not detected or had detected concentrations below GWSLs.

4. Project Personnel

ARCADIS project personnel who will be involved in the project include:

Art Zahradnik – Principal Scientist/ Project Manager: Mr. Zahradnik is the ARCADIS Project Manager for the Airtron Site. He will bear primary responsibility for all work to be conducted by ARCADIS and will review all ARCADIS submittals to the NJDEP. He will also make sure that all activities are conducted according to the proposed schedule. He can be reached by phone at (631) 391-5208 or via e-mail at azahradnik@arcadis-us.com.

Nadine Weinberg – Senior Scientist/Task Manager: Ms. Weinberg will assist in the coordination of sampling activities and will prepare all ARCADIS submittals to the NJDEP. She can be reached by phone at (207) 828-0046 or via e-mail at nweinberg@arcadis-us.com.

Christopher Keen – Senior Scientist/Field Supervisor: Mr. Keen will coordinate the field investigation and collection of soil gas samples. He can be reached by phone at (631) 391-5277 or via email at ckeen@arcadis-us.com.

In addition, there will be an ARCADIS health and safety officer at the Site. ARCADIS field personnel will oversee any subcontractor's work (Geoprobe vapor point installation), although a subcontractor has not been selected at this time to conduct the drilling.

5. *Remedial Investigation Overview*

Section 5 describes the approach for evaluating the vapor intrusion pathway at the Colgate-Palmolive and One Cory Road buildings and residential areas further to the south as part of AOC-13. The CSM for AOC-13, the proposed sampling approach and locations, and proposed sampling methodology are presented below in the follow sub-sections.

5.1 Conceptual Site Model

A CSM was developed to support the evaluation of the vapor intrusion pathway at Colgate-Palmolive, One Cory Road, and residential areas further to the south. As recommended by the NJDEP (2005a) VI Guidance, the CSM describes potential vapor sources, migration pathways, potential human receptors, and exposure routes. The CSM was developed considering current information on hydrogeology, constituents detected in groundwater, and previous vapor intrusion sampling conducted at the Airtron facility and Warehouse. This information is used together to develop a working hypothesis of the vapor migration exposure pathway.

Previous and on-going groundwater investigations have provided information on geology and hydrogeology, as well as the nature and distribution of VOC-impacted groundwater. Information on subsurface geology collected during groundwater investigations indicates that soils below the Airtron facility and in off-site areas consist of a heterogeneous mixture of unconsolidated stratified and unstratified glacial sediments. The two uppermost units are described. The Upper (Surficial) Glacial Till ranges in thickness from 20 to 40 feet. In general, this lithologic unit is unsaturated and consists of coarser material (e.g., sand, gravel, boulders) within a finer-grained matrix (i.e., silts and clays). This description is consistent with the general hydrogeologic framework and depositional setting documented in previous AOC-11 (Groundwater) remedial investigation reports and interim data submittals (e.g., ARCADIS Geraghty & Miller, Inc. 1998, ARCADIS G&M, Inc. 2004, ARCADIS G&M, Inc. 2005, and ARCADIS of New York, Inc. 2007).

The Upper Glacial Till is underlain by Upper Sands and Gravels, ranging in thickness from 20 to 50 feet. This lithologic unit is generally characterized as fine to medium-grained sand with discontinuous silt and/or clay lenses. The water table is encountered within the Upper Sands and Gravels at depths of approximately 40 to 50 feet below land surface (bls). Therefore, these Upper Sands and Gravels comprise the shallow portions of the upper unconfined aquifer. Groundwater within the upper unconfined aquifer has been impacted primarily by chlorinated VOCs. The primary VOCs of interest (i.e., primary target VOCs) are PCE, TCE, and related breakdown products.

Off-site groundwater sampling indicates that VOCs including TCE and PCE are present in groundwater within 100 feet of the Colgate-Palmolive and One Cory Road buildings at a depth of approximately 45 feet bls near the water table. Groundwater sampling results from on-going groundwater investigations and monitoring programs indicate that total VOC concentrations in the vicinity of Colgate-Palmolive range from non-detect to 1,590 ppb (at AIR-MW-305). Near the One Cory Road building, total VOC concentrations range from non-detect to 1,760 ppb (at MEN-MW-5). Additional information on off-site groundwater data including specific constituents above GWSLs is provided in Table 2.

Information on site hydrogeology indicates that there is a potential for diffusion of vapors from VOC-impacted shallow groundwater (i.e., water table vicinity) to soil gas. However, any diffusion from the water table is expected to be significantly limited due to the presence of glacial till above the upper unconfined aquifer. This hypothesis is supported by soil gas and indoor air sampling results at the Warehouse (ARCADIS G&M, Inc. 2006). Similar to Colgate-Palmolive and One Cory Road, the Warehouse is underlain by approximately 20 feet of glacial till. Although total VOC concentrations within 100 feet of the Warehouse exceeded 4,000 ppb, all subslab soil gas concentrations were below soil gas screening levels (SGSLs). As a result, the surficial glacial till appears to be acting as a cap significantly inhibiting vapor migration from the water table to the surface and into the overlying buildings.

5.2 Sampling Approach and Locations

The approach for evaluating the potential for vapor intrusion at Colgate-Palmolive, One Cory Road, and residential areas further south focuses on the collection of soil gas samples. Soil gas data will be used to confirm the CSM for AOC-13 which indicates that VOCs in groundwater have a limited potential to migrate into indoor air. Soil gas samples will be collected from 8 ft bls at all sample locations. At Colgate-Palmolive and One Cory Road, soil gas samples will also be collected from 12 ft bls, 20 ft bls, and

30 to 35 ft bls (depending on the depth to groundwater) at most sample locations (see Table 3). Within the other off-site areas discussed below, soil gas samples will also be collected from 15 ft bls and 30 ft bls at most sample locations (see Table 3). These sample depths are consistent with NJDEP VI Guidance which suggests collecting samples from: (a) 2 to 5 feet below the depth of the slab and a minimum of 5 ft bls and (b) in the vadose zone at least one foot above the capillary fringe. Additional samples at 12, 15, or 20 ft bls were added to evaluate conditions for vapor migration within and/or slightly below the glacial till layer. Vertical profiling of soil gas sample locations will be used to determine if groundwater is a potential source of VOCs in soil gas and if the glacial till layer is significantly inhibiting the vertical migration of VOCs from soil gas into overlying buildings.

The specific samples to be collected are presented in Table 3 and discussed below in greater detail.

5.2.1 Colgate-Palmolive

Soil gas samples will be collected from a total of seven locations around the Colgate-Palmolive building. Approximate sample locations are shown on Figure 3. Specific sampling depths are presented in Table 3. As feasible, all samples will be collected as near slab soil gas samples. Consistent with NJDEP VI Guidance, near slab samples are defined as those collected within 10 feet of the building foundation. Final confirmation of all sample locations will be made prior to sampling and upon completion of all access agreements and a site reconnaissance, including utility clearance and identification of any physical constraints by property owner representatives. Based on the results of near slab soil gas sampling, subslab soil gas sampling at Colgate-Palmolive may be appropriate. Following completion of the soil gas sampling and based on those results, if there is indication that vapor intrusion may be a potential issue, the need for subslab soil gas sampling will be considered in collaboration with the NJDEP, and if necessary Airtron will seek access to the building.

5.2.2 One Cory Road

Soil gas samples will be collected from a total of seven locations around the One Cory Road building. Approximate sample locations are shown on Figure 3, including a transect north of the building that covers the entire width of the delineated groundwater plume. Specific sampling depths are presented in Table 3. As feasible, all samples

will be collected as near slab soil gas samples. Consistent with NJDEP VI Guidance, near slab samples are defined as those collected within 10 feet of the building foundation. Final confirmation of all sample locations will be made prior to sampling and upon completion of all access agreements and a site reconnaissance, including utility clearance and identification of any physical constraints by property owner representatives. Based on the results of near slab soil gas sampling, subslab soil gas sampling at One Cory Road may be appropriate. Following completion of the soil gas sampling and based on those results, if there is indication that vapor intrusion may be a potential issue, the need for subslab soil gas sampling will be considered in collaboration with the NJDEP, and if necessary.Airtron will seek access to the building.

5.2.3 Other Off-Site Areas

As identified on Figure 2, several other buildings (primarily residential) are potentially located within AOC-13 and downgradient of the currently delineated extent of AOC-11. Evaluation of the vapor intrusion pathway within the southern residential area is planned as part of this RIWP. Sample locations are dependent on the results of initial soil gas sampling at One Cory Road proposed in this RIWP and additional groundwater sampling proposed to NJDEP in ARCADIS' most recent interim data summary submittal for AOC-11 (ARCADIS of New York, Inc. 2007). These contingent soil gas sampling locations are shown on Figure 3 along with the locations of separately proposed groundwater sampling locations. For reference, residences within 100 ft of this AOC, as currently delineated, are presented on Figure 2. A decision tree for collection of additional soil gas samples at southern lobe downgradient areas is presented on Figure 4.

As shown in Figure 4, sample locations will first be selected based on the results of soil gas samples at One Cory Road. If any soil gas sample results at 8 ft bls are greater than SGSLs, then sampling will proceed to the next block, Emmet Avenue, given the proximity of residential homes. However, if soil gas sample results from Cory Road at 8 ft bls are less than SGSLs, Airtron will also consider the results of groundwater data collected along Emmet Avenue (MW-512) and Jersey Avenue and Cottage Place (VPB-B11, B12, B13). Based on these results, sampling will either continue on Emmet Avenue and/or Jersey Avenue and Cottage Place, or no further sampling will be necessary.

If soil gas samples are collected from Emmet Avenue, 8 ft bls sample results will again be compared to SGSLs. If these soil gas sample results are less than SGSLs, Airtron will consider the results of groundwater VPBs collected along Jersey Avenue and

Cottage Place. Based on these results, sampling will either continue on Jersey Avenue and Cottage Place or no further sampling will be necessary. Finally, based on the results of soil gas sampling along Jersey Avenue and Cottage Place and groundwater VPB results from Hillairy Avenue, Airtron will determine whether soil gas sampling along Hillairy Avenue is necessary. Overall, Airtron will continue to conduct soil gas sampling if either shallow soil gas results exceed SGSLs or shallow groundwater VPB results exceed GWSLs. If however, the data show that VOCs are not present in shallow soil gas above SGSLs and either the groundwater plume is fully delineated or a clean water lens is identified, additional soil gas sampling along the southern extent of AOC-13 will not be necessary.

5.3 Sampling Methods

Soil gas samples will be collected using the Geoprobe® post run tubing (PRT) system as follows.

- A direct push drilling rig (Geoprobe®) will be used to advance an assembly consisting of interconnected lengths of decontaminated 1.25-inch diameter steel drive rods, a PRT system point holder, and an expendable PRT system point at the downhole end, to the bottom of the desired sampling interval.
- After reaching the desired depth, the sampling assembly will be retracted approximately six inches creating a void to collect the sample. While the expendable point should fall off when the probe rods are retracted, a chase rod will be employed to ensure the downhole end is clear of obstructions.
- Once the probe rods are in place, properly retracted, and clear of downhole obstructions, the drill rig will be moved to facilitate collection of the soil gas sample.
- Clean Teflon® lined tubing equipped with a threaded PRT adapter featuring a new o-ring will then be inserted into the steel drive rods until the adapter contacts the point holder.
- The sample tubing will be cut leaving approximately three extra feet of tubing outside the probe rods. The operator will thread the PRT adapter into the point holder. A gentle tug on the sample tubing will verify proper thread engagement has been made.

- Prior to sampling, a low flow pump will purge approximately three volumes of air through the probe and tubing at a purge rate of approximately 100 milliliters per minute (mL/min). The exact amount purged will be calculated consistent with NJDEP VI Guidance as:

  Purge volume = $3.0\ \pi r^2 h$

  Where, r = the inner radius of the probe and connecting tubing and h = the length of the probe and connecting tubing.

- During purging of the sample train, leak testing will be conducted using helium as a tracer gas to insure the integrity of all connections in the sample train. Polyethylene sheeting will be placed on the ground with the sample probe piercing the sheeting. This junction will be sealed with inert clay. An air tight shroud will be placed over the sample probe and sealed to the sheeting using a foam seal. Helium gas will be introduced into the shroud until the concentration reaches approximately 40% helium as shown by a portable helium meter. Air exiting the purge pump via the exhaust port of the pump will be monitored for the presence of helium. As specified in the NJDEP VI Guidance, any sample port with > 5% helium noted in purged air will not be used as it will be evident that there is a leak in the system.

- At the completion of purging and a successful tracer gas test, a six-liter, batch-certified clean SUMMA canister will be attached to the sample tubing, opened, and allowed to collect a sample at a flow rate of 200 mL/min or less. SUMMA canisters will be provided by Severn Trent Laboratories (STL) in Burlington, Vermont, a NJDEP certified air sampling laboratory (NJDEP Certification No. VT972).

After the SUMMA canister is filled (final vacuum < 5 inches Hg), the canister valve will be closed and the sample card labeled. Samples will be shipped via overnight courier to STL for analysis of NJDEP VOCs by USEPA Method TO-15. STL will provide full data deliverable packages in accordance with current NJDEP requirements. Consistent with NJDEP (2005a) guidance, the maximum reporting limit for each compound is ≤ 5 parts per billion volume (ppbv) (Table 4). A standard analysis turn-around-time will be requested for receiving sampling results.

ARCADIS G&M, Inc. 2006. Vapor Intrusion Evaluation Report for 200 and 220 East Hanover Avenue, AOC-13 Remedial Investigation, Airtron Division of Litton Systems, Inc. June 20.

ARCADIS of New York, Inc. 2007. Interim Data Summary (2006) for Off-Site Area B (Southern Lobe), AOC-11 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc. January 8.

NJDEP 2004. Airtron Division of Litton Systems, Inc. (Airtron) Morris Plains, Morris County, NJ, Preferred ID No. 016698. Work Plan – Indoor Air Sampling Program: Monitor Warehouse dated May 2004. Letter from Michael Kenney, Case Manager to Kathleen Gill, The Dextra Group. August 10.

NJDEP 2005a. Final Vapor Intrusion Guidance. New Jersey Department of Environmental Protection. October.

NJDEP 2005b. N.J.A.C. 7:26E Technical Requirements for Site Remediation ("Tech Rule). July.

NJDEP 2005c. Field Sampling Procedures Manual. New Jersey Department of Environmental Protection. August.

Panther Technologies, Inc. 2005. Site-Wide Soil Remedial Action Report (RAR), Airtron Division of Litton Systems, Inc. November.

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Table 1. List of Previously Submitted Reports, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey

- Converse, Ward, Davis, Dixon, Inc. 1981. Final Report of Groundwater Monitoring Program, Litton Industries - Airtron Division. Dated August 10, 1981.
- Converse Consultants, Inc. 1982. Report on Aquifer Test Using Mennen Production Well. Prepared for Airtron, Morris Plains, New Jersey. Dated August 16, 1982.
- Converse Environmental East. 1987a. Soil and Groundwater Remedial Investigation, Phase I Results, Litton Industries, Inc., Airtron Division, Hanover Township, New Jersey. Dated November 24, 1987.
- Converse Environmental East. 1987b. Addendum 2 – NJDEP Well Records/Well Inventory, Litton Industries, Inc., Airtron Division, Hanover Township, New Jersey. Dated November 24, 1987.
- Converse Environmental East. 1990. Report on Phase II Soil and Groundwater Investigation. Prepared for Litton Industries - Airtron Division. Dated April 19, 1990.
- SCS Engineers. 1991 Soil Vapor Extraction Test Program at Litton-Airtron Facility, Hanover, New Jersey. Dated March 5, 1991.
- Airtron/NJDEP. 1992. Administrative Consent Order, executed December 16, 1992. **NOTE**: ACO Amendments dated March 21, 2001 and October 26, 2001 [driven by ISRA obligations].
- ACO Quarterly Progress Reports (originally submitted by Litton/Airtron; ARCADIS began submitting on behalf Litton/Airtron starting 3Q-1997 (PR#19) up through present)
- SCS Engineers. 1993. Phase I Remedial Investigation Work Plan for Litton-Airtron. Dated October 25, 1993.
- SCS Engineers. 1993. Interim Remedial Measures Work Plan for Airtron Division of Litton Systems, Inc. Dated December 9, 1993.
- SCS Engineers. 1994. Remedial Investigation Report (Draft) for the Airtron Division of Litton Systems, Inc. Prepared for Airtron Division of Litton Systems, Inc. Dated August 15, 1994
- SCS Engineers/Litton-Airtron. 1995. Litton-Airtron's Response to November 4, 1994 NJDEP Comments. Dated January 8, 1995
- SCS Engineers. 1995. Summary Report of the Interim Remedial Measures at Litton-Airtron. Dated April 27, 1995.
- SCS Engineers. 1995. Phase II Remedial Investigation Work Plan for Litton-Airtron (Draft). Dated April 27, 1995.
- SCS Engineers. 1996. Twelve-Month Pump-and-Treat Evaluation Report. Dated September 9, 1996
- SCS Engineers. Groundwater Remediation Effectiveness Monitoring Program semi-annual sampling results: April 1996, October 1996, and April 1997 sampling rounds.

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Table 1. List of Previously Submitted Reports, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey

- ARCADIS. Groundwater Remediation Effectiveness Monitoring Program semi-annual sampling results: December 1997 through present sampling rounds (typically every April/October with report submitted every June/December). Fall 2004 Monitoring Report was the first that combined IRM effectiveness monitoring with post source (soil) removal effectiveness monitoring, up through present:
    - ARCADIS G&M, Inc. 2005. Fall 2004 Semi-Annual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated February 4, 2005.
    - ARCADIS G&M, Inc. 2005. Spring 2005 Semi-Annual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated June 20, 2005.
    - ARCADIS G&M, Inc. 2006. Fall 2005 Semi-Annual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated March 22, 2006.
    - ARCADIS G&M, Inc. 2006. Spring 2006 Semiannual Monitoring Report, Effectiveness Groundwater Monitoring Program, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 3, 2006.
- SCS Engineers. 1997. Site Investigation/Remedial Investigation Work Plan for Litton – Airtron. Dated March 31, 1997.
- SCS Engineers. 1997. Site Investigation/Remedial Investigation Work Plan for Litton - Airtron, March 31, 1997 (revised July 30, 1997).
- ARCADIS Geraghty & Miller, Inc. 1998. Site Investigation/Remedial Investigation and Remedial Action Selection Report, Airtron Division of Litton Systems, Inc. Dated July 1, 1998.
- ARCADIS Geraghty & Miller, Inc. 1999. Site Investigation/Remedial Investigation Report Addendum, Airtron Division of Litton Systems, Inc. Dated February 3, 1999.
- ARCADIS Geraghty & Miller, Inc. 1999a. Supplemental Site Investigation/Remedial Investigation Report Addendum, Airtron Division of Litton Systems, Inc. Dated September 14, 1999.
- ARCADIS Geraghty & Miller, Inc. 1999b. Remedial Action Workplan, Airtron Division of Litton Systems, Inc. Dated September 14, 1999.
- ARCADIS Geraghty & Miller, Inc. 1999c. Supplemental Remedial Investigation Workplan (SRIW), Airtron Division of Litton Systems, Inc. Dated September 14, 1999.
- ARCADIS Geraghty & Miller, Inc. 2001a. Supplemental Remedial Investigation Workplan (SRIW) Addendum, Airtron Division of Litton Systems, Inc. Dated February 5, 2001.
- ARCADIS Geraghty & Miller, Inc. 2001b. Remedial Action Workplan (RAW) Addendum, Airtron Division of Litton Systems, Inc. Dated February 5, 2001.

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Table 1. List of Previously Submitted Reports, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey

- Northrop Grumman Component Technologies (NGCT). 2002. Correspondence Re: NJDEP March 19, 2002 Correspondence Regarding Supplemental Remedial Investigation Workplan (SRIW) Addendum dated 5 February 2001. Dated April 29, 2002.
- NGCT. 2002. Correspondence Re: NJDEP March 28, 2002 Correspondence Regarding Remedial Action Work Plan (RAWP) Addendum dated 5 February 2001. Dated May 3, 2002.
- NGCT. 2002. Correspondence Re: Airtron's May 3, 2002 Response to NJDEP March 28, 2002 Correspondence Regarding Remedial Action Work Plan (RAWP) Addendum dated 5 February 2001. Dated June 17, 2002.
- ARCADIS G&M, Inc. 2002. AOC-6 Stream Sediment Sampling Summary, Airtron Division of Litton Systems, Inc. Hanover, New Jersey. Dated October 11, 2002.
- Panther Technologies, Inc. 2003. Revised Remedial Action Work Plan (RAWP) Addendum, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey. Dated February 10, 2003.
- ARCADIS G&M, Inc. 2003. AOC-11 Interim Data Summary, On-Site Source Area Activities, Phase 1 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc. Hanover, New Jersey. Dated May 15, 2003.
- ARCADIS G&M, Inc. 2003. Phase 2 Supplemental Remedial Investigation Work Plan for AOC-6 (Stream Sediment), Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated August 8, 2003.
- ARCADIS G&M, Inc. 2003. DRAFT Summary Outline of Modified SRI Phase 1 Scope of Work for AOC-11 Groundwater, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated September 9, 2003.
- ARCADIS G&M, Inc. 2003. Site Investigation Report, Airtron Division of Litton Systems, Inc., Morris Plains, NJ. Dated October 17, 2003.
- Brown and Caldwell. 2004. Work Plan, Indoor Air Sampling Program, Monitor Warehouse, Morris Plains, New Jersey. Dated May 2004. [Cover letter to NJDEP dated May 28, 2004. Work Plan prepared on behalf of Litton Systems, Inc., Airtron Division]
- Panther Technologies, Inc. 2004. Remedial Action Work Plan Addendum – AOC-12, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated September 30, 2004.
- Brown and Caldwell. 2004. Correspondence to NJDEP Re: Addendum – Work Plan for Indoor Air Sampling at the Monitor Warehouse, Morris Plains, New Jersey. Dated October 4, 2004.
- ARCADIS G&M, Inc. 2004. Correspondence to NJDEP Re: Interim Summary of 2004 Well Search, AOC-11 (Groundwater) Phase 1 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 4, 2004.

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Table 1. List of Previously Submitted Reports, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey

- ARCADIS G&M, Inc. 2004. Correspondence to NJDEP Re: Interim Summary of 2004 Source Area Vicinity Groundwater Conditions, AOC-11 (Groundwater) Phase 1 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 6, 2004.
- ARCADIS G&M, Inc. 2004. AOC-6 Phase 2 Supplemental Remedial Investigation (SRI) Report, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated October 7, 2004.
- Panther Technologies, Inc. 2004. Remedial Action Report , Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated October 11, 2004. [Submitted to NJDEP on 10/26/04].
- ARCADIS G&M, Inc. 2004. Facility Indoor Air and Sub-Slab Sampling Work Plan, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated December 3, 2004.
- ARCADIS G&M, Inc. 2004. AOC-11 Interim Data Summary (October 2003 – August 2004), Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated December 15, 2004.
- ARCADIS G&M, Inc. 2005. October 2005 Interim Data Summary, AOC-11 (Groundwater) Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated 12 October 2005.
- Panther Technologies, Inc. 2005. Site-Wide Soil Remedial Action Report (RAR), Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, KCSL No. NJD030239412. Dated November 2005.
- ARCADIS G&M, Inc. 2006. Addendum to October 2005 Interim Data Summary, AOC-11 (Groundwater) Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Hanover, New Jersey. Dated 14 March 2006.
- ARCADIS G&M, Inc. 2006. Vapor Intrusion Evaluation Report for 200 and 220 East Hanover Avenue, AOC-13 Remedial Investigation, Airtron Division of Litton Systems, Inc. Dated 20 June 2006.
- Panther Technologies, Inc. 2006. Remedial Action Report (RAR) Addendum, November 2005 Site-Wide Soil RAR, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, NJDEP Preferred ID No. 016698. Dated July 2006.
- Panther Technologies, Inc. 2006. Remedial Action Report (RAR) Addendum #3, November 2005 Site-Wide Soil RAR, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, NJDEP Preferred ID No. 016698. Dated December 7 2006.
- Panther Technologies, Inc. 2007. Remedial Investigation Work Plan Addendum, Airtron Division of Litton Systems, Inc., Morris Plains, Morris County, New Jersey, NJDEP Preferred ID No. 016698. Dated January 2007.
- ARCADIS of New York, Inc. 2007. Interim Data Summary (2006) for Off-Site Area B (Southern Lobe), AOC-11 Supplemental Remedial Investigation, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey. Dated 8 January 2007.

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Table 2. Comparison of Existing Groundwater Quality Data to NJDEP Screening Levels, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey.

Constituent	NJDEP GWSL (ug/L)	Well Designation:	AIR-MW-305	AIR-MW-307	MW-508	MW-509	MW-510	MEN-MW-01
		Sample ID:	MW-305(51)	MW-307	MW-508(40)	MW-509	MW-510	MEN MW-1
		Sample Date:	7/14/2005	7/14/2005	7/20/2006	7/21/2006	7/21/2006	12/17/2003
		Sampling Interval (ft, bls) (a):	51	52	40	40-50	35-45	40-60
		Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Primary Target Compounds:								
Tetrachloroethene	1		635	<0.22	1.64	64.9	<1.34	1.57
Trichloroethene	1		849	<0.33	4.36	279	<0.9	0.647
cis-1,2-Dichloroethene	--		101	<0.31	<0.64	39.7	<0.64	<0.37
trans-1,2-Dichloroethene	300		<2.6	<0.26	<0.59	<2.95	<0.59	<0.49
Vinyl chloride	1		<1.9	<0.19	<1.21	<6.05	<1.21	<0.26
1,1,1-Trichloroethane	2,300		<2.1	<0.21	1.78	<4.35	2.66	<0.47
Remaining Compounds:								
Acetone	1,900,000		<8.9	16.1	<0.5	<2.5	4.37	<1.49
Benzene	15		<3.9	<0.39	<0.77	<3.85	<0.77	<0.28
Bromodichloromethane	5		<4.4	<0.44	<0.6	<3	<0.6	<0.37
Bromoform	370		<3.7	<0.37	<0.74	<3.7	<0.74	<0.35
Bromomethane	29		<2.4	<0.24	<0.67	<3.35	<0.67	<0.42
2-Butanone	2,700,000		<9.8	<0.98	<0.99	<4.95	<0.99	<0.3
Carbon disulfide	710		<2.6	<0.26	<1.32	<6.6	<1.32	<0.36
Carbon tetrachloride	1		<2.3	<0.23	<1.2	<6	<1.2	<0.18
Chlorobenzene	640		<2.5	<0.25	<0.88	<4.4	<0.88	<0.33
Chloroethane	4		<3	<0.3	<0.48	<2.4	<0.48	<0.43
Chloroform	70		<2.6	<0.26	4.13	<2.85	<0.57	<0.34
Chloromethane	240		<2.6	<0.26	<1.06	<5.3	<1.06	<0.41
Cyclohexane	1,200		<3.8	<0.38	<1.59	<7.95	<1.59	--
Dibromochloromethane	9		<2.8	<0.28	<0.79	<3.95	<0.79	<0.33
1,2-Dibromoethane (EDB)	0.4		<3.2	<0.32	<0.88	<4.4	<0.88	--
1,2-Dichlorobenzene	5,900		<3.8	<0.38	<0.92	<4.6	<0.92	--
1,3-Dichlorobenzene	600		<3.1	<0.31	<1.16	<5.8	<1.16	--
1,4-Dichlorobenzene	75		<2.8	<0.28	<1.24	<6.2	<1.24	--
Dichlorodifluoromethane	1,000		<1.5	<0.15	<1.14	<5.7	<1.14	--
1,1-Dichloroethane	3,600		<3.3	<0.33	2.15	<2.4	<0.48	<0.35
1,2-Dichloroethane	2		<3.4	<0.34	<0.58	<2.9	<0.58	<0.37
1,1-Dichloroethene	250		<3.5	<0.35	<0.84	<4.2	1.43	<0.7
1,2-Dichloropropane	1		<3.2	<0.32	<0.8	<4	<0.8	<0.31
cis-1,3-Dichloropropene	1 (total)		<4.8	<0.48	<0.65	<3.25	<0.65	<0.28
trans-1,3-Dichloropropene	1 (total)		<4.7	<0.47	<0.79	<3.95	<0.79	<0.33
Ethylbenzene	61,000		<3.3	<0.33	<0.96	<4.8	<0.96	<0.37
Methylene chloride	53		<19.9	<1.99	<1.92	<9.6	<1.92	<1.99
4-Methyl-2-pentanone	880,000		<6.9	<0.69	<0.73	<3.65	<0.73	<0.29
Methyl tert-butyl ether	78		<2.5	<0.25	0.446	<1.35	<0.27	--
Styrene	18,000		<3.9	<0.39	<0.94	<4.7	<0.94	<0.35
1,1,2,2-Tetrachloroethane	4		<4.4	<0.44	<0.76	<3.8	<0.76	<0.38
Toluene	310,000		<3.5	<0.35	<0.8	<4	<0.8	<0.25
1,2,4-Trichlorobenzene	2,800		<6.9	<0.69	<1.23	<6.15	<1.23	--
1,1,2-Trichloroethane	5		<3.4	<0.34	<0.76	<3.8	<0.76	<0.28
Freon 113	2,400		<2.6	<0.26	<2.12	<10.6	<2.12	--
Trichlorofluoromethane	2,000		<1.2	<0.12	<1.41	9.27	4.66	103
Xylene (total)	7,000		<11.5	<1.15	<1.68	<8.4	<1.68	<1.19
1,2,3-Trichlorobenzene	--		<6.7	<0.67	<1.07	<5.35	<1.07	--
1,2-Dibromo-3-chloropropane	--		<5.7	<0.57	<0.71	<3.55	<0.71	--
2-Hexanone	--		<5.1	<0.51	<0.45	<2.25	<0.45	<0.45
Chlorobromomethane	--		<3	<0.3	<0.53	<2.65	<0.53	--
Isopropylbenzene	--		<3.5	<0.35	<0.94	<4.7	<0.94	--
Methyl Acetate	--		<8.8	<0.88	<0.97	<4.85	<0.97	--
Methylcyclohexane	--		<4.2	<0.42	<0.87	<4.35	<0.87	--

Notes and Abbreviations:

NJDEP	New Jersey Department of Environmental Protection
GWSL	Ground Water Screening Level
ug/L	Micrograms per Liter
ft, bls	feet below land surface
(a)	Single sample interval depth indicates low-flow
D	Analyzed at second dilution factor
--	Standard not available for particular compound or not analyzed
[box]	Value indicates detected concentration exceeds NJDEP GWSL

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Table 2. Comparison of Existing Groundwater Quality Data to NJDEP Screening Levels, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey.

Constituent	NJDEP GWSL (ug/L)	Well Designation:	MEN-MW-02	MEN-MW-07	MEN-MW-11	MEN-MW-06	MEN-MW-16	MEN-MW-05
		Sample ID:	MEN MW-2	MEN MW-7	MEN MW-11	MEN. MW-6	MEN. MW-16	MEN-MW-5
		Sample Date:	12/17/2003	12/18/2003	12/17/2003	7/13/2005	7/13/2005	5/31/2006
		Sampling Interval (ft, bls) (a):	40-60	43-63	53-63	56	38.5	51
		Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Primary Target Compounds:								
Tetrachloroethene	1		<0.31	66.7	174	<0.22	0.994	834
Trichloroethene	1		2.63	188	83.10	<0.33	14	909
cis-1,2-Dichloroethene	--		1.73	5.58	17	<0.31	<0.31	127
trans-1,2-Dichloroethene	300		<0.49	<0.49	<0.49	<0.26	<0.26	<2.6
Vinyl chloride	1		<0.26	<0.26	<0.26	<0.19	<0.19	<1.9
1,1,1-Trichloroethane	2,300		<0.47	0.813	<0.47	<0.21	<0.21	<2.1
Remaining Compounds:								
Acetone	1,900,000		<1.49	<1.49	7.47	<0.89	<0.89	<8.9
Benzene	15		<0.28	<0.28	<0.28	<0.39	<0.39	<3.9
Bromodichloromethane	5		<0.37	<0.37	<0.37	<0.44	<0.44	<4.4
Bromoform	370		<0.35	<0.35	<0.35	<0.37	<0.37	<3.7
Bromomethane	29		<0.42	<0.42	<0.42	<0.24	<0.24	<2.4
2-Butanone	2,700,000		<0.3	<0.3	<0.3	<0.98	<0.98	<9.8
Carbon disulfide	710		<0.36	<0.36	<0.36	<0.26	<0.26	<2.6
Carbon tetrachloride	1		<0.18	<0.18	<0.18	<0.23	<0.23	<2.3
Chlorobenzene	640		<0.33	<0.33	<0.33	<0.25	<0.25	<2.5
Chloroethane	4		<0.43	<0.43	<0.43	<0.3	<0.3	<3
Chloroform	70		9.64	<0.34	<0.34	<0.26	<0.26	<2.8
Chloromethane	240		<0.41	<0.41	<0.41	<0.26	<0.26	<2.6
Cyclohexane	1,200		--	--	--	<0.38	<0.38	<3.8
Dibromochloromethane	9		<0.33	<0.33	<0.33	<0.28	<0.28	<2.8
1,2-Dibromoethane (EDB)	0.4		--	--	--	<0.32	<0.32	<3.2
1,2-Dichlorobenzene	5,900		--	--	--	<0.38	<0.38	<3.8
1,3-Dichlorobenzene	600		--	--	--	<0.31	<0.31	<3.1
1,4-Dichlorobenzene	75		--	--	--	<0.28	<0.28	<2.8
Dichlorodifluoromethane	1,000		--	--	--	<0.15	<0.15	<1.5
1,1-Dichloroethane	3,600		<0.35	<0.35	<0.35	<0.33	<0.33	<3.3
1,2-Dichloroethane	2		<0.37	<0.37	<0.37	<0.34	<0.34	<3.4
1,1-Dichloroethene	250		<0.7	<0.7	<0.7	<0.35	<0.35	<3.5
1,2-Dichloropropane	1		<0.31	<0.31	<0.31	<0.32	<0.32	<3.2
cis-1,3-Dichloropropene	1 (total)		<0.28	<0.28	<0.28	<0.48	<0.48	<4.8
trans-1,3-Dichloropropene	1 (total)		<0.33	<0.33	<0.33	<0.47	<0.47	<4.7
Ethylbenzene	61,000		<0.37	<0.37	<0.37	<0.33	<0.33	<3.3
Methylene chloride	53		<1.99	<1.99	<1.99	<1.99	<1.99	<19.9
4-Methyl-2-pentanone	880,000		<0.29	<0.29	<0.29	<0.69	<0.69	<6.9
Methyl tert-butyl ether	78		--	--	--	<0.25	<0.25	<2.5
Styrene	18,000		<0.35	<0.35	<0.35	<0.39	<0.39	<3.9
1,1,2,2-Tetrachloroethane	4		<0.38	<0.38	<0.38	<0.44	<0.44	<4.4
Toluene	310,000		<0.25	<0.25	<0.25	<0.35	0.963	<3.5
1,2,4-Trichlorobenzene	2,800		--	--	--	<0.69	<0.69	<6.9
1,1,2-Trichloroethane	5		<0.28	<0.28	<0.28	<0.34	<0.34	<3.4
Freon 113	2,400		--	--	--	<0.26	<0.26	<2.6
Trichlorofluoromethane	2,000		105	<0.4	<0.4	<0.12	12.9	<1.2
Xylene (total)	7,000		<1.19	<1.19	<1.19	<1.15	<1.15	<11.5
1,2,3-Trichlorobenzene	--		--	--	--	<0.67	<0.67	<6.7
1,2-Dibromo-3-chloropropane	--		--	--	--	<0.57	<0.57	<5.7
2-Hexanone	--		<0.45	<0.45	<0.45	<0.51	<0.51	<5.1
Chlorobromomethane	--		--	--	--	--	--	<3
Isopropylbenzene	--		--	--	--	<0.35	<0.35	<3.5
Methyl Acetate	--		--	--	--	<0.88	<0.88	<8.8
Methylcyclohexane	--		--	--	--	<0.42	<0.42	<4.2

Notes and Abbreviations:

NJDEP	New Jersey Department of Environmental Protection
GWSL	Ground Water Screening Level
ug/L	Micrograms per Liter
ft, bls	feet below land surface
(a)	Single sample interval depth indicates low-flow
D	Analyzed at second dilution factor
--	Standard not available for particular compound or not a
[box]	Value indicates detected concentration exceeds NJDE

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Table 2. Comparison of Existing Groundwater Quality Data to NJDEP Screening Levels, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey.

Constituent	NJDEP GWSL (ug/L)	Well Designation:	MEN-MW-305A	MEN-MW-306A	MEN-MW-20	MEN-MW-21	MEN-MW-24	VPB-B4
		Sample ID:	MEN-MW-305A	MEN-MW-306A	MEN-MW-20	MEN-MW-21	MEN-MW-24	VPB-B4
		Sample Date:	6/1/2006	6/1/2006	6/1/2006	6/1/2006	6/1/2006	6/21/2005
		Sampling Interval (ft, bls) (a):	37-47	39-49	40-50	42-52	45-55	45-56
		Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Primary Target Compounds:								
Tetrachloroethene	1		**354**	**79.6**	**79.8**	**33.7**	**74.7**	<0.22
Trichloroethene	1		**607**	**315**	**39**	**18.1**	**43.6**	<0.33
cis-1,2-Dichloroethene	--		73.9	43.8	1.09	<0.31	1.45	<0.31
trans-1,2-Dichloroethene	300		<1.3	<1.3	<0.26	<0.26	<0.26	<0.26
Vinyl chloride	1		<0.95	<0.95	<0.19	<0.19	<0.19	<0.19
1,1,1-Trichloroethane	2,300		<1.05	<1.05	0.72	1.3	0.904	<0.21
Remaining Compounds:								
Acetone	1,900,000		<4.45	<4.45	<0.89	<0.89	<0.89	3.52
Benzene	15		<1.95	<1.95	<0.39	<0.39	<0.39	<0.39
Bromodichloromethane	5		<2.2	<2.2	<0.44	<0.44	<0.44	1.12
Bromoform	370		<1.85	<1.85	<0.37	<0.37	<0.37	<0.37
Bromomethane	29		<1.2	<1.2	<0.24	<0.24	<0.24	<0.24
2-Butanone	2,700,000		<4.9	<4.9	<0.98	<0.98	<0.98	<0.98
Carbon disulfide	710		<1.3	<1.3	<0.26	<0.26	<0.26	<0.26
Carbon tetrachloride	1		<1.15	<1.15	<0.23	<0.23	<0.23	<0.23
Chlorobenzene	640		<1.25	<1.25	<0.25	<0.25	<0.25	<0.25
Chloroethane	4		<1.5	<1.5	<0.3	<0.3	<0.3	<0.3
Chloroform	70		<1.3	<1.3	<0.26	0.455	<0.26	5.19
Chloromethane	240		<1.3	<1.3	<0.26	<0.26	<0.26	<0.26
Cyclohexane	1,200		<1.9	<1.9	<0.38	<0.38	<0.38	<0.38
Dibromochloromethane	9		<1.4	<1.4	<0.28	<0.28	<0.28	0.752
1,2-Dibromoethane (EDB)	0.4		<1.6	<1.6	<0.32	<0.32	<0.32	<0.32
1,2-Dichlorobenzene	5,900		<1.9	<1.9	<0.38	<0.38	<0.38	<0.38
1,3-Dichlorobenzene	600		<1.55	<1.55	<0.31	<0.31	<0.31	<0.31
1,4-Dichlorobenzene	75		<1.4	<1.4	<0.28	<0.28	<0.28	<0.28
Dichlorodifluoromethane	1,000		<0.75	<0.75	1.25	1.5	<0.15	<0.15
1,1-Dichloroethane	3,600		<1.65	<1.65	<0.33	<0.33	<0.33	<0.33
1,2-Dichloroethane	2		<1.7	<1.7	<0.34	<0.34	<0.34	<0.34
1,1-Dichloroethene	250		<1.75	<1.75	<0.35	<0.35	<0.35	<0.35
1,2-Dichloropropane	1		<1.6	<1.6	<0.32	<0.32	<0.32	<0.32
cis-1,3-Dichloropropene	1 (total)		<2.4	<2.4	<0.48	<0.48	<0.48	<0.48
trans-1,3-Dichloropropene	1 (total)		<2.35	<2.35	<0.47	<0.47	<0.47	<0.47
Ethylbenzene	61,000		<1.65	<1.65	<0.33	<0.33	<0.33	<0.33
Methylene chloride	53		<9.95	<9.95	<1.99	<1.99	<1.99	<1.99
4-Methyl-2-pentanone	880,000		<3.45	<3.45	<0.69	<0.69	<0.69	<0.69
Methyl tert-butyl ether	78		<1.25	3.75	<0.25	<0.25	<0.25	0.336
Styrene	18,000		<1.95	<1.95	<0.39	<0.39	<0.39	<0.39
1,1,2,2-Tetrachloroethane	4		<2.2	<2.2	<0.44	<0.44	<0.44	<0.44
Toluene	310,000		<1.75	<1.75	<0.35	<0.35	<0.35	0.505
1,2,4-Trichlorobenzene	2,800		<3.45	<3.45	<0.69	<0.69	<0.69	<0.69
1,1,2-Trichloroethane	5		<1.7	<1.7	<0.34	<0.34	<0.34	<0.34
Freon 113	2,400		<1.3	<1.3	<0.26	<0.26	<0.26	<0.26
Trichlorofluoromethane	2,000		<0.6	<0.6	7.68	11.7	1.67	<0.12
Xylene (total)	7,000		<5.75	<5.75	<1.15	<1.15	<1.15	<1.15
1,2,3-Trichlorobenzene	--		<3.35	<3.35	<0.67	<0.67	<0.67	<0.67
1,2-Dibromo-3-chloropropane	--		<2.85	<2.85	<0.57	<0.57	<0.57	<0.57
2-Hexanone	--		<2.55	<2.55	<0.51	<0.51	<0.51	<0.51
Chlorobromomethane	--		<1.5	<1.5	<0.3	<0.3	<0.3	<0.3
Isopropylbenzene	--		<1.75	<1.75	<0.35	<0.35	<0.35	<0.35
Methyl Acetate	--		<4.4	<4.4	<0.88	<0.88	<0.88	<0.88
Methylcyclohexane	--		<2.1	<2.1	<0.42	<0.42	<0.42	<0.42

Notes and Abbreviations:

NJDEP	New Jersey Department of Environmental Protection
GWSL	Ground Water Screening Level
ug/L	Micrograms per Liter
ft, bls	feet below land surface
(a)	Single sample interval depth indicates low-flow
D	Analyzed at second dilution factor
--	Standard not available for particular compound or not ε
[box]	Value indicates detected concentration exceeds NJDE

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Table 2. Comparison of Existing Groundwater Quality Data to NJDEP Screening Levels, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey.

Constituent	NJDEP GWSL (ug/L)	Well Designation:	VPB-B5	VPB-B7	VPB-C1	VPB-B8	VPB-B9	VPB-B10
		Sample ID:	VPB-B5	VPB-B7	VPB-CL	VPB-B8(41-51)	VPB-B9(46-56)	VPB-B10(36-46)
		Sample Date:	7/9/2005	6/29/2005	7/14/2005	5/18/2006	5/25/2006	5/31/2006
		Sampling Interval (ft, bls) (a):	36-49.5	36-46	52.5-56	41-51	46-56	36-46
		Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Primary Target Compounds:								
Tetrachloroethene	1		110	<0.22	<0.22	<0.22	<0.22	<0.22
Trichloroethene	1		409 D	<0.33	<0.33	<0.33	0.389	1.44
cis-1,2-Dichloroethene	--		46.7	<0.31	<0.31	<0.31	<0.31	<0.31
trans-1,2-Dichloroethene	300		1.2	<0.26	<0.26	<0.26	<0.26	<0.26
Vinyl chloride	1		<0.19	<0.19	<0.19	<0.19	<0.19	<0.19
1,1,1-Trichloroethane	2,300		<0.21	<0.21	<0.21	<0.21	0.569	<0.21
Remaining Compounds:								
Acetone	1,900,000		<0.89	<0.89	<0.89	11.6	<0.89	<0.89
Benzene	15		<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
Bromodichloromethane	5		<0.44	2.71	<0.44	<0.44	<0.44	<0.44
Bromoform	370		<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
Bromomethane	29		<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
2-Butanone	2,700,000		<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
Carbon disulfide	710		<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Carbon tetrachloride	1		<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Chlorobenzene	640		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Chloroethane	4		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chloroform	70		0.909	4.9	<0.26	4.62	<0.26	0.489
Chloromethane	240		<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Cyclohexane	1,200		<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
Dibromochloromethane	9		<0.28	2.01	<0.28	<0.28	<0.28	<0.28
1,2-Dibromoethane (EDB)	0.4		<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
1,2-Dichlorobenzene	5,900		<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,3-Dichlorobenzene	600		<0.31	<0.31	<0.31	<0.31	<0.31	<0.31
1,4-Dichlorobenzene	75		<0.28	<0.28	<0.28	<0.28	<0.28	<0.28
Dichlorodifluoromethane	1,000		<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
1,1-Dichloroethane	3,600		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
1,2-Dichloroethane	2		<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
1,1-Dichloroethene	250		<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
1,2-Dichloropropane	1		<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
cis-1,3-Dichloropropene	1 (total)		<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
trans-1,3-Dichloropropene	1 (total)		<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
Ethylbenzene	61,000		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Methylene chloride	53		<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
4-Methyl-2-pentanone	880,000		<0.69	<0.69	<0.69	<0.69	<0.69	<0.69
Methyl tert-butyl ether	78		<0.25	<0.25	<0.25	0.389	<0.25	2.43
Styrene	18,000		<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,1,2,2-Tetrachloroethane	4		<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Toluene	310,000		<0.35	<0.35	<0.35	0.399	<0.35	<0.35
1,2,4-Trichlorobenzene	2,800		<0.69	<0.69	<0.69	<0.69	<0.69	<0.69
1,1,2-Trichloroethane	5		<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
Freon 113	2,400		<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Trichlorofluoromethane	2,000		<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Xylene (total)	7,000		<1.15	<1.15	<1.15	<1.15	<1.15	<1.15
1,2,3-Trichlorobenzene	--		<0.67	<0.67	<0.67	<0.67	<0.67	<0.67
1,2-Dibromo-3-chloropropane	--		<0.57	<0.57	<0.57	<0.57	<0.57	<0.57
2-Hexanone	--		<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
Chlorobromomethane	--		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Isopropylbenzene	--		<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Methyl Acetate	--		<0.88	<0.88	<0.88	<0.88	<0.88	<0.88
Methylcyclohexane	--		<0.42	<0.42	<0.42	<0.42	<0.42	<0.42

Notes and Abbreviations:

NJDEP	New Jersey Department of Environmental Protection
GWSL	Ground Water Screening Level
ug/L	Micrograms per Liter
ft, bls	feet below land surface
(a)	Single sample interval depth indicates low-flow
D	Analyzed at second dilution factor
--	Standard not available for particular compound or not s
[box]	Value indicates detected concentration exceeds NJDE

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Table 3. Summary of Proposed Soil Gas Sampling, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc., Morris Plains, New Jersey.

Location	Sample ID	Medium	Sample Depth(s) (ft bls)	Estimated Till Thickness (ft)	Approximate Depth to Water (ft bls)	Analytical Parameters	Sampling Method
Colgate/Palmolive	SGS - 1	Soil gas	8, 12, 20, 35	20	42	NJDEP TO-15	Geoprobe®/SUMMA
Colgate/Palmolive	SGS - 2	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Colgate/Palmolive	SGS - 3	Soil gas	8, 12, 20, 35	20	40	NJDEP TO-15	Geoprobe®/SUMMA
Colgate/Palmolive	SGS - 4	Soil gas	8, 12, 20, 35	20	40	NJDEP TO-15	Geoprobe®/SUMMA
Colgate/Palmolive	SGS - 5	Soil gas	8, 12, 20, 35	20	40	NJDEP TO-15	Geoprobe®/SUMMA
Colgate/Palmolive	SGS - 6	Soil gas	8, 12, 20, 35	20	40	NJDEP TO-15	Geoprobe®/SUMMA
Colgate/Palmolive	SGS - 7	Soil gas	8, 12, 20, 35	20	40	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 8	Soil gas	8, 12, 20, 30	12-15	35	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 9	Soil gas	8, 12, 20, 30	12-15	35	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 10	Soil gas	8, 12, 20, 30	12-15	35	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 11	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 12	Soil gas	8, 12, 20, 30	15-20	35	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 13	Soil gas	8, 12, 20, 30	15-20	35	NJDEP TO-15	Geoprobe®/SUMMA
1 Cory Road	SGS - 14	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Contingent Samples [a]							
Emmet Avenue	SGS (Contingent)	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Emmet Avenue	SGS (Contingent)	Soil gas	8, 15, 30	15-20	35	NJDEP TO-15	Geoprobe®/SUMMA
Emmet Avenue	SGS (Contingent)	Soil gas	8, 15, 30	15-20	35	NJDEP TO-15	Geoprobe®/SUMMA
Cottage Place	SGS (Contingent)	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Jersey Avenue	SGS (Contingent)	Soil gas	8, 15, 30	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Jersey Avenue	SGS (Contingent)	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Hillairy Avenue	SGS (Contingent)	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Hillairy Avenue	SGS (Contingent)	Soil gas	8, 15, 30	—	—	NJDEP TO-15	Geoprobe®/SUMMA
Hillairy Avenue	SGS (Contingent)	Soil gas	8	—	—	NJDEP TO-15	Geoprobe®/SUMMA

Notes:

[a] Contingent samples to be collected consistent with decision flow chart (Figure 4); generally soil gas profiles (i.e., multiple sample depths) will be completed at locations nearest the highest shallow groundwater concentrations detected in AOC-11 RI monitoring wells or vertical profile borings.

ft bls = feet below land surface

— = not applicable or not available

SGS = Soil gas sample

SUMMA = 6-Liter Summa canister

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Table 4. USEPA Method TO-15 Compound List and Reporting Limits, AOC-13 Remedial Investigation Work Plan, Airtron Division of Litton Systems, Inc. Morris Plains, New Jersey

Chemical	CAS Number	Reporting Limit (µg/m³)	Reporting Limit (ppbv)
Acetone (2-propanone)	67-64-1	12	5.0
Benzene	71-43-2	0.64	0.20
Bromodichloromethane	75-27-4	1.3	0.20
Bromoethene	593-60-2	0.87	0.20
Bromoform	75-25-2	2.1	0.20
Bromomethane (Methyl bromide)	74-83-9	0.78	0.20
1,3-Butadiene	106-99-0	1.11	0.50
2-Butanone (Methyl ethyl ketone)	78-93-3	1.5	0.50
Carbon disulfide	75-15-0	1.6	0.50
Carbon tetrachloride	56-23-5	1.3	0.20
Chlorobenzene	108-90-7	0.92	0.20
Chloroethane	75-00-3	1.32	0.50
Chloroform	67-66-3	0.98	0.20
Chloromethane (Methyl chloride)	74-87-3	1.03	0.50
3-Chloropropene (allyl chloride)	107-05-1	1.57	0.50
2-Chlorotoluene (o-Chlorotoluene)	95-49-8	1.04	0.20
Cyclohexane	110-87-7	0.69	0.20
Dibromochloromethane	124-48-1	1.7	0.20
1,2-Dibromoethane	106-93-4	1.5	0.20
1,2-Dichlorobenzene (o)	95-50-1	1.2	0.20
1,3-Dichlorobenzene (m)	541-73-1	1.2	0.20
1,4-Dichlorobenzene (p)	106-46-7	1.2	0.20
Dichlorodifluoromethane (Freon 12)	75-71-8	2.47	0.50
1,1-Dichloroethane	75-34-3	0.81	0.20
1,2-Dichloroethane	107-06-2	0.81	0.20
1,1-Dichloroethene	75-35-4	0.79	0.20
1,2-Dichloroethene (trans)	156-60-5	0.79	0.20
1,2-Dichloroethene (total)	540-59-0	0.79	0.20
1,2-Dichloropropane	78-87-5	0.92	0.20
1,3-Dichloropropene	542-75-6	0.91	0.20
Ethylbenzene	100-41-4	0.87	0.20
Hexachlorobutadiene	87-68-3	2.1	0.20
n-Hexane	110-54-3	1.76	0.50
Methylene chloride	75-09-2	1.7	0.50
4-Methyl-2-pentanone (MIBK)	108-10-1	2.05	0.50
MTBE (Methyl *tert*-butyl ether)	1634-04-4	1.8	0.50
Styrene	100-42-5	0.85	0.20
Tertiary butyl alcohol (TBA)	75-65-0	15	5.0
1,1,2,2-Tetrachloroethane	79-34-5	1.4	0.20
Tetrachloroethene (PCE)	127-18-4	1.4	0.20
Toluene	108-88-3	0.75	0.20
1,2,4-Trichlorobenzene	120-82-1	3.7	0.50
1,1,1-Trichloroethane	71-55-6	1.1	0.20
1,1,2-Trichloroethane	79-00-5	1.1	0.20
Trichloroethene (TCE)	79-01-6	1.07	0.20
Trichlorofluoromethane (Freon 11)	75-69-4	1.1	0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	1.5	0.20
Vinyl chloride	75-01-4	0.51	0.20
Xylenes (total)	1330-20-7	2.17	0.20

Notes:
µg/m³ - micrograms per cubic meter
ppbv - parts per billion volume

Table 1. Current Occupational Airborne Contaminant Standards and Guidelines.

Compound	ACGIH-TLV TWA	ACGIH-TLV STEL	OSHA-PEL TWA	OSHA-PEL STEL	OSHA-PEL CEILING
Organic Compounds (ppm)					
1,1-dichloroethene	5	–	–	–	–
1,1-Dichloroethane	100	–	100	–	–
cis-1,2-Dichloroethene	200	–	200	–	–
trans-1,2-Dichloroethene	200	–	200	–	–
Methylene Chloride	50	–	25	125	–
Tetrachloroethene	25	100	100	–	200
1,1,1-Tichloroethane	350	450	350	–	–
Trichloroethene	50	100	100	–	200
Vinyl Chloride	1	–	1	5	–
Carbon Disulfide	–	–	20	–	30
Chloroform	–	–	–	–	50
Freon 11	–	–	–	–	–
Freon 21	–	–	–	–	–
Benzene	0.5	2.5	1	5	–
Toluene	100	150	100	150	–
Ethylbenzene	100	125	100	–	–
Xylenes	100	150	100	200	–
Mineral Oil	5	10	5	10	–
Gasoline (LPG)	–	–	1000	–	–
#2 Fuel Oil (in mg/m3)	100	–	5	–	–
#6 Fuel Oil (in mg/m3)	5	–	5	–	–
Ethyl Alcohol	–	–	1000	–	–
Isopropyl Alcohol	400	500	400	500	–
Propylene Glycol	–	–	–	–	–
Propylene-Glycol-14Butyl Ether	–	–	–	–	–
Inorganic Compounds (mg/m^3)					
Antimony	0.5	–	0.5	–	–
Arsenic	0.01	–	0.01	–	–
Beryllium	0.002	–	0.002	–	5
Cadmium	0.2	–	0.1	–	0.3
Chromium	1	–	0.5	–	–
Copper	1	–	1	–	–
Lead	0.15	–	0.05	–	–
Mercury	0.1	–	0.1	–	0.4
Nickel	1.5	–	1	–	–
Thallium	0.1	–	0.1	–	–
Tin	2	–	2	–	–
Selenium	0.2	–	0.2	–	–
Silver	0.1	–	0.1	–	–
Zinc	–	–	–	–	–

ACGIH	American Conference of Governmental Industrial Hygienists 2002.
OSHA	Occupational Safety and Health Administration (1989).
TLV	Threshold Limit Value.
PEL	Permissable Exposure Limit.
TWA	8-Hour Time-Weighted Average.
STEL	15-Minute Short-Term Exposure Limit.
Ceiling	Instantaneous reading.
ppm	parts per million.
mg/m^3	milligrams per cubic meter.
–	Not established.
LPG	Liquid Petroleum Gas.

Table 2. Summary of Action Levels [1].

Air Monitoring	Action Levels	Actions To Take
PID Reading	<1 ppm	Remain in Level D protection.
PID Reading	≥1 ppm[2]	Draw a vinyl chloride Drager tube.
Vinyl Chloride Tube	<1 ppm	Remain in Level D protection.
Vinyl Chloride Tube	≥1 ppm	Let work area vent or upgrade to Level C protection
Vinyl Chloride Tube	≥10 ppm	Stop work and let work area vent.
PID Reading	≥25 ppm[2]	Let work area vent or upgrade to Level C protection
PID Reading	≥1,000 ppm[2]	Stop work and let work area vent.
LEL Reading	<10%	Remain in Level D protection.
LEL Reading	≥10%	Let work area vent.

PID — Photo-ionizaton detector equipped with a 10.6 eV lamp.
ppm — Parts per million.
LEL — Lower explosive limit.
% — Percent.
(1) — Refer to Table 3 for area-specific action levels associated with Airtron AOC-3 (Southern Half) and AOC-4.
(2) — For 5 minutes.

Table 3. Summary of Action Levels for Airtron AOC-3 (Southern Half) and AOC-4.

Air Monitoring	Action Levels	Actions To Take
PID Reading	<0.5 ppm	Remain in Level D protection.
PID Reading	≥0.5 ppm(1)	Draw a vinyl chloride Drager tube.
Benzene Tube	<0.5 ppm	Remain in Level D protection.
Benzene Tube	≥0.5 ppm	Let work area vent or upgrade to Level C protection
Benzene Tube	≥10 ppm	Stop work and let work area vent.
PID Reading	≥25 ppm(1)	Let work area vent or upgrade to Level C protection
PID Reading	≥1,000 ppm(1)	Stop work and let work area vent.
LEL Reading	<10%	Remain in Level D protection.
LEL Reading	≥10%	Let work area vent.

PID Photo-ionizaton detector equipped with a 10.6 eV lamp.
ppm Parts per million.
LEL Lower explosive limit.
% Percent.
(1) For 5 minutes.

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Former Litton Airtron Site

Morris Plains, New Jersey

Spring 2007 Semiannual Monitoring Report

Effectiveness Groundwater Monitoring Program

9 November 2007

David Heuer
Project Scientist

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Project Manager

Spring 2007 Semiannual Monitoring Report

Effectiveness Groundwater Monitoring Program

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Introduction

This report presents the results of the Spring 2007 semiannual round of the remediation effectiveness groundwater monitoring program associated with the Former Litton Airtron site located at 200 East Hanover Avenue, in Morris Plains, New Jersey. The current site-related effectiveness groundwater monitoring program, approved by the New Jersey Department of Environmental Protection (NJDEP)[1, 2] and implemented under a 1992 Administrative Consent Order (as amended in 2001), consists of two distinct monitoring programs:

- Interim Remedial Measure (IRM) effectiveness groundwater monitoring (initiated in December 1994), and
- Source Removal effectiveness groundwater monitoring (initiated in July 2004).

The IRM effectiveness groundwater monitoring program is associated with an on-site groundwater pump-and-treat system installed in 1994 as part of a NJDEP-approved IRM program[3]. The goals of this IRM groundwater remediation system are to prevent migration of groundwater impacted by volatile organic compounds (VOCs) from the site, and to treat the extracted groundwater to the extent required for discharge to surface water under a New Jersey Pollution Discharge Elimination System (NJPDES) permit. The purpose of the IRM effectiveness groundwater monitoring program is to assess the ability of the IRM groundwater remediation system to meet its goal of on-site containment via the hydraulic control imposed by continuous pumping of Airtron's recovery well.

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[1] NJDEP approval(s), as referenced in "Twelve-Month Pump-and-Treat Evaluation Report, Litton Airtron, Morris Plains, New Jersey", prepared by SCS Engineers, dated September 9, 1996.

[2] NJDEP email correspondence dated November 4, 2004 RE: "Interim Summary of 2004 Source-Area Vicinity Groundwater Conditions, AOC-11 (Groundwater), Phase 1 SRI, Airtron Division of Litton Systems, Inc.", prepared by ARCADIS, dated October 6, 2004.

[3] Interim Remedial Measures Work Plan, prepared for Airtron Division of Litton Systems, Inc. by SCS Engineers, December 9, 1993.

The Source Removal effectiveness groundwater monitoring program is associated with soil remediation activities of several areas of concern (AOCs) located in the rear parking area behind the Airtron facility, including VOC-impacted soils that were remediated during 2003-2004 (AOCs 1 through 4, the hydraulic compactor area, and a portion of the AOC-12 storm sewer line) and during 2004-2005 (the remainder of the AOC-12 storm sewer line). As presented in the associated remedial action work plan[4] and remedial action report[5], the purpose of the Source Removal effectiveness groundwater monitoring program is to evaluate the beneficial impact that source removal activities are expected to have on on-site groundwater over time in the immediate vicinity of identified source area AOCs.

A summary of the IRM and Source Removal monitoring programs is provided in Table 1, including identification of wells included in the program and for what purpose (i.e., groundwater quality and/or hydraulic [water-level] monitoring). Figure 1 is an area-wide map that shows the locations of the IRM and Source Removal monitoring program wells as well as additional area-wide monitoring wells. Figure 2 is a map of the source area vicinity and shows the locations of Source Removal monitoring program wells with respect to specific source areas (identified with AOC designation and/or description). The actual excavation limits of remediated source areas (AOCs 1 through 4, the hydraulic compactor area, and AOC-12 storm sewer line) are depicted on Figure 2. Locations of historic groundwater investigation sampling points (abandoned wells and vertical profile borings) as well as other existing wells installed during source area groundwater characterization activities are also shown on Figure 2 for reference. Table 1 also identifies the specific AOC each well is intended to monitor.

Summary of Field Activities

Spring 2007 field activities associated with the effectiveness groundwater monitoring program were conducted in two separate events that occurred during March and July 2007. As discussed with the NJDEP on March 8, 2007 and approved by the NJDEP on March 12, 2007, the requirements of the Source Removal effectiveness monitoring

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[4] Revised Remedial Action Work Plan (RAWP) Addendum, Airtron Division of Litton Systems, Inc., Panther Technologies, Inc., February 10, 2003.

[5] Remedial Action Report, Airtron Division of Litton Systems, Inc., Panther Technologies, Inc., October 11, 2004.

were satisfied by using data collected during the NJDEP-approved, on-site In-Situ Chemical Oxidation (ISCO) pilot test being conducted by Panther Technologies Inc.. March 2007 water-level measurements and sampling activities were conducted prior to the on-site ISCO pilot test start-up for pilot test baseline monitoring. The March 2007 monitoring event was sub-contracted by Panther Technologies Inc. to Terra Nova Technical Corp. of Allentown, NJ.

The remainder of the spring sampling round (the IRM effectiveness groundwater monitoring program) was conducted by ARCADIS personnel during July 2007. Although the spring sampling round is typically performed during the month of April, the IRM effectiveness groundwater sampling was initially delayed by plans to relocate the IRM groundwater treatment system. Negotiations with Colgate-Palmolive to extend the access agreement for 191 East Hanover Avenue also delayed completing the spring sampling round.

Water-Level Measurements

On March 26, 2007, Terra Nova Technical Corp. personnel collected depth-to-water measurements as part of the on-site ISCO pilot test baseline monitoring.

On July 5, 2007, ARCADIS personnel collected depth-to-water measurements from the wells specified in Table 1 for hydraulic IRM effectiveness groundwater monitoring purposes. The following exceptions are noted:

- Monitoring wells associated with the Colgate-Palmolive Property were not measured due to pending off-site access negotiations.

Table 2 presents a complete summary of the locations where March and July 2007 depth-to-water measurements were collected, including additional available and accessible area-wide monitoring wells. The locations of wells are shown on Figure 1.

Groundwater Sampling

On March 26 and 27, 2007, Terra Nova Technical Corp. personnel collected groundwater quality samples from Source Removal program wells on the Airtron property (MW-402S, MW-404D, MW-407, MW-409R, MW-414, MW-415, MW-417, MW-417D and MW-419) as part of the on-site ISCO pilot test baseline monitoring.

On July 6, 2007, ARCADIS personnel collected groundwater quality samples from the IRM monitoring program wells specified in Table 1. The following exceptions are noted:

- Monitoring wells MEN-MW-12 and MEN-MW-13 were not sampled due to pending off-site access negotiations with Colgate-Palmolive.

Groundwater samples (including QA/QC samples) were collected using procedures consistent with previous rounds, as documented in past semiannual monitoring reports (e.g., the Fall 2005 Semiannual Monitoring Report). In addition, Terra Nova Technical Corp. and ARCADIS personnel used the typical purging and sampling equipment identified in Table 1, with the following exceptions:

- Monitoring wells sampled by Terra Nova Technical Corp. were purged using either a submersible whale pump or Redi-Flo™ pump instead of the conventional hand bailing method for all pertinent monitoring wells.

- Due to air compressor equipment problems, dedicated bladder pumps were not used for purging and sampling monitoring wells MW-3 and MW-302. ARCADIS personnel purged these wells using a Redi-Flo™ submersible pump and collected samples using disposable Teflon™ bailers.

The results of the sampling event as well as an evaluation of the March and July 2007 data are briefly presented in the following section.

Summary of Results

Integrated Analytical Laboratories, LLC (IAL) in Randolph, New Jersey (NJDEP Certification No. 14751) analyzed the March and July 2007 samples for chlorinated VOCs (modified EPA Method 8021 list) in accordance with EPA Method 8260B. Complete copies of the laboratory analytical reports are provided as Appendix A; the chains-of-custody are also included in Appendix A. Table 3 presents the July 2007 groundwater sample analytical results for the IRM monitoring program. Table 4 presents the March 2007 groundwater sample analytical results for the Source Removal monitoring program. Results for associated QA/QC samples (e.g., trip blank, field blanks, and blind duplicate) are also summarized in Tables 3 and 4. Tables 3 and 4 provide results for the following six primary target compounds: tetrachloroethene (PCE), trichloroethene (TCE), 1,2-dichloroethene (1,2-DCE, both the trans- and cis-isomers), vinyl chloride (VC), 1,1,1 -trichloroethane (1,1,1-TCA); and the remaining

VOCs reported under the specified analysis. The groundwater quality summary tables also identify the most recent (November 2005) applicable compound-specific NJDEP groundwater quality standards.

Groundwater monitoring results (groundwater quality data and hydraulic monitoring data, as applicable) are presented separately for the IRM and Source Removal effectiveness monitoring programs in the following sections.

IRM Monitoring Results

Analytical results for the July 2007 IRM sampling round indicate continued presence of several of the primary target compounds in all of the sampled wells. As summarized in Table 3, the sum of all detected constituents ranged from approximately 472 ug/L (MW-03) to 1,825 ug/L (MW-302). The sum of all detected constituents in Recovery Well RW-1 was approximately 1,468 ug/L. The primary target compounds PCE, TCE, and cis-1,2-DCE continue to comprise the majority, if not entirety, of the total VOCs detected. Generally, as summarized in Table 3, these primary target compounds continue to be detected at above their respective NJDEP groundwater quality standards.

Historical groundwater quality data are provided graphically in Appendix B. The groundwater quality trend graphs for the seven IRM monitoring program wells, including Airtron's recovery well RW-1, show concentrations of the primary target VOCs as well as the total VOCs (as the sum of the primary target compounds). Available historic data (from pre-IRM start-up sampling events) up through the most current IRM sampling event since IRM system start-up for each well have been used to generate the most complete concentration-time trends depicted on the graphs in Appendix B. The graphs also depict the time-frame for ISCO Pilot Test injections.

As mentioned previously, the pending off-site access agreement with the owner of the Colgate-Palmolive property precluded the ability to collect water-level measurements from monitoring wells located on the property. Due to lack of areal coverage in this area, an area-wide groundwater elevation contour map depicting the configuration of the potentiometric surface of the upper unconfined aquifer was not generated for this sampling event. However, based on similarities in July 2007 groundwater elevations and similar recovery well pumping rates compared to previous rounds, RW-1's capture zone is expected to be similar to that depicted in previous reports.

Full-time operation of the IRM groundwater remediation system was initiated in April 1995. Groundwater extraction data from April 17, 1995 through July 6, 2007 indicate that the total volume of groundwater extracted from Recovery Well RW-1 is approximately 198 million gallons, and the average extraction rate for the last seven months is approximately 30 gallons-per-minute (gpm). From initial startup in April 1995 through June 2007, the groundwater remediation system has removed approximately 3,102 pounds of VOCs (based on average influent concentrations and volume of extracted water). Therefore, the groundwater remediation system has been effective in providing both hydraulic containment and mass removal of VOC-impacted groundwater. Figure 3 graphically illustrates the cumulative estimated VOC mass removal by the IRM groundwater remediation system over time.

Source Removal Monitoring Results

Analytical results for the March 2007 Source Removal sampling round indicate continued presence of several of the primary target compounds in all of the sampled wells. As summarized in Table 4, the sum of all detected constituents ranged from approximately 268 ug/L (MW-415) to 4,395 ug/L (MW-407) for wells screened within the upper unconfined aquifer. Monitoring well MW-402S, screened within the perched groundwater horizon, exhibited a total VOC concentration of approximately 495 ug/L. The groundwater sample collected from monitoring well MW-417D, screened below the shallow confining unit at the base of the upper unconfined aquifer, exhibited a total VOC concentration of approximately 502 ug/L. This is an increased concentration observed for MW-417D when compared to a total VOC concentration of approximately 23 ug/L observed during the November 2006 sampling round.

In the upper unconfined aquifer and perched water horizon, the primary target compounds PCE, TCE and cis-1,2-DCE continue to comprise the majority, if not entirety, of the total VOCs detected. Generally, as summarized on Table 4, these primary target compounds continue to be detected at concentrations above their respective NJDEP groundwater quality standards.

Historical groundwater quality data is provided graphically in Appendix C for all nine of the Source Removal program monitoring wells, including recently added monitoring well MW-409R. The groundwater quality trend graphs for the Source Removal monitoring program wells show concentrations of the primary target VOCs as well as the total VOCs (as the sum of the primary target compounds). Available historic data, in some cases prior to soil remediation, up through the most current Source Removal sampling event for each well have been used to generate the concentration-time

trends depicted in the graphs in Appendix C. The graphs also depict the time-frame for completion of AOCs 1-4 and AOC-12 soil remediation activities as well as the ISCO pilot test injection time-frames. Although sufficient time has not passed to establish clear trends in all monitoring wells regarding the effectiveness of source area remediation activities with respect to VOC-impacted groundwater, the enclosed graphs are included to establish a basis for comparison to subsequent sampling events.

Table 3. Summary of July 2007 IRM Groundwater Sampling Results, Effectiveness Groundwater Monitoring Program, Former Litton Airtron Site, Morris Plains, New Jersey.

Parameter (units in ug/L)	NJDEP Groundwater Quality Standard (2)	Well Designation: Sample ID: Date Sampled:	AIR-MW-03 MW-3 7/6/2007	AIR-MW-206 MW-206 7/6/2007	AIR-MW-206 REP-7-6-07 7/6/2007	AIR-MW-302 MW-302 7/6/2007	AIR-MW-507 MW-507 7/6/2007	AIR-RW-01 RW-1 7/6/2007	MEN-MW-12 Not Applicable Not Sampled (4)	MEN-MW-13 Not Applicable Not Sampled (4)
Primary Target Compounds:										
Tetrachloroethene	1		**221**	**594**	**588**	**1590**	**171**	**707**		
Trichloroethene	1		**228**	**695**	**699**	**110**	**625**	**714**		
cis-1,2-Dichloroethene	70		22.7	**84.2**	**78.9**	**125**	8.24	47.2		
trans-1,2-Dichloroethene	100		<0.780	<1.95	<1.95	<3.90	<1.95	<1.95		
Vinyl chloride	1		<0.720	<1.80	<1.80	<3.60	<1.80	<1.80		
1,1,1-Trichloroethane	30		<0.700	<1.75	<1.75	<3.50	<1.75	<1.75		
Remaining Compounds:										
Chloromethane	100 (3)		<0.560	<1.40	<1.40	<2.80	<1.40	<1.40		
Chloroethane	100 (3)		<1.20	<3.00	<3.00	<6.00	<3.00	<3.00		
Methylene chloride	3		<3.98	<9.95	<9.95	<19.9	<9.95	<9.95		
1,1-Dichloroethene	1		<0.820	<2.05	<2.05	<4.10	<2.05	<2.05		
1,1-Dichloroethane	50		<0.560	<1.40	<1.40	<2.80	<1.40	<1.40		
Chloroform	70		<0.760	<1.90	<1.90	<3.80	<1.90	<1.90		
1,2-Dichloroethane	2		<0.660	<1.65	<1.65	<3.30	<1.65	<1.65		
Carbon tetrachloride	1		<0.820	<2.05	<2.05	<4.10	<2.05	<2.05		
1,1,2,2-Tetrachloroethane	1		<0.600	<1.50	<1.50	<3.00	<1.50	<1.50		
1,2-Dichloropropane	1		<0.800	<2.00	<2.00	<4.00	<2.00	<2.00		
trans-1,3-Dichloropropene	1		<0.480	<1.20	<1.20	<2.40	<1.20	<1.20		
1,1,2-Trichloroethane	3		<0.640	<1.60	<1.60	<3.20	<1.60	<1.60		
cis-1,3-Dichloropropene	1		<0.380	<0.950	<0.950	<1.90	<0.950	<0.950		
Sum of Constituents			471.70	1373.20	1365.90	1825.00	804.24	1468.20		

See last page for notes and abbreviations.

Table 3. Summary of July 2007 IRM Groundwater Sampling Results, Effectiveness Groundwater Monitoring Program, Former Litton Airtron Site, Morris Plains, New Jersey.

Parameter (units in ug/L)	NJDEP Groundwater Quality Standard (2)	Well Designation: Sample ID: Date Sampled:	TRIP BLANK TB 7-6-07 7/6/2007	FIELD BLANK FB 7-6-07 7/6/2007
Primary Target Compounds:				
Tetrachloroethene	1		<0.270	<0.270
Trichloroethene	1		<0.340	<0.340
cis-1,2-Dichloroethene	70		<0.360	<0.360
trans-1,2-Dichloroethene	100		<0.390	<0.390
Vinyl chloride	1		<0.360	<0.360
1,1,1-Trichloroethane	30		<0.350	<0.350
Remaining Compounds:				
Chloromethane	100 (3)		<0.280	<0.280
Chloroethane	100 (3)		<0.600	<0.600
Methylene chloride	3		<1.99	<1.99
1,1-Dichloroethene	1		<0.410	<0.410
1,1-Dichloroethane	50		<0.280	<0.280
Chloroform	70		<0.380	<0.380
1,2-Dichloroethane	2		<0.330	<0.330
Carbon tetrachloride	1		<0.410	<0.410
1,1,2,2-Tetrachloroethane	1		<0.300	<0.300
1,2-Dichloropropane	1		<0.400	<0.400
trans-1,3-Dichloropropene	1		<0.240	<0.240
1,1,2-Trichloroethane	3		<0.320	<0.320
cis-1,3-Dichloropropene	1		<0.190	<0.190
Sum of Constituents			0.00	0.00

See last page for notes and abbreviations.

Table 3. Summary of July 2007 IRM Groundwater Sampling Results, Effectiveness Groundwater Monitoring Program, Former Litton Airtron Site, Morris Plains, New Jersey.

Notes and Abbreviations:

ug/L	Micrograms per Liter.
IRM	Interim Remedial Measure.
VOC	Volatile organic compounds.
--	Indicates specific standard not available for particular compound.
Bold	Value indicates detected concentration exceeds NJDEP Groundwater Quality Standard.
E	Exceeded calibration range.
J	Estimated value.
D	Detected in a secondary dilution.
(1)	Analyses performed by Integrated Analytical Laboratories, LLC. of Randolph, NJ for chlorinated VOCs (modified 8021 list) by USEPA Method 8260B.
(2)	NJDEP Groundwater Quality Standards are the higher of the Class II-A groundwater quality criteria and Practical Quantitation Levels (PQLs) (Source: Groundwater Quality Standards [N.J.A.C. 7:9C] November 7, 2005).
(3)	NJDEP Groundwater Quality Standards not established for these compounds, therefore the NJDEP Interim Specific and Generic Groundwater Quality Criteria is listed (November 2005).
(4)	Monitoring Wells MEN-MW-12 and MEN-MW-13 were not sampled in the 2007 round due to pending off-site access agreement with owner of the Colgate-Palmolive property.

Table 4. Summary of March 2007 Source Removal Groundwater Sampling Results, Effectiveness Groundwater Monitoring Program, Former Litton Airtron Site, Morris Plains, New Jersey.

Parameter (units in ug/L)	NJDEP Groundwater Quality Standard (2)	Well Designation: Sample ID: Date Sampled:	AIR-MW-402S AIR-MW-402S 3/26/2007	AIR-MW-404D AIR-MW-404D 3/26/2007	AIR-MW-407 AIR-MW-407 3/27/2007	AIR-MW-409R AIR-MW-409R 3/27/2007	AIR-MW-414 AIR-MW-414 3/27/2007	AIR-MW-415 AIR-MW-415 3/27/2007
Primary Target Compounds:								
Tetrachloroethene	1		**402**	**5170**	**3510**	**248**	**223**	**130**
Trichloroethene	1		**18.4**	**171**	**783**	**341**	**267**	**122**
cis-1,2-Dichloroethene	70		**74.9**	**297**	**102**	4.41	44.6	15.8
trans-1,2-Dichloroethene	100		<1.95	<19.5	<19.5	<1.95	<1.95	0.463
Vinyl chloride	1		<1.8	<18	<18	<1.8	<1.8	<0.36
1,1,1-Trichloroethane	30		<1.75	<17.5	<17.5	<1.75	<1.75	<0.35
Remaining Compounds:								
Chloromethane	100 (3)		<1.4	<14	<14	<1.4	<1.4	<0.28
Chloroethane	100 (3)		<3	<30	<30	<3	<3	<0.6
Methylene chloride	3		<9.95	<99.5	<99.5	<9.95	<9.95	<1.99
1,1-Dichloroethene	1		<2.05	<20.5	<20.5	<2.05	<2.05	<0.41
1,1-Dichloroethane	50		<1.4	<14	<14	<1.4	<1.4	<0.28
Chloroform	70		<1.9	<19	<19	<1.9	<1.9	<0.38
1,2-Dichloroethane	2		<1.65	<16.5	<16.5	<1.65	<1.65	<0.33
Carbon tetrachloride	1		<2.05	<20.5	<20.5	<2.05	<2.05	<0.41
1,1,2,2-Tetrachloroethane	1		<1.5	<15	<15	<1.5	<1.5	<0.3
1,2-Dichloropropane	1		<2	<20	<20	<2	<2	<0.4
trans-1,3-Dichloropropene	1		<1.2	<12	<12	<1.2	<1.2	<0.24
1,1,2-Trichloroethane	3		<1.6	<16	<16	<1.6	<1.6	<0.32
cis-1,3-Dichloropropene	1		<0.95	<9.5	<9.5	<0.95	<0.95	<0.19
Sum of Constituents			495.30	5638.00	4395.00	593.41	534.60	268.26

See last page for notes and abbreviations.

Table 4. Summary of March 2007 Source Removal Groundwater Sampling Results, Effectiveness Groundwater Monitoring Program, Former Litton Airtron Site, Morris Plains, New Jersey.

Parameter (units in ug/L)	NJDEP Groundwater Quality Standard (2)	Well Designation: Sample ID: Date Sampled:	AIR-MW-417 AIR-MW-417 3/26/2007	AIR-MW-417D AIR-MW-417D 3/26/2007	AIR-MW-419 AIR-MW-419 3/26/2007	TRIP BLANK TB 3/26/2007	FIELD BLANK FB 3/26/2007
Primary Target Compounds:							
Tetrachloroethene	1		**1520**	**384**	**2180**	<0.27	<0.27
Trichloroethene	1		**793**	**103**	**720**	<0.34	<0.34
cis-1,2-Dichloroethene	70		**102**	14.6	**70.9**	<0.36	<0.36
trans-1,2-Dichloroethene	100		<3.9	<0.78	<7.8	<0.39	<0.39
Vinyl chloride	1		<3.6	<0.72	<7.2	<0.36	<0.36
1,1,1-Trichloroethane	30		<3.5	<0.7	<7	<0.35	<0.35
Remaining Compounds:							
Chloromethane	100 (3)		<2.8	<0.56	<5.6	<0.28	<0.28
Chloroethane	100 (3)		<6	<1.2	<12	<0.6	<0.6
Methylene chloride	3		<19.9	<3.98	<39.8	<1.99	<1.99
1,1-Dichloroethene	1		<4.1	<0.82	<8.2	<0.41	<0.41
1,1-Dichloroethane	50		<2.8	<0.56	<5.6	<0.28	<0.28
Chloroform	70		<3.8	<0.76	<7.6	<0.38	<0.38
1,2-Dichloroethane	2		<3.3	<0.66	<6.6	<0.33	<0.33
Carbon tetrachloride	1		<4.1	<0.82	<8.2	<0.41	<0.41
1,1,2,2-Tetrachloroethane	1		<3	<0.6	<6	<0.3	<0.3
1,2-Dichloropropane	1		<4	<0.8	<8	<0.4	<0.4
trans-1,3-Dichloropropene	1		<2.4	<0.48	<4.8	<0.24	<0.24
1,1,2-Trichloroethane	3		<3.2	<0.64	<6.4	<0.32	<0.32
cis-1,3-Dichloropropene	1		<1.9	<0.38	<3.8	<0.19	<0.19
Sum of Constituents			2415.00	501.60	2970.90	0.00	0.00

See last page for notes and abbreviations.

Table 4. Summary of March 2007 Source Removal Groundwater Sampling Results, Effectiveness Groundwater Monitoring Program, Former Litton Airtron Site, Morris Plains, New Jersey.

Notes and Abbreviations:

ug/L	Micrograms per Liter.
VOC	Volatile organic compounds.
DUP	Duplicate
--	Indicates specific standard not available for particular compound.
Bold	Value indicates detected concentration exceeds NJDEP Groundwater Quality Standard.
E	Exceeded calibration range.
J	Estimated value.
D	Detected in a secondary dilution.
(1)	Analyses performed by Integrated Analytical Laboratories, LLC. of Randolph, NJ for chlorinated VOCs (modified 8021 list) by USEPA Method 8260B.
(2)	NJDEP Groundwater Quality Standards are the higher of the Class II-A groundwater quality criteria and Practical Quantitation Levels (PQLs) (Source: Groundwater Quality Standards [N.J.A.C. 7:9C] November 7, 2005).
(3)	NJDEP Groundwater Quality Standards not established for these compounds, therefore the NJDEP Interim Specific and Generic Groundwater Quality Criteria is listed (November 2005).

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Arcadis Geraghty & Miller - NY
Project: NY001453.0001.00003
Lab Case No.: E07-06917

Lab ID:	06917-001			06917-002			06917-003			06917-004		
Client ID:	MW-3			MW-302			MW-206			MW-507		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	7/6/07			7/6/07			7/6/07			7/6/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	(ug/L-ppb)			(ug/L-ppb)			(ug/L-ppb)			(ug/L-ppb)		
Chloromethane	ND		0.560	ND		2.80	ND		1.40	ND		1.40
Vinyl chloride	ND		0.720	ND		3.60	ND		1.80	ND		1.80
Chloroethane	ND		1.20	ND		6.00	ND		3.00	ND		3.00
1,1-Dichloroethene	ND		0.820	ND		4.10	ND		2.05	ND		2.05
Methylene chloride	ND		3.98	ND		19.9	ND		9.95	ND		9.95
trans-1,2-Dichloroethene	ND		0.780	ND		3.90	ND		1.95	ND		1.95
1,1-Dichloroethane	ND		0.560	ND		2.80	ND		1.40	ND		1.40
cis-1,2-Dichloroethene	22.7		0.720	125		3.60	84.2		1.80	8.24		1.80
Chloroform	ND		0.760	ND		3.80	ND		1.90	ND		1.90
1,1,1-Trichloroethane	ND		0.700	ND		3.50	ND		1.75	ND		1.75
Carbon tetrachloride	ND		0.820	ND		4.10	ND		2.05	ND		2.05
1,2-Dichloroethane (EDC)	ND		0.660	ND		3.30	ND		1.65	ND		1.65
Trichloroethene	228		0.680	110		3.40	695		1.70	625		1.70
1,2-Dichloropropane	ND		0.800	ND		4.00	ND		2.00	ND		2.00
cis-1,3-Dichloropropene	ND		0.380	ND		1.90	ND		0.950	ND		0.950
trans-1,3-Dichloropropene	ND		0.480	ND		2.40	ND		1.20	ND		1.20
1,1,2-Trichloroethane	ND		0.640	ND		3.20	ND		1.60	ND		1.60
Tetrachloroethene	221		0.540	1590		2.70	594		1.35	171		1.35
1,1,2,2-Tetrachloroethane	ND		0.600	ND		3.00	ND		1.50	ND		1.50

Lab ID:	06917-005			06917-006			06917-007			06917-008		
Client ID:	RW-1			REP-7-6-07			TB 7-6-07			FB 7-6-07		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	7/6/07			7/6/07			7/6/07			7/6/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	(ug/L-ppb)			(ug/L-ppb)			(ug/L-ppb)			(ug/L-ppb)		
Chloromethane	ND		1.40	ND		1.40	ND		0.280	ND		0.280
Vinyl chloride	ND		1.80	ND		1.80	ND		0.360	ND		0.360
Chloroethane	ND		3.00	ND		3.00	ND		0.600	ND		0.600
1,1-Dichloroethene	ND		2.05	ND		2.05	ND		0.410	ND		0.410
Methylene chloride	ND		9.95	ND		9.95	ND		1.99	ND		1.99
trans-1,2-Dichloroethene	ND		1.95	ND		1.95	ND		0.390	ND		0.390
1,1-Dichloroethane	ND		1.40	ND		1.40	ND		0.280	ND		0.280
cis-1,2-Dichloroethene	47.2		1.80	78.9		1.80	ND		0.360	ND		0.360
Chloroform	ND		1.90	ND		1.90	ND		0.380	ND		0.380
1,1,1-Trichloroethane	ND		1.75	ND		1.75	ND		0.350	ND		0.350
Carbon tetrachloride	ND		2.05	ND		2.05	ND		0.410	ND		0.410
1,2-Dichloroethane (EDC)	ND		1.65	ND		1.65	ND		0.330	ND		0.330
Trichloroethene	714		1.70	699		1.70	ND		0.340	ND		0.340
1,2-Dichloropropane	ND		2.00	ND		2.00	ND		0.400	ND		0.400
cis-1,3-Dichloropropene	ND		0.950	ND		0.950	ND		0.190	ND		0.190
trans-1,3-Dichloropropene	ND		1.20	ND		1.20	ND		0.240	ND		0.240
1,1,2-Trichloroethane	ND		1.60	ND		1.60	ND		0.320	ND		0.320
Tetrachloroethene	707		1.35	588		1.35	ND		0.270	ND		0.270
1,1,2,2-Tetrachloroethane	ND		1.50	ND		1.50	ND		0.300	ND		0.300

ND = Analyzed for but Not Detected at the MDL

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Panther Technologies
Project: AIRTRON
Lab Case No.: E07-02883

Lab ID:	02883-001			02883-002			02883-003			02883-004		
Client ID:	AIR-MW-401S			AIR-MW-03			AIR-MW-503S			AIR-MW-409R		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	3/27/07			3/27/07			3/27/07			3/27/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Chloromethane	ND		0.280	ND		0.560	ND		0.280	ND		1.40
Vinyl chloride	ND		0.360	ND		0.720	ND		0.360	ND		1.80
Chloroethane	ND		0.600	ND		1.20	ND		0.600	ND		3.00
1,1-Dichloroethene	ND		0.410	ND		0.820	ND		0.410	ND		2.05
Methylene chloride	ND		1.99	ND		3.98	ND		1.99	ND		9.95
trans-1,2-Dichloroethene	ND		0.390	ND		0.780	ND		0.390	ND		1.95
1,1-Dichloroethane	ND		0.280	ND		0.560	ND		0.280	ND		1.40
cis-1,2-Dichloroethene	4.19		0.360	42.3		0.720	ND		0.360	4.41		1.80
Chloroform	ND		0.380	ND		0.760	ND		0.380	ND		1.90
1,1,1-Trichloroethane	ND		0.350	ND		0.700	ND		0.350	ND		1.75
Carbon tetrachloride	ND		0.410	ND		0.820	ND		0.410	ND		2.05
1,2-Dichloroethane (EDC)	ND		0.330	ND		0.660	ND		0.330	ND		1.65
Trichloroethene	0.986		0.340	323		0.680	2.06		0.340	341		1.70
1,2-Dichloropropane	ND		0.400	ND		0.800	ND		0.400	ND		2.00
cis-1,3-Dichloropropene	ND		0.190	ND		0.380	ND		0.190	ND		0.950
trans-1,3-Dichloropropene	ND		0.240	ND		0.480	ND		0.240	ND		1.20
1,1,2-Trichloroethane	ND		0.320	ND		0.640	ND		0.320	ND		1.60
Tetrachloroethene	3.70		0.270	336		0.540	5.81		0.270	248		1.35
1,1,2,2-Tetrachloroethane	ND		0.300	ND		0.600	ND		0.300	ND		1.50
Metals (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Manganese	79.7		4.00	ND		4.00	138		4.00	173		4.00
General Analytical (Units)												
Chloride(ug/L-ppb)	9340		2000	31800		2000	58500		2000	9010		2000

ND = Analyzed for but Not Detected at the MDL

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Panther Technologies
Project: AIRTRON
Lab Case No.: E07-02883

Lab ID:	02883-005			02883-006			02883-007			02883-008		
Client ID:	AIR-MW-415			AIR-MW-504S			AIR-MW-414			RIW-4		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	3/27/07			3/27/07			3/27/07			3/27/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Chloromethane	ND		0.280	ND		1.40	ND		1.40	ND		14.0
Vinyl chloride	ND		0.360	ND		1.80	ND		1.80	ND		18.0
Chloroethane	ND		0.600	ND		3.00	ND		3.00	ND		30.0
1,1-Dichloroethene	ND		0.410	ND		2.05	ND		2.05	ND		20.5
Methylene chloride	ND		1.99	ND		9.95	ND		9.95	ND		99.5
trans-1,2-Dichloroethene	0.463		0.390	ND		1.95	ND		1.95	ND		19.5
1,1-Dichloroethane	ND		0.280	ND		1.40	ND		1.40	ND		14.0
cis-1,2-Dichloroethene	15.8		0.360	93.0		1.80	44.6		1.80	335		18.0
Chloroform	ND		0.380	ND		1.90	ND		1.90	ND		19.0
1,1,1-Trichloroethane	ND		0.350	ND		1.75	ND		1.75	ND		17.5
Carbon tetrachloride	ND		0.410	ND		2.05	ND		2.05	ND		20.5
1,2-Dichloroethane (EDC)	ND		0.330	ND		1.65	ND		1.65	ND		16.5
Trichloroethene	122		0.340	724		1.70	267		1.70	4800		17.0
1,2-Dichloropropane	ND		0.400	ND		2.00	ND		2.00	ND		20.0
cis-1,3-Dichloropropene	ND		0.190	ND		0.950	ND		0.950	ND		9.50
trans-1,3-Dichloropropene	ND		0.240	ND		1.20	ND		1.20	ND		12.0
1,1,2-Trichloroethane	ND		0.320	ND		1.60	ND		1.60	ND		16.0
Tetrachloroethene	130		0.270	695		1.35	223		1.35	1340		13.5
1,1,2,2-Tetrachloroethane	ND		0.300	ND		1.50	ND		1.50	ND		15.0
Metals (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Manganese	32.1		4.00	103		4.00	22.5		4.00	1890		4.00
General Analytical (Units)												
Chloride(ug/L-ppb)	31800		2000	9830		2000	24400		2000	23700		2000

ND = Analyzed for but Not Detected at the MDL

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Panther Technologies
Project: AIRTRON
Lab Case No.: E07-02883

Lab ID:	02883-009		02883-010		02883-011		02883-012	
Client ID:	AIR-MW-407		AIR-MW-501		AIR-RW-01		USGS 02	
Matrix:	Aqueous		Aqueous		Aqueous		Aqueous	
Sampled Date	3/27/07		3/27/07		3/27/07		3/27/07	
PARAMETER(Units)	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL
Volatiles Special List (Units)	*(ug/L-ppb)*		*(ug/L-ppb)*		*(ug/L-ppb)*		*(ug/L-ppb)*	
Chloromethane	ND	14.0	ND	0.280	ND	1.40	ND	0.560
Vinyl chloride	ND	18.0	ND	0.360	ND	1.80	ND	0.720
Chloroethane	ND	30.0	ND	0.600	ND	3.00	ND	1.20
1,1-Dichloroethene	ND	20.5	ND	0.410	ND	2.05	ND	0.820
Methylene chloride	ND	99.5	ND	1.99	ND	9.95	ND	3.98
trans-1,2-Dichloroethene	ND	19.5	ND	0.390	ND	1.95	ND	0.780
1,1-Dichloroethane	ND	14.0	ND	0.280	ND	1.40	ND	0.560
cis-1,2-Dichloroethene	102	18.0	ND	0.360	44.1	1.80	40.6	0.720
Chloroform	ND	19.0	ND	0.380	ND	1.90	ND	0.760
1,1,1-Trichloroethane	ND	17.5	ND	0.350	ND	1.75	ND	0.700
Carbon tetrachloride	ND	20.5	ND	0.410	ND	2.05	ND	0.820
1,2-Dichloroethane (EDC)	ND	16.5	ND	0.330	ND	1.65	ND	0.660
Trichloroethene	783	17.0	9.23	0.340	435	1.70	36.8	0.680
1,2-Dichloropropane	ND	20.0	ND	0.400	ND	2.00	ND	0.800
cis-1,3-Dichloropropene	ND	9.50	ND	0.190	ND	0.950	ND	0.380
trans-1,3-Dichloropropene	ND	12.0	ND	0.240	ND	1.20	ND	0.480
1,1,2-Trichloroethane	ND	16.0	ND	0.320	ND	1.60	ND	0.640
Tetrachloroethene	3510	13.5	9.63	0.270	442	1.35	296	0.540
1,1,2,2-Tetrachloroethane	ND	15.0	ND	0.300	ND	1.50	ND	0.600
Metals (Units)	*(ug/L-ppb)*		*(ug/L-ppb)*		*(ug/L-ppb)*		*(ug/L-ppb)*	
Manganese	60.4	4.00	46.4	4.00	85.1	4.00	41.0	4.00
General Analytical (Units)								
Chloride(ug/L-ppb)	28300	2000	25900	2000	142000	2000	21400	2000

ND = Analyzed for but Not Detected at the MDL

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Panther Technologies
Project: AIRTRON
Lab Case No.: E07-02873

Lab ID:	02873-001			02873-002			02873-003			02873-004		
Client ID:	AIR-MW-417D			AIR-MW-417			AIR-MW-419			AIR-MW-404S		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	3/26/07			3/26/07			3/26/07			3/26/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Chloromethane	ND		0.560	ND		2.80	ND		5.60	ND		0.280
Vinyl chloride	ND		0.720	ND		3.60	ND		7.20	ND		0.360
Chloroethane	ND		1.20	ND		6.00	ND		12.0	ND		0.600
1,1-Dichloroethene	ND		0.820	ND		4.10	ND		8.20	ND		0.410
Methylene chloride	ND		3.98	ND		19.9	ND		39.8	ND		1.99
trans-1,2-Dichloroethene	ND		0.780	ND		3.90	ND		7.80	0.862		0.390
1,1-Dichloroethane	ND		0.560	ND		2.80	ND		5.60	ND		0.280
cis-1,2-Dichloroethene	14.6		0.720	102		3.60	70.9		7.20	24.5		0.360
Chloroform	ND		0.760	ND		3.80	ND		7.60	ND		0.380
1,1,1-Trichloroethane	ND		0.700	ND		3.50	ND		7.00	ND		0.350
Carbon tetrachloride	ND		0.820	ND		4.10	ND		8.20	ND		0.410
1,2-Dichloroethane (EDC)	ND		0.660	ND		3.30	ND		6.60	ND		0.330
Trichloroethene	103		0.680	793		3.40	720		6.80	5.22		0.340
1,2-Dichloropropane	ND		0.800	ND		4.00	ND		8.00	ND		0.400
cis-1,3-Dichloropropene	ND		0.380	ND		1.90	ND		3.80	ND		0.190
trans-1,3-Dichloropropene	ND		0.480	ND		2.40	ND		4.80	ND		0.240
1,1,2-Trichloroethane	ND		0.640	ND		3.20	ND		6.40	ND		0.320
Tetrachloroethene	384		0.540	1520		2.70	2180		5.40	24.2		0.270
1,1,2,2-Tetrachloroethane	ND		0.600	ND		3.00	ND		6.00	ND		0.300
TOTAL VO's:	502			2420			2970			54.8		
Metals (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Manganese	~		~	6.54		4.00	88.7		4.00	391		4.00
General Analytical (Units)												
Chloride(ug/L-ppb)	~		~	63100		2000	26200		2000	9570		2000

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Panther Technologies
Project: AIRTRON
Lab Case No.: E07-02873

Lab ID:	02873-005			02873-006			02873-007			02873-008		
Client ID:	AIR-MW-404D			FB			AIR-MW-402S			AIR-MW-405S		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	3/26/07			3/26/07			3/26/07			3/26/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Chloromethane	ND		14.0	ND		0.280	ND		1.40	ND		0.280
Vinyl chloride	ND		18.0	ND		0.360	ND		1.80	ND		0.360
Chloroethane	ND		30.0	ND		0.600	ND		3.00	ND		0.600
1,1-Dichloroethene	ND		20.5	ND		0.410	ND		2.05	ND		0.410
Methylene chloride	ND		99.5	ND		1.99	ND		9.95	ND		1.99
trans-1,2-Dichloroethene	ND		19.5	ND		0.390	ND		1.95	ND		0.390
1,1-Dichloroethane	ND		14.0	ND		0.280	ND		1.40	ND		0.280
cis-1,2-Dichloroethene	297		18.0	ND		0.360	74.9		1.80	ND		0.360
Chloroform	ND		19.0	ND		0.380	ND		1.90	ND		0.380
1,1,1-Trichloroethane	ND		17.5	ND		0.350	ND		1.75	ND		0.350
Carbon tetrachloride	ND		20.5	ND		0.410	ND		2.05	ND		0.410
1,2-Dichloroethane (EDC)	ND		16.5	ND		0.330	ND		1.65	ND		0.330
Trichloroethene	171		17.0	ND		0.340	18.4		1.70	ND		0.340
1,2-Dichloropropane	ND		20.0	ND		0.400	ND		2.00	ND		0.400
cis-1,3-Dichloropropene	ND		9.50	ND		0.190	ND		0.950	ND		0.190
trans-1,3-Dichloropropene	ND		12.0	ND		0.240	ND		1.20	ND		0.240
1,1,2-Trichloroethane	ND		16.0	ND		0.320	ND		1.60	ND		0.320
Tetrachloroethene	5170		13.5	ND		0.270	402		1.35	2.44		0.270
1,1,2,2-Tetrachloroethane	ND		15.0	ND		0.300	ND		1.50	ND		0.300
TOTAL VO's:	5640			ND			495			2.44		
Metals (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Manganese	10.4		4.00	~		~	247		4.00	43.8		4.00
General Analytical (Units)												
Chloride(ug/L-ppb)	28600		2000	~		~	9350		2000	8460		2000

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: Panther Technologies
Project: AIRTRON
Lab Case No.: E07-02873

Lab ID:	02873-009			02873-010			02873-011			02873-012		
Client ID:	AIR-MW-502			TB			AIR-MW-302			AIR-MW-02M		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	3/26/07			3/26/07			3/26/07			3/26/07		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles Special List (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Chloromethane	ND		0.280	ND		0.280	ND		2.80	ND		1.40
Vinyl chloride	ND		0.360	ND		0.360	ND		3.60	ND		1.80
Chloroethane	ND		0.600	ND		0.600	ND		6.00	ND		3.00
1,1-Dichloroethene	ND		0.410	ND		0.410	ND		4.10	ND		2.05
Methylene chloride	ND		1.99	ND		1.99	ND		19.9	ND		9.95
trans-1,2-Dichloroethene	0.949		0.390	ND		0.390	ND		3.90	ND		1.95
1,1-Dichloroethane	ND		0.280	ND		0.280	ND		2.80	ND		1.40
cis-1,2-Dichloroethene	71.7		0.360	ND		0.360	108		3.60	46.8		1.80
Chloroform	ND		0.380	ND		0.380	ND		3.80	ND		1.90
1,1,1-Trichloroethane	ND		0.350	ND		0.350	ND		3.50	ND		1.75
Carbon tetrachloride	ND		0.410	ND		0.410	ND		4.10	ND		2.05
1,2-Dichloroethane (EDC)	ND		0.330	ND		0.330	ND		3.30	ND		1.65
Trichloroethene	47.1		0.340	ND		0.340	80.4		3.40	297		1.70
1,2-Dichloropropane	ND		0.400	ND		0.400	ND		4.00	ND		2.00
cis-1,3-Dichloropropene	ND		0.190	ND		0.190	ND		1.90	ND		0.950
trans-1,3-Dichloropropene	ND		0.240	ND		0.240	ND		2.40	ND		1.20
1,1,2-Trichloroethane	ND		0.320	ND		0.320	ND		3.20	ND		1.60
Tetrachloroethene	126		0.270	ND		0.270	1300		2.70	361		1.35
1,1,2,2-Tetrachloroethane	ND		0.300	ND		0.300	ND		3.00	ND		1.50
TOTAL VO's:	246			ND			1490			705		
Metals (Units)	*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*			*(ug/L-ppb)*		
Manganese	21.3		4.00	~		~	14.2		4.00	316		4.00
General Analytical (Units)												
Chloride(ug/L-ppb)	27400		2000	~		~	21900		2000	65300		2000

Lab ID:	02873-013		
Client ID:	USGS-02		
Matrix:	Aqueous		
Sampled Date	3/26/07		
PARAMETER(Units)	Conc	Q	MDL
	~		~

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL

ATTACHMENT N

LITTON INDUSTRIES
AIRTRON DIVISION
200 EAST HANOVER AVE.
HANOVER TWP. MORRIS CO.
NEW JERSEY
EPA ID NO. NJD030239412

S1 REPORT

LITTON INDUSTRIES, AIRTRON DIVISION
200 EAST HANOVER AVENUE
HANOVER TOWNSHIP, MORRIS COUNTY, NEW JERSEY
EPA ID NO. NJD030239412

GENERAL INFORMATION AND SITE HISTORY

Litton Industries, Airtron Division (Airtron) operates a facility engaged in metal plating for microwave components and the manufacturing of gem crystals. This facility is located on a 18.8 acre tract at 200 East Hanover Avenue, Hanover Township, Morris County, Block 601, Lot 1. Cresticon, a holding company for Litton Industries, is the owner of the property and the facility. The facility is located in an industrial area. South of the site is the location of the Mennen warehouse. West of the site is the Mennen manufacturing facility and the Mennen Sports Arena. Northwest of the site is the Champion facility. North of the site is an undeveloped wooded area. East of the site is a tributary to the Whippany River. The nearest residence is located approximately 1,100 feet south of the site. The population within a 4 mile radius of the site is approximately 74,000.

The Airtron facility has been in operation since 1952. Prior to 1952 the facility was owned by Monroe Industries who manufactured calculators.

SITE OPERATIONS

Airtron uses mostly aluminum as well as some beryllium, copper, cadmium, chromium, lead, mercury, silver and zinc for its plating operations. Crystals are manufactured from many rare earth metals including gallium. Airtron uses solvents and degreasers such as methanol, methyl ethyl ketone, isopropyl alcohol, chromic acid, sulfuric acid, nitric acid, hydrofluoric acid and muriatic acid in its manufacturing processes.

Most of the raw materials are stored in drums on a concrete pad outdoors. Hydrogen, fluorine and oxygen gases are stored in pressurized bottles in the facility's laboratory.

Two aboveground storage tanks, one storing 500 gallons of liquid argon and one storing 1,000 gallons of liquid nitrogen are located northeast of the manufacturing building. A 10,000 gallon underground storage tank containing heating oil No. 6 is located southeast of the manufacturing building. Airtron anticipates removing the underground storage tank in the spring of 1990.

Wastewaters generated from the manufacturing processes are treated via an on-site wastewater treatment plant. Treatment of these wastewaters involves neutralization, flocculation, clarification, settling and filtration. The treated wastewater is discharged into a tributary of the Whippany River.

Sludges are generated from the wastewater treatment process. The sludges contain several metals including arsenic, cadmium, chromium, copper, lead, mercury, silver and zinc. The sludge is packed in polyethylene bags and is stored on a concrete pad outdoors. Waste solvents such as methanol, methyl ethyl ketone, toluene, still bottoms from vapor degreasers and spent freon are stored in drums on the unbermed concrete pad. These drums and the polyethylene bags are stored for less than 90 days prior to being disposed off site. In 1988, 84,740 pounds of sludge, 1,141 gallons of

waste solvents, 165 gallons of waste oil and 10 gallons of an unspecified liquid were removed from the facility for disposal. Airtron is registered with the USEPA as a hazardous waste generator (EPA ID No. NJD049616832).

From 1963 until 1979 sludges generated from the wastewater treatment process were disposed of in five on-site sludge drying beds. These beds were approximately 5 feet long, 4 feet wide and 5 feet deep. In 1963, the New Jersey State Department of Health (NJDOH) issued Airtron a permit to construct and operate the wastewater treatment plant and two sludge drying beds for the temporary storage of sludge. Pursuant to an Administrative Order issued in December 1979 by the NJDEP, Division of Water Resources (DWR), Airtron removed the sludge from the drying beds and some of the contaminated soils. Soil and groundwater contamination still exist within the vicinity of the former sludge drying beds.

On December 14, 1979, the NJDEP, DWR issued an Administrative Order to Airtron for violating its permit to construct and operate its industrial wastewater treatment facility which included the two sludge drying beds. Specifically, Airtron constructed and operated three additional sludge drying beds without obtaining a treatment works approval, failed to properly operate all of the sludge drying beds so that the sludge would dry, failed to remove the sludge from the beds and discharged materials not approved by either the NJDOH or the NJDEP into the sludge drying beds. In December 1980 Airtron removed the sludge from the drying beds and 12 inches of soil from the bottom and the sides of the drying beds. Sampling results from Airtron's monitoring wells and soil samples collected from 1980 to the present confirm that the sludge drying beds were the a source of groundwater and soil contamination with volatile organic compounds (VOCs).

In 1976, the USEPA issued Airtron a National Pollutant Discharge Elimination System (NPDES) Discharge to Surface Water (DSW) permit No. NJ0025739 to Airtron for its discharge of treated wastewater to a tributary of the Whippany River via Discharge Serial Number 001 (DSN001). Airtron was later issued a New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Surface Water Permit for the discharge addressed in the NPDES permit in addition to a storm water discharge to a tributary of the Whippany River via DSN002. The effective date of the NJPDES permit was May 1, 1985 and the expiration date is April 30, 1990.

On October 1, 1989 Airtron was issued a NJPDES Discharge to Groundwater (DGW) permit requiring Airtron to perform additional groundwater sampling. The permit also required Airtron to maintain hydraulic control of the groundwater contamination through the use of a groundwater recovery system. Pursuant to this permit, Airtron is required to sample its monitoring wells for trichloroethylene, tetrachloroethylene, trans-1,2-dichloroethylene, 1,1-dichloroethylene and 1,1,1-trichloroethane. The permit requires that Airtron comply with Groundwater Protection Standards promulgated by the NJDEP for trichloroethylene, tetrachloroethylene and trans-1,2-dichloroethylene for groundwater quality underlying the site. On October 26, 1989 Airtron requested an adjudicatory hearing on the NJPDES groundwater permit. In its request, Airtron challenged the NJDEP's authority to issue a NJPDES/DGW permit without receiving an application for a NJPDES/DGW permit. Airtron challenged the NJDEP's authority to require Airtron to take control over the pumping rate of Mennen's supply well (Men-1), one of the required

options to maintain the hydraulic control of the contaminated groundwater. Airtron also objected to being required to maintain hydraulic control of the contaminated groundwater when there appears to be an additional source of groundwater contamination within the vicinity, specifically the Mennen facility. In addition, the permit required the installation of eight additional monitoring wells. Airtron installed all eight monitoring wells by December 22, 1989.

On December 31, 1985; October 17, 1986; November 5, 1987 and June 8, 1988 the Airtron facility received unacceptable ratings based on NJPDES Compliance Evaluation Inspections (CEIs) conducted by the NJDEP, Division of Water Resources, Bureau of Northern Enforcement (BNE). These inspections cited numerous effluent limitation violations for arsenic, fluoride, methylene chloride, cyanide and total volatile organics discharged to the tributary of the Whippany River.

On November 22, 1989 the Airtron facility was rated conditionally acceptable based on a CEI conducted on June 27, 1989 by the NJDEP, DWR, BNE. The inspection cited a discharge violation, specifically the exceedence of the VOC permit limitation in June 1988.

In 1980 Airtron submitted a RCRA Part A application for a Hazardous Waste Facility Permit. On March 3, 1983 the NJDEP, Division of Hazardous Waste Management (DHWM) deleted Airtron's Part A interim status since Airtron was storing its drums at its facility under 90 days, and therefore, was exempt from RCRA requirements.

Airtron has been issued 25 Air Pollution Control Permits (Plant ID No. 25136) by the NJDEP, Division of Environmental Quality (DEQ). The permits were issued for air emissions from its manufacturing processes and for vents from a 10,000 gallon underground storage tank (UST) containing fuel.

During a Presampling Assessment (PSA) conducted on December 20, 1989 by the NJDEP, DHWM, Bureau of Planning and Assessment, it was noted that the concrete slab where the hazardous wastes were stored was heavily stained and several drums were corroded. The storage area is not bermed nor does it include a collection system for spills.

GROUNDWATER ROUTE

The Airtron site is located in the Piedmont Physiographic Province of New Jersey. In the vicinity of Hanover Township the rocks which underlie the Piedmont Province consist entirely of consolidated sedimentary deposits of the Boonton member of the Brunswick Formation. This formation is composed of Triassic sandstone with interbedded shales.

Approximately 2,000 feet west of the site, the Brunswick Formation is truncated by the Great Border Fault which forms the actual geologic boundary between the Piedmont and the Highland Physiographic Provinces. A section of the Whippany River, located 0.50 mile west of the Airtron site, locally outlines the trend of this fault zone. Along this north-south trending fault, sedimentary rocks of the Brunswick Formation lie against Precambrian crystalline rocks. These crystalline rocks consist of a variety of hard gneisses, granites and schists. Overlying the Brunswick Formation are surficial deposits from a glacial delta of the Wisconsin Age which are predominantly composed of interbedded sands, gravels, silts and clays. None of the borings drilled on site penetrated

the underlying Brunswick Formation. The boring logs from this study indicate a depth to bedrock of greater than 138 feet. Available well logs from the surrounding area indicate that the thickness of glacial soils overlying bedrock is about 190 feet at a well located approximately 1,300 feet east of the site, and about 153 feet at a well located approximately 500 feet west of the site.

Topography slopes generally to the east-southeast from Airtron toward the Whippany River. The water table is encountered at depths ranging from approximately 40 to 60 feet below ground surface. The local groundwater flow direction is toward the southwest as influenced by the Mennen production well's excessive pumping of groundwater.

A total of nineteen monitoring wells have been installed at the Airtron site. Sixteen shallow monitoring wells were installed at depths ranging from 21 feet to 75 feet. Three deep monitoring wells were installed at depths ranging from 128 feet to 135 feet. Five of the shallow monitoring wells were installed in 1980, six monitoring wells were installed in 1987 and eight additional wells were installed in 1989. The eight wells installed in 1989 are located near Mennen's warehouse (three wells), near Mennen's manufacturing building (three wells) and on Airtron's property (two wells). Samples have not been obtained from the eight wells recently installed.

Airtron has been obtaining groundwater samples from three wells installed by the U.S. Geological Survey (USGS-1, 2 and 3), the two Mennen production wells (Men-1 and Men-2) and the Mennen Monitoring Well No. 10. USGS-1 is located approximately 500 feet northwest of the sludge beds. USGS-2 is located onsite and 200 feet east of the sludge beds. USGS-3 is located approximately 300 feet northeast of the sludge beds. Mennen Well No. 10 is located approximately 800 feet southwest of the sludge beds and within the vicinity of the Mennen warehouse. Mennen production wells Men-1 and Men-2 are located approximately 700 feet and 1,000 feet southwest of the sludge beds, respectively. The depth of the wells ranges from 68 feet to 100 feet. Airtron and the NJDEP, DWR have been sampling these monitoring wells since 1980. Groundwater contamination has been found in some of the shallow monitoring wells. The major contaminants are trichloroethylene (TCE), tetrachloroethylene (PCE), trans-1,2-dichloroethylene and chloroform. The concentrations of these compounds in the on-site monitoring wells 2, 2M, 3, 205, 206, USGS-1, USGS-2 and Men-1 exceed the N.J. Safe Drinking Water standards for TCE and PCE and the NJDEP action levels for TCE, PCE, trans-1,2-dichloroethylene and chloroform (USGS-1 for chloroform). These results are summarized in the Summary of Sampling Data. Based on these results and the direction of groundwater flow, the NJDEP, DWR, Bureau of Groundwater Discharge Control determined that the source of groundwater contamination is the former sludge drying beds.

Men-1 supplies non-contact cooling water for that company's operation. After use, the water is discharged into a fountain on the Mennen property and is later discharged into the Whippany River. Based upon monitoring data from 1980 to the present, Airtron determined that the use of Men-1 has prevented the plume of contamination from migrating any further off site. Results, however, from monitoring wells USGS-2 and 205 located approximately 200 feet east and 700 feet south indicate that Men-1 may not be completely containing the plume of contamination.

Within a 4 mile radius, drinking water is supplied by the Parsippany-Troy Hills Township Water Department, the Florham Park Water Department and the Southeast Morris County Municipal Utilities Authority (MUA). There are some areas approximately 1.75 miles west of the site and approximately 3.5 miles north of the site that are not serviced by public water and obtain water through private wells. The Parsippany-Troy Hills Water Department has five wells within a 4 mile radius, the Florham Park Water Department has two wells within a 4 mile radius and the Southeast Morris County MUA has ten wells within a 4 mile radius of the site. The depths of the wells range from 66 feet to 492 feet. A majority of these wells were installed in the glacial deposits of the Wisconsin Age. The Southeast Morris County MUA has two wells located approximately 0.70 miles northwest of the site. The depth of these wells are 125 feet and 138 feet. These wells, however, are currently not in use. The population served by potable wells within a 4 mile radius is approximately 131,600.

It is not known how many private potable wells are located within a 4 mile radius. There are at least five private wells located with a 1 mile radius. The closest well is approximately 0.325 mile southwest of the site and was installed at a depth of 200 feet. Another well is located 0.80 mile west of the site and is approximately 157 feet deep. The other wells were installed at depths ranging from 87 feet to 250 feet. It is not known if these private wells are used for drinking water.

There are approximately 40 irrigation and industrial wells located within a 4 mile radius of the site. The closest industrial well is located at the Mennen property approximately 0.25 mile southwest of the Airtron property. The depth of this well is 110 feet and is used to supply non-contact cooling water for production of Mennen. As mentioned earlier TCE, PCE and trans 1,2-dichloroethylene were detected in the well at levels exceeding drinking water standards and the NJDEP action levels. The closest irrigation well is located approximately 1.5 miles south of the site. This well is approximately 400 feet deep with a casing installed down to 170 feet. The well is used to irrigate crops, however, it is not known how many acres are irrigated from this well.

The potential for contamination of additional off-site wells exists. Current groundwater data indicates that the Mennen production well is not containing the contaminated plume at Airtron.

During a site reconnaisance conducted by Airtron's consultants in late 1987, an abandoned off-site landfill was discovered near MW-205, south of the facility. The landfill occupies approximately 2 acres and is located within the vicinity of the AT&T and Fabricated Plastics facilities. Most of the materials present were ash and cinders. In the far western portion of the landfill were approximately six 55-gallon drums sticking out of the landfill. One of the drums was oozing a thick, black oily substance. The owner of this property is not known. This may be an additional source of groundwater contamination on the Airtron property.

On December 14, 1979, the NJDEP, DWR issued an Administrative Order to Airtron for violating its permit to construct and operate its industrial wastewater facility. The misuse of the sludge drying beds resulted in groundwater contamination. On October 1, 1989 Airtron was issued a NJPDES DGW permit. The details of the permit were previously discussed.

SURFACE WATER

An unnamed tributary to the Whippany River crosses the eastern portion of the property. This stream flows into the Whippany River approximately 1 mile southeast of the site. Airtron discharges treated wastewater and storm water via the unnamed tributary to the Whippany River. Airtron monitors these discharges as required in its NJPDES/DSW permit. Details on this NJPDES permit were previously mentioned. There is no designated use of this tributary or the Whippany River; however, the surface water bodies may be used for recreational fishing or boating.

On December 31, 1985, October 17, 1986, November 5, 1987 and June 8, 1988 the Airtron facility received unacceptable ratings based on the NJPDES CEIs conducted by the NJDEP, DWR, BNE. Violations were cited for numerous effluent violations originating from the treated wastewater discharge. Effluent limitations were violated for the following parameters: arsenic, fluoride, methylene chloride, cyanide and total VOCs. The last violation occurred in July 1988 for exceeding the effluent limitations for total VOCs.

In March 1986, consultants for the Mennen Company obtained a stream sediment sample from the unnamed tributary which crosses the Airtron site. The sample was taken near the property boundary of the Airtron site and RCR Associates. The sample indicated the presence of arsenic and cadmium at levels which exceeded the NJDEP action levels for cleanup. There is a potential for contaminated stream sediments due to past discharges of hazardous substances via Airtron's DSN001.

AIR ROUTE

Airtron was issued 25 Air Pollution Control Permits (facility ID No. 25136) for its emissions from two boilers, a 10,000 gallon UST containing heating oil, the facility's spray paint booths, the plating operations area, the gallium arsenide production area, a dip pot furnace, the fluoride lab, the cleaning and plating oven, vapor degreasers and for a grit blaster/dust collector.

On September 9, 1988 the NJDEP, DEQ issued an Administrative Order and a $200 penalty to Airtron for altering one of its vapor degreaser units without obtaining the appropriate NJDEP approval.

The potential exists for air contamination since the site is active.

SOIL

In December 1980 Airtron removed the sludge from its sludge beds and 12 inches of contaminated soil from the bottom and sides of the beds. A soil sample collected by Airtron's consultants in June 1987 revealed elevated levels of VOCs north and adjacent to the sludge bed area. The sample was collected 4.5 to 5 feet below grade. Major contaminants detected in the soil were trans-1,2-dichloroethylene, trichloroethylene, 1,1,2-trichloroethane, toluene and total xylenes. Total volatiles detected were 19,711 parts per billion (ppb). The NJDEP action level for total VOCs in soil is 1,000 parts per billion. It is the opinion of the NJDEP, DWR that the soil borings taken in 1987 did not penetrate through the sludge beds.

Another area which is a potential source of soil contamination is the outdoor drum storage area. As noted in the Presampling Assessment (PSA) conducted on December 20, 1989 by the NJDEP, DHWM, Bureau of Planning and

Assessment, numerous stains were observed on the cement pad which was not bermed. According to Airtron, designs for a drum storage shed which would replace the cement pad were submitted to the Township of Hanover for approval. Airtron has not yet received approval from the Township to construct the shed.

DIRECT CONTACT

There have been no reported incidents of direct contact with hazardous substances onsite. A potential exists if wastewater discharges are not properly treated prior to discharge into the tributary of the Whippany River. Such discharges could result in off-site contamination. Employees may also contact wastes on site through improper handling. Although the site is not completely fenced, the hazardous waste storage area is fenced and locked and the production areas are located indoors. Therefore, a low potential exists for direct contact by the off-site population.

FIRE AND EXPLOSION

Airtron stores its sludges, waste oils, waste solvents and raw materials such as metals and acids on the concrete pad. Many of the wastes manifested from the Airtron site from 1987 to 1989 were characterized as ignitable and corrosive wastes. A potential for fire and explosive conditions exists since:

a. many of the wastes are incompatible with each other such as metals, metal sludges and corrosive solutions;

b. many of the wastes stored on the pad are identified as ignitible wastes; and

c. many of these containers are rusted and there is evidence of past spills and leaks as noted during the PSA conducted on December 20, 1989 by the NJDEP, DHWM, BPA.

ADDITIONAL CONSIDERATIONS

The Bald Eagle designated as a Federally endangered species and a New Jersey endangered species has been observed in the Morris County area. Other New Jersey endangered species include the Bog Turtle and the Coopers Hawk which are also observed in the Morris County area.

ENFORCEMENT ACTIONS

On December 14, 1979, the NJDEP, DWR issued an Administrative Order to Airtron for violating its permit to construct and operate its treatment facility, specifically, the sludge drying beds.

On September 23, 1987 Airtron was issued a Notice of Violation (NOV) from the NJDEP, DHWM, BNE. The NOV cited violations such as failure to receive copies of the Part B of certain manifests, wastes not segregated by waste type, containers not arranged so that labels are visible and no annual review of personnel training.

On September 9, 1988 the NJDEP, DEQ issued Airtron an Administrative Order and a $200 penalty for altering one of two degreasing units without obtaining NJDEP approval.

SUMMARY OF SAMPLING DATA

1. Sampling date: April 8, 1980
   Sampled by: NJDEP, DWR, BNE
   Parsippany - Troy Hills, New Jersey
   Samples: Two groundwater samples
   Laboratory: N.J. Department of Health (NJDOH)
   Laboratory Certification No. 11148
   Trenton, New Jersey
   Parameters: Total chromium, hexavalent chromium, copper, zinc, silver, cadmium, nickel and volatile organics.
   Sample description: Two on-site monitoring wells MW-1 and 2
   Contaminants detected: Trichloroethylene (TCE) and tetrachloroethylene (PCE)

RESULTS FROM GROUNDWATER SAMPLES
COLLECTED APRIL 8, 1980

(ppb)

WELL NO.	TCE	PCE
MW-1	1,920	50
MW-2	250	ND

ND = Not detected

   QA/QC: NJDOH, QA/QC data not available
   File location: NJDEP, DWR, Bureau of Groundwater Discharge Control (BGWDC)
   Trenton, New Jersey

2. Sampling date: November 19, 1980
   Sampled by: NJDEP, DWR, BNE
   Parsippany - Troy Hills, New Jersey
   Samples: Four groundwater samples
   Laboratory: NJDOH Laboratory Certification No. 11148
   Parameters: VOCs for all wells sampled
   cyanide and metals for wells 4 and 5
   Sample description: Four on site monitoring wells 1,2,4 and 5
   Contaminants detected: PCE, 1,1,1-trichloroethane, chloroform, TCE

RESULTS FROM GROUNDWATER SAMPLES
COLLECTED NOVEMBER 19, 1980

(ppb)

LOCATION	PCE	1,1,1-TRICHLOROETHANE	CHLOROFORM	TCE
MW-1	1,027	32	45	6,463
MW-2	7	ND	ND	53
MW-4	ND	ND	32	ND
MW-5	78	8	2	760

(ppb)

LOCATION	CYANIDE	Cr	Cu	Cd	Ni	Pb	Zn	Ag	Al
MW-4	.009	193	253	1	233	28	1,145	17	46,035
MW-5	.001K	33	151	1	93	113	205	10K	26,550

ND = Not detected
K = Below detection limits

QA/QC: NJDOH, QA/QC data not available
File location: NJDEP, DWR, BGWDC, Trenton, New Jersey

3. Sampling dates: January 13, 1981 & June 23, 1981
Sampled by: Converse Ward Davis Dixon Inc., Caldwell, New Jersey (June 23, 1981) and NJDEP, DWR, BNE, Parsippany - Troy Hills (January 13, 1981)
Samples: Eight groundwater samples
Laboratory: General Testing Inc. June 23, 1981 and, NJDOH, (Laboratory Certification No. 11148) January 13, 1981
Parameter: Trichloroethylene (TCE)
Sample description: Samples were obtained from eight monitoring wells (1M, 2M, MW-1, MW-2, MW-3; USGS Wells 1, 2 and 3).
Contaminants detected: TCE was detected in the monitoring wells as indicated below:

RESULTS FROM GROUNDWATER SAMPLES COLLECTED
JANUARY 13, 1981 & JUNE 23, 1981

(mg/1)

WELL NO.	1/13/81 NJDEP	6/23/81 GENERAL TESTING INC.
1M	.35	BROKEN
2M	2.90	.062
USGS-1	1100.00	14.60
USGS-2	.14	not sampled
USGS-3	.007	not sampled
MW-1	not sampled	.007

MW-2	not sampled	9.66
MW-3	not sampled	4.24

QA/QC: General Testing, Inc. was not a certified laboratory.
QA/QC package not available

NJDOH Lab. QA/QC data not available

File location: NJDEP,DWR,BGWDC, Trenton, New Jersey

4. Sampling date: June 1981
Sampled by: Converse Ward Davis Dixon, Inc., Caldwell, New Jersey
Samples: Eighteen soil samples
Laboratory: General Testing, Inc.
Parameters: TCE and Total Organic Carbon (TOC)
Sample description: Eighteen soil samples were analyzed for TOC. Duplicate analysis were performed on six soil samples analyzed for TCE.
Contaminants detected: TCE and TOC

RESULTS FROM SOIL SAMPLES
COLLECTED JUNE 1981

WELL NO.	SAMPLE DEPTH ft.	TOC mg/gm	TCE (mg/l) ANALYSIS	TCE DUPLICATE ANALYSIS
MW-1	20	255		
	40	288	.038	.104
	60	323		
MW-2	10	84		
	20	78	ND	ND
	30	66		
	40	247	.160	.190
	50	213		
	60	279	.490	.640
	70	203		
	80	618		
MW-3	20	92		
	40	260	.042	.026
	60	113		
	80	76.5		
B-1	6	30	228	ND
B-3	7	35	209	

QA/QC: General Testing, Inc. (not a certified laboratory) and NJDOH QA/QC data not available

File location: NJDEP/DWR/BGWDC Trenton, New Jersey

5. Sampling dates: September 6 and 7, 1984
Sampled by: NJDEP, DWR, BNE
Samples: Seven groundwater samples
Laboratory: NJDOH, Laboratory Certification No. 11148
Parameters: VOCs
Sample description: Three USGS wells (1,2,3), two on-site wells (2, 2M) and two Mennen two production wells (Men-1, Men-2).
Contaminants detected: Major contaminants detected are summarized below:

RESULTS FROM GROUNDWATER SAMPLES
COLLECTED SEPTEMBER 6 AND 7, 1984

(ppb)

LOCATION	1,2-DICHLOROETHYLENE	TOLUENE	TCE	PCE	1,1,1-TRICHLORO-ETHANE
USGS-1	88	ND	4,310	984	16
USGS-2	65	ND	61	ND	ND
USGS-3	294	3.5	3,110	1,980	10
MW-2	126	ND	9,100	1,110	5.2
MW-2M	ND	ND	4,420	652	2.4
MEN-1	ND	ND	1,460	130	5.6
MEN-2	4.2	ND	64	ND	ND

LOCATION	1,1-DICHLOROETHANE	1,1-DICHLOROETHYLENE	CHLOROFORM
USGS-1	ND	ND	19
MW-2	2.3	3.6	ND
2M	ND	ND	18
MEN-2	ND	ND	ND
MEN-1	ND	34	6.3
USGS-2	ND	ND	ND
USGS-3	ND	ND	ND

ND = Not detected

QA/QC: NJDOH, QA/QC data not available
File location: NJDEP, DWR, Central File Room
Trenton, New Jersey

6. Sampling date: December 13 and 15, 1984
Sampled by: Converse Consultants, Inc., Caldwell
New Jersey
Samples: Seven groundwater samples
Laboratory: Princeton Testing Labs, Princeton, New Jersey
Laboratory Certification No. 11118
and Lab Resources, Rocky Hill, New Jersey
Laboratory Certification No. 02046
Samples were split
Parameters: VOCs
Sample description: Two USGS wells (1,2), four on-site wells (1,2,3 2M) and two Mennen production wells (Men-1, Men-2) were sampled. Three on-site wells were resampled on December 15, 1984.
Contaminants detected: Major contaminants detected are summarized below:

RESULTS FROM SOIL SAMPLES COLLECTED IN MAY AND JUNE 1987

PARAMETER	B-106.8 40-40.5 ft.	B-108.9 40-40.5 ft.	B-109.7 35-35.5 ft.	B-109.11 55-55.5 ft.	B-114.3 14.0-14.5 ft.
TCE	39	18	28	30	43
PCE	21	19	6	11	60
Trans-1,2,-dichloroethylene	ND	ND	ND	ND	81

	B-114.4 20.0-20.5 ft.	B-114.7 29.5-30 ft.	B-115.2 10.5-11.0 ft.	B-115.7 35-35.5 ft.	B-116.8 4.5-5.0 ft.	B-117.1A 4.5-5.0 ft.
TCE	5J	9J	ND	ND	11J	740J
PCE	67	150B	2JB	4J	35	
Trans-1,2-dichloroethylene	3J	95	41	13	3J	1,900
Toluene	2J	3JB	4JB	7J	11	8,700
Methylene Chloride	9JB	19B	11JB	21B	2JB	220J
Trichlorofluoromethane	13JB	11JB	4JB	8JB	520JB	520JB
Chloroform	ND	ND	ND	ND	ND	91J
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	5,800
Total xylenes	ND	ND	ND	ND	ND	1,400

QA/QC:	QA/QC data not submitted to the NJDEP. Field blank analyzed by Accutest revealed no detectable VOCs.
File location:	NJDEP,DWR,BNE Parsippany - Troy Hills, New Jersey

11.	Sampling date:	May 26, 1987-June 1, 1987; June 3, 1987-June 5, 1987; June 8, 1987-June 11, 1987; June 15, 1987 and June 17, 1987, (soil samples) August 17, 1987-August 19, 1987; September 30, 1987- October 1, 1987 (groundwater samples).
	Sampled by:	Converse Environmental East
	Samples:	Fifty-one soil samples and seventeen groundwater samples
	Laboratory:	York Laboratories Whippany, New Jersey Laboratory Certification No. 42202
	Parameters:	Groundwater samples were analyzed for VOCs, Base Neutral/Acid Extractables, pesticides, PCBs metals, and phenol. Soil samples analyzed for VOCs and Base Neutral Acid Extractables.
	Sample description:	Soil samples submitted were limited to depth of 0.5 foot intervals. Samples in the vadose zone were screened with a portable organic vapor analyzer (OVA). If OVA measurements were low for a particular boring, the sample with the highest OVA reading was submitted for VOC analysis. If a particular boring had high OVA readings, the three samples with the highest OVA readings were submitted for analysis for VOCs. Groundwater samples were obtained from eleven on site wells (MWs 1, 2, 2M, 3, 201, 202, 203, 204, 205, 206, 412), four USGS Wells (1, 2, 3, 6) and two Mennen Wells (MEN-1, MEN-10).
	Contaminants detected:	Major contaminants detected are summarized on the following page:

(ppb)

PARAMETER	B-117.7 35.0-35.5 ft.	B-117.4 20-20.5 ft.	B-118.4 20-20.5 ft.	B-118.8 39.5-40 ft.	B-118.9 44.5-45.0 ft.	B-119.7 34-36 ft.
TCE	2JB	3J	13	9J	74	5J
PCE	29	16	7J	15	55	29
Trans-1,2-dichloro-ethylene	5J	8J	7J	6J	ND	ND
Toluene	11	25	2JB	2JB	ND	2J
Methylene Chloride	2JB	2JB	3J	3J	16JB	22B
Trichlorofluoromethane	8JB	11JB	12B	12B	53	10JB
Chloroform	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethylene	ND	ND	7J	15	55	ND
Total xylenes	ND	ND	ND	ND	ND	ND

(ppb)

PARAMETER	B-103.1 4-6ft.	B-104.1 5-5.5 ft.
Di-n-butylphthalate	2,150B	3,140B

GROUNDWATER SAMPLING RESULTS
ROUND 1 AUGUST 17, 1987-AUGUST 18, 1987

(ppb)

PARAMETER	MW-2	MW-2M	MW-3	MW-204	MW-205	MW-206
Methylene Chloride	580	ND	1,200B	190B	ND	ND
TCE	7,200	2,000	2,000	ND	ND	3,300B
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	14
PCE	3,000	530	1,500	ND	ND	2,000D
Trans-1,2-dichloro-ethylene	180J	180J	230J	ND	ND	
Toluene	94JB	ND	96JB	2J	2JB	ND

(ppb)

PARAMETER	MW-412	USGS-1	USGS-2	USGS-6	MEN-10	MEN-1
Methylene Chloride	ND	ND	12	14B	ND	650B
TCE	3,200D	9,000D	46	4J	1,300D	1,100
1,1,1-Trichloroethane	15	28	ND	ND	6	ND
PCE	2,000D	2,900D	4J	ND	2J	ND
Trans-1,2-dichloro-ethylene	480D	580D	36	ND	230J	53J
Toluene	1JB	ND	ND	1JB	ND	90JB

GROUNDWATER
SAMPLING RESULTS
ROUND 2
SEPTEMBER 30-OCTOBER 1, 1987

(ppb)

PARAMETERS	MW-2	MW-2M	MEN-1	MW-3	MW-6	MW206	USGS-1	USGS-2	MEN-10
Methylene Chloride	1,900	410	110	136JB	3JB	2,600	110J	ND	740
TCE	6,700B	1,800	1,200JB	2,564	2,500DB	3,200B			
PCE	2,900B	520B	200JB	2,153	2,000B	2,500B	3,240	11	620B
Trans-1,2-dichloro-ethylene	180J	ND	60DJ	287	300D	510	635	37	310
Toluene	ND	50JB	140JB	152JB	2B	ND	86J	1J	55J

* exceeded holding time for base neutral/acid extractable analysis for soils
ND = Not detected
B = Compound found in blank
J = Estimate
D = Diluted by a factor of 50

RESULTS FROM GROUNDWATER SAMPLES
COLLECTED DECEMBER 13 AND 15, 1984

(ppb)

PARAMETER	MEN-1	USGS-1	USGS-2	MW-2M	MW-1	MW-2	MW-3
Trans-1,2-dichloroethane	15	151 (160)	38	61	ND	103	19
1,1,1-Trichloroethane	ND	37 (132)	ND	10	ND	9	10
TCE	730	6100 (2000)	80	1300	ND	9000	2000
Chloroform	ND	31 (32)	ND	15	ND	ND	ND
Tetrachloro-ethylene	ND	1600 (390)	26	208	ND	1800	1400
1,1,2-Trichloro-ethylene	50	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	74	ND	ND	ND
Methylene Chloride	ND(6.6)	ND	ND	ND	ND	ND	ND
1,1-Dichloro-ethylene	ND (6.9)	ND	ND	ND	ND	ND	ND
1,2-Dichloro-ethylene	ND (160)	ND	ND	ND	ND	ND	ND

( ) results from Princeton Testing Laboratory which conflicted with Laboratory Resources
ND = Not detected

QA/QC: Data not submitted to the NJDEP
File location: NJDEP,DWR,Central File Room
Trenton, New Jersey

7.	Sampling date:	June 20, 1985
	Sampled by:	Converse Consultants, Caldwell, New Jersey
	Samples:	Six groundwater samples
	Laboratory:	Princeton Testing Laboratory, Princeton, New Jersey Laboratory Certification No. 11118 Lab Resources, Rocky Hill, New Jersey, Laboratory Certification No. 02046. Samples were split.
	Parameters:	VOCs
	Sample description:	Three on-site wells (2, 3, 2M), two USGS wells (1 and 2) and one from the Mennen Production Well (MEN-1).
	Contaminants detected:	Major contaminants detected are summarized on the following page:

RESULTS FROM GROUNDWATER SAMPLES
COLLECTED JUNE 20, 1985

(ppm)

PARAMETER	2M	MEN-1	USGS-1	USGS-2	MW-2	MW-3
METHYLENE CHLORIDE	57 (ND)	52 (ND)	ND	54 (ND)	ND	450 (ND)
TRANS-1,2-DICHLOROETHYLENE	63 (67)	54 (46)	140 (ND)	59 (50)	420 (259)	400 (3[illegible])
CHLOROFORM	18 (ND)	16 (ND)	ND (23)	ND	ND	ND
TRICHLOROETHYLENE	620 (1115)	800 (869)	3100 (2463)	6000 (66)	49 (6850)	2000 (2082)
PCE	170 (200)	170 (199)	1300 (1050)	30 (33)	2600 (3125)	1600 (1672)
1,1,1-TRICHLOROETHANE	ND (40)	ND	ND (22)	ND	ND (17)	ND (11)

( ) = Results from Laboratory Resources Which conflicted with results from Princeton Testing Laboratory
ND = Not detected

QA/QC: QA/QC data not submitted to the NJDEP. Results did include a duplicate analysis of Well No. 2 analyzed by Princeton Testing Laboratory. Relative percent differences appeared acceptable with the exception of the methylene chloride parameter. Analysis of field blank and trip blank by Laboratory Resources revealed no detectable VOCs.

File location: NJDEP,DWR,Central File Room
Trenton, New Jersey

8. Sampling date: November 20, 1985
Sampled by: Converse Consultants, Caldwell, New Jersey
Samples: Six groundwater samples
Laboratory: Laboratory Resources, Rocky Hill
Laboratory Certification No.02046
Parameters: VOCs
Sample description: Three on site wells (MW-2, 3, 2M), two USGS wells (1, 2), one Mennen Production Well No. 1 (Men-2).
Contaminants detected: Major contaminants detected are listed below:

RESULTS FROM GROUNDWATER SAMPLES
COLLECTED NOVEMBER 20, 1985

(ppb)

PARAMETERS	MEN-1	USGS-1	USGS-2	MW-2	MW-3	MW-2M
Trans-1,2-dichloroethylene	.41	271	113	42	252	92
Chloroform	ND	22	ND	ND	ND	ND
TCE	1205	4629	41	5987	2188	1367
PCE	204	1130	31	1113	1057	295

ND = Not detected

QA/QC: QA/QC data not submitted to the NJDEP. Results did include analysis of a field blank and a trip blank. Analysis of the blanks revealed no detectable VOCs.

File location: NJDEP,DWR,Central File Room
Trenton, New Jersey

9. Sampling date: March 1986
Sampled by: Dames and Moore, Cranford, New Jersey
Samples: Three groundwater samples and one stream sediment sample.
Laboratory: ETC Laboratories, Edison, New Jersey
Laboratory Certification No. 07044.

Parameters: Priority Pollutants Analysis (USGS-1 and MW-10) USGS-2 was only analyzed for volatile organics.

Sample description: Three groundwater samples were collected from monitoring wells USGS-1, USGS-2 and Mennen's MW-10; one stream sediment sample (Brook 1) was collected at the rear of the property near Airtron.

Contaminants detected: Major contaminants detected are summarized below:

RESULTS FROM SAMPLES COLLECTED IN MARCH 1986

(ppb)

PARAMETER	MW-10	USGS-1	USGS-2	BROOK 1
Volatile Compounds				
Chloroform	ND	9.87	ND	ND
Tetrachloroethylene	224	463	26.6	ND
Toluene	47	ND	ND	ND
Trans-1,2-dichloro-ethylene	242	121	59.6	ND
1,1,1-Trichloro-ethane	14.3	11.7	ND	ND
Trichloroethylene	1,270	3,110	54.3	ND
Base/Neutral Compounds				
Acenaphthene	ND	ND	-	BMDL
Anthracene	ND	ND	-	BMDL
Bis(2-Ethylhexyl) phthalate	BMDL	ND	-	ND
Fluoranthene	ND	ND	-	299
Fluorene	ND	ND	-	BMDL
Phenanthrene	ND	ND	-	308
Pyrene	ND	ND	-	245
Priority Pollutant Metals				
Antimony	ND	ND	-	BMDL
Arsenic	ND	ND	-	72,000
Beryllium	ND	ND	-	1,000
Cadmium	BMDL	ND	-	5,000
Chromium	ND	ND	-	80,000
Copper	ND	ND	-	98,000
Lead	ND	ND	-	84,000
Nickel	BMDL	ND	-	17,000
Silver	ND	ND	-	4,000
Zinc	BMDL	ND	-	232,000

ND = Not detected
BMDL = Below method detection limit
\- = Not tested

	QA/QC:	ETC Laboratories, QA/QC not submitted to the NJDEP.
	File location:	NJDEP,DHWM, Bureau of Federal Case Management Trenton, New Jersey
10.	Sampling date:	June 11, 1986
	Sampled by:	Converse Environmental East
	Samples:	Six groundwater samples
	Laboratory:	Accutest, New Brunswick, N.J. Laboratory Certification No. 12129 Townley Research Consulting, Inc. North Plainfield, N.J. Laboratory Certification No. 18071 Samples were split
	Parameters:	VOCs
	Sample description:	Three on-site wells (MW-2, 3, 2M), two USGS wells (1, 2) and one Mennen Production Well (Men-2).
	Contaminants detected:	Major contaminants detected are summarized on the following page:

RESULTS FROM GROUNDWATER SAMPLES COLLECTED ON JUNE 11, 1986

(ppb)

PARAMETER	2M	MW-2	MW-3	MEN-2	USGS-1	USGS-2
Chloroform	12 (14)	ND	ND	ND	ND	ND
Trans 1,2-dichloro-ethylene	49 (93)	123 (305)	208 (52)	32 (72)	25 (94)	38 (98)
PCE	113 (186)	438 (1130)	442 (370)	4.1 (6)	119 (220)	14 (22)
Toluene	18 (46)	92 (62)	44 (47)	ND	5.9 (19)	ND
1,1,1-trichloro-ethane	7 (4)	9.8 (ND)	16 (ND)	ND	ND (3)	ND
TCE	574 (470)	1536 (1490)	783 (540)	398 (43)	609 (368)	44 (52)
1,1-dichloro-ethylene	ND (2)	ND	ND	ND	ND (4)	ND

( ) Results from Townley Research & Consulting, Inc. which conflicted with results from Accutest
ND = Not detected

	QA/QC:	York Laboratories, data submitted to NJDEP for review. Review has not been conducted
	File location:	NJDEP, DWR, NBE Parsippany - Troy Hills, New Jersey
12.	Sampling date:	April 26, 1988
	Sampled by:	Converse Environmental East
	Samples:	Thirty-four groundwater samples
	Laboratory:	York Laboratories, Whippany, New Jersey Laboratory Certification No. 42202 and ICM Laboratories, Laboratory Certification No.
	Parameters:	VOCs and base neutral/acid extractables for MW-1.
	Sample description:	Ten on-site wells (MW-1,2,2M,3,201,202,203,204,205,206) three USGS wells (1,2,3) and two Mennen wells (Men-1, Men-10).
	Contaminants detected:	Major contaminants detected are summarized on the following page:

RESULTS FROM GROUNDWATER SAMPLES COLLECTED ON APRIL 26, 1988

(ppb)

PARAMETER	205	206	MW-2	MW-3	2M	USGS-1	USGS-2	MEN-10	MEN-1
PCE	ND	2,100	160B	170B	420	4,000	62	420	280
	ND	2,100	280B	280B	380	3,500	160	340	220
TCE	49	3,000	3,200	2,100	1,800	9,500	55	1,500	1,500
	42	3,000	3,000	2,200	1,500	7,900	280	1,200	5[illegible]
Methylene Chloride	2B	73B	ND	ND	ND	ND	1B	91B	[illegible]B
	ND	44B	ND	ND	ND	66	ND	6B	ND
Trans-1,2-dichloroethylene	ND	406	220	340	170	480	35	236	99
	ND	780	190	360	ND	420	48	300	35

ND = Not detected
B = Detected in blank

QA/QC:	York Laboratories and ICM Laboratories QA/QC data submitted to NJDEP. Data has not been reviewed
File location:	NJDEP, DWR, BNE Parsippany - Troy Hills, New Jersey

13.

Sample date:	April 14, 1989
Sampled by:	Converse Environmental East
Samples:	Twelve groundwater samples
Laboratory:	York Laboratories, Whippany, New Jersey Laboratory Certification No. 42202
Parameters:	VOCs
Sample description:	Three USGS monitoring wells (1, 2, 3), Two Mennen wells (MEN-1, MW-10) and seven on-site monitoring wells (1, 2, 3, 2M, 204, 205 and 206).
Contaminants detected:	Major contaminants detected are summarized on the following page:

RESULTS FROM GROUNDWATER SAMPLES COLLECTED ON APRIL 14, 1989

(ppb)

	MW-206	MW-2	MW-2M	MW-3	MW-205	USGS-1	USGS-2	MEN-1	MEN-10
TCE	2400D	6700D	310	2700D	50	6200D	36	1600D	5400D
PCE	1600D	2900D	92	1500D	ND	3100D	26	110	3200D
Trans-1,2-dichloroethylene	ND	ND	ND	ND	ND	1	ND	ND	ND
1,1,1-Trichloroethane	10	ND	ND	ND	ND	18	ND	1J	ND

ND = Not detected
J = Estimated concentration
D = Diluted sample

RESULTS FROM SAMPLES COLLECTED ON AUGUST 29, 1989

(ppb)

	MW-2	MW-2M	MW-3	206	USGS-1	MEN-10	MEN-1	USGS-2
Methylene chloride	ND	3J	3J	130	ND	ND	ND	ND
TCE	7,600D	1,100D	3,600D	2,400	13,000	1,400	860D	4
PCE	2,400D	150	1,500D	1,800	8,200	660	170	32
Trans-1,2-di-chloro-ethylene	3J	ND	ND	1,300D	ND	ND	ND	ND

ND = Not detected
J = Estimate
D = Diluted

	QA/QC:	York Laboratories, QA/QC data submitted to the NJDEP. Data has not been reviewed by the NJDEP.
	File location:	NJDEP, DWR, BNE, Parsippany - Troy Hills New Jersey
14.	Sampling date:	August 29, 1989
	Sampled by:	Converse Environmental East
	Samples:	13 groundwater samples
	Laboratory:	York Laboratories, Whippany, New Jersey Laboratory Certification No. 42202
	Parameters:	VOCs
	Sample description:	Three USGS monitoring wells (1, 2, 3, 1 duplicate sample on USGS 3), two Mennen wells (Men-1, Men-10) and seven on-site wells monitoring wells (MWS 1, 2M, 3 204, 205, 206).
	Contaminants detected:	Major contaminants detected are summarized on the following page:

QA/QC: York Laboratories, QA/QC data submitted to the NJDEP. The data was not reviewed by the NJDEP

File location: NJDEP, DWR, Central File Room Trenton

SURFACE WATER SAMPLES FROM DSN001

Sampled by: Airtron

Samples: 24 hour composites sampled two times per month

Laboratories: Century Environmental Testing 1985-approximately May 1986 Laboratory Certification No. 01284.

Townley Research Consulting, Inc. Laboratory Certification No. 18071 May 1986 to present

Parameters: Fluorine, Total cyanide, arsenic, cadmium, chromium, total VOCs, nickel, silver, zinc and methylene chloride.

Sample description: 24 hour composites, with the exception of VOCs (grab). Results are reported in either mass loading values or in concentrations.

Contaminants detected: Contaminants are summarized below:

MONITORING PERIOD	PARAMETER	PERMIT LIMIT	RESULTS REPORTED
September 1985	VOCs da.max.	.100 mg/l	<690 mg/l
	Arsenic mo.avg.	.003 kg/d	.07 kg/d
	Arsenic da.max.	.008 kg/d	.631 kg/d
	Fluoride mo.avg.	.07 kg/d	.182 kg/d
	Fluoride da.max.	.012 kg/d	.175 kg/d
June 1986	Arsenic mo.avg.	.003 kg/d	.012 kg/d
	Arsenic da.max.	.008 kg/d	.023 kg/d
	Cyanide mo.avg.	.021 kg/d	.03 kg/d
	Cyanide da.max.	.04 kg/d	.06 kg/d
	Fluoride mo.avg.	.07 kg/d	.115 kg/d
	Fluoride da.max.	.12 kg/d	.2 kg/d
April 1987	Arsenic mo.avg.	.003 kg/d	.007 kg/d
	Arsenic da.max.	.008 kg/d	.010 kg/d
	Copper, mo.avg.	.02 kg/d	.03 kg/d
	Copper, mo.max.	.04 kg/d	.06 kg/d
May 1987	Arsenic mo.avg.	.003 kg/d	.008 kg/d
	Arsenic da.max.	.008 kg/d	.012 kg/d
November 1987	VOCs da.max.	.100 mg/l	112 mg/l
December 1987	VOCs da.max.	.100 mg/l	1,719.85 mg/l
January 1988	VOCs da.max	.100 mg/l	162 mg/l
February 1988	VOCs da.max.	.100 mg/l	121 mg/l
July 1988	VOCs da.max.	.100 mg/l	131 mg/l

avg. - Monthly average
max. - Daily maximum
- kilograms per day
- milligrams per liter

LITTON INDUSTRIES, AIRTRON DIVISION
200 EAST HANOVER AVENUE
HANOVER TOWNSHIP, MORRIS COUNTY, NEW JERSEY
EPA ID NO. NJD030239412

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B. PRINTOUT: WASTE MANIFESTS FROM 1/1/87 TO 10/30/89 FROM AIRTRON DIVISION, LITTON INDUSTRIES (AIRTRON)

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L. NJPDES/DGW PERMIT ISSUED 10/1/89

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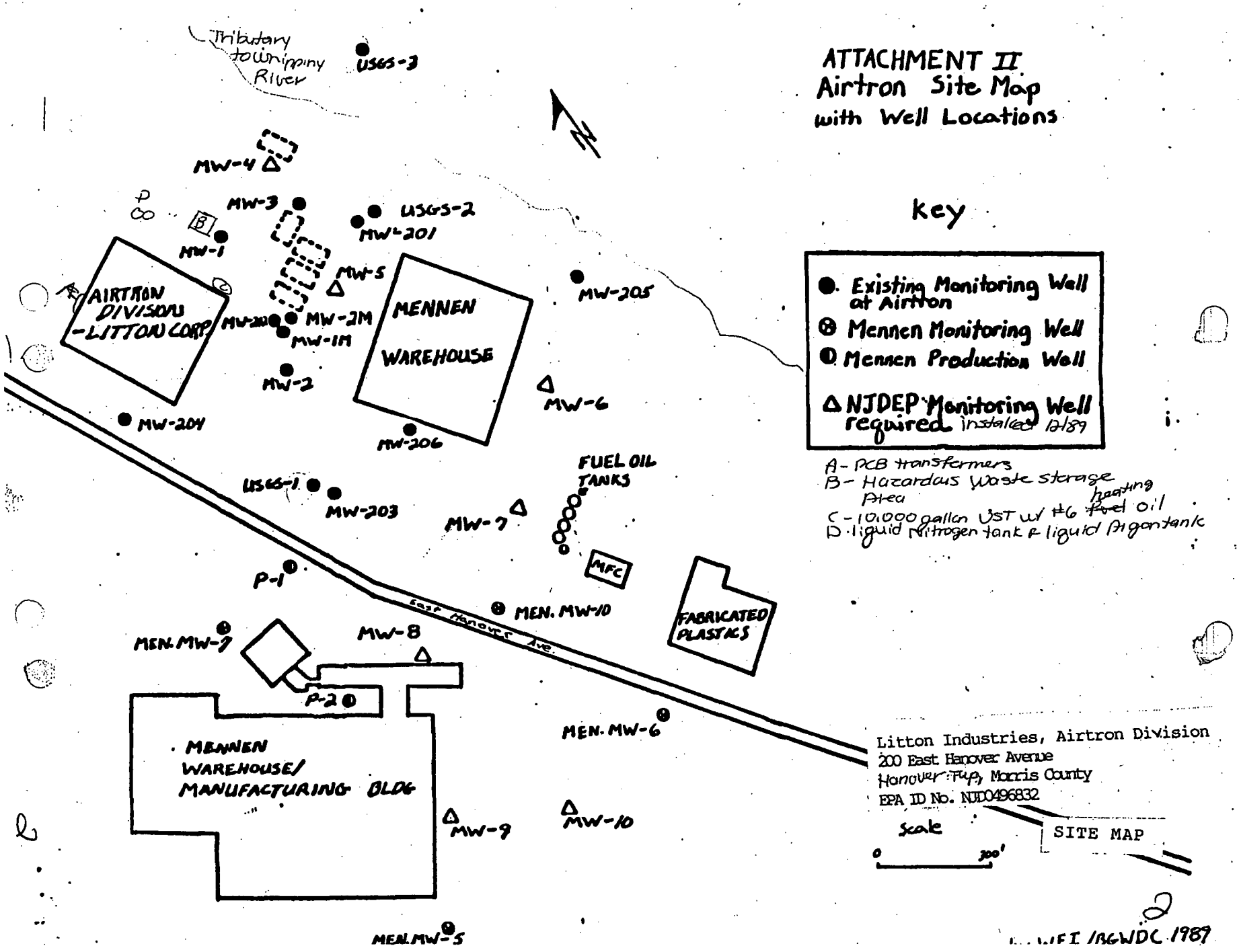
lat: 40°49'04"
long: 74°28'15"

Litton Industries, Airtron Divisi
200 East Hanover Avenue
Hanover Twp, Morris County
EPA ID No. NJD096833


ATTACHMENT II
Airtron Site Map
with Well Locations
Key
Existing Monitoring Well at Airtron
Mennen Monitoring Well
Mennen Production Well
NJDEP Monitoring Well required installed 12/89
A- PCB transformers
B- Hazardous Waste storage Area
C- 10,000 gallon UST w/ #6 heating oil
D- liquid Nitrogen tank & liquid Argon tank
Tributary to Whippany River
USGS-3
MW-4
MW-3
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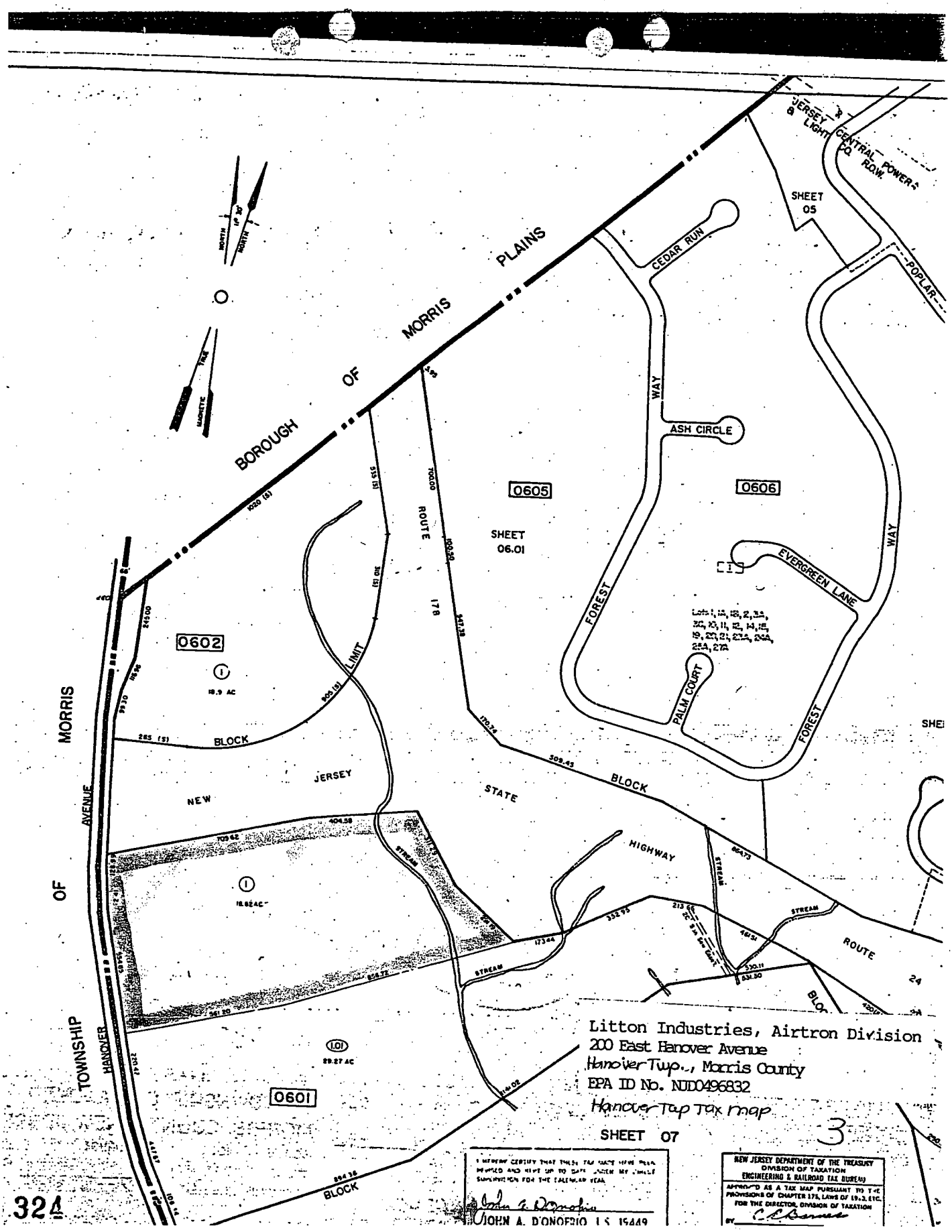
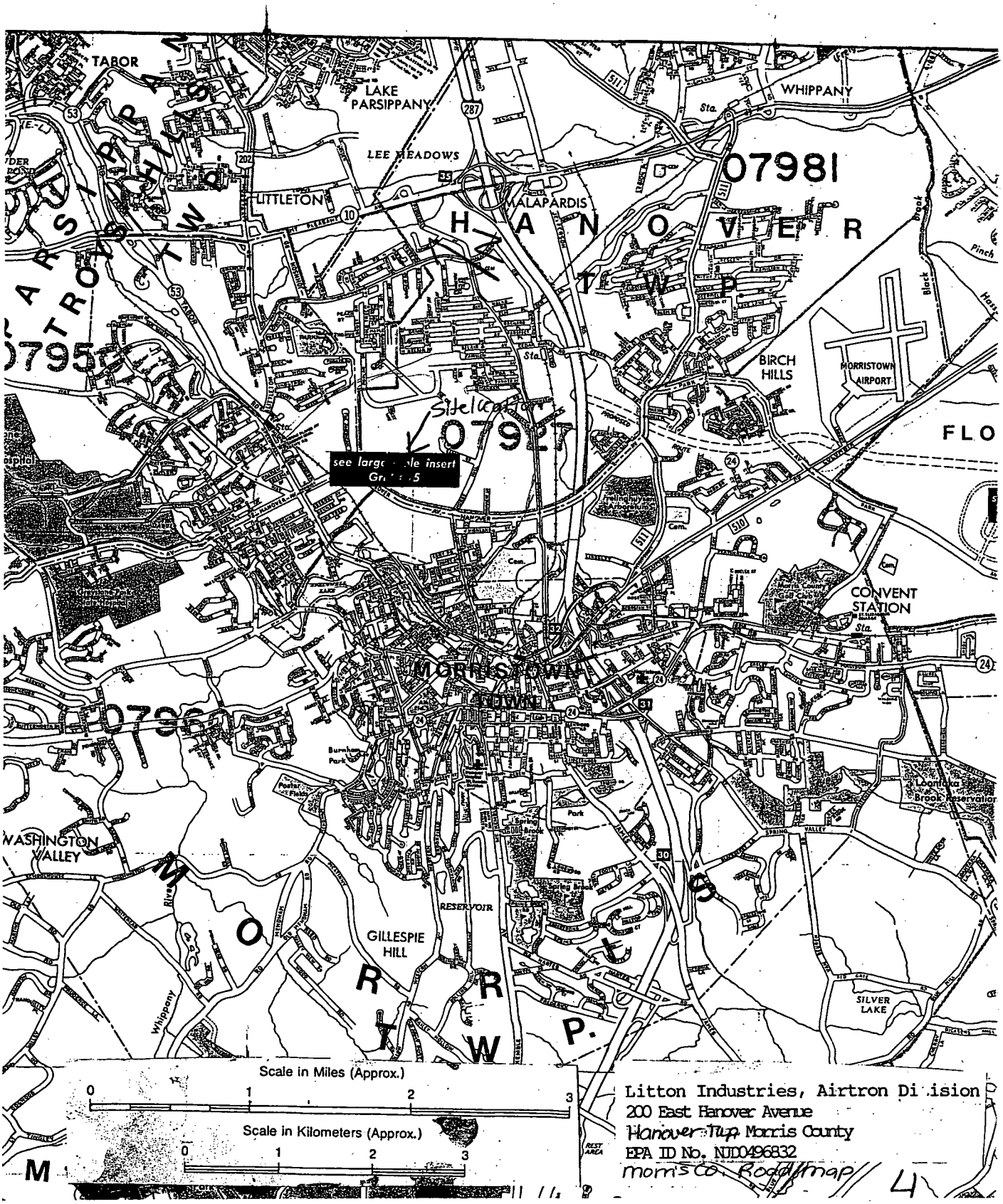
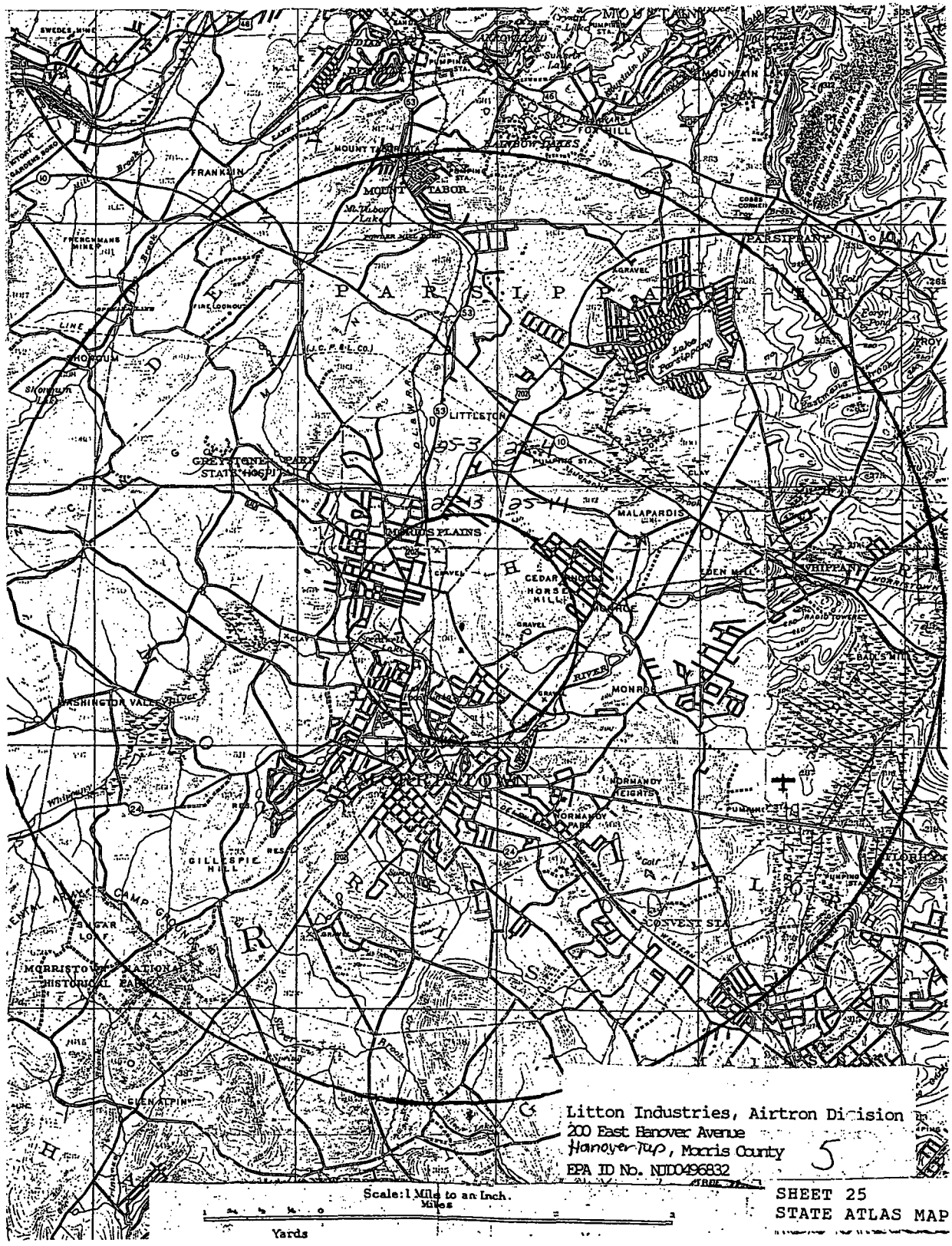
MW-201
MW-1
MW-5
AIRTRON DIVISION -LITTON CORP
MW-2M
MW-1M
MENNEN WAREHOUSE
MW-205
MW-2
MW-6
MW-204
MW-206
FUEL OIL TANKS
USGS-1
MW-203
MW-7
MFC
P-1
MEN. MW-10
FABRICATED PLASTICS
East Hanover Ave.
MEN. MW-7
MW-8
P-2
MEN. MW-6
MENNEN WAREHOUSE/ MANUFACTURING BLDG
MW-9
MW-10
MEN. MW-5
Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp, Morris County
EPA ID No. NJD0496832
Scale
0
300'
SITE MAP
WFI /BGWDC 1989


BOROUGH OF MORRIS PLAINS
TOWNSHIP OF MORRIS
HANOVER AVENUE
JERSEY CENTRAL POWER & LIGHT CO. R.O.W.
SHEET 05
CEDAR RUN
POPLAR
ASH CIRCLE
FOREST WAY
EVERGREEN LANE
PALM COURT
0605
0606
SHEET 06.01
ROUTE 178
LIMIT
0602
BLOCK
NEW JERSEY STATE HIGHWAY
STREAM
ROUTE 24
0601
SHEET 07
Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp., Morris County
EPA ID No. NJD0496832
Hanover Twp Tax map
3
NEW JERSEY DEPARTMENT OF THE TREASURY
DIVISION OF TAXATION
ENGINEERING & RAILROAD TAX BUREAU
JOHN A. D'ONOFRIO L.S. 15449
324



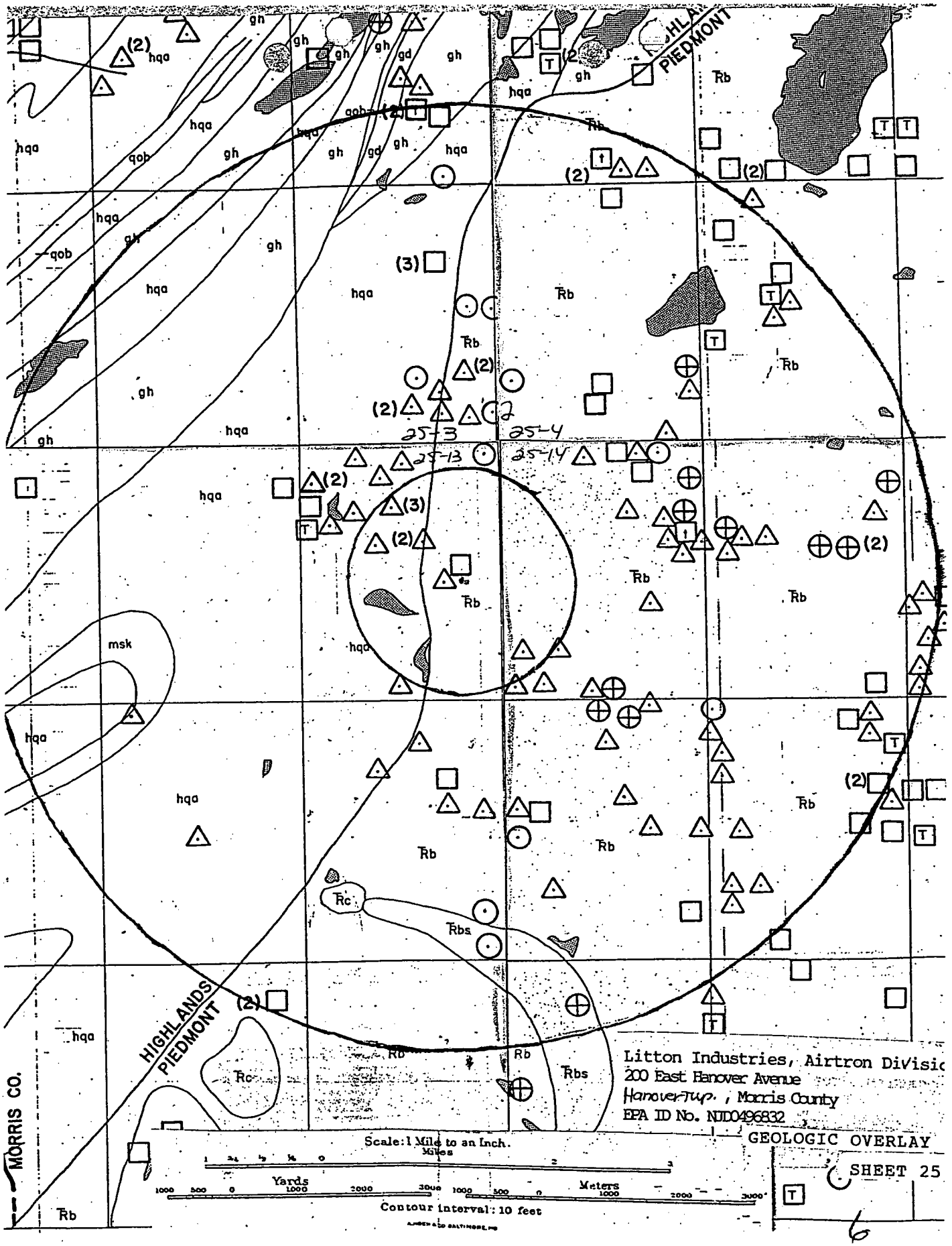
Litton Industries, Airtron Di ision
200 East Hanover Avenue
Hanover Twp Morris County
EPA ID No. NJD0496832
morris co. Roadmap 4



Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp, Morris County
EPA ID No. NJD0496832

5

SHEET 25
STATE ATLAS MAP


HIGHLANDS
PIEDMONT
MORRIS CO.
hqa
gh
gd
qob
msk
Rb
Rc
Rbs
(2)
(3)
T
25-3
25-4
25-13
25-14
Litton Industries, Airtron Divisio
200 East Hanover Avenue
Hanover Twp., Morris County
EPA ID No. NJD0496832
GEOLOGIC OVERLAY
SHEET 25
Scale: 1 Mile to an Inch.
Miles
Yards
Meters
Contour Interval: 10 feet

LEGEND FOR ATLAS SHEET 25 (GEOLOGY)

△ — INDUSTRIAL WELL YIELD OVER 70 GALLONS PER MINUTE (INCLUDING PRIVATE WELLS)

□ — PUBLIC SUPPLY WELL YIELDING OVER 70 GALLONS PER MINUTE

⊕ — UNSUCCESSFUL ROCK WELL YIELDING LESS THAN 70 GALLONS PER MINUTE

⊙ — UNSUCCESSFUL SAND WELL YIELDING LESS THAN 70 GALLONS PER MINUTE

⊡ — NO TEST – NO DATA ON YIELD

——— FAULT (DASHED WHERE INFERRED)

——— CONTACT (DASHED WHERE INFERRED)

PHYSIOGRAPHIC PROVINCE BOUNDARY

WATER SUPPLY TRANSMISSION LINE

NOTE: WHERE THE PRECAMBRIAN FORMATION BOUNDARIES TERMINATE ABRUPTLY, IT IS THE GEOLOGIST'S OPINION THAT THE GEOLOGICAL COMPLEXITY OF THE AREA PREVENTS FURTHER INTERPRETATIONS.

Kmr — CRETACEOUS MAGOTHY AND RARITAN FORMATIONS (SAND AND CLAY)

Ꞧb — TRIASSIC BRUNSWICK FORMATION

Ꞧc — TRIASSIC CONGLOMERATE BEDS OF THE STOCKTON FORMATION

Ꞧl — TRIASSIC LOCKATONG FORMATION

Ꞧdb — TRIASSIC DIABASE

Ꞧbs — TRIASSIC BASALT FLOWS

Sd — SILURIAN DECKER LIMESTONE AND LONGWOOD SHALE FORMATIONS

Sgp — SILURIAN GREEN POND CONGLOMERATE

Omb — ORDOVICIAN MARTINSBURG SHALE

Ꞓok — CAMBRO ORDOVICIAN KITTATINNY LIMESTONE

Ꞓh — CAMBRIAN HARDYSTON SANDSTONE

PRECAMBRIAN:

gh – HORNBLENDE GRANITE WITH PYROXENE GRANITE

ga – ALASKITE

am – AMPHIBOLITE

px – PYROXENE GNEISS

gnq – QUARTZ PLAGIOCLASE GNEISS

gnb – BIOTITE GNEISS

sk – SKARN, GRAPHITE SCHIST

fnd — FORMATION NOT DETERMINED

LEGEND

WATER SUPPLY

- AREA SERVED BY PRIVATE WATER SERVICE COMPANIES
- AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES
- AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES
- AREA NOT PRESENTLY SERVED BY WATER SERVICE
- PUBLIC SUPPLY WELLS
- WATER MAIN ACROSS HIGHWAY FOR FUTURE USE
- SURFACE WATER INTAKE
- —W— MAJOR WATER MAINS

SEWAGE, LANDFILL

- AREA SERVED BY PUBLIC SEWAGE SERVICE
- AREA NOT PRESENTLY SERVED BY SEWAGE SERVICE
- SANITARY LANDFILLS
- SEWAGE TREATMENT PLANTS (CAPACITY <0.3mgd)
- SEWAGE TREATMENT PLANTS (CAPACITY ≥0.3mgd)
- —S— MAJOR SEWAGE TRANSMISSION LINES

DRAINAGE BASIN

- DRAINAGE BASIN BOUNDARY
- RIVER BASIN BOUNDARY
- HUDSON DRAINAGE BASIN NAME
- STREAMS AND RIVERS
- FLOOD PRONE AREAS

POPULATION

- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY
- ( ) POPULATION DENSITY IN PERSONS PER SQUARE MILE
- [ ] AREA IN SQUARE MILES
- % PERCENT AREA OF MUNICIPALITY ON BLOCK
- MARKET ROADS
- BUILT UP AREAS
- STATE BOUNDARY

LEGEND-LAND USE

URBAN AND BUILT-UP LAND

11 RESIDENTIAL
12 COMMERCIAL & SERVICES
13 INDUSTRIAL
14 TRANSPORTATION, COMMUNICATION & UTILITIES
15 INDUSTRIAL & COMMERCIAL COMPLEXES
16 MIXED URBAN & BUILT-UP LAND
17 OTHER URBAN OR BUILT-UP LAND

AGRICULTURAL LAND

21 CROPLAND & PASTURE
22 ORCHARDS & HORTICULTURAL AREAS

FOREST LAND

41 DECIDUOUS
42 EVERGREEN
43 MIXED

WATER

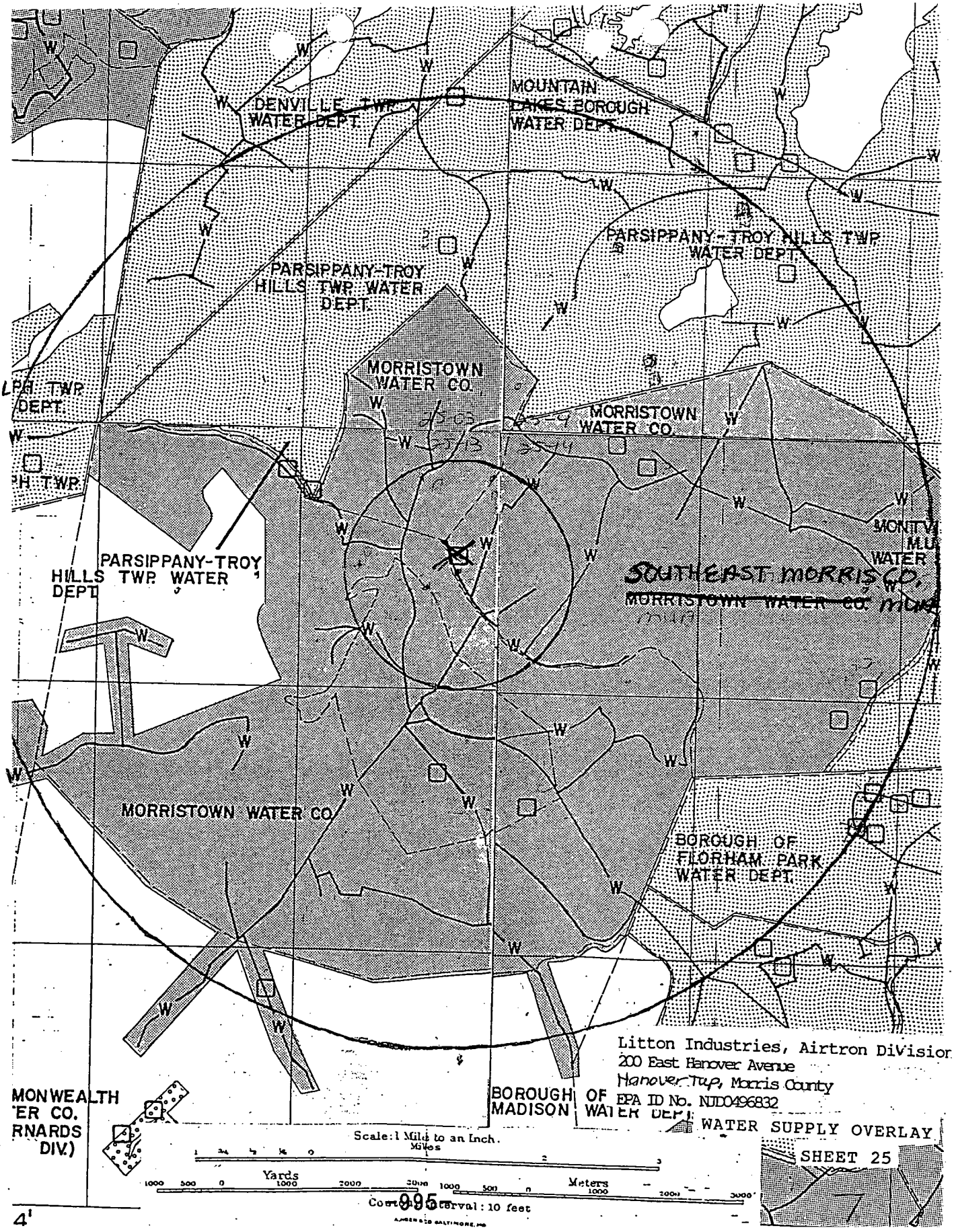
51 STREAMS & CANALS
52 LAKES
53 RESERVOIRS
54 BAYS & ESTUARIES

WETLAND

61 FORESTED WETLAND
62 NONFORESTED WETLAND

BARREN LAND

72 BEACHES
73 SAND OTHER THAN BEACHES
74 BARE EXPOSED ROCK
75 STRIP MINES, QUARRIES, & GRAVEL PITS



Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp, Morris County
EPA ID No. NJD0496832

WATER SUPPLY OVERLAY
SHEET 25

A. Boonton, Dover, Mendham, Morristown

B. Passaic-Rockaway, Whippany

C. 3.

Map No.	Location	Period of Record
256	Rockaway River at Dover (Rutgers St.)	1964

Water Quality Standards: (explained in Atlas Sheet descriptions) FW2

D. Brunswick Formation (Trb), hornblende granite with pyroxene granite (gh), quartz-plagioclase gneiss (gnq), pyroxene gneiss (px), amphibolite (am), biotite-quartz-feldspar gneiss (qnb)

E. 1. Physiographic Province: New England (Reading Prong)
Subdivision: N.J. Highlands
Major Topographic Features: Wisconsin Terminal Moraine, Rockaway River Valley, Green Pond Mountain
Elevations (ft.above sea level): ridges 1000; valleys 400
Relief (ft.): 600

2. a. Normal Year: 50"
Dry Year: 36"
Wet Year: 68"

b. January: 28°F
July: 72°F

c. 233 days. Last killing frost: 4/5; first killing frost: 10/15

3. a. Approximately 15% urban or suburban. Municipalities: Denville, Dover, Parsippany-Troy Hills, Randolph, and Rockaway
b. Dairying predominant. Poultry, corn, oats, and vegetables
c. Less than 10%. Oak predominant
d. Chemical, electrical, machinery, rubber, plastics, apparel, and paper
e. Sand and gravel. Magnetite iron ore has historically been important. Major inactive mines include: Teabo Mines (25-03-129), Mt.Hope Mine (25-03-133), Allen Mines (25-03-143), White Meadow Mines (25-03-234), Beach Glen Mine (25-03-321), Swedes Mine (25-03-438), Munson Mine (25-03-476)
f. I-80, U.S.46, U.S.202, N.J.53, N.J.10; Erie R.R.; Morris Canal (abandoned)

F. Jersey City:
Municipal Watershed
Morris County:
James Andrew Memorial Park

G. Picatinny Arsenal, U.S. Army

The redacted information consists of names and/or addresses of private individuals. Disclosure of this information would be invasive 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).

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
25-03-241	Boro of Rockaway			300	0	PG
25-03-246	White Meadows Water Co.			88	0	"
25-03-295	Boro of Rockaway	1974	78-93	93	455	Qtm
25-03-297	"	1962	63	82	517	px
25-03-325	Boonton Radio Corp.	1960	70	98	0	gng
25-03-321	"	1960	92-95	105	108	gh
25-03-324	"	1960	93'10"	125	548	"
25-03-347	Rockaway Twp.	1965		35	0	gng
25-03-347	"	1967		163'2"	548	"
25-03-347	Central Morris Ind. Park			153	300	Q
25-03-347	Boro of Rockaway			196	75	PG
25-03-357	Boro of Denville			147	1225	Q
25-03-388	Twp. of Denville	1958	20	96	500	px
25-03-417	Metal Hose & Tubing Co.	1963	11	53	300	"
23-03-445	Food Fair Stores Inc.	1957	11'10"	70	400	gh
23-03-445	Dover Shopping Center			97	144	Q
25-03-453	Town of Dover	1960	79'11"	85		gnb
25-03-455	"	1960	115'6"	130'6"	383	"
25-03-461	"	1962	120	138	1455	gh
25-03-461	"	1962	126	150	566	"
25-03-523	Boro of Rockaway			72	210	Q
25-03-525	"			140	800	"
25-03-525	"	1961	103	139	500	px
25-03-526	"	1956		51		"
25-03-529	Radio Corp. of America	1956	57	400	27	"
25-03-533	Boro of Rockaway	1955	70	81	50	"
25-03-545	Austernal Milrocast			400	27	PG
25-03-545	"			136	221	Q
25-03-547	Austenal Laboratories	1954	40	50	400	px
25-03-552	Radio Corp. of America	1956	63	543	219	"
25-03-621	Denville	1961	178	201	1018	gh
25-03-622	Denville Twp.	1975	145-165	212	235	Qsd
25-03-624	Boro of Denville			205	-	Q
25-03-631	Denville Twp.	1975	168	180	0	PG
25-03-632	"	1975	138	140	0	"
25-03-632	St.Francis Sanatorium			126	75	"
25-03-632	Ex. 6			202	0	Q-PG
25-03-632	Crane, A.D. Co.			202	0	"
25-03-638	Boro of Denville			102	-	Q
25-03-638	"			85	-	"
25-03-645	Twp. of Denville	1967	48	72		gh
25-03-652	Crane, A.D. Co.			207	20	PG
25-03-653	Ex. 6			202	90	Q
25-03-659	N.J. Power & Light	1955	56'5"	75	225	gh
25-03-659	Advance Pressure Casting Co.	1959	78	87	78	"
Δ25-03-683	Twp. of Denville	1960		97		"
Δ25-03-683	Boro of Denville			125	-	Q
Δ25-03-691	Parsippany-Troy Hills,Twp.of			36	75	"
Δ25-03-697	Internatl.Pipe & Ceramics Corp.			180	0	"

Δ 25-03-937	Parsippany-Troy Hills, Twp.of			150	195	Q-PG
Δ 25-03-937	"			195	263	"
Δ 25-03-937	"			150	402	"
Δ 25-03-965	Warner Chilcott Laboratories	1957		143		px
Δ 25-03-966	"	1957		146		"
Δ 25-03-983	"			97	0	Q
Δ 25-03-986	Maltine Co.			174	130	"
Δ 25-03-986	"			135	115	"
Δ 25-03-992	Warner Chilcott Labs			75	500	"
Δ 25-03-992	"	1957	58	102	500	px
Δ 25-03-994	Warner Lambert Pharmaceutical	1960	87'2"	107'2"	518	"
Δ 25-03-994	Maltine Co.			130	70	Q
Δ 25-03-994	Warner Chilcott Labs			70	850	"
Δ 25-03-995	"	1957	76	108	1000	px
Δ 25-03-996	Chilcott Laboratories,Inc.	1954	100	100		"
Δ 25-03-996	Warner Chilcott Labs			93	0	Q

J. Geodetic Control Survey monuments described
Index Maps 13,14,19,26

BLOCK #25-04,05 8/76

A. Boonton, Caldwell, Morristown, Pompton Plains

B. Passaic-Pompton, Rockaway, Upper Passaic, Whippany

C. 1. Boonton - Non-recording temperature and precipitation gauges

2.

Map No.	Location	Period of Record
15	Rockaway River above Reservoir at Boonton	1937-
16	Rockaway River below Reservoir at Boonton	1903-1904, 1906-

3.

257	Rockaway River at Boonton (Rt.202)	1964-
259	Whippany River at Rockaway Neck	1965-
269	Rockaway River at Parsippany-Troy Hills (Rt.46)	1968-

Water Quality Standards: (explained in Atlas Sheet description) FW2

D. Brunswick Formation (Trb), Triassic Conglomerates (Trc), Basalt Flows (Trbs), diabase (Trdb), biotite-quartz-feldspar gneiss (qnb), hornblende granite with pyroxene granite (gh), quartz-plagioclase gneiss (gng), pyroxene gneiss (px)

E. 1. Physiographic Province: New England (Reading Prong)
Subdivision: N.J. Highlands
Major Topographic Features: Passaic Range
Elevations (ft.above sea level): ridges 850, valleys 150
Relief (ft.): 700

2. a. Normal Year: 47"
Dry Year: 34"
Wet Year: 61"

b. January: 29°F
July: 72°F

c. 235 days. Last killing frost: 5/5; first killing frost: 10/5

F. Div. of Parks and Forestry:
Great Piece Meadows
Troy Meadows Natural Area
Essex County:
West Essex Park
Morris County:
Tourne Park
Boonton Reservoir:
Municipal Watershed

H. Doremus House, Towaco

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
25-04-123	Montville Twp. M.U.A.	1973	249	252	120	Qsd
25-04-133	Town of Boonton			12	0	Q
25-04-136	"			113	100	"
25-04-136	"			64	0	"
25-04-156	Town of Boonton (Well point System)	1964		55	600	Qsd
25-04-159	Town of Boonton	1958	75	100	300	"
25-04-178	Boro of Mountain Lakes			50	200	Q
25-04-178	"			58	232	"
25-04-216	Air Craft Radio Corp.	1955	65	80	150	Qsd
25-04-295	Drew, E.F. & Co.			305	190	Q
25-04-296	"			110	100	"
25-04-296	"			402	100	"
25-04-354	S.B. Penick & Co.	1970	67	252	75	PЄ
25-04-371	Drew, E.F. & Co.			313	235	"
25-04-371	"			505	25	"
25-04-374	"			416	13	"
25-04-422	Boro of Mountain Lakes			186	-	Q-PЄ
25-04-429	Hillcrest Water Co.			469	140	PЄ
25-04-429	"			422	85	"
25-04-429	Boro of Mountain Lakes			58	589	Q
25-04-429	"			60	500	"
25-04-429	"			60	500	"
25-04-445	"	1969	260	333	1200	Qsd
25-04-446	"	1966	300	345	437	"
25-04-446	"			257	-	Q
25-04-446	"			137	-	"
25-04-467	"	1964	61	207	128	PЄ
Δ 25-04-489	International Pipe & Ceramics	1963	141	160	831	Qsd
Δ 25-04-489	U.S.G.S.			80	-	Q
Δ 25-04-489	"			81	-	"
Δ 25-04-497	International Pipe & Ceramics	1963	161	200	350	Qsd
25-04-524	Norda Essential Oil & Chem.Co.			822	38	PЄ
25-04-524	"			385	220	"
25-04-574	Parsippany-Troy Hills,Twp.of			179	100	Q
25-04-578	"	1958	105	138	600	Qsd
25-04-587	"			82	500	Q
25-04-587	"			150	150	"
25-04-596	"			85	-	"
25-04-598	"	1973	60-85	96	1100	Qsd
25-04-626	Knoll Golf Club			240	90	Trb
25-04-635	Charles Ackerman (for school)	1953	43	100	70	PЄ
25-04-674	Twp.of Parsippany-Troy Hills			107	-	Q
25-04-677	"			80	1000	"
Δ 25-04-723	"			169	100	Trb
Δ 25-04-771	Lwewellen Farms Restaurant			210	0	Q
Δ 25-04-785	Parsippany-Troy Hills Water Dept.	1975	114-134	172	620	Qsd
Δ 25-04-785	"	1974	89-109	112	453	"
Δ 25-04-793	"	1964	66	75	0	Trb

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Disclosure of this information would be invasive 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).

25-04-796	U.S.G.S.	1965		89	255	Trb
25-04-798	"	1966		84	500	"
25-04-813	Leeming-Pacquin	1967	65	80	430	Qsd
25-04-815	Parsippany-Troy Hills	1966	70	100	525	"
25-04-847	U.S.G.S.			79	-	Q
25-04-851	Twp.of Parsippany-Troy Hills			92	-	"
25-04-851	"	1958	55	65	715	Qsd
25-04-854	Sunran Corp.	1957	75	95	100	"
25-04-854	"	1957	52	81	300	"
25-04-951	Twp.of Parsippany-Troy Hills	1966	36	47	835	"
25-04-952	U.S.G.S.	1966	-	213	272	"
25-04-954	Rowe Manufacturing Co.	1955	74	86	400	"
25-04-957	Twp.of Parsippany-Troy Hills	1965	55	80	530	"
25-04-976	U.S.G.S.			52	-	Q
25-04-979	"			64	-	"
25-04-991	"			109	-	"
25-05-419	Montville Mun.Utilities	1966	19	293	106	Trb
25-05-425	Ex. 6	1971	20	170	?	"
25-05-432	Forest Wood Const. Co.	1965	30	275	159	"
25-05-469	U.S.G.S.			173	-	Q
25-05-481	Montville Mun. Util.	1966	55	210	70	Trb
25-05-485	Pine Brook Water Co.	1956	15	300	190	"
25-05-487	Montville Mun. Util.	1966	34	176	87	"
25-05-725	Twp.of Parsippany-Troy Hills	1956	54	90	350	Qsd
25-05-725	"			70	900	Q
25-05-739	O'Dowd Dairies			530	77	Q-Trb
25-05-776	Twp. of East Hanover	1966	118	285	440	Trb

J. Geodetic Control Survey monuments described
Index Maps 14,20; adjacent Index Maps 13,19

BLOCK #25-13 8/76

A. Bernardsville, Chatham, Mendham, Morristown

B. Passaic-Rockaway, Upper Passaic, Whippany

C. 1. Morris Plains - Non-recording temperature and precipitation gauges

2.

Map No.	Location	Period of Record
9	Passaic River at Bernardsville	1967-
17	Whippany River at Pocahontas Dam, Morristown	3/12/36
18	Whippany River at Morristown	1921

3.

9	Passaic River at Bernardsville	1968
18	Whippany River at Morristown	

Water Quality Standards: (explained in Atlas Sheet description) FW2

D. Brunswick Formation (Trb), Triassic Conglomerates (Trc), Basalt Flows (Trbs), amphibolite (am), skarn (sk), pyroxene gneiss (px), hornblende granite with pyroxene gneiss (gh)

E. 1. Physiographic Province: New England (Reading Prong)
Subdivision: N.J. Highlands
Major Topographic Features: Passaic Range, Mendham Mountain
Elevations (ft.above sea level): ridges 1000, valleys 300
Relief (ft.): 700

Physiographic Province: Piedmont
Subdivision: Triassic Lowlands
Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain, Hook Mountain, Passaic Valley
Elevations (ft.above sea level): ridges 450, valleys 300
Relief (ft.): 150

2. a. Normal Year: 49"
Dry Year: 39"
Wet Year: 62"

b. January: 28°F
July: 72°F

c. 234 days. Last killing frost: 5/5; first killing frost: 10/15

F. Morris County:
James Andrews Memorial Park
Lewis Morris Park
Loantaka Brook Reservation
Morristown Water Department:
Municipal Watershed

G. National Park Service:
Morristown National Historical Park
U.S. Fish and Wildlife Service:
Great Swamp National Wildlife Refuge

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H. Morristown:
Morristown National Historical Park
Womens Club of Morristown
Thomas Nast House
George Vail House
Acorn Hall

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
25-13-118	Twp. of Randolph	1962	75	130	440	PЄ
25-13-134	"	1963	54	218	250	"
25-13-236	Town of Morristown	1966	51	150	192	"
25-13-313	State of N.J.,Greystone Park	1967	114	270	173	"
25-13-314	N.J. State Hospital	1966	115	224	75	"
25-13-314	State of N.J.,Greystone Park	1967	119	298	105	"
25-13-317	Town of Morristown	1968	68	147	350	"
25-13-317	City of Morristown			135	-	PЄ
25-13-318	Morris Plains State Hosp.			135	167	"
25-13-319	"			137	400	"
25-13-322	Pineview Homes, Inc.	1967	21	200	112	"
25-13-324	"	1967	21	250	85	"
25-13-328	Morris Plains State Hosp.			137	450	Q
25-13-328	"			70	118	"
25-13-328	"			163	300	"
25-13-333	Town of Morristown	1966	71	80	1	"
25-13-365	"	1966	87	234	175	"
25-13-388	Morey-LaRue Laundry			250	160	PЄ
25-13-487	Jockey Hollow Club			187	70	"
25-13-512	Ex. 6			314	100	"
25-13-555	Ex. 6			177	90	Q
25-13-626	Ex. 6			301	75	Trb
25-13-627	All Souls Hospital	1958	66	506	205	PЄ
25-13-637	Town of Morristown	1966	86	442	275	"
25-13-661	Morristown Trust Co.			300	300	Trb
25-13-663	Beneficial Properties, Inc.	1955	206	500	150	Trb
25-13-696	City of Morristown			-	0	Q
25-13-699	"			-	0	"
25-13-835	"			82	350	"
25-13-835	"			94	650	Trb
25-13-857	Lakeshore Water Co.	1930		152	125	Trbs
25-13-873	"	1952		223	100	Trbs-Trb
25-13-949	New Vernon Vol.Fire Co.	1971	48	179	80	Trb
25-13-981	Ex. 6			156	73	Trbs
25-13-985	H. Bayne (Bridge Hill Farm)			495	4	Trbs-Trb
25-13-985	"			406	4	"
25-13-992	Ex. 6			290	90	"

J. Geodetic Control Survey monuments described
Index Maps 19,20,24,25

BLOCK #25-14,15 1/77

A. Caldwell, Chatham, Morristown, Roselle

B. Arthur Kill-Rahway
Passaic-Upper Passaic, Whippany

C. 1. Canoe Brook - Non-recording precipitation, evaporation, and temperature gauges

2.

Map No.	Location	Period of Record
12	Canoe Brook near Summit	1930-1960
18	Whippany River at Morristown	1921-

3.

18	Whippany River at Morristown	-
244	Passaic River at Chatham (Rt.24)	1964-
258	Whippany River at Rockaway Neck	1965-

Water Quality Standards: (explained in Atlas Sheet description) FW2

D. Brunswick Formation (Trb), Basalt Flows (Trbs)

E. 1. Physiographic Province: Piedmont
Subdivision: Triassic Lowlands
Major Topographic Features: Wisconsin Terminal Moraine, Red Sandstone Plain, Passaic Valley
Elevations (ft.above sea level): ridges 450, valleys 180
Relief (ft.): 250

2. a. Normal Year: 49"
Dry Year: 43"
Wet Year: 61"

b. January: 29°F
July: 72°F

c. 238 days. Last killing frost: 5/5; first killing frost: 10/15

F. Division of Parks and Forestry:
Troy Meadows Natural Area
Essex County:
West Essex Park
Union County:
Passaic River Park
Morristown Water Department:
Municipal Watershed
East Orange:
Municipal Watershed
Chatham Borough:
Municipal Watershed
Commonwealth Water Co.:
Private Water Shed

G. National Park Service:
Morristown National Historical Park
U.S.Fish and Wildlife Service:
Great Swamp National Wildlife Refuge

The redacted information consists of names and/or addresses of private individuals. Disclosure of this information would be invasive 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).

I. Water Well Records

Location	Owner	Year Drilled	Screen Setting or Depth of Casing	Total Depth	g/m Yield	Formation
25-14-121	New Jersey Bell Telephone	1966	200	198	85	Trb
25-14-123	The Mennen Co.	1968	87	110	100	Q
25-14-123	Morristown, City of			136	1000	"
25-14-129	The Mennen Co.	1968	60	100	300	"
25-14-131	Town of Morristown	1955	144	144	1550	"
25-14-131	"			115	0	"
25-14-136	Whippany Paper Board Co.	1966	100	193	26	Trb
25-14-138	Allied Chemical Co.			67	204	Q
25-14-139	"			345	10	Trb
25-14-162	Whippany Paper Board Co.			97	550	"
25-14-163	"			72	560	"
25-14-163	"	1974	61-66	66	No test	Qsd
25-14-163	"	1974	43-63	63	626	"
25-14-167	Rayonier Inc.	1955	109'4"	129	320	Trb
25-14-174	[redacted] Ex. 6	1967	183'9-1/2"	500	104	"
25-14-176	U.S.Geological Survey	1967	76	148	105	Q
25-14-177	Tech-Art Plastics Co.	1961	143	163	70	"
25-14-178	T. Landi & Son	1955	39	48	90	"
25-14-188	Mepco Inc.	1966	140	140	168	"
25-14-189	[redacted] Ex. 6	1966	211	219	22	"
25-14-236	Rowe Mfg. Co.			400	15	Trb
25-14-238	Suburban Propane Gas Co.	1963	65	75	120	Q
25-14-242	McEwan Bros.			50	900	"
25-14-242	"			50	400	"
25-14-242	Whippany Paper Board Co.			50	40	Trb
25-14-243	"	1960	91	400	325	"
25-14-253	"	1964	55	500	45	"
25-14-261	"			530	50	"
25-14-261	"			985	50	"
25-14-298	City of Morristown			122	1500	Q
25-14-316	U.S.Geological Survey	1966		110		"
25-14-319	First Marketing Corp.	1965	81	120	349	"
25-14-327	Hanover Sewerage Auth.			50	110	"
25-14-347	Aquex Dev.& Sales Corp.			118	125	"
25-14-347	Route 10 Gas Station			78	150	"
25-14-348	Twp. of East Hanover			130	484	"
25-14-349	"			115	1500	"
25-14-355	Jersey Central Power & Light			600	170	Trb
25-14-355	"			40	1500	Q
25-14-362	Calculgraph Co.	1959	96'5"	106	146	"
25-14-365	Gate Haven Cemetery			303	300	Q-Trb
25-14-372	Sandoz Pharmaceutical Co.	1966	112	132	524	Q
25-14-372	U.S.Geological Survey	1966	113	122	360	"
25-14-373	Sandoz Pharmaceutical Co.			85	521	"
25-14-377	U.S.Geological Survey	1966	60'+3'	69	317	"
25-14-377	"	1966	101'5-1/2"	112	348	Trb
25-14-392	Two Guys from Harrison	1962	70	70	400	Q
25-14-422	Johnson & Johnson			602	37	Trb
25-14-423	[redacted] Ex. 6			855	45	"
25-14-425	Allied Chemical Co.			188	517	Q

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25-14-431	Morristown Memorial Hospital	1956	187'6"	504	290	Trb
25-14-441	"	1959	147'9"	507	325	"
25-14-442	Morristown Water Co.	1966	124	496	420	Trb
25-14-444	City of Morristown			-	0	"
25-14-453	Allied Chemical Corp.	1969	185/203	253	329	Q
25-14-464	Morris Co. Golf Club			306	72	"
25-14-466	"			306	72	"
25-14-473	Ex. 6			270	70	Trb
25-14-496	Parsippany-Troy Hills Twp. Water Dept.	1973	80-100	107	602	Qtm
25-14-511	City of Morristown			99	0	Q
25-14-514	Blanchard Securities Inc.	1954	114'3"	134	220	"
25-14-514	"	1954	111	133	350	"
25-14-517	Farmer's & Consumer's Dairy			118	114	"
25-14-531	City of Morristown			124	1016	"
25-14-532	Driver, Wilbur, Co.	1962	107	107	1350	"
25-14-532	U.S.Geological Survey	1966	99	108	329	"
25-14-536	"	1965	53	61	-	"
25-14-545	College of St.Elizabeth			590	90	Trb
25-14-563	Boro of Florham Park	1952	100/110	120	210	Q
25-14-563	Burden			119	222	"
25-14-563	Boro of Florham Park	1941	68/80	81	440	"
25-14-565	"	1928	47/65	100	187	"
25-14-566	"	1928	7/75	75	400	"
25-14-572	Ex. 6			487	165	Q-Trb
25-14-573	Esso Research & Eng.Co.	1967	78	88	100	Q
25-14-575	Ex. 6			300	160	Q-Trb
25-14-587	Boro of Madison	1955	124	160	1353	Q
25-14-629	Boro of Florham Park	1968	55/65	135	310	"
25-14-629	Automatic Switch Co.			272	170	Trb
25-14-639	Allied Chemical Corp.	1960	154'9"	175	310	Q
25-14-641	Boro of Florham Park	1964	67/103	103	735	"
25-14-641	"	1964	89/100	100.6	108	"
25-14-644	U.S.Geological Survey			85	-	Q-Trb
25-14-664	Boro of Florham Park	1952	82/89	128	80	Q
25-14-664	Florham Park	1968	-	78	0	Trb
25-14-666	U.S.Geological Survey	1967		55	-	Q-Trb
25-14-682	"			125	205	Q
25-14-698	City of East Orange	1958	93'4"	130	1080	Q
25-14-698	East Orange Bd.of Water Comm.	1974	85-123	130	1000	Qsd
25-14-724	City of Morristown	1959		18	0	Trbs
25-14-744	Ex. 6			516	22	Trb
25-14-814	Ex. 6			95	175	Q
25-14-817	Boro of Madison			249	No Test	"
25-14-817	"			289	"	Q-Trb
25-14-822	"	1956	124	181	1248	Q
25-14-836	"	1966	107	250	30	Trb
25-14-847	Madison Golf Club	1966	266	420	157	"
25-14-886	Ex. 6			165	0	"
25-14-887	Commonwealth Water Co.			150	-	"
25-14-932	City of East Orange	1958	81	124	1080	"
25-14-933	"			214	120	"
25-14-933	"			158	100	"
25-14-933	"			295	94	"
25-14-935	"	1958	84'9"	130	1000	"
25-14-935	"	1958	86'10"	120	1000	"
25-14-936	"			133	1000	"

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25-14-944	Boro of Madison			130	824	Trb
25-14-944	"	1967	159	178	310	"
25-14-944	"			130	622	Q
25-14-944	"			131	650	"
25-14-944	"			140	580	"
25-14-949	Boro of Chatham			162	-	"
25-14-949	Ruzicka Greenhouse			123	204	"
25-14-949	Boro of Chatham			143	1200	"
25-14-949	"	1956	94	150	1200	"
25-14-949	"			143	700	"
25-14-951	U.S.Geological Survey	1966	63	90	95	"
25-14-959	Commonwealth Water Co.			124	-	"
25-14-967	Minisink Golf Club	1955	122	210	200	Trb
25-14-983	U.S.Geological Survey	1967	142	197	201	Q
25-14-992	Commonwealth Water Co.	1955	88	119	1018	"
25-14-995	"	1955	102'6"	149	1240	"
25-14-998	"			94	-	"
25-15-115	Ex. 6	1954	63	63	75	"
25-15-144	Valley Concrete			350	100	Trb
25-15-153	Fritsche Bros.	1969	136	533	455	"
25-15-155	Hanover Greens Water Co.	1960	139'1"	270	70	"
25-15-158	Twp. of Livingston	1960	-	101	-	Q
25-15-159	"	1955		122	-	"
25-15-165	Fritsche Bros.	1968	121'6"	643	164	Trb
25-15-167	Twp. of Livingston	1955		129	-	Q
25-15-176	Valley View Golf Club	1965		300	130	Trb
25-15-183	Twp. of Livingston	1955	43	83	700	Q
25-15-187	G.V. Controls	1958	83/98	300	165	Trb
25-15-412	Twp. of Livingston	1965		63	-	Q
25-15-413	Chatham Electronics Corp.			301	365	Trb
25-15-413	Twp. of Livingston			204	175	"
25-15-416	"	1965	68	75	-	"
25-15-422	Daven Co.	1955	175	450	55	Q-Trb
25-15-422	"			190	5	"
25-15-423	"	1955	29'7"	33	100	Trb
25-15-423	"	1955	43'6"	60	212	"
25-15-425	Twp. of Livingston	1964	114/177	181	-	"
25-15-426	"	1964	161'9"/124'8"	176	-	"
25-15-433	"	1964	123	140	-	"
25-15-434	"	1965	74'8"	132	160	Q
25-15-434	"			76	300	"
25-15-437	Sandoz Pharmaceutical	1966	91'6"	101	289	"
25-15-451	Twp. of Livingston	1965	126	136	-	"
25-15-452	"	1966	63'1"	118	40	"
25-15-453	"			99	-	"
25-15-462	"			161	87	Trb
25-15-489	Leemac Construction Co.			284	125	"
25-15-726	East Orange Water Dept.			190	300	"
25-15-727	"			200	300	"
25-15-729	"			180	300	"
25-15-742	Orange Products Co.	1965	106	135	602	Q

25-15-745	Commonwealth Water Co.	1954		116	-	Q
25-15-748	"			150	328	"
25-15-765	East Orange Water Dept.			125	1400	"
25-15-766	"	1958	80'1-1/2"	128	760	"
25-15-767	"			130	0	"
25-15-768	"			130	1400	"
25-15-773	Commonwealth Water Co.			166	-	"
25-15-776	"			165	-	"
25-15-776	"			133	-	"
25-15-781	"			158	200	"
25-15-782	"	1954	115"9"	162	850	"
25-15-783	"			90	1580	"
25-15-793	"			190	-	Q-Trb
25-15-797	"			283	0	"

J. Geodetic Control Survey monuments described
Index Maps 20,25

SUBJECT TO REVISION

WATER WITHDRAWAL POINTS AND NJGS CASE INDEX SITES WITHIN 5.0 MILES OF:

LATITUDE 404847
LONGITUDE 742926

DRAFT

-1009-

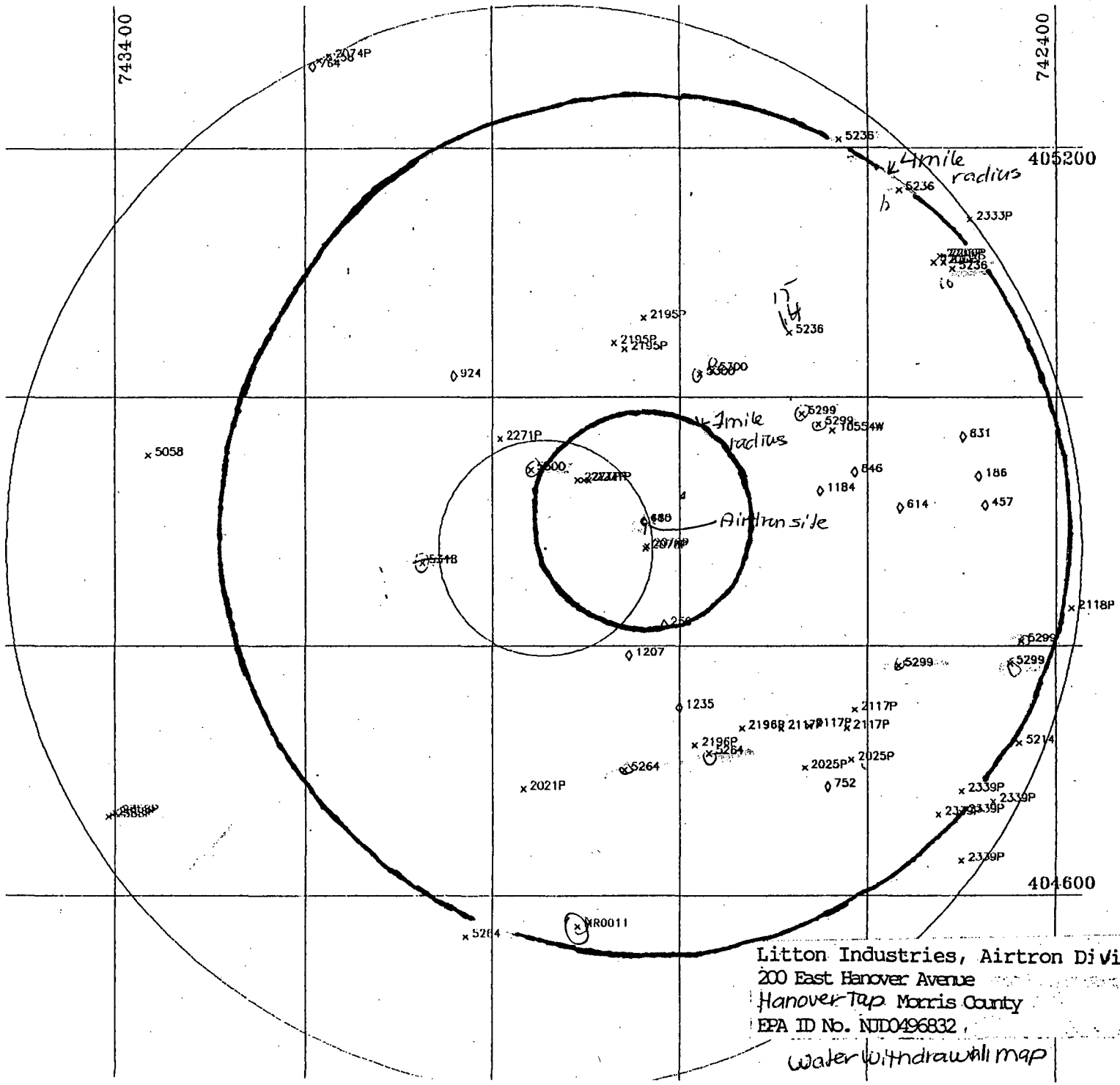
SCALE: 1:63,360
(1 Inch = 1 Mile)

× WATER WITHDRAWAL POINTS
◊ NJGS CASE INDEX SITES
MILE AND 5 MILE RADII INDICATED

NJGS CASE INDEX DATA RETRIEVED FROM:
NEW JERSEY GEOLOGICAL SURVEY
ON 12/22/87

PLOT PRODUCED BY:
NJDEP
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN-029
TRENTON, NJ 08625

DATE: 08/27/88



Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp Morris County
EPA ID No. NJD0496832
Water Withdrawal map

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
0554W	NEW JERSEY BELL TELEPHONE	2513372	1	404944	742622	F	2.9	27	12	198	GOSD		120
0021P	SPRING BROOK COUNTRY CLUB	POND	1	404651	742940	F	2.2	27	24		SP		600
0025P	MORRIS COUNTY GOLF CLUB	2510487	1	404705	742610	F	3.5	27	24	271	GOSD		150
-	MORRIS COUNTY GOLF CLUB	2516215	2	404701	742640		3.2	27	24	238	GOSD		15
0074P	HOWMET TURBINE COMPONENTS CORP	2503494	1	405245	743145		5.0	27	35	50	GOSD		400
	HOWMET TURBINE COMPONENTS CORP	2514562	2	405245	743145		5.0	27	35	125	GOSD		400
0070P	MENNEN COMPANY	2501891	1	404847	742822	F	0.9	27	22	85	GOTM		200
	MENNEN COMPANY	2513682	2	404848	742821	F	0.9	27	22	100	GOTM		200
2117P	ALLIED CORPORATION	2504286	1	404721	742637		3.0	27	22	767	GTRB		100
	ALLIED CORPORATION	2509253	2	404729	742609		3.3	27	22	172	GOSD		410
	ALLIED CORPORATION	2515313	4	404720	742655		2.8	27	22	203	GOSD		420
	ALLIED CORPORATION	2522302	10	404720	742613		3.3	27	22	195	GOSD		300
2118P	SANDUZ INC.	2513935	5	404818	742350		4.9	27	10	132	GOSD		500
2195P	WARNER LAMBERT COMPANY	2500695	3	405026	742942		2.0	27	23	102	GOSD		150
	WARNER LAMBERT COMPANY	2503447	4	405023	742935		2.0	27	23	70	GOSD		250
	WARNER LAMBERT COMPANY	2501274	6	405039	742923		2.3	27	23	102	GOSD		500
2196P	MORRISTOWN MEMORIAL HOSPITAL	2505647	1	404720	742720		2.5	27	24	504	GTRB		300
	MORRISTOWN MEMORIAL HOSPITAL	2506577	2	404712	742750		2.3	27	24	507	GTRB		300
2206P	PFIZER, INC.-CONSUMER PRODUCTS	2506488	1	405105	742512	F	4.5	27	29	95	GOSD		275
	PFIZER, INC.-CONSUMER PRODUCTS	2511876	3	405105	742519	F	4.5	27	29	85	GOSD		450
	PFIZER, INC.-CONSUMER PRODUCTS	4500256	4	405108	742514	F	4.6	27	29	85	GOSD		450
	PFIZER, INC.-CONSUMER PRODUCTS	2514192	5 RECHARGE	405109	742512	F	4.6	27	29	80	GOSD		450
2271P	GREYSTONE PARK PSYCHIATRIC HOS	4500039	WELL NO.1	404920	742905		0.7	27	23	138	GOSD		300
	GREYSTONE PARK PSYCHIATRIC HOS	4500039	WELL NO. 2	404920	742901		0.7	27	23	125	GOSD		300
	GREYSTONE PARK PSYCHIATRIC HOS	2508493	WELL NO. 3	404920	742858		0.8	27	23	139	GOSD		500
	GREYSTONE PARK PSYCHIATRIC HOS	2508827	WELL NO. 4	404920	742858		0.8	27	23	58	GOSD		100
	GREYSTONE PARK PSYCHIATRIC HOS	2514203	WELL #1-67	404940	742955		1.1	27	29	298	GTRB		150
	GREYSTONE PARK PSYCHIATRIC HOS	2514417	WELL #2-67	404940	742955		1.1	27	29	270	GTRB		200
2333P	BOONTON ELECTRONICS	2525494	5	405126	742435	F	5.0	27	29	78	GTRB		200
2339P	EXXON RESEARCH & ENGINEERING	2500067	1	404650	742500		4.5	27	11	100	GOTM		1030
	EXXON RESEARCH & ENGINEERING	2515953	3	404645	742440		4.8	27	11	120	GOTM		
	EXXON RESEARCH & ENGINEERING	2506994	1	404617	742520		4.8	27	11	100	GOTM		1030
	EXXON RESEARCH & ENGINEERING	2514658	2	404639	742515		4.4	27	11	88	GOTM		24
	EXXON RESEARCH & ENGINEERING	4500326	4	404640	742500	U	4.6	27	11		GOTM		
2358P	MENDHAM GOLF AND TENNIS CLUB	2514439	WELL #1	404639	743402		4.7	27	19	75	GOTM		50
	MENDHAM GOLF AND TENNIS CLUB	2514799	WELL #2	404638	743404		4.7	27	19	50	GOTM		140
	MENDHAM GOLF AND TENNIS CLUB	POND 1		404640	743400		4.7	27	19		G		
	MENDHAM GOLF AND TENNIS CLUB	POND 2		404640	743400		4.7	27	19		G		
5058	MORRIS COUNTY M.U.A.	2510770	MUSIKER 1	404932	743339		3.8	27		130	GPC		375
5069	MADISON BOROUGH	2504209	C	404524	742554		5.0	27	17	160	GOSD		1200
5214	FLORHAM PARK BOROUGH	4500299	2	404713	742423	S	4.8	27	11	105	GOSU		1000
	FLORHAM PARK BOROUGH	2521204	4	404713	742423	S	4.8	27	11	139	GOSU		1300
5236P	PARSIPPANY-TROY HILLS	2507620	7	405102	742506	F	4.6	27	29	66	GOSD		500
	PARSIPPANY-TROY HILLS	2511628	10	405204	742518	F	4.7	27	29	129	GOSD		500
	PARSIPPANY-TROY HILLS	2512718	12	405140	742540	F	4.7	27	29	100	GOSD		300
	PARSIPPANY-TROY HILLS	2513259	14	405031	742650	F	3.0	27	29	90	GOSD		700
	PARSIPPANY-TROY HILLS	2515809	15	405031	742650	F	3.0	27	29	87	GOSD		150
5258	DENVILLE TOWNSHIP WATER DEPT.	2519071	6	405243	743151		5.0	27	32	137	GOTM		700
5264	SOUTHEAST MORRIS COUNTY MUA	2514520	LIDGERWOOD	404700	742835		2.2	27	24	261	GTRB		410
	SOUTHEAST MORRIS COUNTY MUA	2513439	TURNBULL	404758	742741		2.4	27	24	492	GTRB		450
	SOUTHEAST MORRIS COUNTY MUA	4500350	SAND SPRG	404540	743017		3.7	27	13	94	GTRB		600
5299	SOUTHEAST MORRIS COUNTY MUA	2500049	WING	404952	742642	F	2.7	27	12	138	GOSD		2500
	SOUTHEAST MORRIS COUNTY MUA	2508357	TODD	404947	742631	F	2.8	27	12	144	GOSD		1000
	SOUTHEAST MORRIS COUNTY MUA	2514181	BLOK BRK 1	404751	742429		4.5	27	12	124	GOSD		1400
	SOUTHEAST MORRIS COUNTY MUA	2514182	BLOK BRK 2	404802	742422		4.5	27	12	122	GOSD		1400

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
	SOUTHEAST MORRIS COUNTY MUA	4500351	NORMANDY	404750	742540		3.5	27	12	80	GOSD		400
5300	SOUTHEAST MORRIS COUNTY MUA	2514034	SHONSUM.	404925	742935	F	0.7	27	22	147	GTRB		400
	SOUTHEAST MORRIS COUNTY MUA	4500316	WELL #1	405013	742739	F	2.3	27	29	60	GOSD		400
	SOUTHEAST MORRIS COUNTY MUA	4500317	WELL #2	405011	742747	F	2.2	27	12	60	GOSD		350
	~~MORRIS COUNTY MUA~~	WASHINGTON	VALLEY RES	404840	743045		1.2	27	22		SFWHI		
MR0011	ARNOLD FARMS	SILVER CREEK	STREAM 1	404545	742905	T	3.5	27	13		SFROC		

Number of Observations: 61

Page 1 of PRELIMINARY SURVEY OF WATER WITHDRAWAL POINTS WITHIN 5.0 MILES OF 404847 LAT. 742926 LON. (IN ORDER BY DECREASING LONGITUDE) - 08/27/89

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
2358P	MENDHAM GOLF AND TENNIS CLUB	2514799	WELL #2	404638	743404		4.7	27	19	50	GDTM		140
2358P	MENDHAM GOLF AND TENNIS CLUB	2514439	WELL #1	404639	743402		4.7	27	19	75	GDTM		50
2358P	MENDHAM GOLF AND TENNIS CLUB	POND 1		404640	743400		4.7	27	19		G		
2358P	MENDHAM GOLF AND TENNIS CLUB	POND 2		404640	743400		4.7	27	19		G		
5068	MORRIS COUNTY M.U.A.	2510770	MUSIKER 1	404932	743339		3.8	27		130	GPC		375
5258	DENVILLE TOWNSHIP WATER DEPT.	2519071	6	405243	743151		5.0	27	32	137	GDTM		700
2074P	HOWMET TURBINE COMPONENTS CORP	2503494	1	405245	743145		5.0	27	35	50	GDSD		400
2074P	HOWMET TURBINE COMPONENTS CORP	2514562	2	405245	743143		5.0	27	35	125	GDSD		400
5318	MORRIS COUNTY-MUA	WASHINGTON	→ VALLEY RES	404840	743045		1.2	27	22		SFWHI		
5264	SOUTHEAST MORRIS COUNTY MUA	4500370	SAND SPRG	404540	743017		3.7	27	13	94	GTRB		600
2271P	GREYSTONE PARK PSYCHIATRIC HOS	2514383	WELL #1-67	404940	742955		1.1	27	29	298	GTRB		150
2271P	GREYSTONE PARK PSYCHIATRIC HOS	2514417	WELL #2-67	404940	742955		1.1	27	29	270	GTRB		200
2021P	SPRING BROOK COUNTRY CLUB	POND	1	404651	742940	F	2.2	27	24		SP		600
5300	SOUTHEAST MORRIS COUNTY MUA	2514074	SHINGLM.	404925	742935	F	0.7	27	22	147	GTRB		400
2271P	GREYSTONE PARK PSYCHIATRIC HOS	4500439	WELL NO.1	404920	742905		0.7	27	23	138	GDSD		300
M00011	ARNOLD FARMS	SILVER CREEK	STREAM 1	404545	742905	T	3.5	27	13		SFROC		
2271P	GREYSTONE PARK PSYCHIATRIC HOS	4500439	WELL NO. 2	404920	742901		0.7	27	23	125	GDSD		300
2271P	GREYSTONE PARK PSYCHIATRIC HOS	2508493	WELL NO. 3	404920	742858		0.8	27	23	139	GDSD		500
2271P	GREYSTONE PARK PSYCHIATRIC HOS	2508827	WELL NO. 4	404920	742858		0.8	27	23	58	GDSD		100
2195P	WARNER LAMBERT COMPANY	2500695	3	405026	742842		2.0	27	23	102	GDSD		150
2195P	WARNER LAMBERT COMPANY	2503447	4	405023	742835		2.0	27	23	70	GDSD		250
5264	SOUTHEAST MORRIS COUNTY MUA	2514520	LIDGERWOOD	404700	742835		2.2	27	24	261	GTRB		410
2195P	WARNER LAMBERT COMPANY	2501274	6	405038	742823		2.3	27	23	102	GDSD		500
2078P	MENNEN COMPANY	2501691	1	404647	742822	F	0.9	27	22	85	GDTM		200
2078P	MENNEN COMPANY	2513682	2	404648	742821	F	0.9	27	22	100	GDTM		270
2196P	MORRISTOWN MEMORIAL HOSPITAL	2508577	2	404712	742750		2.3	27	24	507	GTRB		300
5300	SOUTHEAST MORRIS COUNTY MUA	4500317	WELL #2	405011	742747	F	2.2	27	12	60	GDSD		350
5264	SOUTHEAST MORRIS COUNTY MUA	2513439	TURNBULL	404708	742741		2.4	27	24	492	GTRB		450
5300	SOUTHEAST MORRIS COUNTY MUA	4500316	WELL #1	405013	742739	F	2.3	27	29	60	GDSD		400
2196P	MORRISTOWN MEMORIAL HOSPITAL	2505647	1	404720	742720		2.5	27	24	504	GTRB		300
2117P	ALLIED CORPORATION	2515313	4	404720	742655		2.8	27	22	203	GDSD		420
5236	PARSIPPANY-TROY HILLS	2513259	14	405031	742650	F	3.0	27	29	90	GDSD		700
5236	PARSIPPANY-TROY HILLS	2515609	15	405031	742650	F	3.0	27	29	87	GDSD		150
5299	SOUTHEAST MORRIS COUNTY MUA	2500048	WING	404952	742642	F	2.7	27	12	138	GDSD		2500
2025P	MORRIS COUNTY GOLF CLUB	2516215	2	404701	742640		3.2	27	24	238	GDSD		15
2117P	ALLIED CORPORATION	2504286	1	404721	742637		3.0	27	22	767	GTRB		100
5299	SOUTHEAST MORRIS COUNTY MUA	2503527	TODD	404947	742631	F	2.8	27	12	144	GDSD		1000
10054W	NEW JERSEY BELL TELEPHONE	2513372	1	404944	742622	F	2.9	27	12	198	GDSD		120
5236	PARSIPPANY-TROY HILLS	2511628	10	405204	742618	F	4.7	27	29	129	GDSD		500
2117P	ALLIED CORPORATION	2522302	10	404720	742613		3.3	27	22	195	GDSD		300
2025P	MORRIS COUNTY GOLF CLUB	2510487	1	404705	742610	F	3.5	27	24	271	GDSD		150
2117P	ALLIED CORPORATION	2509253	2	404729	742603		3.3	27	22	172	GDSD		410
5069	MADISON BOROUGH	2504209	C	404524	742554		5.0	27	17	160	GDSD		1200
5236	PARSIPPANY-TROY HILLS	2512718	12	405140	742540	F	4.7	27	29	100	GDSD		300
5299	SOUTHEAST MORRIS COUNTY MUA	4500351	NORMANDY	404750	742540		3.5	27	12	80	GDSD		400
2206P	PFIZER, INC.-CONSUMER PRODUCTS	2511876	3	405105	742518	F	4.5	27	29	85	GDSD		450
2339P	EXXON RESEARCH & ENGINEERING	2514658	2	404639	742515		4.4	27	11	88	GDTM		24
2206P	PFIZER, INC.-CONSUMER PRODUCTS	4500256	4	405109	742514	F	4.6	27	29	85	GDSD		450
2206P	PFIZER, INC.-CONSUMER PRODUCTS	2506468	1	405105	742512	F	4.5	27	29	95	GDSD		275
2206P	PFIZER, INC.-CONSUMER PRODUCTS	2514192	5 RECHARGE	405109	742512	F	4.6	27	29	60	GDSD		450
5236	PARSIPPANY-TROY HILLS	2507620	7	405102	742505	F	4.6	27	29	66	GDSD		500
2339P	EXXON RESEARCH & ENGINEERING	2502067	1	404850	742500		4.5	27	11	100	GDTM		1030
2339P	EXXON RESEARCH & ENGINEERING	2506994	1	404617	742500		4.8	27	11	100	GDTM		1030
2339P	EXXON RESEARCH & ENGINEERING	4500326	4	404640	742500	U	4.6	27	11		GDTM		
2333P	FOONTON ELECTRONICS	2525454	5	405126	742455	F	5.0	27	29	78	GTRB		200
2334P	EXXON RESEARCH & ENGINEERING	2515953	3	404645	742440		4.8	27	11	[illegible]	[illegible]		

Page 2 of PRELIMINARY SURVEY OF WATER WITHDRAWAL POINTS WITHIN 5.0 MILES OF 404847 LAT. 742926 LON. (IN ORDER BY DECREASING LONGITUDE) - 08/27/89

NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
5299	SOUTHEAST MORRIS COUNTY MUA	2514181	BLK BRK 1	404751	742419		4.5	27	12	124	GDSD		1400
5214	FLORHAM PARK BOROUGH	4500299	2	404713	742415	S	4.6	27	11	105	GDSD		1000
5214	FLORHAM PARK BOROUGH	2521204	4	404713	742415	S	4.6	27	11	139	GDSD		1000
5299	SOUTHEAST MORRIS COUNTY MUA	2514187	BLOK BRK 2	404902	742421		4.5	27	12	122	GDSD		1400
2100P	SANDOZ INC.	2513935	5	404918	742358		4.9	27	10	132	GDSD		500

Number of Observations: 61

1 MILE

1/2 MILE

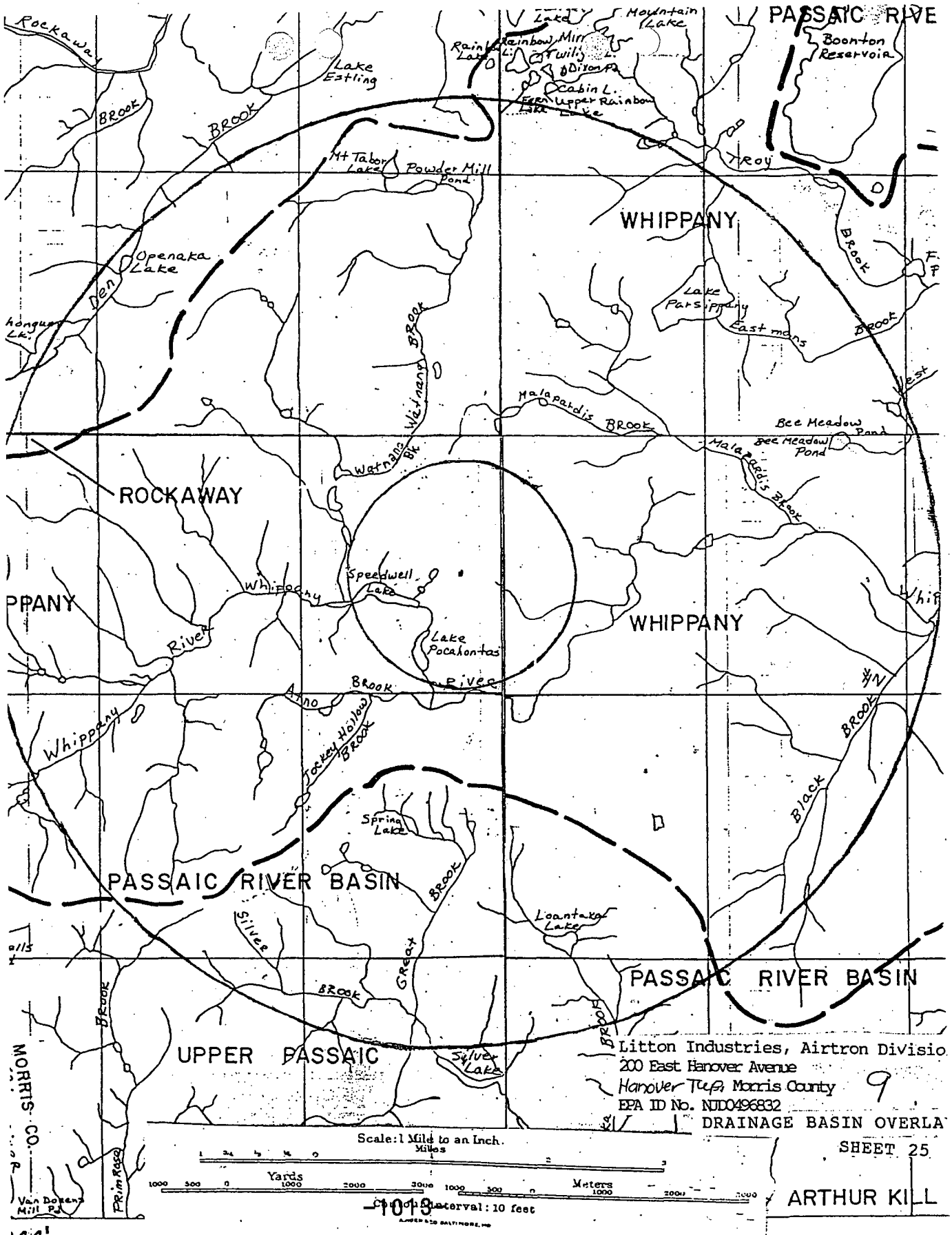
PLEISTOCENE STRATIFIED DRIFT

PLEISTOCENE TERMINAL MORAINE

ge 1 of NJGS CASE INDEX SITES WITHIN 5.0 MILES OF 404847 LAT. 742726 LON. AS OF 12/22/87 (IN ORDER BY SITE NUMBER) - 08/27/88

TENUM	NAME	LAT	LON	DISTANCE	CONTAM	FMCODE1	FMCODE2	STATUS1	STATUS2
86	MOBIL STATION, (RAY'S PETROLEUM), WHIPPANY, MORRIS CO.	404922	742449	4.1	51	100	3070	0	
59	CHAMPION INTERNATIONAL, MORRISTOWN, MORRIS CO.	404310	742310	1.3	00	144	3070	4	
15	AIRTRON LITTON, MORRIS PLAINS, MORRIS CO.	404700	742823	1.0	00	130	3070	2	I
57	BELL LABS, HANOVER TWP., MORRIS CO.	404908	742445	4.1	00	130	3070	9	
14	WHIPPANY PAPER BOARD COMPANY, HANOVER TOWNSHIP, MORRIS CO.	404967	742539	3.3	53	110	3070	9	
30	MENNEN CO., MORRIS PLAINS, MORRIS CO.	404900	742823	1.0	0	0130	0	1	
52	ST. ELIZABETH COLLEGE. CONVENT STATION, MORRIS CO.	404652	742625	3.4	70	130	144	0	
64	DENVILLE MUNICIPAL WELL CONTAMINATION, DENVILLE, MORRIS CO.	405240	743155	5.0	00	0130	0	1	I
31	ROWE INT'L, WIPPANY, MORRIS CO.	404941	742459	4.0	00	0110	3070	1	B
46	VAN DYK RESEARCH CORP., MORRIS CO.	404924	742508	3.0	0	0	0	1	B
24	NJ PSYCH. INS.-GREYSTONE, PAR-TROY, MORRIS CO.	405010	743025	1.8	0	0130	0	1	
84	OLSON PRESERVATIVE & PAINT CORP., HANOVER TWP., MORRIS CO.	404915	742630	2.6	00	0100	3070	1	B
07	WALTON TEXACO, WASHINGTON & PHOENIX ST., MORRISTOWN, MORRIS CO.	404755	742832	1.3	51			3	
35	ALLIED SAFETY, MORRIS TOWN, MORRIS CO.	404730	742760	1.9	00	0130	3070	4	G

umber of Observations: 14

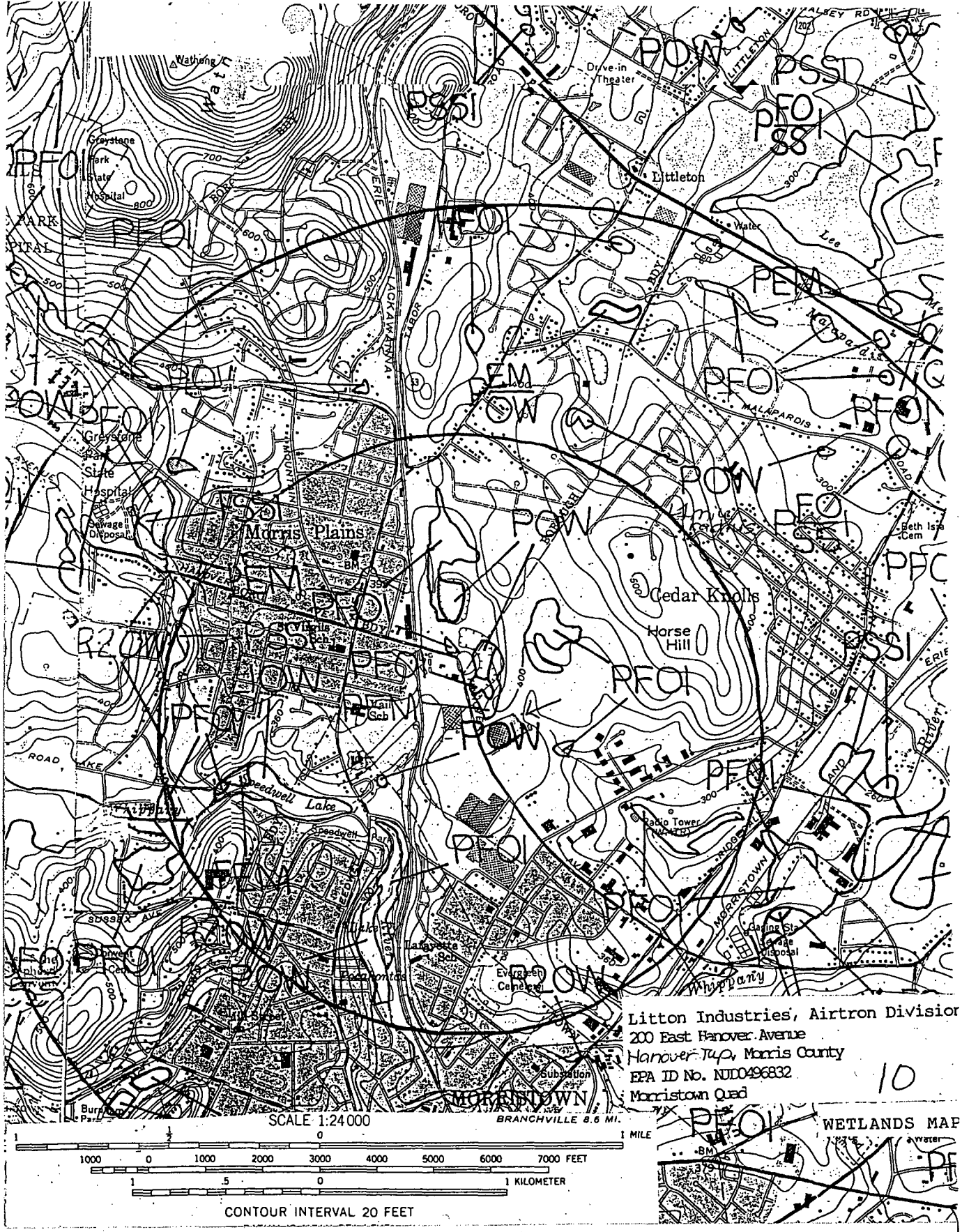


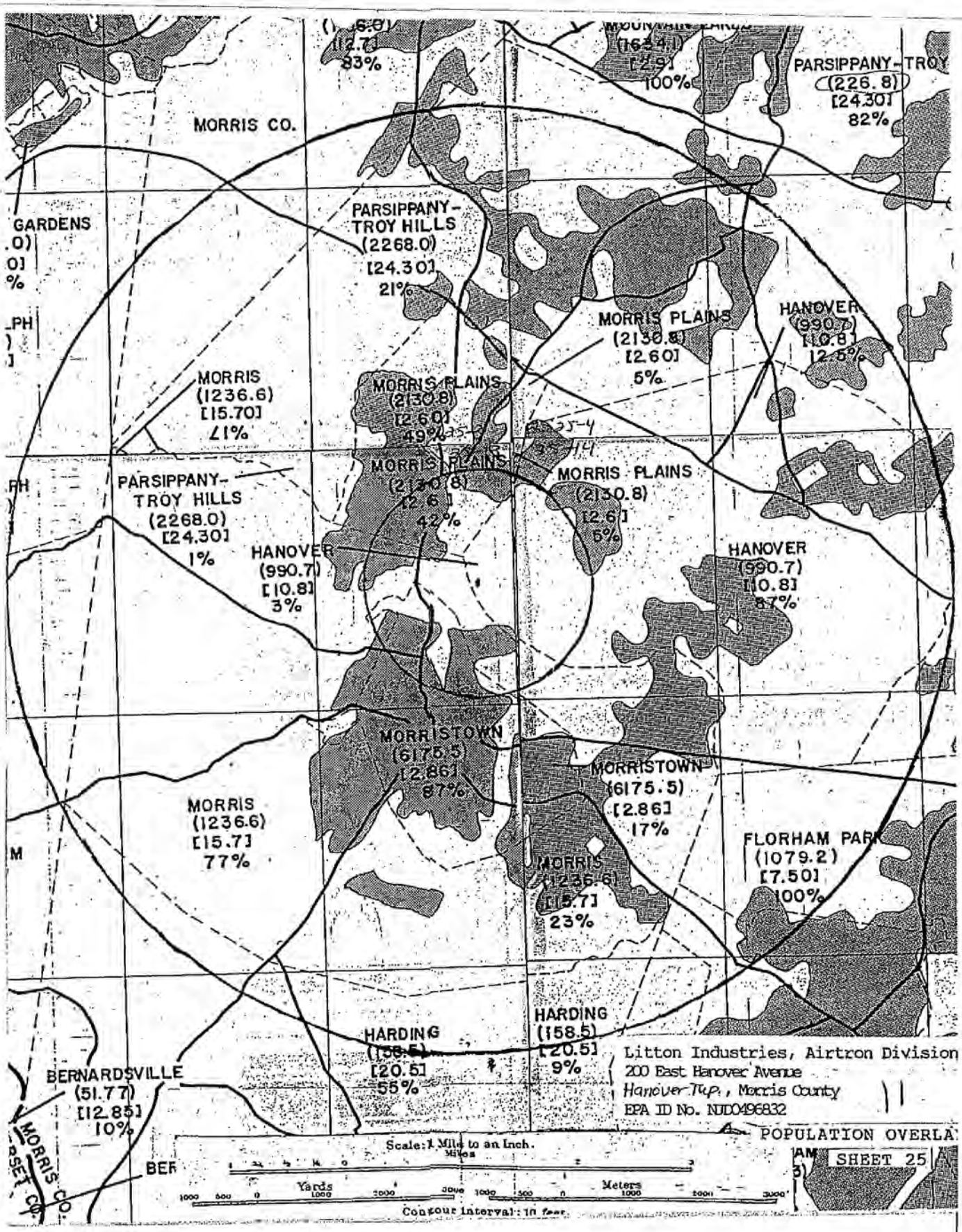
Litton Industries, Airtron Divisio
200 East Hanover Avenue
Hanover Twp, Morris County
EPA ID No. NJD0496832

9

DRAINAGE BASIN OVERLA

SHEET 25


Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp, Morris County
EPA ID No. NJD0496832
Morristown Quad
10
WETLANDS MAP
SCALE 1:24000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 20 FEET
Morris Plains
Cedar Knolls
Horse Hill
Littleton
Greystone Park State Hospital
Speedwell Lake
Radio Tower
MORRISTOWN
BRANCHVILLE 8.6 MI.
Whippany
Lee
Malapardis
Drive-in Theater
Sewage Disposal
Substation
Evergreen Cemetery
Lafayette Sch
Beth Isa Cem
Gaging Sta
Sewage Disposal
Wathong
Water
PFOI
PSSI
PEM
POW
R2OW
R1OW



Litton Industries, Airtron Division
200 East Hanover Avenue
Hanover Twp., Morris County
EPA ID No. NJD0496832

CHEMISTRY - MICROBIOLOGY
RELATED SCIENCES

1750 W. FRONT STREET, PLAINFIELD, N. J. 07063 • (201) 757-1137

April 27, 1987

Airtron
200 East Hanover Ave.
Morris Plains, NJ 07950

Packing List No. 16327

Attn: Mr. Leon Pieta

Gentlemen:

Herewith our findings for the analysis of one sample each of sludge and cake, received here April 2, 1987:

Figures generally in mg/kg	TRC Sample: 2814 Source: Sludge	2815 Filter Cake
Total Solids, %	4.83	45.1
Oil & Grease	- -	410
COD	- -	16,200
Cyanide, total	- -	<0.2 nd
Arsenic	- -	24
Cadmium	- -	110
Chromium	- -	15.1
Copper	- -	11,900
Lead	- -	48
Mercury	- -	0.040
Nickel	- -	1600
Silver	- -	4.4
Zinc	- -	1500

Note: nd = none detected

All analyses carried out using procedures currently approved by USEPA/NJDEP

See attached Forms
T-VWX-010 A & B

Very truly yours,

Mark Andersen
Lab Manager

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

WASTE MANIFESTS FROM 01/01/87 TO 10/30/89
FROM GENERATOR NJD030239412 TO SPECIFIED TSDF'S

NERATOR	TSDF	MANIFEST	DATE SHIPPED	WASTE CODE	WASTE NAME	QUANTITY gallons
Airtron Division SION/LITTON SYS ER AVE NS , NJ 2	ATLAS ASSOCIATES 109 5TH ST CLIFTON , NJ NJD065825341	NJA0360016	09/02/87	U045 D001 X726 D004	CHLOROMETHANE CHARACTERISTIC OF IGNITABILITY OIL/MT/ WRK,TURBN,DESEL,QUENCH ARSENIC	55 220 715 330
		NJA0387366	11/19/87	D004 D001 F002 X726	ARSENIC CHARACTERISTIC OF IGNITABILITY SPT HAL SOLV&STLBTM OF DEGREAS OIL/MT/ WRK,TURBN,DESEL,QUENCH	330 385 110 330
		NJA0398978	02/16/88	D004	ARSENIC	110
		NJA0398979	02/16/88	F005 F002 X726 X900	NONHL SOLV & STLBTM SPT HAL SOLV&STLBTM OF DEGREAS OIL/MT/ WRK,TURBN,DESEL,QUENCH CHEMICAL PROCESS-LIQUID,NOS	110 55 110 10
		NJA0427344	05/16/88	F005 F002	NONHL SOLV & STLBTM SPT HAL SOLV&STLBTM OF DEGREAS	275 110
	CHEMICAL MANAGEMENT INC 340 EASTERN PARKWAY FARMINGDALE , NY NYD000691949	NJA0553978	02/22/89	X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	275
		NYA5565564	03/05/87	D002	CHARACTERISTIC OF CORROSIVITY	275
		NYA7024059	05/09/89	D002 D001 D002 D004	CHARACTERISTIC OF CORROSIVITY CHARACTERISTIC OF IGNITABILITY CHARACTERISTIC OF CORROSIVITY ARSENIC	55 110 165 1000
		NYA7042932	08/09/88	F005 F002 X726 D004	NONHL SOLV & STLBTM SPT HAL SOLV&STLBTM OF DEGREAS OIL/MT/ WRK,TURBN,DESEL,QUENCH ARSENIC	330 110 220 2800
		NYA7147098	11/09/88	D004 X910	ARSENIC CHEMICAL PROCESS-SOLID,NOS	900 9500
		NYA7196472	08/17/89	D002	CHARACTERISTIC OF CORROSIVITY	110
		NYA7204266	08/18/89	D004 D001	ARSENIC CHARACTERISTIC OF IGNITABILITY	600 440

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NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

WASTE MANIFESTS FROM 01/01/87 TO 10/30/89
FROM GENERATOR NJD030239412 TO SPECIFIED TSDF'S

GENERATOR	TSDF	MANIFEST	DATE SHIPPED	WASTE CODE	WASTE NAME	QUANTI
VISION/LITTON SYS OVER AVE AINS , NJ 412	CHEMICAL MANAGEMENT INC 340 EASTERN PARKWAY FARMINGDALE , NY NYD000691949	NYA7204266	08/18/89	D002	CHARACTERISTIC OF CORROSIVITY	165
		NYA7205049	02/22/89	D004	ARSENIC	1000
				D002	CHARACTERISTIC OF CORROSIVITY	385
				D004	ARSENIC	165
				F005	NONHL SOLV & STLBTM	275
	CHEMMET SERVICES INC 18550 ALLEN RD WYANDOTTE , MI MID096963194	MI01061762	05/07/87	D004	ARSENIC	1000
				D004	ARSENIC	110
	ENVIRONMENTAL WASTE REMOVAL 130 FREIGHT STREET WATERBURY , CT CTD072138969	CTC0145392	01/09/89	X900	CHEMICAL PROCESS-LIQUID,NOS	51660
	MARISOL INC 125 FACTORY LANE MIDDLESEX , NJ NJD002454544	NJAA631150	08/17/89	F005	NONHL SOLV & STLBTM	715
		NJA0275076	02/18/87	X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	55
				D001	CHARACTERISTIC OF IGNITABILITY	275
				F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55
		NJA0316025	05/06/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55
				D001	CHARACTERISTIC OF IGNITABILITY	285
				X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	330
		NJA0525936	11/09/88	F005	NONHL SOLV & STLBTM	220
				F002	SPT HAL SOLV&STLBTM OF DEGREAS	110
				X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	55
		NJA0553966	05/09/89	X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	275
				F005	NONHL SOLV & STLBTM	275
	PRIDE SOLVENTS & CHEMICAL CO 88 LAMAR STREET WEST BABYLON , NY					

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NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

WASTE MANIFESTS FROM 01/01/87 TO 10/30/89
FROM GENERATOR NJD030239412 TO SPECIFIED TSDF'S

GENERATOR	TSDF	MANIFEST	DATE SHIPPED	WASTE CODE	WASTE NAME	QUANTI
VISION/LITTON SYS OVER AVE AINS , NJ 412	PRIDE SOLVENTS & CHEMICAL CO 88 LAMAR STREET WEST BABYLON , NY NYD057722258	NYA3046522	07/01/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	97
		NYA9171140	03/31/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	74
		NYA5136066	05/17/88	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	30
		NYA5270256	10/19/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55
		NYA6293061	02/03/88	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55
				F001	SPT HAL SOLV&SLUDG DEGREAS OPE	80
		NYA7189272	10/06/88	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	106
		NYA7190055	05/09/89	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	50
		NYA7190316	05/09/89	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	555
	RADIAC RESEARCH CORP 261 KENT AVENUE BROOKLYN , NY					

MARISOL INC
125 FACTORY LANE
MIDDLESEX , NJ
NJD002454544

NJAA631150	08/17/89	F005	NONHL SOLV & STLBTM	715 G
NJA0275076	02/18/87	X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	55 G
		D001	CHARACTERISTIC OF IGNITABILITY	275 G
		F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55 G
NJA0316025	05/06/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55 G
		D001	CHARACTERISTIC OF IGNITABILITY	285 G
		X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	330 G
NJA0525936	11/09/88	F005	NONHL SOLV & STLBTM	220 G
		F002	SPT HAL SOLV&STLBTM OF DEGREAS	110 G
		X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	55 G
NJA0553966	05/09/89	X726	OIL/MT/ WRK,TURBN,DESEL,QUENCH	275 G
		F005	NONHL SOLV & STLBTM	275 G

PRIDE SOLVENTS & CHEMICAL CO
68 LAMAR STREET
WEST BABYLON , NY

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

WASTE MANIFESTS FROM 01/01/87 TO 10/30/89
FROM GENERATOR NJD030239412 TO SPECIFIED TSDF'S

TSDF	MANIFEST	DATE SHIPPED	WASTE CODE	WASTE NAME	QUANTITY
ITTON SYS NJ — PRIDE SOLVENTS & CHEMICAL CO, 68 LAMAR STREET, WEST BABYLON , NY, NYD057722298					
	NYA3046522	07/01/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	97 G
	NYA4171140	03/31/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	74 G
	NYA5136066	05/17/88	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	30 G
	NYA5270256	10/19/87	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55 G
	NYA6293061	02/03/88	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	55 G
			F001	SPT HAL SOLV&SLUDG DEGREAS OPE	80 G
	NYA7189272	10/06/88	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	106 G
	NYA7190055	05/09/89	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	50 G
	NYA7190316	05/09/89	F001	SPT HAL SOLV&SLUDG DEGREAS OPE	555 G
RADIAC RESEARCH CORP, 261 KENT AVENUE, BROOKLYN , NY, NYD049178296					
	NYA5565537	03/05/87	D002	CHARACTERISTIC OF CORROSIVITY	500 P
			D002	CHARACTERISTIC OF CORROSIVITY	500 P
TECHNIC INC, 1 SPECTACLE STREET, CRANSTON , RI, RID001200252					
	RIB0006635	07/17/89	F007	PLAT SOLU OF ELECTRPLT OPERTN	1265 G
WRC PROCESSING COMPANY, WALNUT LANE RD 1, POTTSVILLE , PA, PAD981038227					
	PAB2363480	02/12/87	F006	WSTWTR SLUDG OF ELECTRPLT OPER	14000 P
	PAB4102560	05/03/88	F006	WSTWTR SLUDG OF ELECTRPLT OPER	24740 P
	PAB4102571	08/04/88	F006	WSTWTR SLUDG OF ELECTRPLT OPER	22386 P
	PAB4102582	11/04/88	F006	WSTWTR SLUDG OF ELECTRPLT OPER	20964 P
	PAB4102604	04/28/89	F006	WSTWTR SLUDG OF ELECTRPLT OPER	14 CY
	PAB4102615	11/13/87	F006	WSTWTR SLUDG OF ELECTRPLT OPER	18200 P

B-3

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

WASTE MANIFESTS FROM 01/01/87 TO 10/30/89
FROM GENERATOR NJD030239412 TO SPECIFIED TSDF'S

R	TSDF	MANIFEST	DATE SHIPPED	WASTE CODE	WASTE NAME	QUANTITY
ITTON SYS NJ	WRC PROCESSING COMPANY WALNUT LANE RD 1 POTTSVILLE , PA PAD981038227	PAB4102626	08/02/89	F006	WSTWTR SLUDG OF ELECTRPLT OPER	27051 P
		PAB4102630	06/17/87	F006	WSTWTR SLUDG OF ELECTRPLT OPER	22400 P
		PAB4102641	09/09/87	F006	WSTWTR SLUDG OF ELECTRPLT OPER	19600 P
		PAB4102652	02/06/88	F006	WSTWTR SLUDG OF ELECTRPLT OPER	16650 P
		PAB4102663	01/31/89	F006	WSTWTR SLUDG OF ELECTRPLT OPER	22257 P
		PAB4102674	04/15/87	F006	WSTWTR SLUDG OF ELECTRPLT OPER	22400 P

LE RECORDS READ
EMS RECORDS READ

B-4

RECEIVED

LAMBDA / AIRTRON

DIVISION OF LITTON SYSTEMS, INC.

200 EAST HANOVER AVENUE, MORRIS PLAINS, NEW JERSEY 07950 • (201) 539-5500

June 8, 1979

RECEIVED

JUN 14 1979

DEPT. ENVIRONMENTAL PROTECTION
NEWARK OFFICE

Mr. Jeffrey Hoffman
State of New Jersey
Dept. of Environmental Protection
Division of Water Resources
Trenton, New Jersey 08625

Reference: On-Site Industrial Inspection of February 13, 1979; NPDES No. NJ 0025739, Status of Sludge Beds

Gentlemen:

In reply to the above referenced inspection concerning the present status of our sludge beds, we would like to provide you with the following brief written report and information. These data apply to the last half of your letter to Airtron on April 24, 1979.

Item 1 - Topographical Site Plan

Figure 1 is a general topographical map showing the location of Airtron in relation to the surrounding areas. Figure 2 is an enlarged topographical map of Airtron which shows the buildings, four sludge beds, settling tank, discharge ditch, and associated piping.

Item 2 - Dimensions of Sludge Beds

Table I lists the dimensional data of our four sludge beds identified on the site plan of Figure 2. Water levels and sludge depths from the sampling date of May 16, 1979 (Note 1) are also tabulated. A brief description of the construction detail of each bed is given in Note 2.

Item 3 - Soil Conditions and Water Level

Two copies of test pit data taken adjacent to the Airtron Plant are enclosed. These data indicate the general soil conditions. From the enclosed elevation map (Figure 3) and test pit map (Figure 4), you may see that the Test Pits 13 and 15 are 21 feet below the plant

C-1

102

floor elevation. Thus the ground water level should be at approximately 371 feet elevation.

Item 4 - Analyses of Sludge and Liquid

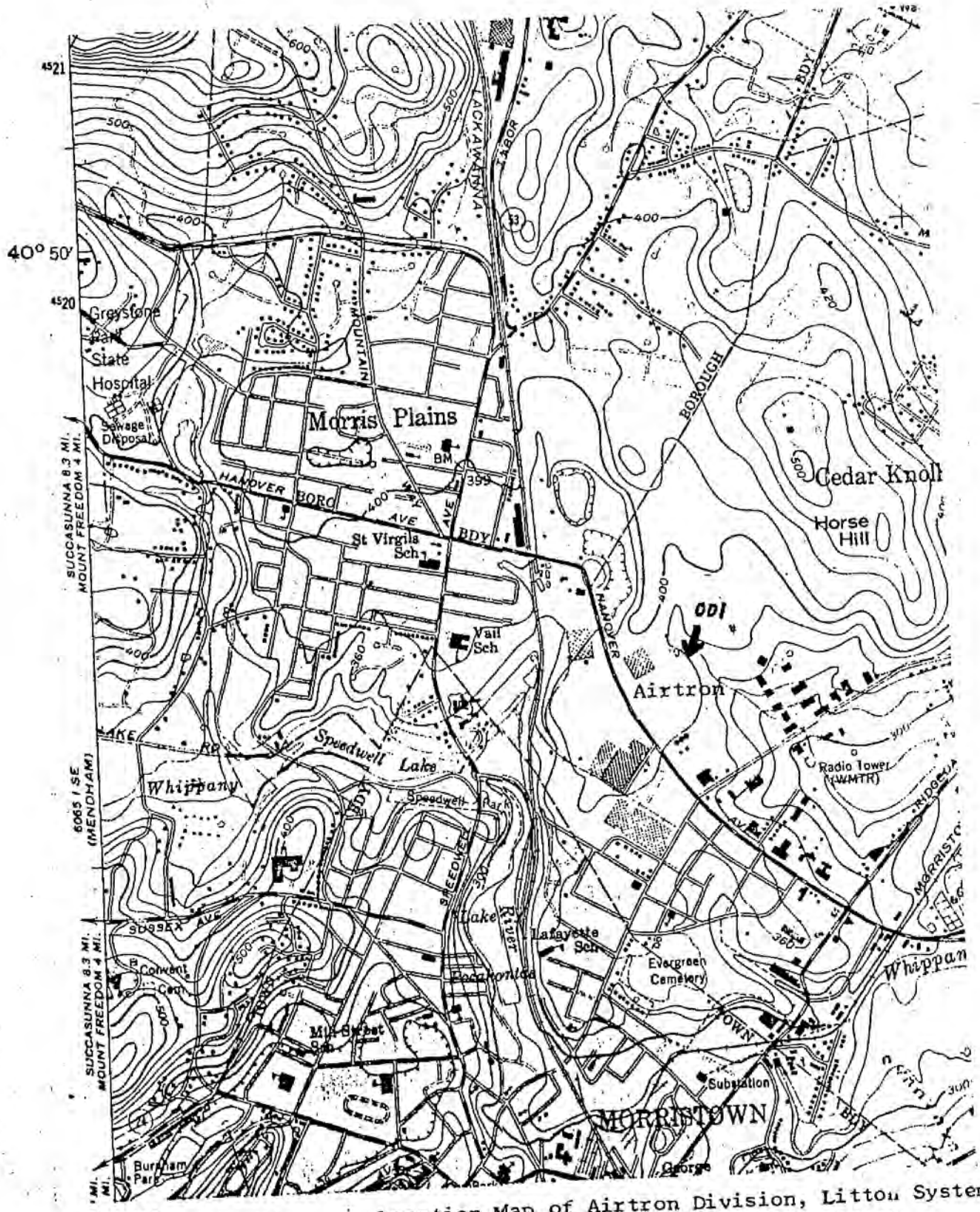
Copies of liquid sample analyses and sludge analyses on a dry weight basis are given. These results are presented in the units you specified. The samples are taken from and numbered according to the respective sludge bed on Figure 2.

We trust the above information is satisfactory for your present evaluation. If any further questions arise please contact the undersigned.

Sincerely yours,

Leon Pieta
Production Manager

dh



Location Map of Airtron Division, Litton Systems
Morris Plains, Morris County, New Jersey
June 15, 1974, Page 1 of 1
From U.S. Geological Survey, N4045-W7422.5/7.5

MN | GN
-11° / 196 Mils
0°22' / 7 Mils

Figure 1 Topographical Site Map

C-3

TABLE I

DIMENSIONS OF SLUDGE BEDS AND SLUDGE DEPTHS

	BED # 1	BED # 2	BED # 3	BED # 4
Length	63 Ft.	63 Ft.	63 Ft.	60 Ft.
Depth	66 In.	66 In.	60 In.	10 Ft.
Width	37 Ft.	37 Ft.	37 Ft.	37 Ft.
Water level from surface to top of sludge	8 In.	6 In.	(0) No sludge	(0) No sludge
Top of sludge to bottom of bed	58 In.	60 In.	(0) No sludge	(0) No sludge

Note 1, Data taken 5-16-79 on water level and sludge depths.

Note 2. Construction details - Each bed was constructed by excavation of existing earth at ground level to the depth of bed. For beds No. 1 and No. 2 a surrounding earth mound was fashioned from earth to a height of 4 feet above ground level. For beds No. 3 and No. 4 excavation was made from ground level to indicated dimensions. No surrounding earth mound was utilized.

TEST PIT LOG

JOSEPH S. WARD, INC.
CONSULTING ENGINEERS
CALDWELL, NEW JERSEY

STARTED DATE 9/6/72 TIME _____ JOB NO. C7209-5

FINISHED DATE 9/6/72 TIME _____ TEST PIT NO. 13

CLIENT LITTON INDUSTRIES SITE Morris Plains, N. J.

SURFACE ELEVATION 368± EXCAVATOR Vito Nobile & Sons, Inc.

DATUM _____ EQUIPMENT Backhoe

WATER ELEVATION 2.5' INSPECTOR J. D. Chastanet

DEPTH	DENS.	MOIST	DESCRIPTION OF SOIL	REMARKS
0			Red brown coarse to fine SAND, little Silt, little coarse to fine Gravel with Cobbles & Boulders 4.0'	
5			Gray brown coarse to fine SAND, trace Silt, little coarse to fine Gravel	
			BOTTOM OF TEST PIT @ 6.0'	
			Heavy seepage below 4.0'	
10				
15				
20				

C-5

TEST PIT LOG

JOSEPH S. WARD, INC.
CONSULTING ENGINEERS
CALDWELL, NEW JERSEY

STARTED DATE 9/6/72 TIME _____ JOB NO. C7209-5

FINISHED DATE 9/6/72 TIME _____ TEST PIT NO. 15

CLIENT LITTON INDUSTRIES SITE Morris Plains, N. J.

SURFACE ELEVATION 368± EXCAVATOR Vito Nobile & Sons, Inc.

DATUM _____ EQUIPMENT Backhoe

WATER ELEVATION 1.0' INSPECTOR J. D. Chastanet

DEPTH	DENS.	MOIST	DESCRIPTION OF SOIL	REMARKS
0			Topsoil 0.2'	
			Red brown coarse to fine SAND, little coarse to fine Gravel 1.3'	
			Gray brown coarse to fine SAND, trace Silt, little coarse to fine Gravel	
5			BOTTOM OF TEST PIT @ 5.0' Heavy seepage below 1.3'	
10				
15				
20				

ERC/LANCY
Division Dart Environment and Services Company
525 WEST NEW CASTLE STREET
ZELIENOPLE, PENNSYLVANIA 16063
(412) 452-9360 TELEX 86-6259

May 22, 1979
Samples Dated May 8, 1979
Samples Rec. May 11, 1979
Samples Anal. May 14, 1979

Airtron, Inc.
200 East Hanover Avenue
Morris Plains, New Jersey 07950
Attention: Mr. Leon Pieta

Liquid Samples from Sludge Beds (mg/liter)

	Sample 1	Sample 2	Sample 3	Sample 4
pH	9.10	7.15	8.20	8.00
CN	0.36	0.18	0.09	<0.01
Cr^{6+}	2.24	48.9	1.18	0.14
Cr^{t}	3.50	56.0	1.46	0.39
Cu	1.78	4.3	1.26	0.47
Zn	1.68	8.05	0.04	2.35
Ag	0.07	0.13	0.02	<0.01
Ni	0.26	0.31	0.24	0.04
Cd	0.02	0.05	0.03	0.01
TDS	5588.	17914.	5276.	2450.

Sludge Samples (mg/Kg in Dry Solids)

	Sample 1	Sample 2	Sample 3	Sample 4
CN	<1.0	<1.0	<1.0	<1.0
Cr	3667.	42300.	392.	275.
Cu	2347	31500.	277.	448.
Zn	1214	6322.	1177.	878
Ag	212	938.	<10	<10
Ni	318	8558.	<10	<10
Cd	91	1380	<10	20
Dry Solids	60%	1.5%	83%	32%

C-7

Litton Systems - Airtron Division
200 E. Hanover Avenue
Morris Plains, NJ

February 13, 1979

Participating Personnel:

NJ Department of Environmental Protection

Jeffrey Hoffman, Sr. Environ. Engineer
Richard Cahayla-Wynne, Environ. Specialist

Litton Systems

Louis Ghigliotty, Plater, S-IN
Leon Pieta,
Bill Dorman, Environ. Lab Supervisor
Richard Bruggeman, Maintenance Foreman

Report Prepared By:

Jeffrey Hoffman

Report Submitted To:

Robert Reed

Objectives

To determine the Permittee's status of compliance with the requirements of NPDES #0025739, effective December 31, 1976 and to serve as an in depth follow up to a routine monitoring inspection conducted on December 13, 1978.

Findings and Conclusions

Based upon the on-site industrial inspection of the plant and its records, Airtron Division, Litton Industries, is not in compliance with all of the requirements of NPDES #NJ 0025739.

The following deficiencies were noted:

1. The permittee has never sent the State of New Jersey any copies of their NPDES Discharge Monitoring Reports.

2. Insufficient information is being supplied when recording their testing results.

3. No records are kept regarding maintenance and repairs of any of the treatment system.

4. Lack of flow measuring devices.

5. Composite sampling is not conforming with the required time interval.

6. Monitoring, which is being done more frequently than required, is not being recorded in the DMR's.

In addition to the above listed NPDES deficiencies there are violations of the state of New Jersey's "Water Pollution Control Act" N.J.S.A. 58:10A-1 et seq. These violations concern the improper use of the sludge beds.

1. Sludge is not being dried or removed from the beds.

2. The contents of all of the tanks in the plating room are being discharged into the ground via the unlined sludge beds.

Sampling

The sampling was conducted on February 13, 1979. A four-hour composite and two grab samples were taken from discharge #001 as it exits from the settling pond.

Recommendations

Appropriate enforcement action should be taken on both a Federal and State level to ensure compliance with permittee's NPDES permit and N.J.S.A. 58:10A-1 *et seq*.

Airtron is involved in two separate and distinct operations at the Morris Plains location. One is the manufacture of synthetic gem crystals. The other is the manufacture and electroplating of microwave components used in the aviation and shipping industries.

The plating operation operates on an eight hour day five days per week plus overtime. The resulting discharge occurs from 7:30 a.m. to 6:00 p.m. Currently they plate 1000 pieces per day with a maximum potential plating rate of 5000 pieces per day. These rates do not have much significance since the pieces, being used as the unit of measurement, have a wide variation in size. The raw materials used in the plating operation include aluminum, brass, copper, silver, nickel, cadmium, gold, tin, chromic acid, sulfuric acid, nitric acid, and muriatic acid. Methanol, trichloroethylene and toluol are also used as solvents.

Airtron's NPDES permit application states that water intake at the facility consists of 142,000 gallons per day of untreated water from the municipal system. Of this 50,000 gallons per day is rinse water from the plating tanks (see diagram of plating room) and is discharged out the permitted discharge point #001. The sludge beds receive about 2000 gallons per day. The remaining 90,000 gallons per day goes to the municipal sanitary system. This 90,000 gallons is composed of 10,000 gallons of sanitary waste, 18,000 gallons of process water, 2,000 gallons of boiler blowdown, and 60,000 gallons of cooling water.

IA. Effluent Limitations and Monitoring Requirements

Mr. Bill Dorman, Environmental Lab Supervisor, is the person responsible for all NPDES sampling, monitoring and records maintenance. The permittee has never sent any Discharge Monitoring Report to this Department although reports are being submitted to E.P.A. Since the Department is not receiving copies of the DMR's the only monitoring violations known are incorrect frequency of pH analysis and a failure to report flow values for the daily maximum as per a March 8, 1978 EPA Deficient Monitoring Report letter.

IB. Monitoring and Reporting

Reporting--As stated above, Mr. Dorman does the sampling for the NPDES requirement. Mr. Ghigliotty, S-IN, is the person responsible for the operation of the treatment system and the sampling, monitoring and record keeping required for the NJDEP monthly monitoring report. Mr. Ghigliotty takes a daily sample at the pond and at the stream and takes a weekly sample from the sludge beds. Spot tests are run on the samples for pH, CN, Cr., and Cu. Lancy Laboratories of Zelienople, Pennsylvania does all of Airtrons NPDES testing. Mr. Dorman has a copy of all of Lancy's analysis sheets since March, 1977. Airtron did not have to start taking samples until January, 1977. However, the records do not indicate the dates that the samples were analysed, who performed the analysis, or the analytical techniques and methods used. Regarding, the flow values, none

of the calculations or measured values are recorded, only the resulting values are logged and kept. Mr. Bruggeman is the person responsible for maintenance and he stated that no records or logs are kept concerning maintenance or repair of any of the treatment units.

Flow Measurement--Airtron's permit limitations are in lbs/day units. For this reason an accurate measurement of flow is important. Airtron's permit only requires instantaneous flow measurement. Airtron has no primary or secondary flow measurement devices. To obtain flow Mr. Dorman has taken measurements which approximate the cross section dimensions for a section of the discharge stream after the pond overflow. He multiplys the cross section by the height to calculate the water volume in that section of stream. He then floats a weighted cork through midstream and computes its velocity through that section of stream using a stop watch. From the volume and velocity he computes cubic feet per second. To allow for slower velocity of water nearer the banks he records the flow on the DMR as being 2/3 of the cubic feet per second value determined above.

Sampling--Once a month Mr. Dorman collects composite samples. He does so by taking one sample every hour for eight hours such that he has collected a total of five gallons by the end of that period. This is mixed and poured into three of Lancy's sample bottles, two of which contain stablizers. Mr. Dorman takes these hourly grab samples for his composite sample, yet section I.B.3.g of Airtron's permit states that for intermittent discharges of 4-8 hours duration, grab samples shall be taken at a minimum of 30 minute intervals. Preservation techniques and sample holding times do conform with regulations.

Laboratory Procedures--Since the records do not indicate the laboratory procedures used it is not known whether procedures used are acceptable. The testing done by Mr. Ghigliotti for the state monthly report are not reported in the federal DMR. Airtron has never used spiked samples or had duplicate samples analyzed.

Permit Verification--The name and mailing address of permittee and the treatment processes are as described in the permit. The units of production rate measurement as stated in this report and the application do not lend themselves to comparison. The treatment processes are not well described in the permit application but they are as described in the application. The only modification made since the permit application is that some of the plating rinse tanks now only discharge when the pH goes above a predetermined level instead of having a constant overflow.

Other than the cooling, process, sanitary and boiler feed water which discharges to the municipal sanitary system Airtron has an industrial waste treatment facility, a surface water discharge, a ground discharge and use of a scavenger service.

The industrial waste treatment facility was constructed in 1963. The facility is designed such that the toxic waste is treated in a closed system with no discharge to the stream. There is a closed loop cyanide treatment system, a closed loop chromium treatment system, a closed loop copper/chromium treatment system, a batch treatment system for acid/alkali floor spillage and a batch treatment system for cyanide floor spillage. A floor plan of the plating room and treatment tanks is attached.

The closed loop cyanide treatment system uses sodium hydroxide to maintain a pH of 10.5-12.0 and chlorine to reduce the cyanide. The closed loop chromium treatment system is designed to completely reduce hexavalent chromium to trivalent chromium by the addition of sodium hydrosulfite and to completely remove the trivalent chromium from solution by precipition with sodium hydroxide. The closed loop copper/chromium treatment system is identical to the closed loop chromium treatment system. All three closed loop systems were designed to have their sludge going to sludge beds. The liquid contents of these systems will be discussed later in this report.

Spilled acid, alkali and chromates are neutralized on a batch basis. The pH adjustment is made using sodium bisulfate for acid waste or sodium hydrosulfite if the waste is alkali or neutral. This neutralizes the pH and reduces the chromates. Spilled cyanide wastes are treated on a batch basis by oxidation with calcium hypochlorite. This is followed by neutralization to pH 6.5-9.0. The entire contents of both batch treatment systems are pumped to the sludge beds.

Airtron's discharge to surface waters consists of the untreated discharge of all the rinse tanks in the plating room. After the rinse water leaves the the building it goes to a settling tank. The overflow from the settling tank is the 001 discharge in Airtron's NPDES permit.

The ground discharge consists of the sludge beds. As designed there are two sludge beds each having dimensions of 30x60x5 feet and a volume of 67,080 gallons. They are unlined and are supposed to receive sludge from the closed loop treatment systems and the disposal of the contents of the batch spillage treatment systems. The liquid is supposed to dissipate by evaporation and percolation and the dried sludge disposed of in an acceptable area. However, what is actually happening is that the sludge beds never dry out and no sludge has been removed in at least the last thirteen years. Both are full of sludge. Two additional sludge beds have been constructed so that the original two could dry out but this has not yet worked. In addition, every single tank within the plating room is pumped, when exhausted and needing replacement, to the appropriate batch treatment system, treated and discharged to the sludge beds.

The only wastes being removed by scavenger are the waste solvents. These are put into labled drums, stored in the chemical area in back of the building and picked up once a year by scavenger.

A7:G25

Sample #C02284

Final Effluent
Grab #1: 10:15 a.m.
Parameters: Suspended Solids/Ash, pH, Cyanide, Chromium Total, Chromium Hex., Copper, Zinc, Nickel, Silver, Cadmium, Aluminum, Temperature

Sample #C02283

Final Effluent
Grab #2: 12;35
Parameters: Same as #C02284

Sample #C02276

Final Effluent
4 Hour Composite: 9:30-1:30; 1/2 hour intervals
Parameters: Color, Odor, Turbidity, pH, Suspended Solids, Ash Cyanide, Chromium Total, Chromium Hex, Copper, Zinc Nickel, Silver, Cadmium, Aluminum, Temperature

ANALYSIS OF RESULTS

As stated previously it was not possible to determine the flow rate during the sampling period. Therefore, it is not possible to state conclusively whether the discharge was within the NPDES permit limitations. However, since the flow appeared to be much less than 35 gpm (50,000 gpd) the observed values seem to be within the permit limitations.

A7:G25

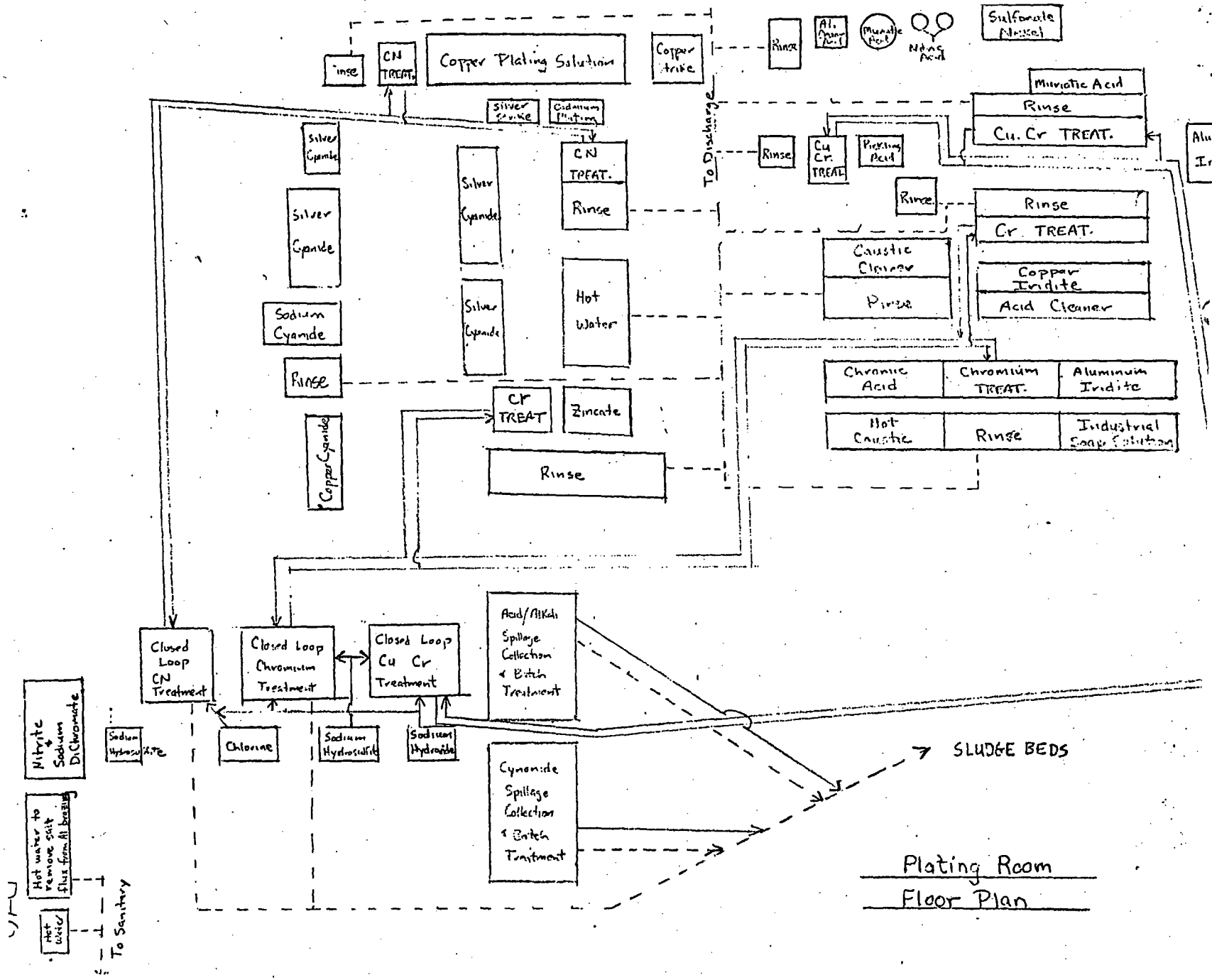
Litton Systems - Airtron Division

Morris Plains

R. Cahayla-Wynne

February 13, 1979

Sample No.	C02284	C02283	C02276
Location	Final	Final	Final
Sample Type	Grab	Grab	4-hour
Sample Time	10:15	12:35	9:30-11:30
Temperature	6°C	6°C	6°C
Color			30
Odor			ND
Turb.			5
pH	8.2	8.1	8.2
Suspended Solids	22	19	15
Ash	8	3	2
Cyanide	0.018	0.020	0.018
Chrom. Total	0.096	0.104	0.104
Chrom. Hex.	0.008	0.012	0.026
Copper	0.154	0.142	0.134
Zinc	ND	ND	ND
Nickel	0.047	0.024	0.039
Silver	ND	ND	0.021
Cadmium	0.018	0.010	0.011
Aluminum	0.248	0.228	0.228



Plating Room
Floor Plan

Sept. 75

MAR 5 9 08 AM '79
NJ DEPT ENV PROTECTION
DIV WATER RESOURCES
MS&E

Lab. No. _____

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

FIELD INFORMATION

Date of Collection 13 Feb 1979

Hour 1015 A.M. _____ P.M. _____

Sample No. C 02284

Composite Period Grab Interval –

Collected by Cahayla Wynne

Residual Chlorine:
Immediate _____
Developed _____

Municipality Morris Twp

Plant Airtron

Stream Trib → Whippany

Flow Rate _____

Location 200 E Hanover Ave

Temperature 6°C

Description and Remarks: Grab #1 Final Effluent

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____

Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations	
	Odor (cold)	/	Suspended Solids 22		Grease & Oil	/	Ni	0.047
	Turbidity (units)	/	Ash 8	/	Cyanide 0.018	/	Ag	ND
/	pH 8.2		Total Solids	/	Chromium Total 0.096	/	Cd	0.018
	Acidity to pH 4		Ash	/	Chromium Hex 0.008	/	Al	0.248
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4			
	Nitrite N		MBAS	/	Copper 0.154			
	Nitrate N		Phenols		Lead		ND = NON-DETECTABLE; I. E. BELOW DETECTABLE LIMITS RE MEMO # 4	
	Ammonia N		COD		Arsenic			
	Total Kjel. N		Iron	/	Zinc ND		FEB 28 1979	

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

PART 1 - CHEMISTRY COPY

H2069

D-11

Sept. 75

MAR J 3 ...

NJ DEPT ENV PROTECTION
DIV WATER RESOURCES
MS&E

Lab. No. _____

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

FIELD INFORMATION

Date of Collection 13 Feb 1979

Hour 1235 A.M. _____ P.M. _____

Sample No. C02283

Composite Period Grab Interval _____

Collected by Cahayla-Wynne

Residual Chlorine: Immediate –

Developed –

Municipality Morris Twp

Plant Airtron

Stream Trib → Whippany

Flow Rate –

Location 200 E Hanover Ave

Temperature 6° C

Description and Remarks: Grab #2 - Final Effluent

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____

Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations	
	Odor (cold)	/	Suspended Solids 19		Grease & Oil	/	Ni	0.024
	Turbidity (units)	/	Ash 3	/	Cyanide 0.020	/	Ag	ND
/	pH 8.1		Total Solids	/	Chromium Total 0.104	/	Cd	0.010
	Acidity to pH 4		Ash	/	Chromium Hex 0.012	/	Al	0.228
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4			
	Nitrite N		MBAS	/	Copper 0.142			
	Nitrate N		Phenols		Lead		ND = NON-DETECTABLE; I. E. BELOW DETECTABLE LIMITS RE MIMO # 4	
	Ammonia N		COD		Arsenic			
	Total Kjel. N		Iron	/	Zinc ND		FEB 28 1979	

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

PART 1 - CHEMISTRY COPY

H2069

D-12

Chem-25
Sept. 75

MAR 5 9 08 '79

NJ DEPT ENV PROTECTION
DIV WATER RESOURCES
MS&E

FIELD INFORMATION

Lab. No. _____

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Date of Collection 13 Feb 1979
Hour 0930 - 1330 A.M. _____ P.M. _____
Composite Period 4 hr. Interval 1/2 hr.
Collected by Cahayla - Wynne
Residual Chlorine:
Immediate -
Developed -
Flow Rate -
Temperature 6°C

Sample No. C 02276

Municipality Morris Twp
Plant Aistron
Stream Trib. to Whippany
Location 2010 E. Hanover Ave
Description and Remarks: 4 hr. composite - Final Effluent

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____
Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

/	Color (units)	30		Chloride			Sulfate		Other Determinations
/	Odor (cold)	ND	/	Suspended Solids	15		Grease & Oil	/	Ni 0.039
/	Turbidity (units)	5	/	Ash	2	/	Cyanide 0.018	/	Ag 0.021
/	pH	8.2		Total Solids		/	Chromium Total 0.104	/	Cd 0.011
	Acidity to pH 4			Ash		/	Chromium Hex 0.026	/	Al 0.228
	Alkalinity to pH 4			Total PO_4			Ortho - PO_4		
	Nitrite N			MBAS		/	Copper 0.134		
	Nitrate N			Phenols			Lead		
	Ammonia N			COD			Arsenic		ND = NON-DETECTABLE; I. E. BELOW DETECTABLE LIMITS RE MEMO # 4
	Total Kjel. N			Iron		/	Zinc ND		

FEB 28 1979

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

PART 1 - CHEMISTRY COPY

H2069

D 13

JKISP

RCRA GENERATOR INSPECTION FORM

COMPANY NAME: Bictron Division Litton System

EPA I.D. NUMBER: NJ0030239412

COMPANY ADDRESS: 200 E Hanover St.

COMPANY CONTACT OR OFFICIAL: John Nicola

INSPECTOR'S NAME: Bob Dante

TITLE: Plant Engineer

BRANCH/ORGANIZATION: NJDEP

CHECK IF FACILITY IS ALSO A TSD FACILITY /✓/

DATE OF INSPECTION: 1/11/82

	YES	NO	DON'T KNOW
(1) Is there reason to believe that the facility has hazardous waste on site?	✓		

a. If yes, what leads you to believe it is hazardous waste? Check appropriate box:

/✓/ Company admits that its waste is hazardous during the inspection.

/✓/ Company admitted the waste is hazardous in its RCRA notification and/or Part A Permit Application.

/✓/ The waste material is listed in the regulations as a hazardous waste from a nonspecific source (§261.31)

/ / The waste material is listed in the regulations as a hazardous waste from a specific source (§261.32)

/✓/ The material or product is listed in the regulations as a discarded commercial chemical product (§261.33)

/✓/ EPA testing has shown characteristics of ignitability, corrosivity, reactivity or extraction procedure toxicity, or has revealed hazardous constituents (please attach analysis report)

/ / Company is unsure but there is reason to believe that waste materials are hazardous. (Explain)

E-1

	YES	NO	DON'T KNOW
b. Is there reason to believe that there are hazardous wastes on-site which the company claims are merely products or raw materials?		✓	

Please explain:

c. Identify the hazardous wastes that are on-site, and estimate approximate quantities of each.
approx 34, 55 gallon drums of waste solvents
8, waste oil drums 55 gallon
waste plating sludge – 20, 55 gallon drums

d. Describe the activities that result in the generation of hazardous waste. oil used in the cutting of metal. solvents used for washing parts they make micro wave components and grow crystals and decreasing and pain thinning waste plating sludge from waste water treatment plant contains metals.

(2) Is hazardous waste stored on site?	✓		
a. What is the longest period that it has been accumulated?			
b. Is the date when drums were placed in storage marked on each drum?		✓	
(3) Has hazardous waste been shipped from this facility since November 19, 1980?	✓		

a. If "yes," approximately how many shipments were made?
2

(4) Approximately how many hazardous waste shipments off site have been made since November 19, 1980? 2

a. Does it appear from the available information that there is a manifest copy available for each hazardous waste shipment that has been made?	✓		

b. If "no" or "don't know," please elaborate.

E-2

7817

	YES	NO	DON'T KNOW
c. Does each manifest (or a representative sample) have the following information?			
- a manifest document number	✓		
- the generator's name, mailing address, telephone number, and EPA identification number	✓		
- the name, and EPA identification number of each transporter	✓		
- the name, address and EPA identification number of the designated facility and an alternate facility, if any: The facilit was Barone which is under state inuestigation	✓		
- a description of the wastes (DOT)	✓		
- the total quantity of each hazardous waste by units of weight or volume, and the type and number of containers as loaded into or onto the transport vehicle	✓		
- a certification that the materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation under regulations of the Department of Transportation and the EPA	✓		
(5) Were there any hazardous wastes stored on site at the time of the inspection?	✓		
a. If "yes," do they appear properly packaged (if in containers) or, if in tanks, are the tanks secure? 1 drum expanded waste, 1 drum of waste plating sludge very badly rusted.		✓ A	
b. If not properly packaged or in secure tanks, please explain.			
c. Are containers clearly marked and labelled?	✓		
d. Do any containers appear to be leaking?		✓	
e. If "yes," approximately how many?			

E-3

*(6) Has the generator submitted an annual report to EPA covering the previous calendar year? N/A ___ ___

a. How do you know?

(7) Has the generator received signed copies (from the TSD facility) of all manifests for wastes shipped off site more than 35 days ago? ___ ___ ✓

a. If "no," have Exception Reports been submitted to EPA covering these shipments? Company official did not know if he received the signed reciet ___ ___ ___

(8) General comments.

* The effective date for this requirement is March 1, 1981.

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RCRA INSPECTION REVIEW SHEET

Name of Facility - Airtron Division Litton System
RCRA ID= - NJD030239412
Date of Inspection - 1/11/82
Type of Inspection: Generator Transporter TSD
Name of EPA/State Inspector - Bob Dante / NJDEP

Findings of Inspection: The waste storage area, drums were badly rusted and not segregated one drum was expanded because of the cold. The facility had the following paper and Env. violations 265.171 bad drums 265.110 all cl 265.142 cl 265.16 all ft 265.15 all 265.13 all analysis 265.15 insp all and 265.35 ailesp

Action(s) Taken: NONE

Action(s) Recommended: N.O.V. For above violations

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RCRA TRANSPORTER, STORAGE AND DISPOSAL FACILITY INSPECTION FORM
FOR NON-FACILITIES ONLY

COMPANY NAME: Airkon Division Litton System EPA I.D. NUMBER: NJD002039412

COMPANY ADDRESS: 300 E Hanover st.

COMPANY CONTACT OR OFFICIAL: John ~~[illegible]~~ Nicola

TITLE: Plant Engineer

OTHER ENVIRONMENTAL PERMITS HELD BY FACILITY: [✓] NPDES [ ] AIR [ ] OTHER

INSPECTOR'S NAME: Bob Dante DATE OF INSPECTION: 7/11/82

BRANCH/ORGANIZATION: NJDEP TIME OF DAY INSPECTION TOOK PLACE: 12:30 pm

(1) Is there reason to believe that the facility has hazardous waste on site?

a. If yes, what leads you to believe it is hazardous waste? Check appropriate box:

[✓] Company admits that its waste is hazardous during the inspection.

[✓] Company admitted the waste is hazardous in its RCRA notification and/or Part A Permit Application.

[✓] The waste material is listed in the regulations as a hazardous waste from a nonspecific source (§261.31)

[ ] The waste material is listed in the regulations as a hazardous waste from a specific source (§261.32)

[✓] The material or product is listed in the regulations as a discarded commercial chemical product (§261.33)

[✓] EPA testing has shown characteristics of ignitability, corrosivity, reactivity or extraction procedure toxicity, or has revealed hazardous constituents (please attach analysis report)

[ ] Company is unsure but there is reason to believe that waste materials are hazardous. (Explain)

	YES	NO	DON'T KNOW
b. Is there reason to believe that there are hazardous wastes on-site which the company claims are merely products or raw materials?	—	✓	—

Please explain:

c. Identify the hazardous wastes that are on-site, and estimate approximate quantities of each.
waste solvents — 34, 55 gallon drums
waste oil — 8 55 gallon drums
waste plating sludge — 20, 55 gallon drums

(2) Does the facility generate hazardous waste?	—	✓	—
(3) Does the facility transport hazardous waste?	—	✓	—
(4) Does the facility treat, store or dispose of hazardous waste?	✓	—	—

E-7

VISUAL OBSERVATIONS

	YES	NO	DON'T KNOW
(5) SITE SECURITY (§265.14)			
a. Is there a 24-hour surveillance system?	✓		
b. Is there a suitable barrier which completely surrounds the active portion of the facility? yes/Fence			
c. Are there "Danger-Unauthorized Personnel Keep Out" signs posted at each entrance to the facility?	✓		
(6) Are there ignitable, reactive or incompatible wastes on site? (§265.17)	✓		
a. If "YES", what are the approximate quantities? 34, 55 gallon drums			
b. If "YES", have precautions been taken to prevent accidential ignition or reaction of ignitable or reactive waste?	✓		
c. If "YES", explain stored in sealed container one drum expanded			
d. In your opinion, are proper precautions taken so that these wastes do not:			
- generate extreme heat or pressure, fire or explosion, or violent reaction?	✓		
- produce uncontrolled toxic mists, fumes, dusts, or gases in sufficent quantities to threaten human health?	✓		
- produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions?	✓		
- damage the structural integrity of the device or facility containing the waste?	✓		
- threaten human health or the environment?	✓		

Please explain your answers, and comment if necessary.

e. Are there any additional precautions which you would recommend to improve hazardous waste handling procedures at the facility? Yes / store drums on wooden pallets not only on concrete pad

(7) Does the facility comply with preparedness and prevention requirements including maintaining: (§265.32)

E-8

	YES	NO	OPINION
- an internal communications or alarm system?	✓		
- a telephone or other device to summon emergency assistance from local authorities?	✓		
- portable fire equipment?	✓		
- adequate aisle space?		✓	
- In your opinion, do the types of wastes on site require all of the above procedures, or are some not needed? Explain. Drums should be better segregated	✓		

In your opinion, do the types of wastes on site require all of the above procedures, or are some not needed? Explain. see above

*(8) Have you inspected to verify that the groundwater monitoring wells (if any) mentioned in the facility's groundwater monitoring plan (see no. 19 below) are properly installed?		✓	NA
If you have, please comment, as appropriate.			
(9) a. Is there any reason to believe that groundwater contamination already exists from this facility? If "YES", explain.			✓
b. Do you believe that operation of this facility may affect groundwater quality?	✓		
c. If "YES", explain. They have had sludge lagoons which have since been removed			

RECORDS INSPECTION

(10) Has the facility received hazardous waste from an off-site source since Nov. 19, 1980 (effective date of the regulations)?	NA		
a. If "YES", does it appear that the facility has a copy of a manifest for each hazardous waste load received?			
b. How many post-November 19 manifests does it have? (If the number is large, you may estimate)			
2 shipments of waste generated			
c. Does each manifest (or a representative sample) have the following information?			
- a manifest document number	✓		

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* This requirement applies only after November 19, 1980

	YES	NO	DON'T KNOW
- the generator's name, mailing address, telephone number, and EPA identification number	✓	—	—
- the name, and EPA identification number of each transporter	✓	—	—
- the name, address and EPA identification number of the designated facility and an alternate facility, if any;	✓	—	—
- a DOT description of the wastes	✓	—	—
- the total quantity of each hazardous waste by units of weight or volume, and the type and number of containers as loaded into or onto the transport vehicle	✓	—	—
- a certification that the materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation under regulations of the Department of Transportation and the EPA	✓	—	—
d. Are there any indications that unmanifested hazardous wastes have been received since November 19, 1980? If YES, explain.	—	✓	—
(11) Does the facility have a written waste analysis plan specifying test methods, sampling methods and sampling frequency? (§265.13)	—	✓	—
a. Does the character of wastes handled at the facility change from day to day, week to week, etc., thus requiring frequent testing? (You may check more than one) Waste characteristics vary ____ All wastes are basically the same ✓ Company treats all waste as hazardous ____ Don't Know ____			
b. Does hazardous waste come to this facility from off-site sources?	—	✓	—
c. If waste comes from an off-site source, are there procedures in the plan to insure that wastes received conform to the accompanying manifest?	NA	—	—
(12) INSPECTIONS (§265.15)			
a. Does the facility have a written inspection schedule?	—	✓	—
b. Does the schedule identify the types of problems to be looked for and the frequency for inspections?	—	—	—
c. Does the owner/operator record inspections in a log?	—	—	—
d. Is there evidence that problems reported in the inspection log have not been remedied? If "YES," please explain.	—	—	—

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	YES	NO	DON'T KNOW

(13) PERSONNEL TRAINING (§265.16)

a. Is there written documentation of the following:

- job title for each position at the facility relative to hazardous waste management and the name of the employee filling each job? ___ ✓ ___
- type and amount of training to be given to personnel in jobs related to hazardous waste management? ___ ___ ___
- actual training or experience received by personnel? ___ ___ ___

(14) Does the facility have a written contingency plan for emergency procedures designed to deal with fires, explosion or any unplanned release of hazardous waste? (§265.51) ___ ✓ ___

a. Does the plan describe arrangements made with local authorities? ___ ___ ___

b. Has the contingency plan been submitted to local authorities? ___ ___ ___

How do you know?

c. Does the plan list names, addresses, and phone numbers of Emergency Coordinators? ___ ___ ___

d. Does the plan have a list of what emergency equipment is available? ___ ___ ___

e. Is there a provision for evacuating facility personnel? ___ ___ ___

f. Was an Emergency Coordinator present or on call at the time of the inspection? ___ ___ ___

(15) Does the owner/operator keep a written operating record with: (§265.73)

- a description of wastes received with methods and dates of treatment, storage or disposal? NA ___ ___
- location and quantity of each waste? NA ___ ___
- detailed records and results of waste analysis and traceability tests performed on wastes coming into the facility? NA ___ ___
- detailed operating summary reports and description of all emergency incidents that required the implementation of the facility contingency plan? NA ___ ___

(16) Does the facility have written closure and post-closure plans? (§265.110) ___ ✓ ___

a. Does the written closure plan include:

- a description of how and when the facility will be partially (if applicable) and ultimately closed? ___ ___ ___

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* Effective date for this requirement is May 19, 1981.

	YES	NO	DON'T KNOW
- an estimate of the maximum inventory of wastes in storage or treatment at any time during the life of the facility?	—	—	—
- a description of the steps necessary to decontaminate facility equipment during closure?	—	—	—
- a schedule for final closure including the anticipated date when wastes will no longer be received and when final closure will be completed?	—	—	—
b. What is the anticipated date for final closure?	—	—	—
†c. Does the owner/operator have a written post-closure plan identifying the activities which will be carried on after closure and the frequency of these activities?	—	—	—
d. Does the written post-closure plan include:			
- a description of planned groundwater monitoring activities and their frequencies during post-closure?	—	—	—
- a description of planned maintenance activities and frequencies to ensure integrity of final cover during post-closure?	—	—	—
- the name, address and phone number of a person or office to contact during post-closure?	—	—	—
*(17) Does the owner/operator have a written estimate of the cost of closing the facility? (§265.142) What is it?	—	✓	—
*(18) Does the owner/operator have a written estimate of the cost for post-closure monitoring and maintenance?	NA	—	—
What is it? (§265.144)	NA	—	—
*(19) Has a groundwater monitoring plan been submitted to the Regional Administrator for facilities containing a surface impoundment, landfill or land treatment process? (This requirement does not apply to recycling facilities.) (§265.90)			
a. Does the plan indicate that at least one monitoring well has been installed hydraulically upgradient from the limit of the waste management area?	—	—	—
b. Does the plan indicate that there are at least three monitoring wells installed hydraulically downgradient at the limit of the waste management area?	—	—	—

† This section applies only to disposal facilities.

* Effective date for this requirement is May 19, 1981.

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Please circle all appropriate activities and answer questions on indicated pages for all activities circled. When you submit your report, include only those site-specific pages that you have used.

STORAGE	TREATMENT	DISPOSAL
Waste Pile p. 9	Tank p. 8	Landfill pp. 10-11
Surface Impoundment p. 8	Surface Impoundment pp. 8-9	Land Treatment pp. 9, 10
Container p.	Incineration pp. 12-13	Surface Impoundment p. 8
Tank, above ground p. 8	Thermal Treatment pp. 12-13	Other _____
Tank, below ground p. 8	Land Treatment pp. 9-10	
Other _____	Chemical, Physical p. 13 and Biological Treatment (other than in tanks, surface impoundment or land treatment facilities)	
	Other _____	

CONTAINERS (§265.170)

	YES	NO	DON'T KNOW
1. Are there any leaking containers? If "YES", explain.		✓	
2. Are there any containers which appear in danger of leaking? If "YES", explain. 1 Drum badly expanded and another drum waste plating sludge badly rusted	✓		
3. Do wastes appear compatible with container materials?	✓		
4. Are all containers closed except those in use?	✓		
5. Do containers appear to be opened, handled or stored in a manner which may rupture the containers or cause them to leak?		✓	
6. How often does the plant manager claim to inspect container storage areas? weekly			
7. Does it appear that incompatible wastes are being stored in close proximity to one another? If "YES", explain.		✓	
8. Are containers holding ignitable or reactive wastes located at least 15 meters (50 feet) from the facility's property line?	✓		

9. What is the approximate number and size of containers with hazardous wastes?

62, 55 gallon drums

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State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT ELEMENT - NORTHERN REGION
1259 Route 46 - Building 2
Parsippany-Troy Hills, NJ 07054

JOHN W. GASTON JR., P.E.
DIRECTOR

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

Mr. Leon Pieta
Airtron Division - Litton Industries, Inc.
200 East Hanover Avenue
Morris Plains, New Jersey 07950

DEC 31 1985

Re: Compliance Evaluation Inspection
Airtron Division
NJPDES No.: NJ0025739
Munic/County: Hanover Township, Morris County

Dear Mr. Pieta:

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on December 10, 1985. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "UNACCEPTABLE" due to the following deficiencies:

1. Violation of your NJPDES permit limit fro arsenic since May 1, 1985.

2. Violation of your NJPDES permit limit for fluoride since August 1985.

3. Methylene chloride concentration was found to be 0.690 milligrams per liter ina sample taken September 9, 1985 for analysis of volatile organics.

Future instances of noncompliance must be reported to this Department upon submission of Discharge Monitoring Reports, with the following information included:

1. Facility name, location and NJPDES permit number.

2. The item(s) of noncompliance.

3. An explanation of why the excursion had occurred.

4. A description of action taken to mitigate and eliminate future instances of noncompliance.

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Since the deficiencies cited are presently, or could, in the future, adversely affect effluent quality, you are hereby DIECTED to institute measures to correct the deficiencies. A written report concerning specific details of remedial measures to be instituted, as well as an implementation timetable must be submitted to this Department and USEPA, Permits Administration Branch within thirty (30) calendar days of the date of this correspondence.

Both the New Jersey Water Pollution Act (N.J.S.A. 58:10A-1 et seq.) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.) provide for substantial monetary and criminal penalties in cases of permit violations.

Please direct all correspondence and inquiries to Lisa R. Tracy, the Compliance Investigator responsible for this case, who can be reached at (201) 299-7592 or by letter through this Division.

Failure to fully comply with the above will result in the initiation of enforcement action by this Department and/or the U.S. Environmental Protection Agency. This shall in no way be construed, however, to indicate any exemption on your part from possible penalties for violations indicated by the Compliance Evaluation Inspection, as stated above.

Very truly yours,

Original signed & mailed

William Malloy, Supervisor
Compliance Monitoring Unit
Northern Bureau of Regional
Enforcement

A23:G5.5(F)

cc: Joseph M. Mikulka, Chief, Northern Bureau of Regional Enforcement
Paul Molinari, USEPA - Region II
Richard Baker, USEPA - Region II
Madison Health District - Hanover Township
George VanOden, Hanover Health Department

bcc: Lisa R. Tracy
Bureau File THRU J. Mikulka and W. Malloy
Central File/NJPDES, Hanover Township, Morrris County
Enforcement Actions (Marianne Montgomery)

F-2

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

DISCHARGE SURVEILLANCE REPORT

PERMIT # NJ0025739 NO. OF DISCHARGES 002 CLASS Maj-Ind-DSW

DISCHARGER Airtron Division

OWNER Airtron - Division of Litton Industries

MUNICIPALITY Hanover Twp COUNTY Morris WATERSHED CODE P

LOCATION 200 East Hanover Avenue

RECEIVING WATERS Trib → Whippany River STREAM CLASS FW-2 NT

LICENSED OPERATOR & PLANT CLASS Louis Ghigliotti (NN)

TRAINEE/ASSISTANT NA OTHER INFO. 201-534-5500

EDP 5-1-85 Facility requires N2 operator

DEFICIENCIES OR COMMENTS

1. Permit limit for fluoride has been consistently violated since August 1985.
2. Permit limit for arsenic has been consistently violated since the effective date of this permit (May 1, 1982), and its inclusion as a required parameter for analysis in this permit
3. The concentration of methylene chloride found in a sample taken September 9, 1985 was 690 µg/l (0.69 mg/l). Total VO's to be <100 µg

OVERALL RATING ☐ Acceptable ☐ Conditionally Acceptable ☒ Unacceptable

EVALUATOR Lisa Mae Thoay TITLE EC1-III

INFORMATION FURNISHED BY (Name) Louis Ghigliotti + Leon Pieta

(Title) Operator, + Production Mgr. (Organization) Airtron

DATE OF INSPECTION December 10, 1985

f3

4/78

D.W.R.
DISCHARGE SURVEILLANCE REPORT

Permit #: NJ0025735
Date: 12-10-85

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE #	---	001
	WASTEWATER SOURCE(S)	---	Acid Rinsewater from plating dept +
	CONTINUITY OF OPERATION	---	Gallium Arsenite dept., non contact
	BYPASSES/OVERFLOWS	NA	cooling, and hot water from the
	S.P.C.C. PLAN	S	aluminum part's "dip pot"
	ALARM SYSTEMS	S	→ 5-6 days x 8 hours
	ALTERNATE POWER SUPPLY	NA	→ 3 floordrains in treatment room
			Pump → into sump pit → T8
TREATMENT PROCESSES			→ For sump pit - high water +
			pH not between 7 + 9 su in T-1 (light)
	(T-1) Holding Tank	S	pH automatically maintained between
			7-9 SU. (NaOH or H_2SO_4 used)
	(T-4) Flocculation	S	polymer addition.
	Clarifier	M	unit is rusting + paint is
			peeling
	Final Settling	S	
			(Plating Rm) Any spills: either cyanide or
			acid holding tanks.
			Cyanide hold. tank: pH↑ by sodium hydro-
			sulfite. Chromic acid is broken down +
			waste → T8
			Acid holding tank: pH = 11 or 12. HTH
			and sodium hydrosulfite is
SLUDGE HANDLING	Sludge holding (T8)	S	added to break down chlorine.
			H_2SO_4 added to ↓ pH, then
	Sludge thickening (T6)	M	rusting waste → T8
	Filter press	S	
	DISPOSAL SITE	S	HETC → World Resources Co, Pa for
			metal reclamation
OTHER INFORMATION	FLOW METER & RECORDER	S	Manning totalizing meter - on
	RECORDS	S	final settling
	SAMPLING PROCEDURES	S	
	ANALYSES PERFORMED BY	S	VO's by Century Environmental Testing
			#08153, Thorofare NJ
		S	Bioassay by Atlantic Environmental
			Science Co #01284 Absecon NJ
		S	All remaining parameters - Lancy Labs
			#77269, Zellenople, Pa.
			5-1-86: Now Townley not Lancy
	FINAL EFFLUENT APPEARENCE	S	Clear
	REC. WATERS APPEARENCE	NI	

FU

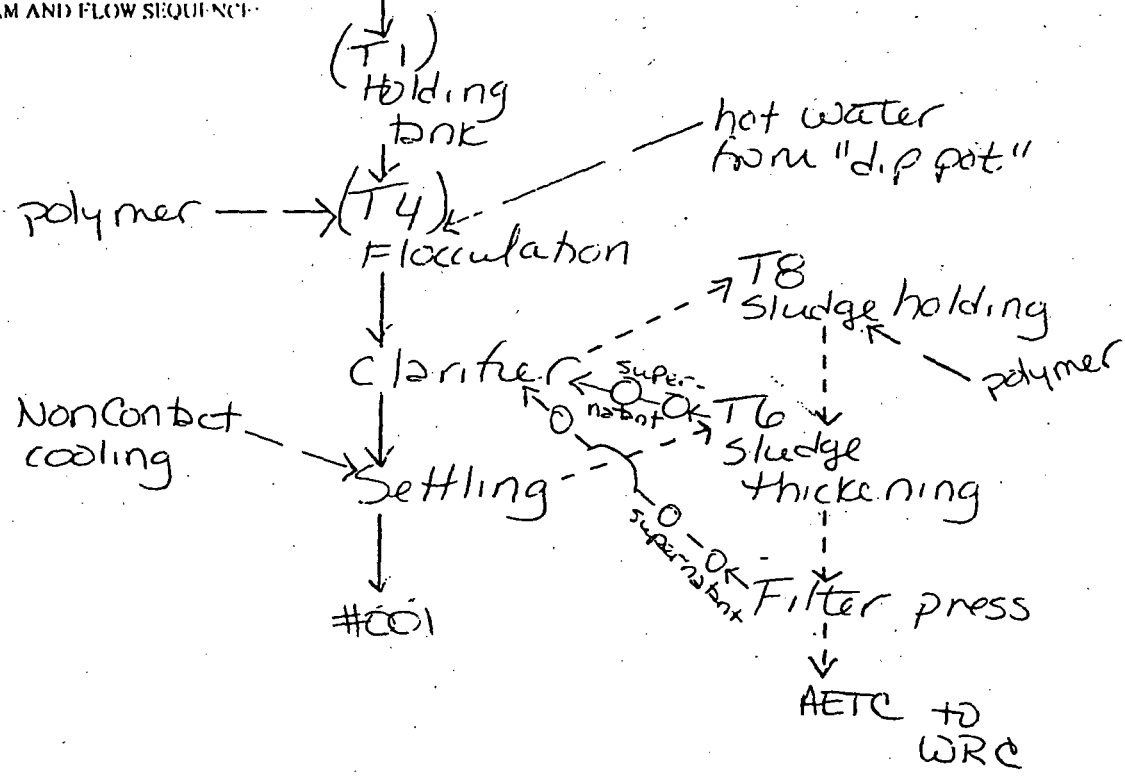
Form DWR-053
3/81

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

Permit # NJ0025739
Date 12-10-85

DISCHARGE SURVEILLANCE REPORT

PLANT DIAGRAM AND FLOW SEQUENCE:



DISCHARGE DATA

SOURCE: Lab. Reports PERIOD: 9/9/85 ± 9/23/85

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA 9/9/85	DATA 9/23/85	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA 9/9/85	DATA 9/23/85
001	pH	Gr	su	7.4	7.7	001	(tot) Cr	24hr comp	- mg/l 0.02/0.04 KGD	0.05 mg/l 0.002	<0.05 mg/l 0.000 KGD
"	O+G	Gr	10/15 mg/l	25 mg/l	<0.4	"	Cu	↓	- mg/l 0.02/0.04 KGD	0.09 0.003	<0.17 mg/l 0.008 KGD
"	TSS	24hr comp.	- mg/l 0.9/1.8 KGD	3.6 mg/l 0.126	5.2 mg/l 0.252	"	Vo's	Gr	100 µg/l	① *	0.00 mg/l
"	F	↓	- mg/l 0.07/0.12 KGD	5.2 mg/l 0.182	3.6 mg/l 0.175 KGD	"	Ni	24hr comp	- mg/l 0.02/0.04 KGD	0.55 mg/l 0.019	<.01 mg/l 0.00
"	(tot) CN		- mg/l 0.02/0.04 KGD	0.01 mg/l 0.000	<.01 mg/l 0.000	"	Ag	↓	- mg/l 0.002/0.004 KGD	<0.01 0.00 KGD	<0.01 mg/l 0.000
"	As		- mg/l 0.003/0.008 KGD	2.0 mg/l 0.07 KGD	13 mg/l 0.631	"	Zn	↓	0.02/0.04 KGD	0.10 mg/l 0.003	0.10 mg/l 0.005 KGD
"	Cd	↓	- mg/l 0.02/0.03 KGD	0.02 0.001 KGD	<.01 mg/l 0.000	"	TTO	Gr	2.08 mg/l	①	0.00 mg/l

MONITORING DEFICIENCIES: (NONE NOTED)

Flow - cont. - MGD - 0.0092 | 0.0128
Did 2 analyses → Bioassay - 9/14/85 - 96 hr LC50 ≥ 50% - 0 → 5% mort.
Temp - Grab - 30°C - [illegible]

① methylene chloride 690 µg/l - all others < 5 µg/l

F-5

D.W.R.
DISCHARGE SURVEILLANCE REPORT

Permit #: NJ [illegible]
Date: 12-10-85

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE #	---	002
	WASTEWATER SOURCE(S)	---	water fountains, roof + parking
	CONTINUITY OF OPERATION	---	5-6 days/wk, lot drains
	BYPASSES/OVERFLOWS	NA	except rainfall
	S.P.C.C. PLAN		
	ALARM SYSTEMS		
	ALTERNATE POWER SUPPLY		
TREATMENT PROCESSES	None		
SLUDGE HANDLING	DISPOSAL SITE	NA	
OTHER INFORMATION	FLOW METER & RECORDER	S	estimated @ 960 gal/day
	RECORDS	S	
	SAMPLING PROCEDURES	S	Grab 1 x month
	ANALYSES PERFORMED BY	S	Lancy Labs, # 772169 in Zellenople, Pa
	FINAL EFFLUENT APPEARENCE	S	
	REC. WATERS APPEARENCE	NI	

Form DWR-053
3/81

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

DISCHARGE SURVEILLANCE REPORT

Permit # NJ0025739
Date 12-10-85

PLANT DIAGRAM AND FLOW SEQUENCE

storm + roof drains + water fountains
↓
Trib to Whippany River

DISCHARGE DATA

SOURCE: Lab Report PERIOD: November 4, 1985

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
002	pH	Gr	NA	7.3 su					
"	TSS		50 mg/l	2.4					
"	O+G		15 mg/l	7.8					
"	COD		100 mg/l	4.0					
"	flow	est.	-, MGD	0.00096					

MONITORING DEFICIENCIES: None noted

F-7

JAN 20 1987

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT ELEMENT - NORTHERN REGION
1259 Route 46 - Building 2
Parsippany-Troy Hills, NJ 07054

JOHN W. GASTON JR., P.E.
DIRECTOR

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

CERTIFIED MAIL
RETURN RECEI
PT REQUESTED

Mr. John Nicola
Airtron Division - Letton Industries, Inc.
200 East Hanover Avenue
Morris Plains, New Jersey 07950

Dear Mr. Nicola:

Re: Compliance Evaluation Inspection
Airtron Division
NJPDES No.: NJ0025739
Hanover Township, Morris County

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on September 9, 1986. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "UNACCEPTABLE" due to the following deficiencies:

1. Your Discharge Monitoring Report for the period of June 1, 1986, to June 30, 1986 indicates discharge violations of your NJPDES permit following:

   a. Discharge #001:

	Permit Limits	Discharge
Arsenic	0.003/0.008 kg/day	0.012/0.023 kg/day
Cyanide	0.02/0.04 kg/day	0.03/0.06 kg/day
Fluoride	0.07/0.12 kg/day	0.115/0.2 kg/day

   b. Discharge #002:

pH	6.0/9.0 (s.u.)	1.9/7.5 (s.u.)

2. A review of your Discharge Monitoring Reports for April, 1986, and May, 1986 indicates similar violations in the discharge of arsenic in excess of your NJPDES permit limits.

Since the deficiencies cited are presently, or could in the future be, adversely affecting effluent quality, you are hereby DIRECTED to institute

New Jersey Is An Equal Opportunity Employer

measures to correct these deficiencies.

It is noted that on June 18, 1986, the Division received a letter from Airtron detailing measures that the company was implementing to improve effluent quality. The determination of the effectiveness of these measures will be the maintenance of your discharge at below permit levels for all parameters. Both the New Jersey Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.), provide for substantial monetarv and criminal penalties in cases of permit violations. Failure to fully comply with the above will result in further enforcement action by the Division. This should not be construed, however, to indicate any exemption on your part from possible penalties for violations indicated by the Compliance Evaluation Inspection, as stated above.

It is further noted that the Division is currently in the process of developing programs with Airtron to address the problems of ground-water contamination in the area of this facility.

Please direct all correspondence and inquiries to Christopher Mallery, of my staff, who is responsibile for this case, who can be reached at (201) 299-7592, or by letter through this Division.

Very truly yours,

Robert Plumb, Assistant Chief
Northern Bureau of Regional Enforcement

E112: A56:/lw

cc: Chief Mikulka, Northern Bureau of Regional Enforcement
Paul Molinari, USEPA - Region II
Richard Baker, USEPA - Region II
Madison Health District-Hanover Township
George Van Oden, Hanover Health Department

bcc: Robert Plumb
Chris Mallery
Tom McClachrie
Bureau File THRU J. Mikulka and W. Malloy (Hanover, Morris)
Central File: Airtron Division-Litton Industrial, Inc.
Enforcement Actions (Collen Hart)

D-2

Hon. fal.

Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NORTHERN BUREAU OF REGIONAL ENFORCEMENT
1259 ROUTE 46, BUILDING 2
PARSIPPANY, NEW JERSEY 07054

GEORGE G. McCANN, P.E.
DIRECTOR

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

NOV 05 1987

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert A. Lagno, Vice President
Airtron Division of Litton Industries, Inc.
200 East Hanover Avenue
Morris Plains, New Jersey 07950

Dear Mr. Lagno:

Re: Compliance Evaluation Inspection
Airtron Division of Litton Industries, Inc.
NJPDES Permit No.: NJ0025739
Hanover Township, Morris County

A Compliance Evaluation Inspection of your facility was conducted by representatives of the Division of Water Resources on October 22, 1987. A copy of the completed inspection report is enclosed for your review.

Your facility received a rating of "UNACCEPTABLE" due to the following deficiencies:

1. The Discharge Monitoring Report for the period of April 1, 1987, to April 30, 1987, indicated the following discharges in excess of the facility's NJPDES permit limits:

Parameter (001A)	Permit Limits	Discharge
Arsenic (avg.) (kg/day)	.003	.007
Arsenic (max.) (kg/day)	.008	.010
Total Suspended Solids (avg.) (kg/day)	.9	1.45
Total Suspended Solids (max.) (kg/day)	1.8	2.27

Copper (avg.) (kg/day)	.02	.0306
Copper (max.) (kg/day)	.04	.0593

2. The Discharge Monitoring Report for the period of May 1, 1987, to May 31, 1987, indicated the following discharges in excess of the facility's NJPDES permit limits:

Parameter	Permit Limits	Discharge
Arsenic (avg.) (kg/day)	.003	.008
Arsenic (max.) (kg/day)	.008	.012
Total Suspended Solids (avg.) (kg/day)	.9	1.18
Total Suspended Solids	1.8	2.12

In light of these deficiencies and their effect on area water quality, you are DIRECTED to institute measures to correct these deficiencies. A written report concerning specific details of remedial measures to be instituted, as well as an implementation schedule, must be submitted to this Division and to the USEPA, Permits Administration Branch, within thirty (30) calendar days of the date of this Directive.

It is noted that some explanations of these excursions accompanied the quarterly submittal of the Discharge Monitoring Reports. However, a review of the Discharge Monitoring Reports submitted by your facility over the last two (2) years indicated a history of similar excursions. This issue will be addressed in further enforcement actions, which may include the requirement for improvement of the facility's pretreatment processes, and the possible assessment of substantial civil administrative penalties for these violations.

It is further noted that the pretreatment installation in the facility involves the use of substantial quantities of hazardous materials. It is of considerable importance that your facility maintain this installation in line with adequate routine and emergency safety procedures.

It was noted, during a tour of the Airtron facility at 54 Horsehill Road, that current housekeeping procedures could readily give rise to incidents of significant negative environmental impact. It is anticipated that your environmental staff will take adequate measures to insure that this situation is improved, not only through the long-term plans for modification of the facility, but also on an immediate interim basis. The facility at 54 Horsehill Road will be included in future routine NJPDES inspections.

It is also noted that the facility is currently in the process of conducting a remedial investigation of groundwater contamination at the site. A report on this investigation is due November 24, 1987.

If any questions arise concerning these matters, please contact Christopher S. Mallery, of my staff, at (201) 299-7592.

Very truly yours,

Robert Plumb, Assistant Chief
Northern Bureau of Regional
Enforcement

E112:G5.3(K2)

Attachment

c: Chief Joseph M. Mikulka, Northern Bureau of Regional Enforcement
Theodore Craver, Esq., Vice President, Litton Industries
Joseph LaSchiavo, President, Airtron Division
John Nicola, Engineer, Airtron Division
Nicholas Nitti, Environmental Engineer, Airtron Division
Leon Pieta, Engineer, Airtron Division
George VanOrden, Hanover Health Department

bc: Robert Plumb
Christopher Mallery
Thomas McClachrie
Bureau File THRU J. Mikulka and W. Malloy
Central File/Airtron Division, Hanover Township, Morris County
Enforcement Actions (Virginia Kennedy)

H-3

DWR-053

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

DISCHARGE SURVEILLANCE REPORT

PERMIT # NJ0025739 NO. OF DISCHARGES 002 CLASS MAJ IND DSN

DISCHARGER AIRTRON DIVISION

OWNER AIRTRON – DIVISION OF LITTON INDUSTRIES

MUNICIPALITY HANOVER TWP COUNTY MORRIS WATERSHED CODE P

LOCATION 200 EAST HANOVER AVENUE

RECEIVING WATERS TRIB → WHIPPANY RIVER STREAM CLASS FW-2 NT

LICENSED OPERATOR & PLANT CLASS LOUIS GIGLIETTI

TRAINEE/ASSISTANT NA OTHER INFO. 201 539-5500

EAP 5-1-85

DEFICIENCIES OR COMMENTS 1. PERMIT LIMITS FOR TOTAL SUSPENDED SOLIDS, ARSENIC EXCEEDED IN APRIL AND MAY OF 1987
PERMIT LIMIT FOR COPPER EXCEEDED IN APRIL OF 1987

PARAMETER	PERMIT LIMIT	DMR	
T.S.S.	0.9 KG/D AVG 1.8 KG/D MAX	1.45 AVG 04 87 2.37 MAX 04 87	1.18 AVG 05 87 2.12 MAX 05 87
AS	.003 KG/D AVG .008 KG/D MAX	.007 AVG 04 87 .010 MAX 04 87	.002 AVG 05 87 .012 MAX 05 87
CU	.02 KG/D AVG .04 KG/D MAX	.0300 AVG 04 87 .0593 MAX 04 87	

OVERALL RATING ☐ Acceptable ☐ Conditionally Acceptable ☒ Unacceptable

EVALUATOR TOM McCLACHRIE TITLE EC I III

INFORMATION FURNISHED BY (Name) JOHN NICOLA

(Title) ENV OFFICER (Organization) AIRTRON

DATE OF INSPECTION 10-23-87

D.W.R.
DISCHARGE SURVEILLANCE REPORT Date: 10-23-27

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE #	—	001
	WASTEWATER SOURCE(S)	—	ACID RINSEWATER FROM PLATING DEPT +
	CONTINUITY OF OPERATION	—	GALLIUM ARSENITE DEPT, NON CONTACT
	BYPASSES/OVERFLOWS	NA	COOLING, AND HOT WATER FROM THE
	S.P.C.C. PLAN	S	ALUMINUM PARTS "DIP POT"
	ALARM SYSTEMS	S	5-6 DAYS 2HRS
	ALTERNATE POWER SUPPLY	NA	3 FLOOR DRAINS IN TREATMENT ROOM
			PUMP INTO SUMP PIT → T8
TREATMENT PROCESSES			FOR SUMP PIT - HIGH WATER + PH
	T-1 HOLDING TANK	S	BETWEEN 7-9 SU IN T-1 (LIGHT
			PH AUTOMATICALLY MAINTAINED BETWEEN
	T-4 FLOCULATION	S	7-9 SU (NAOH OR H_2SO_4 USED)
			POLYMER ADDITION
	CLARIFIER	S	
	FINAL SETTLING	S	
			(PLATING ROOM) ANY SPILLS: EITHER
			CYANIDE OR ACID HOLDING TANKS
			CYANIDE HOLD TANK: PH ↑ BY
			SODIUM HYDRO SULFITE. CHROMIC
			ACID IS BROKEN DOWN + WASTE → T8
			ACID HOLDING TANK: PH = 11 → 12. HTH
			AND SODIUM HYDROSULFITE IS ADDED
			TO BREAK DOWN CHLORINE. H_2SO_4
SLUDGE HANDLING			ADDED TO ↓ PH, THEN WASTE → T8
	SLUDGE HOLDING (T8)	S	
	SLUDGE THICKENING (T6)		
	FILTER PRESS	S	
	DISPOSAL SITE	S	AETC → WORLD RESOURCES CO, PA FOR
			METAL RECLAMATION
OTHER INFORMATION	FLOW METER & RECORDER	S	MANNING TOTALIZING METER - ON FINAL
	RECORDS	S	SETTLING.
	SAMPLING PROCEDURES	S	
	ANALYSES PERFORMED BY	S	BIOASSAY BY ATLANTIC ENVIRONMENTAL
			SCIENCE CO F 01/26 ABSECON NJ
			ALL REMAINING PARAMETERS
			TOWNLEY LABS
	FINAL EFFLUENT APPEARENCE	S	
	REC. WATERS APPEARENCE	S	CLEAR

H-5

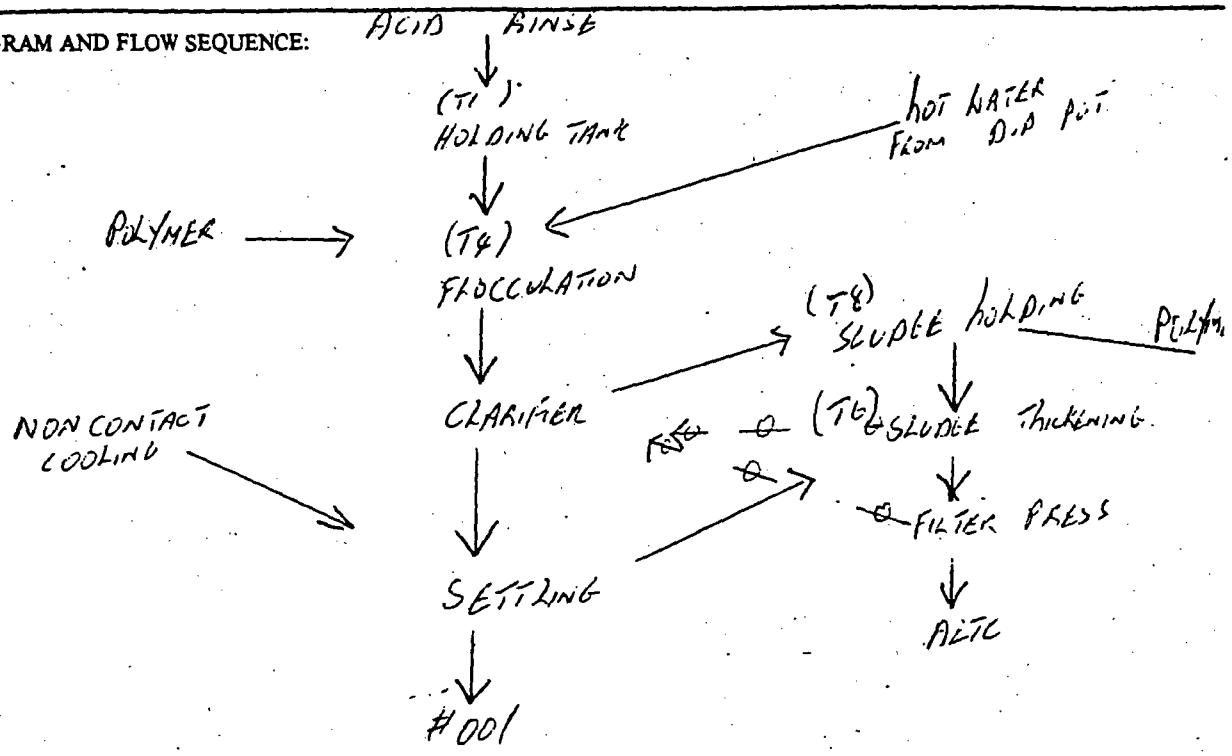
Form DWR-055
3/81

DIVISION OF WATER RESOURCES
CN 029, Trenton, N.J. 08625

DISCHARGE SURVEILLANCE REPORT

Permit # NJ0025734
Date 10-23-87

LANT DIAGRAM AND FLOW SEQUENCE:



DISCHARGE DATA

SOURCE: DMR PERIOD: 87-06-01

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
001	TEMP	COMP	30 C MAX	21 C	001	CD	COMP	.012→.031 KG/D	0
	FLOW	CONT	GPD	13060GPD		CR		.02→.04 KG/D	.0014 KG/D
	PH	GRAB	6-9 SU	7.6 SU MAX		CU		.02→.04 KG/D	.0055 KG/D
	TSS	COMP	.9 KG/DAY A.G 1.8 KG/DMAX	.07 KG/DMAX		NI		.02→.04 KG/D	.0135 KG/L
	ON	GRAB	.02-.04 KG/D	0		AG		.002→.004 KG/D	.0006 KG/D
	F	COMP	.07-.12 KG/DAY	.02→.026 KG/D		ZN		.02 KG/D	.0014 KG/D
	AS	"	.003→.008 KG/DAY	.003 KG/D		YO		100 UG/L	14.6 UG/L

MONITORING DEFICIENCIES:

H-6

D.W.R.
DISCHARGE SURVEILLANCE REPORT

Date: 10-23-87

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE #	---	001
	WASTEWATER SOURCE(S)	---	WATER FOUNTAINS, ROOF & PARKING
	CONTINUITY OF OPERATION	---	5-6 DAYS/WK, LOT DRAINS
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	↓	
	ALARM SYSTEMS		
	ALTERNATE POWER SUPPLY		
TREATMENT PROCESSES	NONE		
SLUDGE HANDLING	DISPOSAL SITE	NP	
INFORMATION	FLOW METER & RECORDER	S	ESTIMATED 500 GAL/DAY
	RECORDS	S	
	SAMPLING PROCEDURES	S	GRAB 1X MONTH
	ANALYSES PERFORMED BY	S	TONNELL LABS
OTHER	FINAL EFFLUENT APPEARENCE	S	
	REC. WATERS APPEARENCE	S	

H-7

Form DWR-053
3/81

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

DISCHARGE SURVEILLANCE REPORT

Permit # NJ0025739
Date 10-23-87

PLANT DIAGRAM AND FLOW SEQUENCE:

STORM + ROOF DRAINS + WATER FOUNTAINS
↓
TRIB OF WRAPAN / RIVER

DISCHARGE DATA

SOURCE: DMR PERIOD: 87-06-01

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
001	COD	GRAB	100 mg/L	8 mg/L					
	pH	↓	6-9 SU	6.9 SU					
	TSS		50 mg/L	3 mg/L					
	O&G		15 mg/L	6.6 mg/L					
	FLOW		MGD	.0012					

MONITORING DEFICIENCIES:

H-8

Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NORTHERN BUREAU OF REGIONAL ENFORCEMENT
1259 ROUTE 46, BUILDING 2
PARSIPPANY, NEW JERSEY 07054

GEORGE G. McCANN, P.E.
DIRECTOR

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

JUN 0 8 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert A. Lagno, Vice President
Airtron Division of Litton Industries, Inc.
200 East Hanover Avenue
Morris Plains, New Jersey 07950

Dear Mr. Lagno:

Re: Compliance Evaluation Inspection
Airtron Division of Litton Industries, Inc.
NJPDES Permit No: NJ0025739
Hanover Township, Morris County

A Compliance Evaluation Inspection of your facility was conducted by representatives of the Division of Water Resources on April 14, 1988. A copy of the completed inspection report is enclosed for your review.

Your facility received a rating of "UNACCEPTABLE" due to the following deficiencies:

1. A review of recent Discharge Monitoring Reports indicated discharges in excess of the limits contained in the facility's NJPDES permit, for volatile organic compounds for the following periods:

Month:	DMR(Permit limit-100 milligrams/liter)
November, 1987	112 mg/l
December, 1987	1719.85 mg/l
January, 1988	162 mg/l
February, 1988	121 mg/l

2. Regular spills of process chemicals in the chemical rinse room were not being properly cleaned up. The presence of prolonged chemical spillage in the work area constitutes an increased safety hazard to plant personnel.

3. A tree had fallen across discharge pipe # 001, and had not been removed at that time.

NOTE: Your treatment plant requires an N-2 licensed operator.

In that these deficiencies are currently adversely affecting, or could in the future adversely affect, area water quality, you are DIRECTED to institute measures to correct these deficiencies. A written report concerning specific details of remedial measures to be instituted, as well as an implementation timetable, must be submitted to this Division and to the USEPA, Permits Administration Branch, within thirty (30) calendar days of the date of this Directive.

Failure to comply with this Directive will result in further enforcement action, including the possible assessment of substantial civil administrative penalties, pursuant to N.J.A.C. 7:14-8.1 et seq.

It is noted that the Department has recently received from its geologists comments based on their review of the Soil and Groundwater Remedial Investigation-Phase I, submitted by Converse Environmental East in November, 1987. It is anticipated that a meeting will be scheduled for the near future to review these comments with your consultants, so that the investigation of the groundwater contamination at your facility can proceed.

If any questions arise concerning these matters, please contact Christopher Mallery, of my staff, at (201)299-7592.

Very truly yours,

Robert Plumb, Assistant Chief
Northern Bureau of Regional
Enforcement

E112:gw
Attachment

c: Chief Joseph M. Mikulka, Northern Bureau of Regional Enforcement
Theodore Craver, Esq., Vice President, Litton Industries
Joseph LaSchiavo, President, Airtron Division
John Nicola, Engineer, Airtron Division
Nicholas Nitti, Environmental Engineer, Airtron Division
Dr. George VanOrden, Hanover Health Department

bc: Robert Plumb
Christopher Mallery
Thomas McClachrie
Bureau File THRU J. Mikulka and W. Malloy
Central File/Airtron Division, Hanover Township, Morris County
Enforcement Actions (Virginia Kennedy)

Form DWR-053
3/81

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

DISCHARGE SURVEILLANCE REPORT

PERMIT # NJ 0025739 NO. OF DISCHARGES 002 CLASS MAJ IND DSH

DISCHARGER AIRTRON DIVISION

OWNER AIRTRON - DIVISION OF LITTON INDUSTRIES

MUNICIPALITY HANOVER TWP COUNTY MORRIS WATERSHED CODE P

LOCATION 200 EAST HANOVER AVENUE

RECEIVING WATERS TRIB → WHIPPANY RIVER STREAM CLASS FW-2 NT

LICENSED OPERATOR & PLANT CLASS LOUIS GHIGHIETTI N-N PLANT CLASS N-2

TRAINEE/ASSISTANT BOB SMITH OTHER INFO. 201 539-5500

DEFICIENCIES OR COMMENTS PERMIT LIMIT FOR VOLATILE ORGANICS WAS EXCEEDED IN THE FOLLOWING MONITORING PERIODS

DATE	DISCHARGE 001	PERMIT LIMIT	DMR
11/87	VO's	MAX 100 MG/L	112 MG/L
12/87	"	" " "	1719.85 MG/L
1/88	"	" " "	162 MG/L
2/88	"	" " "	121 MG/L

OVERALL RATING ☐ Acceptable ☐ Conditionally Acceptable ☒ Unacceptable

EVALUATOR TOM McCLACHAIE TITLE ENV SPEC TRAIN

INFORMATION FURNISHED BY (Name) NICK NITTI

(Title) ENV OFFICER (Organization) AIRTRON

DATE OF INSPECTION 4-14-88

I-3

2. Spills are not cleaned up in your chemical rinse room.

3. Fallen tree across discharge pipe #001

NOTE:

Your Treatment Plant requires an N-2 Licensed Operator.

T-4

n DWR-053-A

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

Permit #: NJ 0025739
Date: 04-14-88

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE #	---	001
	WASTEWATER SOURCE(S)	---	ACID RINSEWATER FROM PLATING DEPT & GALLIUM
	CONTINUITY OF OPERATION	---	ARSENITE DEPT., NON CONTACT COOLING
	BYPASSES/OVERFLOWS	NA	AND HOT WATER FROM THE ALUMINUM PARTS
	S.P.C.C. PLAN	S	"DIP POT"
	ALARM SYSTEMS	S	→ 5-6 DAYS x 8 hrs
	ALTERNATE POWER SUPPLY	NA	→ WILL UPDATE PLAN
TREATMENT PROCESSES			3 FLOOR DRAINS IN TREATMENT ROOM
			PUMP INTO SUMP PIT T-8
			ALSO A HOLE IN WALL DRAINS THE
			REAR CONTAINMENT AREA OF RINSE ROOM
	T-1 HOLDING TANK	S	BETWEEN 7-9 SU IN T-1
			PH AUTOMATICALLY MAINTAINED BETWEEN
	T-4 FLOCULATION		7-9 SU (NAOH OR H_2SO_4 USED)
			POLYMER ADDITION
	CLARIFIER	S	
	FINAL SETTLING	S	
			(PLATING ROOM) ANY SPILLS EITHER
			CYANIDE OR ACID → HOLDING TANKS
			CYANIDE HOLD TANK PH ↑ BY
			SODIUM HYDRO SULFITE. CHROMIC
			ACID IS BROKEN DOWN & WASTE → T-8
			ACID HOLDING TANK: PH = 11 → 12. HTH
SLUDGE HANDLING			AND SODIUM HYROSULFITE IS ADDED
			TO BREAK DOWN CHLORINE. H_2SO_4
			ADDED TO ↓ PH THEN WASTE → T-8
			NOTE - THE ADDITION OF H_2SO_4 FROM
			CONTAINERS SET ON THE FLOOR & CONTAINERS
			ARE OPEN → IS INHERENTLY UNSAFE
	SLUDGE HOLDING (T-8)	S	
	SLUDGE SETTLING (T-6)		
	FILTER PRESS	S	
	DISPOSAL SITE	S	AETC → WORLD RESOURCES CO. PA FOR
			METAL RECLAMATION
INFORMATION	FLOW METER & RECORDER	S	MANNING TOTALIZING METER - ON FINAL
	RECORDS	S	SETTLING
	SAMPLING PROCEDURES	S	
	ANALYSES PERFORMED BY	S	BIOASSAY BY ATLANTIC ENVIRONMENTAL
			SCIENCE CO 01284 ABSECON NJ
			ALL REMAINING PARAMETERS TOWNLEY
			LABS
OTHER			
	FINAL EFFLUENT APPEARENCE	S	
	REC. WATERS APPEARENCE	S	CLEAR

I-5

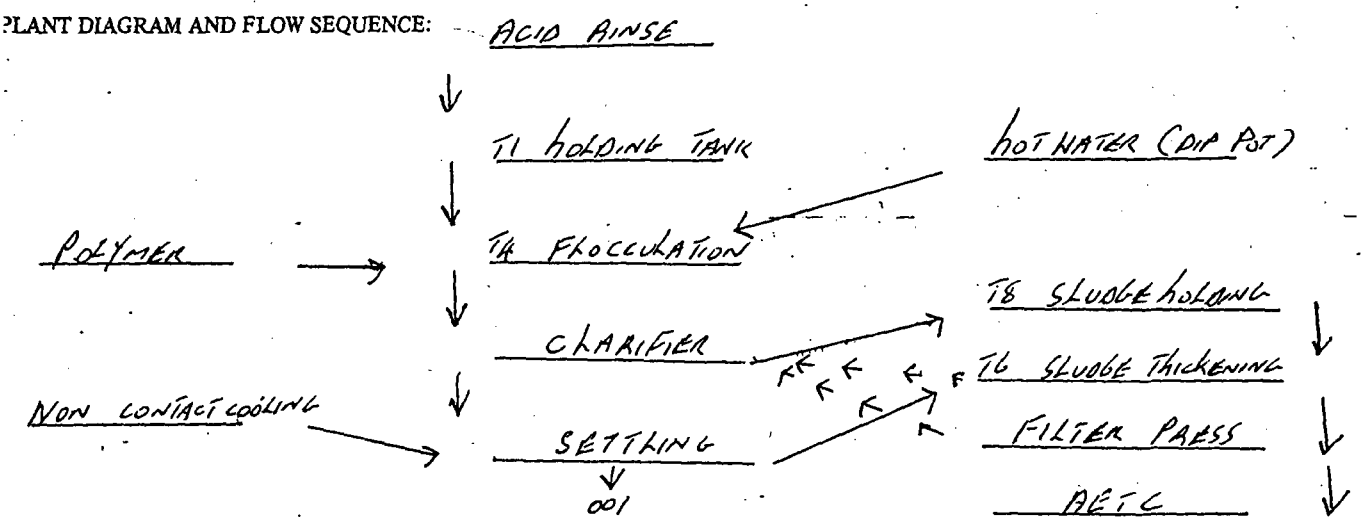
Form DWR-053
3/81

N[illegible]IER[illegible] [illegible]EPARTMENT OF ENVIRONMENTAL I[illegible]EC[illegible]
DIVISION OF WATER RESOURCES
CN 029, Trenton, N.J. 08625

Permit # NJ0025734
Date 04-14-88

DISCHARGE SURVEILLANCE REPORT

PLANT DIAGRAM AND FLOW SEQUENCE:



DISCHARGE DATA

SOURCE: DMR PERIOD: JAN 1988

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
001	TEMP	COMP	AVG	15.5 °C	001	CR	COMP	.02/.04 KG/D	.0008/.0013 KG/D
	PH	GR	6-9 SU	7.2/8.4 SU		CU	COMP	.02/.04 KG/D	.0016/.0022 KG/D
	TSS	COMP	.9/.180 KG/D	.09/.170 KG/D		NI	COMP	.02/.04 KG/D	.0025/.0037 KG/D
	CN	GR	.02/.04 KG/D	0		ZN	COMP	.02/.04 KG/D	.0012/.0014 KG/D
	F	COMP	.07/.12 KG/D	.01/.01 KG/D		FLOW	CONT	MGD AVG	.0061 MGD
	AS	COMP	.003/.008 KG/D	.002/.003 KG/D		VO	GR	100 UG/L	162 UG/L
	CD	COMP	.012/.031 KG/D	0					

MONITORING DEFICIENCIES:

T-6

DWR-053-A

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

Permit #: NJ 0026739
Date: 04-14-88

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE #	---	002
	WASTEWATER SOURCE(S)	---	WATER FOUNTAINS ROOF & PARKING
	CONTINUITY OF OPERATION	---	5-6 DAYS/WK LOT DRAINS
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	↓	
	ALARM SYSTEMS		
	ALTERNATE POWER SUPPLY		
TREATMENT PROCESSES	NONE		
SLUDGE HANDLING	DISPOSAL SITE	NA	
OTHER INFORMATION	FLOW METER & RECORDER	S	ESTIMATED 960 GAL/DAY
	RECORDS	S	
	SAMPLING PROCEDURES	S	GRAB 1X MNTH
	ANALYSES PERFORMED BY	S	TONNLEY LABS
	FINAL EFFLUENT APPEARENCE	S	
	REC. WATERS APPEARENCE	S	

I-7

Form DWR-053
3/81

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

DISCHARGE SURVEILLANCE REPORT

Permit # NJ0025739
Date 04-14-88

LANT DIAGRAM AND FLOW SEQUENCE:

STORM - ROOF DRAINS - WATER FOUNTAINS
↓
002

DISCHARGE DATA

SOURCE: DMR PERIOD: JAN 1988

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
002	COD	GR	100 MG/L	61 MG/L					
	Ph		6-9 SU	7.2 - 8.3					
	TSS		50 MG/L	3 MG/L					
	O&G		15 MG/L	6.8 MG/L					
	FLOW		MGD	.0012 MGD					

MONITORING DEFICIENCIES:

DEQ-062
1/88

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
BUREAU OF ENFORCEMENT OPERATIONS

FIELD INVESTIGATION ASSIGNMENT REPORT

PLANT ID #	INSPECTOR ASSIGNED
25136	616

DATE ASSIGNED	DATE DUE
6-1-89	6-30-89
DATE COMPLETED	COUNTY
10-19-89	Morris

COMPANY NAME Litton Industries
LOCATION 200 E. Hanover Ave., Morris Plains
CDS CLASS: A1 ___ A2 ___ B A NSPS ___ NESHAPS ___ PSD ___
AIR GRANT (105): ☐ Yes ☐ No PLLT: PT ___ S2 ___ CO ___ N2 ___ VO ___ Other ___

TYPE OF ASSIGNMENT
☐ Complaint ☑ APEDS
☐ Order Followup
☑ Other (by code) RTK

CYCLE

COMPLAINANT NAME ___ PHONE # ___
COMPLAINANT ADDRESS ___
DATE RECEIVED ___ TIME RECEIVED ___ RECORDED BY ___

ASSIGNMENT ___

PLANT CONTACT Nicholas Nitti
TITLE Environ. & Safety Compliance Engr.
ARRIVAL TIME AT PLANT 0940
TOTAL ASSIGNMENT TIME 88
STACKS INSPECTED 25 TEMPS ___
TOTAL SOURCES INSPECTED 26
DEQ-012 COMPLETED FOR SUBCHAPTERS ___

SUBCHAPTER	# INSP
8	15
3	2
6	20
16	3
OTHER	

COMPLAINT	TYPE	NUMBER

Time/Date at Complainant ___/___
Verified: ☐ Yes ☐ No
Give details below

VIOLATION FOLLOWUP INSPECTION
Violation Log # ___
Order Dated ___
Subchapter Violated ___
Compliance Achieved ☐ Yes ☐ No
Give details below

TYPE SAMPLE COLLECTED ___
OF SAMPLES COLLECTED ___
COMMENTS (by code) 001 005 008

DETAILS OF INSPECTION

See attached Field Investigation Report

Mr. Nitti showed me a copy of the company's completed 1988 RTK survey.

The company is engaged in the manufacture of various size and shape aluminum radar microwave guide bars, and performs the fabrication, treatment and coating of these bars.

INSPECTOR'S SIGNATURE [signature]
TITLE: Sr. Env. Engr.
SUPERVISOR'S REVIEW
INITIALS: RW DATE: 10-31-89

SEE ATTACHED FOR ADDITIONAL INFORMATION: ☑ YES ☐ NO

J-1

DEQ-062A
4/88

New Jersey Department of Environmental Protection
Division of Environmental Quality — Bureau of Enforcement Operations

FIELD INVESTIGATION REPORT

CASE DESIGNATION Litton Industries, Morris Plains ID #25136 DATE 10-19-89

NJ ~~TIME~~	UPDATE/COMMENTS
001, 002	Boilers #1 & #2 (250 HP & 300 HP): Neither unit in operation. Both are currently G-F. Plans call for the conversion of both units from #4 fuel oil to natural gas. I informed Mr. Nitti of the P/C requirements for such an alteration
003	UG 10,000 gal #4 fuel oil tank: G-F
004	Stencilling spray booth w/ filters (G-F): Not in operation. Use of VOS coatings 1 pint/day max (sub 16 exempt). VEM-005 submitted to clarify designation on APEDS.
005 (G-F) to 010 and 014 to 018	These stacks cover the company's plating room operations. The operations consist of many plating tanks of various sizes and functions, which are vented indirectly through several ceiling and wall fans (see attached diagram of company's discharge points -- this diagram is not up to date, according to Mr. Nitti). The room also features 2 ovens and 1 grit blaster (one of this equipment in use). Mr. Nitti claims all of the tanks and other equipment is approximately 30 years and unchanged. He claims that only some of the fans orientations have changed. It is unclear why the company applied for P/C's to cover some of the discharge points for apparently G-F equipment. It also is unclear by examining the P/C's the number and nature of the tanks. Mr. Nitti indicated that the company is in the process of thoroughly diagramming the plating room. He estimates that the job will be done in several months. He agreed to send me at that time a copy of the diagram, which will include: the fans' orientations; tanks' locations, capacities and contents, and description of other equipment. We can then use this information at the next APEDS inspection to decide which equipment is covered by which P/C, and which equipment should remain G-F. If Mr Nitti does not follow through on this agreement, we will have to condition the P/C's on renewal in 10/91 to require this information
011	#13 Ga As area: operating in compliance
012	#6 Batch Treatment / Dip Pot: operating in compliance (Dip Pot Furnace)
013	#7 Batch Treatment / Dip Pot: operating in compliance. This operation consists of ~~[illegible]~~ tanks that vent to the room. NOTE: 012 and 013 are located in the same room.
019	#58 Colag Scrubber: operating in compliance. The P/C calls for the emissions before control of 0.11 #/hr of Arsenic for each of two sources (NOTE: the equipment that was located in the "mixing" and "pulling" rooms are now in several rooms. The company claims that only the walls, and not the pickups, have changed). When (and if) the revised Sub 17 includes As, this stack should most likely be a candidate for stack testing.
020	#56 Fluoride Lab Scrubber: not in operation
021	#20 Cleaning and Plating oven: not in operation

Supervisor Signature

Investigator Signature

COPIES: White - DEQ File Yellow - BES Pink - Other

DEQ-062A
4/88

New Jersey Department of Environmental Protection
Division of Environmental Quality — Bureau of Enforcement Operations

FIELD INVESTIGATION REPORT

CASE DESIGNATION Litton Industries, Morris Plains ID # 25136 DATE 10-19-89

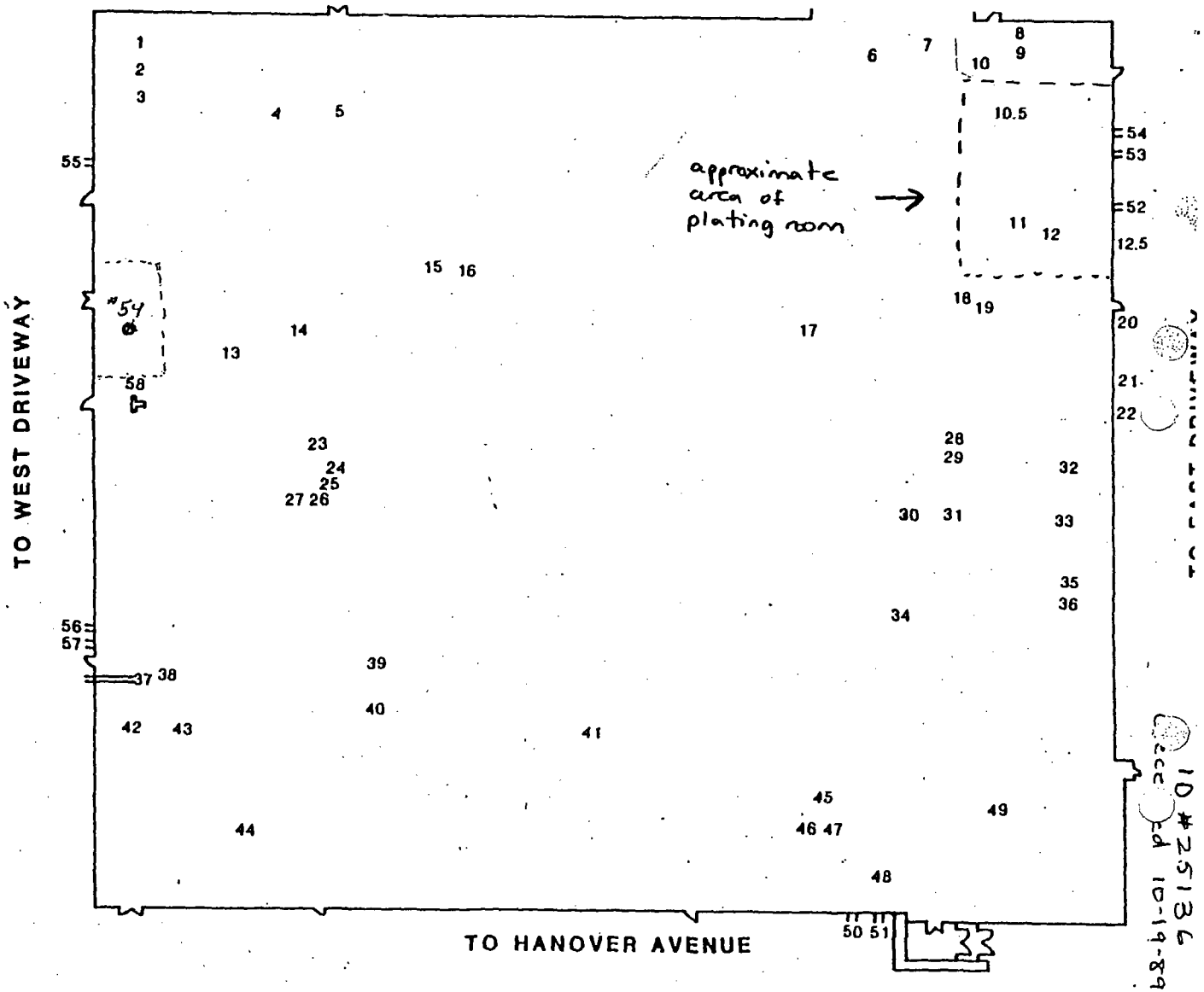
~~TIME~~ NO	UPDATE/COMMENTS
022	#28 Grit Blaster / Dust Collector: We don't have a copy of the P/C in our files (copy requested). Mr. Nith identified the stack as the one servicing 2 sources: a grit blaster w/ baghouse, and a small paint spray booth (no longer used) w/ filters. Each sources' controls are independent of each other. Neither source in operation ⇒ Leave temporary.
023	#33 Paint Shop / Paint Booth: In operation. No odors detected outside of shop (Temp CTO #81882 has a "no odors" condition.) According to the information supplied on an application attachment, the operation uses 0.6 gph and 5.0 gpd, which makes it exempt from Sub 16. However, the attachment also indicates a density of 9#/gal and a solvent content of 20% by wt., for a solvent content of 1.8 #/gal. Since the company was running a catalyzed coating today, with a short set-up time, I could not take a sample. With this surprisingly low VOS content reported, the coating should be sampled before the CTO can be made TTF. Sampling arrangements should be made before conducting the next APEDS inspection. The booth's filters were in place.
024,025	Vapor Degreasers A (located in the shop area) and B (located in the plating area). The APEDS printout shows the units to be covered by P/C's # 89520 (Log # 88-3954) and # 89521 (Log # 88-3953), respectively however, the company since has secured P/C Log #'s 89-3050 and 89-3049, respectively, to cover changes in the units contents. "A" now uses 1,1,1-trichloroethane, and "B" uses a freon-solvent mix. Both units in operation in compliance with sub 16.4. Forms submitted to input the new information associated with the new Log #'s, and to make these temporary CTO's TTF.
	NEXT APEDS will be June 1990. OK to wait for APEDS

Supervisor Signature

Investigator Signature

COPIES: White - DEQ File Yellow - BES Pink - Other

J-3



* STACK IDENTIFICATION ATTACHED

ID #25136
(rec'd 10-19-89)

J-4

DEQ-062
1/88

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
BUREAU OF ENFORCEMENT OPERATIONS

FIELD INVESTIGATION ASSIGNMENT REPORT

PLANT ID #	INSPECTOR ASSIGNED
25136	616

DATE ASSIGNED	DATE DUE
6-1-89	6-30-89
DATE COMPLETED	COUNTY
10-19-89	Morris

COMPANY NAME Litton Industries
LOCATION 200 E. Hanover Ave., Morris Plains
CDS CLASS: A1 ___ A2 ___ B ___ NSPS ___ NESHAPS ___ PSD ___
AIR GRANT (105): ☐ Yes ☐ No PLLT: PT ___ S2 ___ CO ___ N2 ___ VO ___ Other ___

TYPE OF ASSIGNMENT
☐ Complaint ☐ APEDS
☐ Order Followup
☑ Other (by code) TCPA

CYCLE

COMPLAINANT NAME ___ PHONE # ___
COMPLAINANT ADDRESS ___
DATE RECEIVED ___ TIME RECEIVED ___ RECORDED BY ___

ASSIGNMENT See attached - TCPA Inspection

PLANT CONTACT Nicholas Nihi
TITLE Environ. & Safety Compliance Engr.
ARRIVAL TIME AT PLANT 0940
TOTAL ASSIGNMENT TIME 7
STACKS INSPECTED ___ TEMPS ___
TOTAL SOURCES INSPECTED ___
DEQ-012 COMPLETED FOR SUBCHAPTERS ___

SUBCHAPTER	# INSP
OTHER	

COMPLAINT	TYPE	NUMBER

Time/Date at Complainant ___/___
Verified: ☐ Yes ☐ No
Give details below

VIOLATION FOLLOWUP INSPECTION
Violation Log # ___
Order Dated ___
Subchapter Violated ___
Compliance Achieved ☐ Yes ☐ No
Give details below

TYPE SAMPLE COLLECTED ___
OF SAMPLES COLLECTED ___
COMMENTS (by code) ___

DETAILS OF INSPECTION The company stores nitric acid only at 38% concentration. Three containers of 38% nitric acid, each weighing 146 #, were stored on site. No 94.5% nitric acid was observed to be stored on site. No other EHS was observed to be stored on site above, at or near its RQ. Two - 150 # cylinders of HF were stored on site, below the RQ of 500 #

INSPECTOR'S SIGNATURE [signature]
TITLE: Sr. Env. Engr.
SUPERVISOR'S REVIEW
INITIALS: JW DATE: 10-31-89

SEE ATTACHED FOR ADDITIONAL INFORMATION: ☑ YES ☐ NO

J-6

LITTON INDUSTRIES
(TR)
ATTN: ENV. OFF. PLT : 25136
200 E. HANOVER AVE.
MORRIS PLAINS NJ 07950

nitric acid

73

J-7

DEQ-062
-1/88

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
BUREAU OF ENFORCEMENT OPERATIONS

FIELD INVESTIGATION ASSIGNMENT REPORT

PLANT ID #	INSPECTOR ASSIGNED
25136	090

DATE ASSIGNED	DATE DUE
9-15-88	9-30-88
DATE COMPLETED	COUNTY
9/20/88	Morris

COMPANY NAME Airtron, Div of Litton

LOCATION

CDS CLASS: A1 ___ A2 ___ B ___ NSPS ___ NESHAPS ___ PSD ___

TYPE OF ASSIGNMENT
☐ Complaint ☐ APEDS
☐ Order Followup
☒ Other (by code) CMA

CYCLE

AIR GRANT (105): ☐ Yes ☐ No PLLT: PT ___ S2 ___ CO ___ N2 ___ VO ___ Other ___

COMPLAINANT NAME ___ PHONE # ___

COMPLAINANT ADDRESS ___

DATE RECEIVED ___ TIME RECEIVED ___ RECORDED BY ___

ASSIGNMENT See Attached Sample Results - OK?

PLANT CONTACT ___

TITLE ___

ARRIVAL TIME AT PLANT ___

TOTAL ASSIGNMENT TIME 4

STACKS INSPECTED ___ TEMPS ___

TOTAL SOURCES INSPECTED ___

DEQ-012 COMPLETED FOR SUBCHAPTERS ___

SUBCHAPTER	# INSP
8	1
16	1
OTHER	

COMPLAINT	TYPE	NUMBER

Time/Date at Complainant ___ / ___

Verified: ☐ Yes ☐ No

Give details below

VIOLATION FOLLOWUP INSPECTION

Violation Log # ___

Order Dated ___

Subchapter Violated ___

Compliance Achieved ☐ Yes ☐ No

Give details below

TYPE SAMPLE COLLECTED ___

OF SAMPLES COLLECTED ___

COMMENTS (by code) 001

DETAILS OF INSPECTION

RESULTS INDICATE COMPLIANT COATING WITH SUB 16.
THIS IS A G/F PIECE OF EQUIPMENT.

INSPECTOR'S SIGNATURE Andrew Tyson

TITLE: Air Env Spec.

SUPERVISOR'S REVIEW

INITIALS: DW DATE: 9-20-88

SEE ATTACHED FOR ADDITIONAL INFORMATION ☒ YES ☐ NO

N-8

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NORTHERN BUREAU OF REGIONAL ENFORCEMENT
1259 ROUTE 46, BUILDING 2
PARSIPPANY, NEW JERSEY 07054

NOV 22 1989

Nicholas J. Nitti, Environmental and
Safety Compliance Engineer
Litton Industries, Incorporated
Airtron Division
200 East Hanover Avenue
Morris Plains, New Jersey 07958-2496

Dear Mr. Nitti:

Re: Compliance Evaluation Inspection
Litton Industries, Incorporated - Airtron Division
NJPDES No.: NJ0025739
Munic/County: Hanover Township, Morris County

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on June 27, 1989. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "CONDITIONALLY ACCEPTABLE" due to the following deficiencies:

1. Your facility violated its volatile organics permit limitation at outfall 001 in July 1988, and it was indicated to the Department's representative during the inspection that effluent limit excursions were most likely to occur during the annual plant shutdown in July;

2. Flow values at outfall 002 are not being reported in the manner required by the permit. Should your Company wish to continue reporting estimated flow values, it must receive the written approval of the Bureau of Industrial Discharge Permits;

3. Not all parameters required to be analyzed by your NJPDES permit are being analyzed by a State certified laboratory.

Since the deficiencies cited are generally NJPDES permit violations, you are required to institute measures to correct the deficiencies. A written report concerning specific details of remedial measures to be instituted, as well as an implementation timetable, must be submitted

K-1

to this Department and USEPA, Permits Administration Branch within thirty (30) calendar days of the date of this correspondence. In addition, please be advised that this Compliance Evaluation Inspection pertains to your Company's surface water discharge and does not pertain at all to the ground water remediation investigation occurring at your facility.

Both the New Jersey Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.) provide for substantial penalties in cases of permit violations.

Please direct all correspondence and inquiries to Lisa Rae Tracy, of my staff, who can be reached at (201) 299-7592 or by letter through this Division.

Very truly yours,

Joan F. Rogauskas

Joan F. Rogauskas, Acting Section Chief
Surface Water and Sewer System
Enforcement
Northern Bureau of Regional
Enforcement

E114:dc

Enclosure

c: Chief Joseph M. Mikulka, Northern Bureau of Regional Enforcement
Patrick Durack, USEPA - Region II
Chief, Permits Administration Branch, USEPA - Region II
Chief Robert Oberthaler, Bureau of Industrial Discharge Permits
Hanover Township Health Department
Madison Health District

bc: Lisa Tracy
Bureau File THRU J. Rogauskas
Central File/NJPDES: NJ0025739 (01)
Enforcement Actions (Virginia Kennedy)

3/81

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

DISCHARGE SURVEILLANCE REPORT

PERMIT # NJ0025739 NO. OF DISCHARGES 2 CLASS MAJ-IND-S

DISCHARGER Litton Industries, Inc - Airtron Div.

OWNER Same

MUNICIPALITY Hanover Twp COUNTY Morris WATERSHED CODE P

LOCATION 200 East Hanover Ave.

RECEIVING WATERS Trib → Whippany River STREAM CLASS FW2-NT

LICENSED OPERATOR & PLANT CLASS Nicholas Nitti N-4 (N-2 req.)

TRAINEE/ASSISTANT Robert Smith N-1 OTHER INFO. (201)539-5500

EDP - 5-1-85

DEFICIENCIES OR COMMENTS 1. Exceeded permit limit for volatile organics in July 1988 (#001)

2. Flow (#002) estimated once previously + reported each month

3. pH (#001) must be done by acertified laboratory.

OVERALL RATING ☐ Acceptable ☒ Conditionally Acceptable ☐ Unacceptable

EVALUATOR Lisa Rae Tracy TITLE Sr. Env. Spec.

INFORMATION FURNISHED BY (Name) Nicholas J. Nitti

(Title) Env + Safety Compliance Eng. (Organization) Litton Inds - Airtron Div

DATE OF INSPECTION 27 June '89

K-3

Form DWR-03-A
4/78

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

Permit #: NJ0025739
Date: 27 June 89

Airtron

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE # 001	---	Gallium Arsenide pit + plating rinse
	WASTEWATER SOURCE(S)	---	waters, Gallium Arsenide polishing
	CONTINUITY OF OPERATION	---	waste, brazing area rinse water, HCl +
	BYPASSES/OVERFLOWS		acid holding tank (walls),
	S.P.C.C. PLAN	NA	6-7 days 16-24 hrs/day
	ALARM SYSTEMS	—	high water in sump; pH. 24 hr site
	ALTERNATE POWER SUPPLY	NA	security
TREATMENT PROCESSES	Neutralization (T-1)		w/lime, ferric chloride, H_2SO_4 feeds - cc
	Flocculation (T-2)		polymer feed prior to unit
	Clarification		
	Batch As tx tank		T-8
	Batch F tx tank		T-6. Also receives cyanide +
			acid hold tanks' wastewater +
			clarifier sludge
SLUDGE HANDLING	Filter press		Filtrate returns to neutraliz'n tank
	EPA ID# NJD030239412		
	DISPOSAL SITE	—	via AETC
INFORMATION	FLOW METER & RECORDER	S	Drexel brook totallizing meter -
	RECORDS	S	final settling tank T-7 Calib 6-9-89
	SAMPLING PROCEDURES	S	
	ANALYSES PERFORMED BY		Townley Research + Consulting #18071
			AquaSurvey, Inc # 10309
			Trace Technologies, Inc # 18478
OTHER			Facility currently records + reports
			its own pH values - is not
			certified to do so
	FINAL EFFLUENT APPEARENCE	S	clear
	REC. WATERS APPEARENCE	S	Clear but very red tone about
			below outfall

K-4

Form DWR-053-A
4/78

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

Permit #: NJ6025739
Date: 27 June 89

Airtron

INDUSTRIAL TREATMENT PROCESS EVALUATION

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

		RATING	COMMENTS
GENERAL	DISCHARGE # 002	---	1 water fountain, stormwater from parking lot + roof drains
	WASTEWATER SOURCE(S)	---	
	CONTINUITY OF OPERATION	---	
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	↓	
	ALARM SYSTEMS		
	ALTERNATE POWER SUPPLY		
TREATMENT PROCESSES	No treatment		
SLUDGE HANDLING	DISPOSAL SITE		
OTHER INFORMATION	FLOW METER & RECORDER	U	Estimated.
	RECORDS	S	
	SAMPLING PROCEDURES	S	Grabs at outfall by Airtron personnel. Preserved.
	ANALYSES PERFORMED BY	S	→ Townley Research + Consulting
	FINAL EFFLUENT APPEARENCE	S	Clear at outfall. Some turbidity further down drainage ditch
	REC. WATERS APPEARENCE	NI	

K-5

Monitoring Information

NJ0025739- Litton Inds - Airtron Division

Source - April 1989 DMR

Parameter	Limits	Reported Values kgd	Reported Values concentration
	#001		
Temperature	30 °C max	———	max 20.6 °C
pH	6.0 - 9.0 su	[illegible]	7.4 - 7.7 su
TSS	0.9/1.8 kgd	.0512/.0636	2.2/2.4
Oil + Grease	10/15 mg/l	———	4.8/6.0 mg/l
Cyanide	.02/.04 kgd	.000/.000	0.0/0.0 mg/l
Fluoride	.07/.12 kgd	.0063/.0093	Not reported
Arsenic	.003/.008 kgd	.0017/.0034	Not reported
Cadmium	.012/.031 kgd	.000/.000	1.0/2.0 ug/l
Chromium	.02/.04 kgd	.0002/.0003	6.0/12.0 ug/l
Copper	.02/.04 kgd	.0008/.0015	29.0/56.0 ug/l
Lead	.02/.03 kgd	.000/.000	.000/.000 mg/l
Nickel	.02/.04 kgd	.0008/.0015	.03/.056 mg/l
Silver	.002/.004 kgd	.0001/.0002	.003/.006 mg/l
Zinc	.02/.04 kgd	.0001/.0001	.003/.004 mg/l
Flow	No limit.	30 day ave - .00606 mg	
Total Toxic Organics	2.08 mg/l max	0/0	0/0 mg/l
V05624	100 ug/l max	———	28.355/53.27 ug/l
Acute toxicity	$LC_{50} \geq 50\%$		

Note: Cd, Cu, Cr concentrations are ppb. Pb, Ni, Ag, Zn, CN are ppm.

Continued:

#002

Parameter	Limits	Concentrations
COD	100 mg/l max	17.0/17.0 mg/l
TSS	50 mg/l max	2.8/2.8 mg/l
pH.	6.0-9.0 su	7.7-8.1 su
Oil + Grease	15 mg/l max	2.0/2.0 mg/l
Flow	No Limit	.0012 mgd ave

Reported effluent violations since 7-88 (1 calender year):

July 1988 #001 VO-624 131 mg/l

Reported effluent limit violations since 10-23-87 (last inspection):

#001 VO-624 Nov 87
Dec 87
Jan 88
Feb 88
March 88

K-7

Airtron - PLOT PLAN & FLOW SCHEME

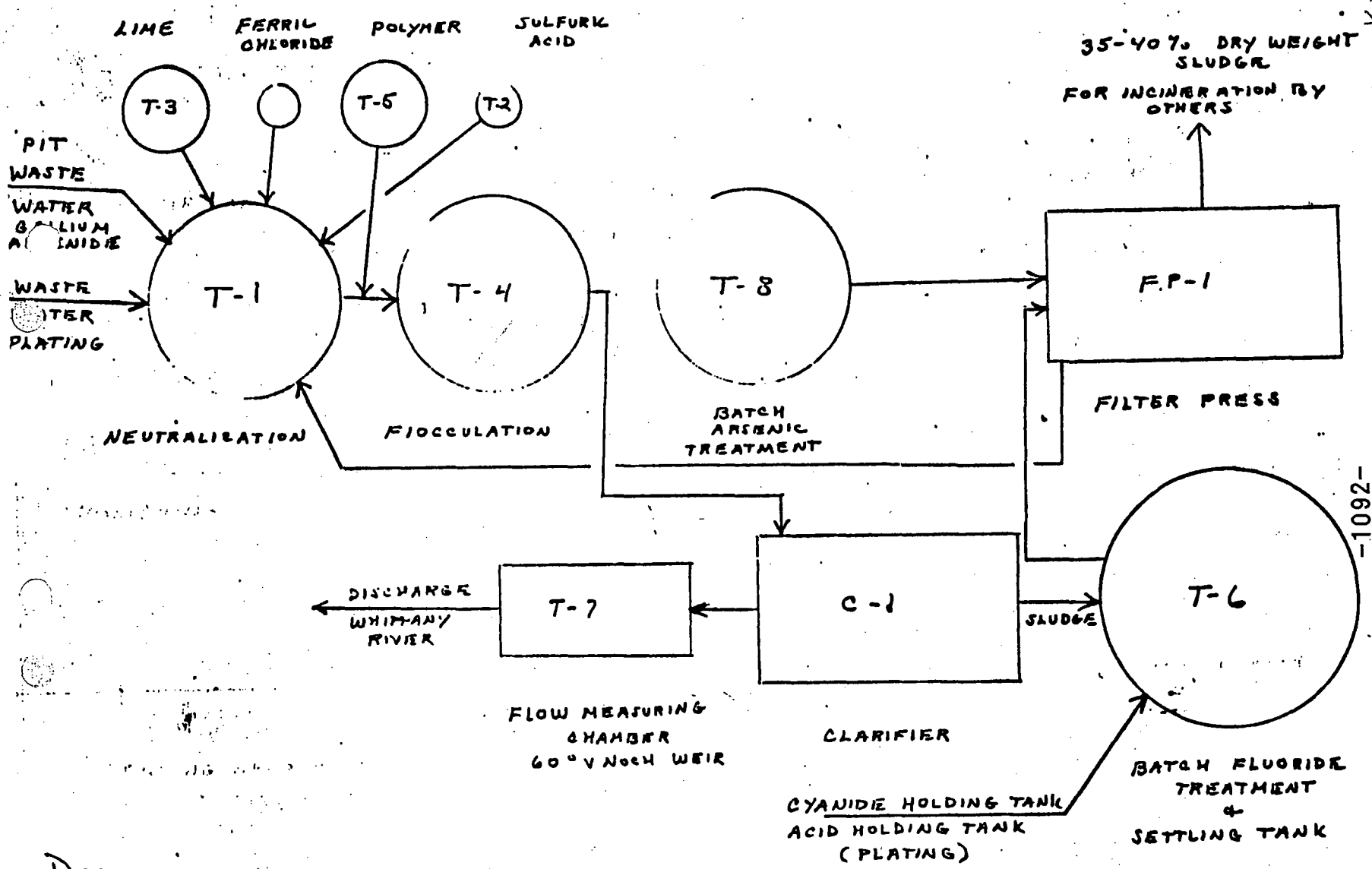
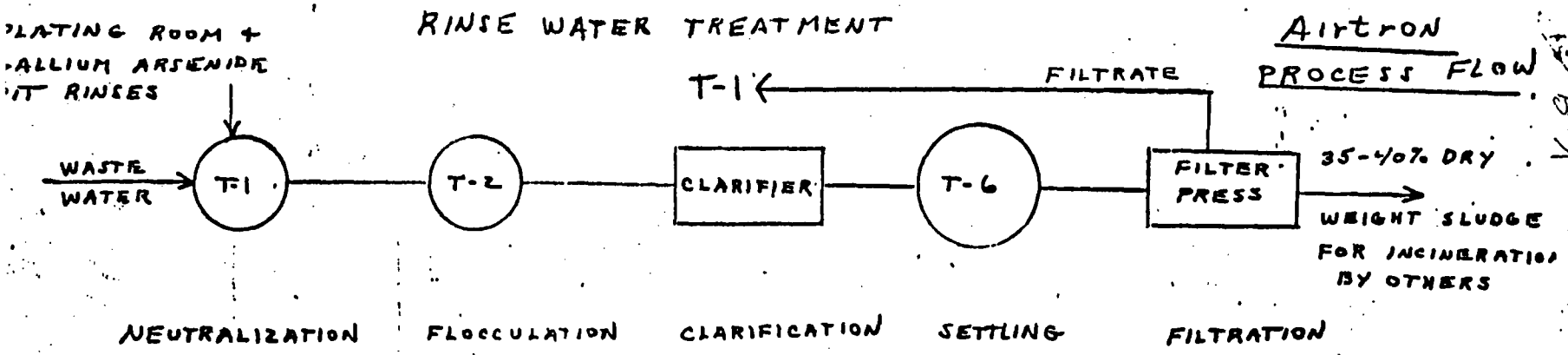


Diagram provided by Airtron 7-89

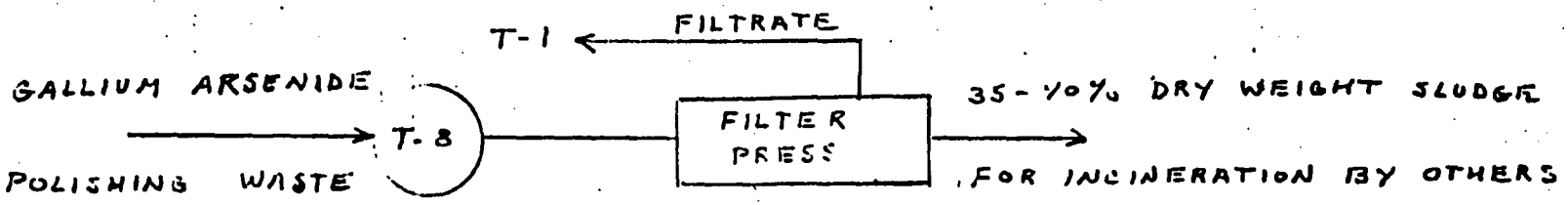
-1092-

RINSE WATER TREATMENT

Airtron PROCESS FLOW

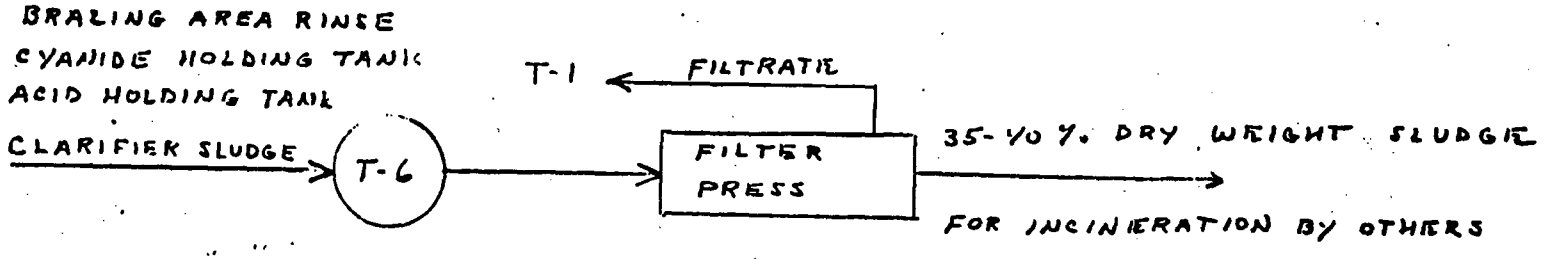


ARSENIC BATCH TREATMENT

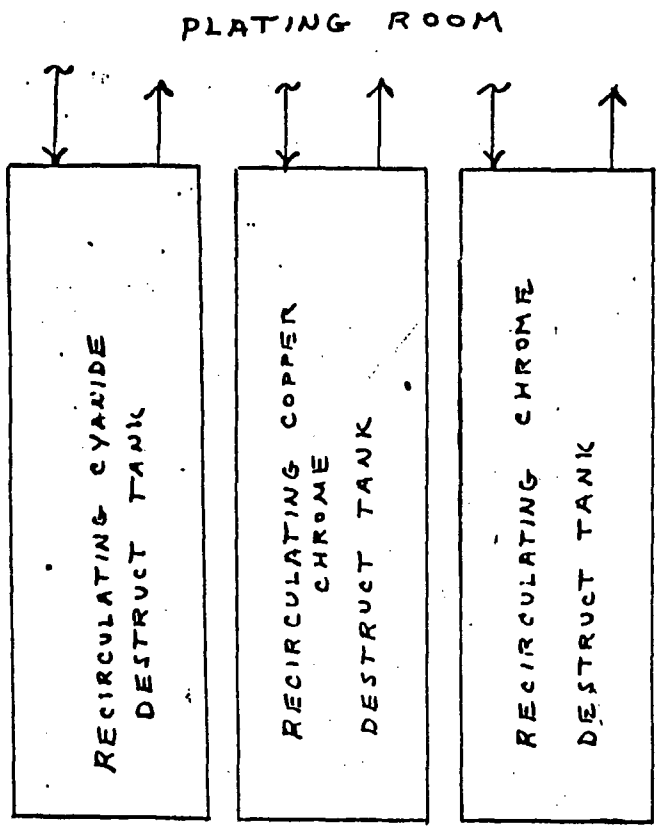


FLUORIDE BATCH TREATMENT

Diagram Provided by Airtron 7/89



-1093-



PLATING ROOM
TREATMENT TANKS

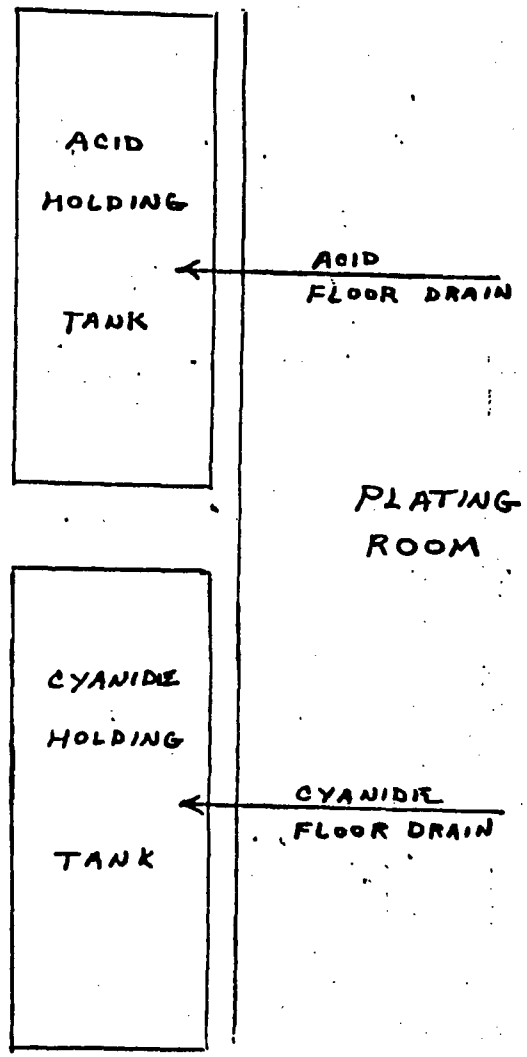


Diagram Provided by Airtron 7/89

K-10

-1094-

Form ADM-015
8/86:mlb

STATE OF NEW JERSEY

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Date: 11-21-89

TO	FROM
Nicholas J. Nitti	LISA TRACY
Environmental +	Northern Bureau of Regional
Safety Compliance	Enforcement, Div. of Wtr. Res.
Engineer	1259 Route 46 - Building 2
Litton Industries -	Parsippany, NJ 07054
Airtron Division	Phone No.: 201-299-7592

For Your:

ACTION COMMENTS	APPROVAL SIGNATURE	INFO FILE	REVIEW OTHER

FURTHER COMMENTS:

Enclosed are analytical results for grab samples taken by NJDEP on May 11, 1989. Abbreviations in the data package are: MDL - Minimum detection limit, K - less than, ND - not detected at ~~MDL~~ MDL used. Any questions, please call. K-11

New Jersey State Department of Health
Public Health and Environmental Laboratories
CN 361, Trenton, NJ 08625-0361

AQUEOUS SAMPLE ANALYSIS REQUEST

Lab Sample Number

☒ Routine (0) ☐ Priority (2) ☐ Emergency (1)

SAMPLE INFORMATION

Sampling Point/Station Identification Number: NJ 0025739 001

Collection Date (MM/DD/YY): 5/11/89

Collection Time (Military): 9:40 AM

Field Sample Number: 51840

Sampling Site/Facility/Supply/Location: Airtron, Morris Plains, N.J.

Stream: Whippany River

Municipality: Morris Plains

County: Morris

Sample Type
- ☐ Stream/Surface
- ☐ Sewage ☐ Raw ☐ Effluent
- ☒ Industrial ☐ Raw ☒ Effluent
- ☐ Ground Water
- ☐ Potable-Raw
- ☐ Potable-Finished
- ☐ Private Well
- ☐ Ocean/Saline
- ☐ Other

Chain of Custody ☒ Yes ☐ No

Data Package ☒ Tier II ☐ Tier I

Retain Sample ☐ Yes ☒ No

AGENCY INFORMATION

Submitting Agency: NJDEP-DWR-WBRE

Sample Collector: J. Christopher

Street Address: 1259 Rt 46, Bldg #2

DEP Agency No.: 222

DEP Project Code: CG 2M

City, State, Zip Code: Parsippany, NJ 07054

Comments

Field Information

Water Temp °C (P00010)	16°	Stream Flow-CFS (P00061)	
Do-Winkler (P00300)		Gage Height-Ft. (P00065)	
Do-Probe (P00299)		Spec. Cond. @ 25°C (P00095)	
pH (Field) (P00400)	6-7	Salinity (P00480)	
Sample Depth Ft. (P00003)		Tide Stage (P70211)	

ANALYSIS REQUESTS

BACTERIOLOGY

Bact. Lab. Sample No.

Date Received

- ☐ Fecal Coli (MPN)
- ☐ Fecal Coli (MF)
- ☐ Fecal Streptococci (MPN)
- ☐ Tot. Coli (MPN)
- ☐ Tot. Coli (MF)

DILUTIONS REQUESTED

Fecal Coli / Total Coli	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Strep.	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

NUTRIENTS

- ☐ NO2-N (NAN02N)
- ☐ NO2 + NO3-N (NAN03N)
- ☐ NH3-N (NAMH3N)
- ☐ TKN (NATKN)
- ☐ ORTHO-P (NAOP)
- ☐ TOTAL-P (NATP)

DEMANDS

- ☐ COD (COD)
- ☐ TOC (DATOC)
- ☐ BOD5 (BOD5)
- ☐ CBOD5 (CBOD5)
- ☐ BOD20 (BOD2)
- ☐ CBOD20 (CBOD2)

BOD DILUTIONS REQUESTED

BOD_5			
$CBOD_5$			
BOD_{20}			
$CBOD_{20}$			

RESIDUES

- ☒ Non-Filterable Residue (RASS)
- ☐ Total Residue (RATS)
- ☐ Filterable Residue (RATDS)
- ☐ Non-Filterable Volatile Residue (RAVSS)
- ☐ Total Volatile Residue (RAVTS)
- ☐ Filterable Volatile Residue (RAVDS)
- ☐ Settable Matter (RASM)

GENERAL

- ☐ Color (GAC)
- ☐ Odor (GAO)
- ☐ Turbidity (GAT)
- ☐ PH (GAPH)
- ☐ Alkalinity (GAALK)
- ☐ Acidity (GAACID)
- ☐ Chloride (GACL)
- ☐ MBAS (GAMBAS)
- ☐ Phenols (SSI) (GAPHE)
- ☐ Phenols (PW) (GAPHEX)
- ☐ Hardness (GAHARD)
- ☐ Sulfate (GASO4)
- ☐ Oil & Grease (GAOG)
- ☐ Petroleum Hydrocarbons (GAPHC)
- ☒ Cyanide (GACN)
- ☐ Conductance (GACOND)
- ☐ Dissolved Oxy. (GADO)
- ☒ Fluoride (GAF)
- ☒ Fluoride w/Dist. (GAFD)
- ☐ Silica (GASI)
- ☐ Sulfide (GAS)

METALS

- ☒ Ag (MAAG)
- ☐ Al (MAAL)
- ☒ As (MBAS)
- ☐ Ba (MABA)
- ☐ Be (MABE)
- ☐ Ca (MACA)
- ☒ Cd (MACD)
- ☐ Cr-H (MACRH)
- ☒ Cr-T (MACR)
- ☐ Co (MACO)
- ☒ Cu (MACU)
- ☐ Fe (MAFE)
- ☐ Hg (MAHG)
- ☐ K (MAK)
- ☐ Mg (MAMG)
- ☐ Mn (MAMN)
- ☐ Na (MANA)
- ☒ Ni (MANI)
- ☒ Pb (MAPB)
- ☐ Sb (MBSB)
- ☐ Se (MBSE)
- ☐ Sn (MBSN)
- ☐ Tl (MBTI)
- ☐ Tl (MBTL)
- ☒ Zn (MAZN)

ORGANICS

- ☐ EPA 601 (VO601)
- ☐ EPA 602 (VO602)
- ☐ EPA 612 (VO612)*
- ☐ EPA 624 (VO624)*
- ☐ EPA 625 (VO625)
- ☐ EPA 625 Base Neut. only (M625B)
- ☐ EPA 625 Acids only (M625A)
- ☐ EPA 503.1 (VO503)*
- ☐ PEST 1 Organochlorines and PCB's*
- ☐ PEST 2 Organophosphates
- ☐ PEST 3 Herbicides
- ☐ PEST 4 Drinking Water
- ☐ PCB's Only

OTHER

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

*A280 Analysis

ENVIRONMENTAL CHEMISTRY LABORATORY

CHEM-44
FEB-87

Distribution: White-Submitting Agency; Canary-Chem. Lab. Central File; Pink-Bacteriology Lab; Gold-Sample Collector

P8912

K-12

5-12

New Jersey State Department of Health
Public Health and Environmental Laboratories

AQUEOUS GENERAL CHEMISTRY RESULTS

Lab. Sample No. 51840

Analysis (1)	Sample Result	Method Blank	MDL
Nitrite Nitrogen (P00615)			0.003
Nitrite & Nitrate Nitrogen (P00630)			0.05
Ammonia Nitrogen (P00610)			0.05
Total Kjeldahl Nitrogen (P00625)			0.05
Ortho Phosphorus (P70507)			0.01
Total Phosphorus (P00665)			0.02
Non-Filterable Residue (P00530)	5		2
Total Residue (P00500)			2
Filterable Residue (P70300)			2
Non-Filterable Volatile Residue (P00535)			2
Total Volatile Residue (P00505)			2
Filterable Volatile Residue (P00520)			2
Settleable Matter in ml/l/hr (P50086)			0.2
COD - std (P00340)			50
COD - Low (P00335)			5
COD - High Chloride (P00340)			250
TOC (P00680)			0.1

Analysis (1)	Sample Result	Dilutions				MDL
BOD_5 (P00310)		% Conc.				
		+/-				
$CBOD_5$		% Conc.				
		+/-				
BOD_{20}		% Conc.				
		+/-				
CBOD20		% Conc.				
		+/-				

Analysis (1)	Sample Result	Method Blank	MDL
Color in Platinum - Cobalt Units (P00080)			5
Odor			1
Turbidity in NTU (P00067)			0.1
pH in pH Units (P00403)			—
Alkalinity (P00410)			1
Acidity (P00436)			1
Chloride (P00940)			0.5
MBAS (P38260)			0.1
Phenols (SSI) (P32730)			0.05
Phenols (pw) (P32730)			0.005
Hardness (P00900)			2
Sulfate (P00945)			1
Oil & Grease (P00556)			5
Petroleum Hydrocarbons (P45510)			1
Cyanide (P00720)	0.001K		0.001
Conductance in umhos (P00095)			0.1
Dissolved Oxygen (P00300)			0.2
Fluoride (P00951)			0.1
Fluoride with distillation (P00951)	0.21		0.1
Silica (P00955)			2
Sulfide (P00745)			1

NOTE: Sample results, method blank results and MDL's are expressed in parts per million (ppm), unless otherwise specified.

REPORT SUBMITTED
JUN 10 ..

Name of Supervisor - Print	Signature	Date

CHEMISTRY LABORATORY

CHEM-46
Dec 88

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*G0431

1097

K-13

NEW JERSEY STATE DEPARTMENT OF HEALTH
PUBLIC HEALTH AND ENVIRONMENTAL LABORATORIES

METAL ANALYSIS RESULTS

Laboratory Sample Number: 51840

ANALYSIS	Sample Concentration (ppb)	Minimum Detection Level (ppb)	Method Blank Result (ppb)
Aluminum			
Antimony			
Arsenic	30		
Barium			
Beryllium			
Cadmium	3		
Calcium			
Chromium, Hexavalent			
Chromium, Total	17		
Cobalt			
Copper	145		
Iron			
Lead	5K		
Magnesium			
Manganese			
Mercury			
Nickel	288		
Potassium			
Selenium			
Silver	5K		
Sodium			
Thallium			
Titanium			
Tin			
Zinc	19		

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JUN 6
PUBLIC ENVIRONMENTAL
CHEMISTRY LABORATORY

Supervisor (Print)	Signature	Date

CHEM-14
MAY 86

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P8221

K-14

DEP-016
2/86

Use one form for each sample

JERSE EPARTMENT OF ENVIRONMENTAL P ECTION
BUREAU OF ENVIRONMENTAL LABORATORIES
380 SCOTCH ROAD, TRENTON, N.J. 08628

RECEIVED

LAB USE ONLY
LAB CONTROL NO. 14414

REQUEST FOR ANALYSIS & CHAIN OF CUSTODY RECORD

SAMPLING LOCATION: Ailton, Litton Ind.				
FIELD SAMPLE NO.: B 03761	SAMPLE TYPE: Ind. - effluent (51840)	PRESERVED: ☒	COLLECTION DATE (MO-DAY-YR): 5-1-89	TIME: 9:40 AM
RESPONSIBLE AGENCY: DWR - NBRE	PERSON AUTHORIZED TO REQUEST ANALYSIS: Ron Rossi			PHONE NO.: 2-01127
SEND RESULTS TO: J. Urciuoli	NAME & ADDRESS OF UNIT: DWR-NBRE, 1259 Rt 46, Bldg #2, Parsippany, NJ. 07054			
SAMPLES WILL BE DISCARDED AFTER ANALYSIS UNLESS NOTED BELOW.				
REMARKS: 222/C624m			ACCOUNT NO.	

ANALYSES TO BE PERFORMED

I. Organics

- ☐ A. Halogenated and Aromatic Volatiles
- ☐ B. Volatiles
- ☐ C. Trihalomethanes
- ☐ D. Pesticides/PCB's
- ☐ E. PCB's
- ☐ F. Bill 280 ☐ Volatiles ☐ Chlordane & PCB's
- ☐ G. Base-Neutral/Acid Extractables
- ☐ H. Pesticides, Drinking Water
- ☐ I. Herbicides, Drinking Water

II. Inorganics

- ☐ A. Metals, Drinking Water ☐ Primary ☐ Secondary
- ☐ B. Metals, Priority Pollutant
- ☐ C. Metals Scan (ICP)
- ☐ D. Metals, Water Pollution, specify: _____

III. Limited Chemistry

- ☐ A. Total Cyanide
- ☐ B. Total Phenol
- ☒ C. Oil and Grease
- ☐ D. pH

IV. RCRA

- ☐ A. EP Toxicity ☐ Metals ☐ Pesticides ☐ Herbicides
- ☐ B. Ignitibility
- ☐ C. Corrosivity ☐ pH ☐ Coupon
- ☐ D. Reactivity

V. Other (Specify)

Number of Containers	Size of Containers	Batch No. of Containers	DESCRIPTION OF SAMPLE
2	950ml	112487	

LAB USE ONLY
PRICE LIST
- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E
- ☐ F
- ☐ Other _____ (hours)

RELINQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
[illegible]	Dave Sanderson	4/29/89	1420	Bottle Pickup
Gary Sidorson	C. T. Cirla	5/2/89	8910	Bottle Issued
T. J. Cirla	J. Urciuoli	5/10/89	10:00	" "
J. Urciuoli	Mark Tumanillo	5/11/89	1330	Transfer to DEQAS
L. Bidwell	Helen Kingle	5/15/89	1110	Sample Prep

COPIES: Gold – Sample Receipt Pink – Lab Yellow – Client White – BEL PAGE ____

-033

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL LABORATORIES

QUANTITATIVE RESULTS & QUALITY ASSURANCE DATA

MISCELLANEOUS PARAMETERS

LAB. CONTROL #: 14414

SAMPLE TYPE: Liquid

FIELD SAMPLE #: B03761

ANALYTICAL METHOD: Gravimetric

REPORT DATE: May 20 1989

EXTRACTION DATE: May 16, 1989

SECTION SUPERVISOR: Nelle Kingle

LAB. SUPERVISOR: F.G. 5/30/89

CHECK APPROPRIATE CATEGORY

- ☐ AIR µg/m³
- ☐ SWAB µg/cm² µg/in.²
- ☐ SOIL µg/g
- ☒ OTHER mg/l

PARAMETER	RESULTS		QUALITY CONTROL DATA				
	SAMPLE DATA			LAB DUPLICATE		MATRIX SPIKE	
	SAMPLE CONCENTRATION	MDL	REAGENT BLANK / METHOD BLANK	LAB DUPLICATE	% DIFF.	CONCENTRATION ADDED	% RECOV.
Oil & Grease	ND	0.5 mg/l	ND				

ND = Not Detected

NA = Not Applicable

New Jersey State Department of Health
Public Health and Environmental Laboratories
CN 361, Trenton, NJ 08625-0361

AQUEOUS SAMPLE ANALYSIS REQUEST

Lab Sample Number

☒ Routine (0) ☐ Priority (2) ☐ Emergency (1)

SAMPLE INFORMATION

Sampling Point/Station Identification Number: NJ 0025739 002

Collection Date (MM/DD/YY): 5/11/89

Collection Time (Military): 9:50AM

Field Sample Number: 51 841

Sampling Site/Facility/Supply/Location: Anthony, Morris Plains, N.J.

Stream: Whippany River

Municipality: Morris Plains

County: Morris

Sample Type
- ☐ Stream/Surface
- ☐ Sewage ☐ Raw ☐ Effluent
- ☒ Industrial ☐ Raw ☒ Effluent
- ☐ Ground Water
- ☐ Potable-Raw
- ☐ Potable-Finished
- ☐ Private Well
- ☐ Ocean/Saline
- ☐ Other

Chain of Custody ☒ Yes ☐ No

Data Package ☒ Tier II ☐ Tier I

Retain Sample ☐ Yes ☒ No

AGENCY INFORMATION

Submitting Agency: NJDEP-DWR-HBRE

Sample Collector: J. Christofs

Street Address: 1259 Rt 46, Bldg #2

DEP Agency No.: 222

DEP Project Code: C624M

City, State, Zip Code: Parsippany NJ 07054

Comments: Stormwater

Field Information

Water Temp °C (P00010)	10°	Stream Flow-CFS (P00061)	
Do-Winkler (P00300)		Gage Height-Ft. (P00065)	
Do-Probe (P00299)		Spec. Cond. @ 25°C (P00095)	
pH (Field) (P00400)	6-7	Salinity (P00480)	
Sample Depth Ft. (P00003)		Tide Stage (P70211)	

ANALYSIS REQUESTS

BACTERIOLOGY

Bact. Lab. Sample No.

Date Received

- ☐ Fecal Coli (MPN)
- ☐ Fecal Coli (MF)
- ☐ Fecal Streptococci (MPN)
- ☐ Tot. Coli (MPN)
- ☐ Tot. Coli (MF)

DILUTIONS REQUESTED

Fecal Coli / Total Coli	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Strep.	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

NUTRIENTS

- ☐ N02-N (NAN02N)
- ☐ N02 + N03-N (NAN03N)
- ☐ NH3-N (NANH3N)
- ☐ TKN (NATKN)
- ☐ ORTHO-P (NAOP)
- ☐ TOTAL-P (NATP)

DEMANDS

- ☒ COD (COD)
- ☐ TOC (DATOC)
- ☐ BOD5 (BOD5)
- ☐ CBOD5 (CBOD5)
- ☐ BOD20 (BOD2)
- ☐ CBOD20 (CBOD2)

BOD DILUTIONS REQUESTED

BOD_5			
$CBOD_5$			
BOD_{20}			
$CBOD_{20}$			

RESIDUES

- ☒ Non-Filterable Residue (RASS)
- ☐ Total Residue (RATS)
- ☐ Filterable Residue (RATDS)
- ☐ Non-Filterable Volatile Residue (RAVSS)
- ☐ Total Volatile Residue (RAVTS)
- ☐ Filterable Volatile Residue (RAVDS)
- ☐ Settable Matter (RASM)

GENERAL

- ☐ Color (GAC)
- ☐ Odor (GAO)
- ☐ Turbidity (GAT)
- ☐ PH (GAPH)
- ☐ Alkalinity (GAALK)
- ☐ Acidity (GAACID)
- ☒ Chloride (GACL)
- ☐ MBAS (GAMBAS)
- ☐ Phenols (SSI) (GAPHE)
- ☐ Phenols (PW) (GAPHEX)
- ☐ Hardness (GAHARD)
- ☐ Sulfate (GASO4)
- ☐ Oil & Grease (GAOG)
- ☐ Petroleum Hydrocarbons (GAPHC)
- ☐ Cyanide (GACN)
- ☐ Conductance (GACOND)
- ☐ Dissolved Oxy. (GADO)
- ☐ Fluoride (GAF)
- ☐ Fluoride w/Dist. (GAFD)
- ☐ Silica (GASI)
- ☐ Sulfide (GAS)

METALS

- ☐ Ag (MAAG)
- ☐ Al (MAAL)
- ☐ As (MBAS)
- ☐ Ba (MABA)
- ☐ Be (MABE)
- ☐ Ca (MACA)
- ☐ Cd (MACD)
- ☐ Cr-H (MACRH)
- ☐ Cr-T (MACR)
- ☐ Co (MACO)
- ☐ Cu (MACU)
- ☐ Fe (MAFE)
- ☐ Hg (MAHG)
- ☐ K (MAK)
- ☐ Mg (MAMG)
- ☐ Mn (MAMN)
- ☐ Na (MANA)
- ☐ Ni (MANI)
- ☐ Pb (MAPB)
- ☐ Sb (MBSB)
- ☐ Se (MBSE)
- ☐ Sn (MBSN)
- ☐ Ti (MBTU)
- ☐ Tl (MBTL)
- ☐ Zn (MAZN)

ORGANICS

- ☐ EPA 601 (VO601)
- ☐ EPA 602 (VO602)
- ☐ EPA 612 (VO612)*
- ☐ EPA 624 (VO624)*
- ☐ EPA 625 (VO625)
- ☐ EPA 625 Base Neut. only (M625B)
- ☐ EPA 625 Acids only (M625A)
- ☐ EPA 503.1 (VO503)*
- ☐ PEST 1 Organochlorines and PCB's*
- ☐ PEST 2 Organophosphates
- ☐ PEST 3 Herbicides
- ☐ PEST 4 Drinking Water
- ☐ PCB's Only

OTHER

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐ A280 Analysis

CHEMISTRY LABORATORY

CHEM-44
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P8912

K-17

5-12

New Jersey State Department of Health
Public Health and Environmental Laboratories

AQUEOUS GENERAL CHEMISTRY RESULTS

Lab. Sample No. 51841

Analysis (1)	Sample Result	Method Blank	MDL
Nitrite Nitrogen (P00615)			0.003
Nitrite & Nitrate Nitrogen (P00630)			0.05
Ammonia Nitrogen (P00610)			0.05
Total Kjeldahl Nitrogen (P00625)			0.05
Ortho Phosphorus (P70507)			0.01
Total Phosphorus (P00665)			0.02
Non-Filterable Residue (P00530)	3		2
Total Residue (P00500)			2
Filterable Residue (P70300)			2
Non-Filterable Volatile Residue (P00535)			2
Total Volatile Residue (P00505)			2
Filterable Volatile Residue (P00520)			2
Settleable Matter in ml/l/hr (P50086)			0.2
COD - std (P00340)			50
COD - Low (P00335)	5 K		5
COD - High Chloride (P00340)			250
TOC (P00680)			0.1

Analysis (1)	Sample Result	Dilutions				MDL
BOD_5 (P00310)		% Conc.				
		+/-				
$CBOD_5$		% Conc.				
		+/-				
BOD_{20}		% Conc.				
		+/-				
CBOD20		% Conc.				
		+/-				

Analysis (1)	Sample Result	Method Blank	MDL
Color in Platinum - Cobalt Units (P00080)			5
Odor			1
Turbidity in NTU (P00067)			0.1
pH in pH Units (P00403)			—
Alkalinity (P00410)			1
Acidity (P00436)			1
Chloride (P00940)	12.5		0.5
MBAS (P38260)			0.1
Phenols (SSI) (P32730)			0.05
Phenols (pw) (P32730)			0.005
Hardness (P00900)			2
Sulfate (P00945)			1
Oil & Grease (P00556)			5
Petroleum Hydrocarbons (P45510)			1
Cyanide (P00720)			0.001
Conductance in umhos (P00095)			0.1
Dissolved Oxygen (P00300)			0.2
Fluoride (P00951)			0.1
Fluoride with distillation (P00951)			0.1
Silica (P00955)			2
Sulfide (P00745)			1

NOTE: Sample results, method blank results and MDL's are expressed in parts per million (ppm), unless otherwise specified.

JUN 1 6 1

Name of Supervisor - Print	Signature	Date

CHEM-45
Dec 88

DISTRIBUTION: WHITE - Submitting Agency CANARY - Chemistry - Central File

*G0431

K-18

DEP-016
2/80

Use one form for each sample

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[illegible]EAU OF ENVIRONMENTAL LABORATORIES
380 SCOTCH ROAD, TRENTON, N.J. 08628

RECEIVED

LAB USE ONLY
LAB CONTROL NO. 14413

REQUEST FOR ANALYSIS & CHAIN OF CUSTODY RECORD

SAMPLING LOCATION: Airton, Litton Ind.				
FIELD SAMPLE NO.: E03760	SAMPLE TYPE: Ind. - effluent (51841)	PRESERVED: ☒	COLLECTION DATE (MO DAY YR): 05-11-89	TIME: 9:50
RESPONSIBLE AGENCY: DWR - NBRE	PERSON AUTHORIZED TO REQUEST ANALYSIS: Ron Rossi			PHONE NO.: 2-0427
SEND RESULTS TO: J. Christakos	NAME & ADDRESS OF UNIT: DWR - NBRE, 1259 Rt 46, Bldg #2, Parsippany, NJ 07054			
SAMPLES WILL BE DISCARDED AFTER ANALYSIS UNLESS NOTED BELOW.				
REMARKS: 222/ C6UM			ACCOUNT NO.: ----.---.-------.--	

ANALYSES TO BE PERFORMED

I. Organics

- ☐ A. Halogenated and Aromatic Volatiles
- ☐ B. Volatiles
- ☐ C. Trihalomethanes
- ☐ D. Pesticides/PCB's
- ☐ E. PCB's
- ☐ F. Bill 280 ☐ Volatiles ☐ Chlordane & PCB's
- ☐ G. Base-Neutral/Acid Extractables
- ☐ H. Pesticides, Drinking Water
- ☐ I. Herbicides, Drinking Water

II. Inorganics

- ☐ A. Metals, Drinking Water ☐ Primary ☐ Secondary
- ☐ B. Metals, Priority Pollutant
- ☐ C. Metals Scan (ICP)
- ☐ D. Metals, Water Pollution, specify: _____

III. Limited Chemistry

- ☐ A. Total Cyanide
- ☐ B. Total Phenol
- ☒ C. Oil and Grease
- ☐ D. pH

IV. RCRA

- ☐ A. EP Toxicity ☐ Metals ☐ Pesticides ☐ Herbicides
- ☐ B. Ignitibility
- ☐ C. Corrosivity ☐ pH ☐ Coupon
- ☐ D. Reactivity

V. Other (Specify)

Number of Containers	Size of Containers	Batch No. of Containers	DESCRIPTION OF SAMPLE
2	950ml	112487	Oil & Grease - Ind. effluent (51841)

LAB USE ONLY
PRICE LIST
- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E
- ☐ F
- ☐ Other _____ (hours)

RELINQUISHED BY	RECEIVED BY	DATE	TIME	REASON FOR CHANGE OF CUSTODY
[illegible]	Pamela A Lange	5/2/88	14:00	Bottle Pickup
Pamela A Lange	T. Cinlon	5/2/94	09:15	Bottle Transfer
T. Cinlon	J. Christakos	5/10/89	10:00	" "
J. Christakos	[illegible]	5/11/89	1330	Transfer to DEQAS
L. B. [illegible]	Helen Kengle	5/15/89	1110	Sample prep

COPIES: Gold – Sample Receipt Pink – Lab Yellow – Client White – BEL PAGE ____

K-19

EP-033

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL LABORATORIES

QUANTITATIVE RESULTS & QUALITY ASSURANCE DATA

MISCELLANEOUS PARAMETERS

LAB. CONTROL #: 14413 SAMPLE TYPE: Liquid

FIELD SAMPLE #: B03760 ANALYTICAL METHOD: Gravimetric

REPORT DATE: May 30, 1989 EXTRACTION DATE: May 16, 1989

SECTION SUPERVISOR: Neda Lingle LAB. SUPERVISOR: [illegible] 5/30/89

CHECK APPROPRIATE CATEGORY

- ☐ AIR µg/m³
- ☐ SWAB µg/cm² µg/in.²
- ☐ SOIL µg/g
- ☑ OTHER mg/l

PARAMETER	RESULTS		QUALITY CONTROL DATA				
	SAMPLE DATA			LAB DUPLICATE		MATRIX SPIKE	
	SAMPLE CONCENTRATION	MDL	REAGENT BLANK / METHOD BLANK	LAB DUPLICATE	% DIFF.	CONCENTRATION ADDED	% RECOV.
Oil & Grease	ND	0.5 mg/l	ND				

ND = Not Detected

NA = Not Applicable

Form DEP-009
1/81

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NEW JERSEY 08625

CHAIN OF CUSTODY RECORD

NAME OF UNIT AND ADDRESS:
NJDEP-DWR-NBRE, 1259 Rt 46, Bldg #2, Parsippany, N.J. 07054

SAMPLE NUMBER	Number of Containers	DESCRIPTION OF SAMPLES
1840	8	TSS (200); Pb-Cd (1l); F (500); Ni-Cr-T (1l); Cu-Zn (1l); As-Ag (1l); CN (1l); CN (duplicate) (1l).
1841	3	TSS (200); COD (500); Chloride (200).

RECEIVED
JUN 22 1989

PERSON ASSUMING RESPONSIBILITY FOR SAMPLE: J. Christobos

TIME: 11:55 pm
DATE: 5/11/89

SAMPLE NUMBER	RELINQUISHED BY:	RECEIVED BY:	TIME	DATE	REASON FOR CHANGE OF CUSTODY
1840-1	J. Christobos	[illegible]	12N	5/11/89	Transport DO Hearing
51840-41	[illegible]	M. Exantus	925	5-15-89	SS
51840	[illegible]	A. De Lotto	930	5-15-89	CN
51840	[illegible]	M. Exantus	925	5-16-89	F
51841	J. Delaharty	[illegible]	220	5/16/89	Chloride
51840	R. [illegible]	M. Pounsett	10:00	5/17	Cr Cu Zn
51840	[illegible]	M. R. [illegible]	2:00	5/17	Cd
51840	J. Delaharty	[illegible]	1010	5/23/89	Ag
51840	[illegible]	M. R. [illegible]	950	5-31-89	Ag
51841	[illegible]	A. De Lotto	930	6-1-89	COD

REPORT SUBMITTED
JUN 16
[illegible]

K-21

NJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDES

New Jersey Pollutant Discharge Elimination System

The New Jersey Department of Environmental Protection hereby restricts and controls the discharge of pollutants to waters of the State from the subject facility/activity in accordance with applicable laws and regulations. The permittee is responsible for complying with the terms and conditions of this authorization and adhere to said terms and conditions and regulations for the construction, installation, modification or operation of any facility for the collection, treatment or discharge of any pollutant to waters of the State.

PERMIT NUMBER NJ0025739

Permittee	Co-Permittee
AIRTRON DIVISION-LITTON INDUST 200 EAST HANOVER AVE MORRIS PLAINS, NJ 07950	

Property Owner	Location of Activity
LITTON INDUSTRIES 200 EAST HANOVER AVE MORRIS PLAINS, NJ 07950	LITTON INDUSTRIES INC AIRTRON 200 EAST HANOVER AVE MORRIS PLAINS, NJ 07950

Type of Permit Covered By This Approval	Issuance Date	Effective Date	Expiration Date
B :Ind/Comm.SW Discharge	3/15/85	5/01/85	4/30/90
I :Infilt/Perc. Lagoon - Ind.	10/01/89	11/01/89	4/30/94

The permittee shall comply with the attached General and Special Conditions.

By Authority of:
Eric J. Evenson
Acting Director
Division of Water Resources

DEP AUTHORIZATION
Arnold Schiffman
Assistant Director
Ground Water Quality Management

(Terms, conditions and provisions attached hereto)

State of New Jersey Department of Environmental Protection/Division of Water Resources

NJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDESNJPDE

FACT SHEET

For NJPDES Permit to Discharge
Into the Ground Waters of the State

NAME AND ADDRESS OF APPLICANT:

Litton Industries - Airtron Division
200 East Hanover Avenue
Morris Plains, NJ 07950-2496

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Litton Industries - Airtron Division
200 East Hanover Avenue
Morris Plains, Morris County

RECEIVING WATER:

Ground waters of the state. The discharge has impacted the watertable aquifer in the unconsolidated glacial sediments beneath the site.

Hydrogeology

Surficial deposits at the Airtron site have been interpreted to be derived from a glacial delta of Wisconsinan age which is predominately composed of interbedded sands, gravels, silts and clays. These deposits maybe overlain by a discontinuous, poorly sorted, till. The glacial deposits range in thickness from a 100 feet to approximately 200 feet.

The glacial deposits overlie the Jurassic age Boonton Member of the Brunswick Formation. The Boonton Member is a highly fractured, red fissile mudstone with interbedded layers of siltstone, sandstone and conglomerate. The bedding in this area is generally flate lying with a dip slightly to the northwest. A layer of decomposed rock most likely exist between competent bedrock and the overlying glacial deposits.

Two aquifers in the unconsolidated deposits were encountered during investigations at the site. The water table in the shallow aquifer is encountered at depth ranging from approximately 40 to 60 feet below the surface. The saturated thickness of this aquifer ranges from 25 to 50 feet. Perched water tables have also been encountered. Perched water was noted on site in borings B-117 and 1M at depths of less than 10 feet. The deeper of the two aquifers is located at approximately 120 to 130 feet below ground surface and is confined. This has been determined as a aquitard indicating a upward leakage of ground water. Ground water flow direction is towards the southwest under the influence of a nearby production well. The ground water gradient has been reported to be 0.015 feet/foot and the calculated ground water flow velocity is approximately 0.50 feet/day.

DESCRIPTION OF FACILITY:

The Airtron facility manufacturers electronic components and synthetic minerals. Airtron formerly disposed of the sludge from their processes in five unlined lagoons on site. The sludge from the lagoons was excavated and removed in 1980 in accordance with a Directive Order issued by the Division of Water Resources Northern Bureau of Regional Enforcement. Subsequently five shallow monitoring wells were installed to asses the potential for ground water contamination from the unlined lagoons. Contamination by volatile organic compounds used by Airtron was identified at levels significantly above NJPDES guidelines for such compounds in the ground water. Three shallow monitoring wells and three deep monitoring wells were installed to assist in the delineation of the ground water contamination. Additional monitoring wells are being required to determine the extent of ground water contamination.

During a site inspection of the facility in September of 1988, it was brought to the attention of a representative of this Bureau the location of a underground (No. 4 fuel oil) storage tank used for heating. Further review of the facilities file revealed that an underground gasoline tank was located on the property in the vicinity of the fuel oil tank (see attachment III).

DESCRIPTION OF DISCHARGE:

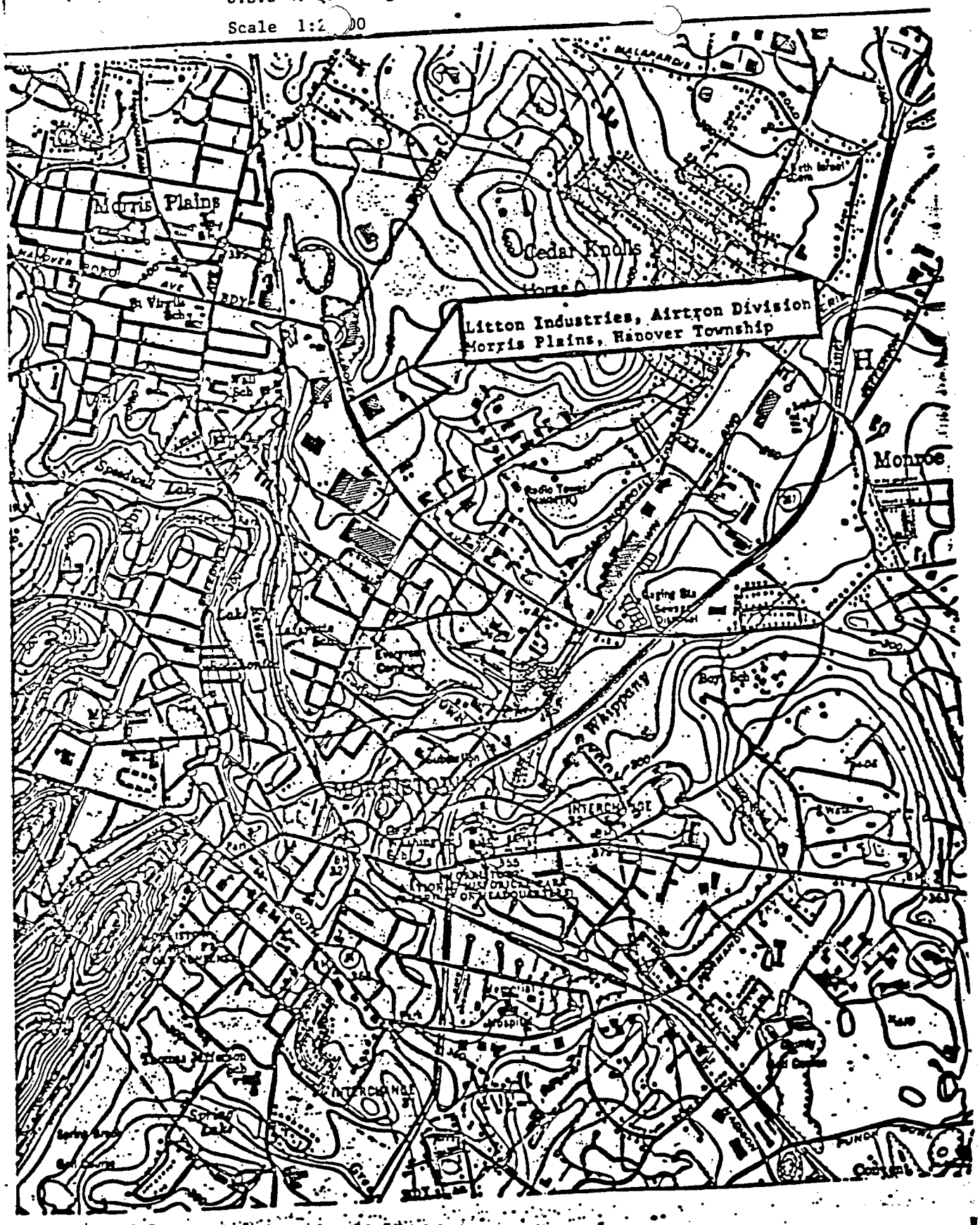
The discharge at the facility is due to leachate from the five former unlined sludge lagoons to the unconsolidated water table aquifer. Ground water has been impacted and continues to be contaminated at the source.

PERMIT CONDITIONS:

The permittee must comply with the attached general and special conditions.

U.S.G S. Quadrangle Morristown, New Jersey

Scale 1:2 00



L-4

GROUND WATER MONITORING REQUIREMENTS AND STANDARDS

1. The permittee shall install seven (7) additional ground water monitor wells. The wells must be installed within 30 days of the Effective Date of the Permit. The wells must be installed by a licensed New Jersey well driller pursuant to N.J.S.A. 58:4A-6 and constructed according to the attached Department specifications (Attachment 1).

2. The locations of the new ground water monitoring wells and the required wells to be sampled are shown on Attachment 2. The permittee is responsible for locating and avoiding any subsurface utilities or other structures before well installation.

3. The permittee shall provide the Bureau of Ground Water Discharge Control a minimum of two weeks notification prior to the installation of any ground water monitor wells required by this permit.

4. The owner or operator shall inspect each ground water monitor well on a monthly basis for structural integrity and/or damage. The permittee shall maintain a complete inspection record indicating dates of inspection, inspector's name, and conditions observed. These records shall be made available to the Department upon request. Failure to maintain or submit records upon request shall be a violation of the conditions of this permit.

5. If the monitor wells are damaged or are otherwise rendered inadequate for their intended purpose, the Assistant Director, Ground Water Quality Management Element, shall be notified within five (5) days in writing indicating:

   (a) Which wells were damaged or rendered inadequate for their intended use;

   (b) The cause and extent of damage or the reason for the inadequacy;

   (c) If the sampling schedule as required in this permit will be violated or if the results of the sampling may reasonably become misleading;

   (d) The date that the well will again be operational. Damaged wells must be replaced or repaired within thirty (30) days after the damage has occurred. The wells must be sampled between the fourteenth day and the thirtieth day after they have been installed. A replacement well must meet the construction

requirements established by the Department. A valid New Jersey well permit is required prior to the installation of the replacement well;

(e) The next date that the well will be sampled.

Failure to follow these procedures is a violation of this permit and may subject the permittee to the provisions of N.J.S.A. 58:10A-10.

6. Satisfactory ground water wells are defined in N.J.A.C. 7:14A-6.13 of the NJPDES regulations and shall be subject to Departmental approval. If ground water monitoring wells do not meet these standards, they must be replaced with new wells meeting Departmental standards.

7. A Ground Water Monitor Well Certification (Forms A and B) shall be completed for each existing and proposed ground water monitor well within 30 days of the installation of the ground water monitor wells. Information for each well must be shown on a separate form.

8. For an existing well, if information required on the Ground Water Monitoring Certification (Forms A and B) cannot be determined or the ground water monitoring well is not adequately constructed to meet the requirements of this permit, the Department reserves the right to require the replacement of that well. Criteria to be used by the Department in judging the adequacy of a well will be related to the ability of the well to provide a representative ground water sample from the interval of the formation which the Department requires to be sampled. Any replacement well must be installed within a 10 foot radius of the existing well. Inadequate or damaged existing wells must be properly sealed pursuant to N.J.S.A. 58:4A-4.1. Instructions regarding sealing may be obtained by contacting the Bureau of Water Allocation at (609) 984-6831.

9. Within one-hundred and twenty (120) days of the Effective Date of Permit, the permittee shall identify to the Department the location of all ground water monitoring wells, piezometers, and supply wells on a plot plan drawn to a scale suitable to the Department.

10. Dedicated sampling equipment should be used, when sampling all the ground water monitor wells and the Mennen Production wells P-1 and P-2 located on the site map.

11. The permittee shall complete the forms required on the "Monitoring Report - Transmittal Sheet" (Form T-VWX-014) which are included as a part of this permit. Permittee must also sign and submit Form T-VWX-014. The signature on Form T-VWX-014 must be an original each time it is submitted.

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Failure to submit sampling data on the forms required on the "Monitoring Report - Transmittal Sheet" shall be considered by the Department to be a violation of the permit sampling requirements and may place the permittee subject to civil and administrative penalties pursuant to N.J.S.A. 58:10A-10. It shall be the permittee's sole responsibility to maintain an adequate supply of the required report forms. All monitoring reports shall be sent to:

Department of Environmental Protection
Division of Water Resources
Management Services Element
Bureau of Information Systems
CN-029
Trenton, NJ 08625

ATTN: Monitoring Well Reports

12. All samples are to be analyzed by a New Jersey Certified Laboratory. The detection limits to be achieved for inorganic parameters and cyanide shall be less than the ground water quality standards.

13. The permittee shall sample all ground water monitoring wells shown on Attachment II, and any new wells as required by the special conditions of part IV of this permit, according to the following schedule: sampling shall commence in all monitoring wells shown in Attachment II within 60 days of the EDP. The sampling frequency of this permit shall be as follows:

    a. Shallow and intermediate depth monitoring wells and Mennen Production wells P-1 and P-2 (see special condition section IV of this permit and attachment II) shall be sampled every 3 months.

    b. Deep monitoring wells MW-201, MW-202, and MW-203 shall be sampled every 12 months.

    All ground water elevations <u>must</u> be determined prior to evacuation and sampling of the wells. Permittee must develop a sampling plan in accordance with the methodology specified in N.J.A.C. 7:14A-6.12 of the NJPDES regulations and the latest edition of the Department's <u>Field Procedures Manual for Water Data Acquisition</u> and sample wells according to this plan. This sampling plan must include the use of trip blanks and field blanks and must be submitted within 30 days of the Effective Date of Permit.

Ground Water Monitoring Requirements

The permittee shall sample ground water using 40 CFR Part 136-Method 624 or Method 601 for the following volatile organic compounds:

Trichloroethylene
Tetrachloroethene
Trans-1,2-Dichloroethene
1,1-Dichloroethene
1,1,1-Tricholoethane

1. A grab sample type shall be taken for each well. "Grab" means an individual sample of appropriate volume collected after proper evacuation of the well and over a period not exceeding 15 minutes.

2. The permittee shall construct a table, following the example below, that lists the ground elevations, top of casing elevation, static water level, and ground water elevation for each well sited in attachment II.

Well Number	Ground Elevation	Top of Casing	Top of Screen	Depth to Water	Ground-Water Elevation

SPECIAL CONDITIONS/AIRTRON

1. Within 30 days of the Effective Date of the Permit (EDP) the permittee shall install 1 monitoring well MW-4 near the former lagoon (Attachment II) to monitor the "perched water" zone.

2. Within 30 days of the (EDP) the permittee shall install six (6) monitoring wells (MW-5 to MW-10), as shown in Attachment II, to monitor ground water above the "aquitard" and below the "perched zone" (the aquifer between 40 and 60 feet below land surface).

3. Within 120 days from the EDP, Airtron shall arrange to control the rate of pumping of Mennen well P-1 in order to maintain hydraulic control of the ground water contamination. However, if Mennen does not agree to give control of production well P-1 to Airtron, then Airtron must submit to the Department, within 180 days of the EDP, a plan to install and operate a recovery system that can be controlled. The initial start up of the recovery system shall be within 60 days after the approval of the plan by the Department. Such a system shall establish hydraulic control over the extent of ground water contamination from Airtron.

4. The permittee shall give the Hanover Health Department one weeks notice of any sampling or drilling activities on or off-site. The permittee shall also copy the Hanover Health Department on quarterly ground water monitoring data and the exposure assessment.

5. The Hanover Health Department shall be granted access to Airtron's property to check compliance with this permit in accordance with NJAC 7:14A-2.5(a)11.

6. The compliance points are all the monitoring wells (including new wells) shown in Attachment II and all additional monitoring wells installed under Special Condition 7 of this permit.

   The Ground Water Protection Standards (GWPS) or concentration limits for this site are as follows:

Trichloroethylene	(TCE)	------ 1 ppb
Tetrachloroethylene	(PCE)	------ 1 ppb
Trans-1,2-dichloroethene	(DCE)	------ 1 ppb

   The GWPS shall be applied at all compliance points.

   The permittee shall be in compliance when all wells reach the GWPS or when hydraulic control is established in wells exceeding the GWPS.

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7. Within 180 days of the EDP the permittee shall install additional monitoring wells beyond those required in this permit to define the extent of ground water contamination in all directions. Drilling shall continue until the monitoring wells demonstrate that the GWPS has been attained.

8. Within 60 days of the EDP, Airtron shall conduct an exposure assessment to determine the exposure (if any) of Mennen employees to hazardous pollutants in supply wells P-1 and P-2. The exposure assessment shall include the fountain area and other areas that may result in direct contact or inhalation exposure. Airtron shall also provide information on all uses and discharge points for ground water from Mennen wells P-1 and P-2 since 1977.

   If Mennen does not allow Airtron access to their property for this study then Airtron shall reimburse Mennen for the cost of conducting the exposure assessment.

9. Halocarbon contamination that has left the Airtron property shall not impact any water supply wells. If contamination does impact a water supply well (Mennen Production Wells P-1, P-2) Airtron shall take any and all action necessary to restore that water supply to precontamination quality (ie. background ground water quality) if requested to do so by Mennen.

10. If, Airtron is to utilize Mennen Production P-1 and P-2 to maintain hydraulic control of ground water contamination then (see Special condition 3), Airtron shall submit well logs and design details on Mennen Production Wells P-1 and P-2. This shall include screen setting, depth of wells and geological logs.

    Airtron shall maintain daily records of pumping rates in P-1 and P-2 and submit this information to the Department with the quarterly ground water data.

11. After review of past Airtron submittals a gasoline storage tank and pump is/or was located in the vicinity of the present drum storage area (see Attachment III). Also identified at the site was a 10,000-gallon No.4 fuel oil tank. Airtron must provide the documentation demonstrating the integrity of both the fuel oil tank (and all its associated piping), and the gasoline tank to the Bureau of Ground Water Discharge Control. All underground storage tanks must be registered with the Bureau of Underground Storage Tanks, at [(609) 292-3156].

12. If monitoring wells demonstrate that hydraulic control is not being attained, the permittee shall within 90 days of that determination add additional hydraulic control points.

13. This permit may be modified, by the Department, to require additional hydraulic controls based on new ground water data or changes in existing data.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
32 E. Hanover St., CN 027, Trenton, N.J. 08625

JACK STANTON
DIRECTOR

LINO F. PEREIRA
DEPUTY DIRECTOR

03 MAR 1983

AIRTRON INC
DIVISION LITTON SYSTEMS
Joseph Loschiavo, Exec VP
200 East Hanover Avenue
Morris Plains, NJ 07950

RE: Facility Operating Status

Dear Sir:

The Bureau of Hazardous Waste Engineering has reviewed your company's response to the Notice of Violation, Failure to Submit Annual Report. The Bureau finds that the response contains adequate information to determine the operating status of this facility with respect to N.J.A.C. 7:26-1 et seq., the New Jersey Hazardous Waste Management Regulations. The Bureau has determined that the company's hazardous waste treatment, storage or disposal facility as delineated in the company's RCRA Part A application and identified by the following EPA ID Number:

EPA ID NO. NJD030239412

has been excluded from regulations under N.J.A.C. 7:26-1.1 et seq. because your facility accumulates hazardous waste on-site for less than 90 days. This exclusion classifies your facility solely as a generator provided the following conditions are complied with:

1. All such waste is, within 90 days or less, shipped off-site to an authorized facility or placed in an on-site authorized facility, as defined at N.J.A.C. 7:26-1.4.

2. The waste is placed in containers which meet the standards of N.J.A.C. 7:26-7.2 and are managed in accordance with N.J.A.C. 7:26-9.4(d).

3. The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container.

4. The generator complies with the requirements for owners and operators of N.J.A.C. 7:26-9.6 and 9.7 concerning preparedness and prevention, contingency plans and emergency procedures as well as N.J.A.C. 7:26-9.4(g) concerning personnel training.

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5. For bulk accumulation of dry hazardous waste materials, the waste pile is managed according to the following:

   (i) The waste pile is no larger than 200 cubic yards; and

   (ii) The pile shall be placed on an impermeable base that is compatible with the waste; and

   (iii) Run-on shall be diverted away from the pile; and

   (iv) Any leachate and run-off from the pile must be collected and managed as a hazardous waste.

This written acknowledgement of the exclusion of the above identified facility from N.J.A.C. 7:26-1 et seq. is based expressly on the review of the aforementioned correspondence. This letter makes no claim as to the extent and physical condition of the actual hazardous waste activities occuring at the site mentioned above.

Your company's hazardous waste facility above is no longer included in DEP's list of "existing facilities" (see N.J.A.C. 7:26-1.4 and 12.3) and therefore does not need to conform with the interim operating requirments of N.J.A.C. 7:26-1 et seq. for "existing facilities" which would include the TSD facility annual report. It is the company's responsibility to operate within the conditions listed above. To operate a hazardous waste facility without prior approval from the DEP is a violation of the Solid Waste Management Act N.J.S.A. 13:1E-1 et seq.

As a result of the conclusions previously made, the Notice of Violation entitled "Failure to Submit Annual Report" signed by Mr. David Shotwell is rescinded and need not be complied with.

If you have any questions on this matter, please call my office at (609) 292-9880.

Very truly yours,

Frank Coolick

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

FC:jb

cc Dave Shotwell
NJDEP, Division of Waste Management

Tom Taccone
USEPA, Region II

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Litton AIRTRON

200 East Hanover Avenue, Morris Plains, New Jersey 07950 201 539-5500

March 24, 1983

Mr. Frank Coolich
Bureau Chief of Hazardous Waste & Engineering
32 E. Hanover St.
Trenton, N.J. 08625

RE: E.P.A. I.D. No. N.J. D030239412

Dear Mr. Coolich:

As per my telephone conversation of March 24, 1983 with Mr. Patel of your staff, I wish to inform you of the following: Our original part "A" TSD application was in error. Therefore, Process Activity Code T01 must be deleted from the permit application. However, we would like to maintain Process Activity Code S01 for 55 gal. containers which our facility uses to hold plating waste sludge which we then remove within the 90 day period to an approved disposal facility. Our generation of final effluent is covered by our N.J.P.D.E.S. permit No. N.J.0025739.

Very truly yours,

John A. Nicola

John A. Nicola
Plant Engineer

jn/dc

cc: Bob Patel
D. Lepore
J. LoSchiavo

m-3

The redacted information consists of names and/or addresses of private individuals. Disclosure of this information would be invasive 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).

2J.13.5.3.6

Form 87-5M

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD

Permit No. 2J-3898
Application No. _____
County _____

1. OWNER [redacted] ADDRESS Old Wood Rd. Morris Plains, N.J.
   Owner's Well No. 1 SURFACE ELEVATION _____ Feet (Above mean sea level)
2. LOCATION Old Wood Rd., Morris Plains, N. J.
3. DATE COMPLETED 10/6/54 DRILLER Frank J. Bott
4. DIAMETER: Top 6 Inches Bottom 6 Inches TOTAL DEPTH 135 Feet
5. CASING: Type Steel Diameter 6 Inches Length 100 Feet
6. SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet
   Range in Depth { Top _____ Feet, Bottom _____ Feet } Geologic Formation _____
   Tail piece. Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
   Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 10/6/54 Yield 8 Gallons per minute
   Static water level before pumping 54 Feet below surface
   Pumping level 84 feet below surface after 3 hours pumping
   Drawdown 30 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
   How Pumped Plunger Pump How measured 5 gal. Pail
   Observed effect on nearby wells none
9. PERMANENT PUMPING EQUIPMENT:
   Type Jet Capacity 5 Gallons per minute
   How Driven Elect. Motor Horse Power 1/2 R.P.M. 3400
   Depth of pump in well 80 Feet Depth of Foot piece in well _____ Feet
   Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR Domestic AMOUNT { Average _____ Gallons Daily, Maximum _____ Gallons Daily }
11. QUALITY OF WATER good Sample: Yes ✓ No. _____
    Taste _____ Odor _____ Color _____ Temperature _____ °F
12. LOG Dead sand to 100ft then red shale Are samples available? _____
    (Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA _____
14. DATA OBTAINED BY Frank J. Bott DATE 10/6/54

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

N-1

Location 25-13-35

FORM 87

MENNEN 25-13-3-6-7

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 55-14,098
Application No. _____
County _____

The redacted information consists of names and/or addresses of private individuals. Disclosure of this information would be invasive 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).

WELL RECORD

1. OWNER [redacted] ADDRESS Montville, N.J.
   Owner's Well No. _____ SURFACE ELEVATION _____ Feet (Above mean sea level)
2. LOCATION Viewmont Terrace, Montville, N.J.
3. DATE COMPLETED Nov. 30, 1955 DRILLER John Lauritsen
4. DIAMETER: top 6 Inches Bottom 5 Inches TOTAL DEPTH 200 Feet
5. CASING: Type steel drive casing Diameter 5 Inches Length 20 Feet
6. SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet
   Range in Depth { Top _____ Feet / Bottom _____ Feet } Geologic Formation sand & Rotten rock
   Tail piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
   Water rises to _____ Feet above surface
8. RECORD OF TEST: Date November 30, 1955 Yield 10 Gallons per minute
   Static water level before pumping 50 Feet below surface
   Pumping level 50 feet below surface after 9 hours pumping
   Drawdown 50 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
   How Pumped submersible pump How measured 5 gallon pail
   Observed effect on nearby wells none
9. PERMANENT PUMPING EQUIPMENT:
   Type _____ Mfrs. Name _____
   Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
   Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
   Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR Household AMOUNT { Average _____ Gallons Daily / Maximum _____ Gallons Daily }
11. QUALITY OF WATER _____ Sample: Yes _____ No. _____
    Taste _____ Odor _____ Color _____ Temp. _____ °F
12. LOG _____ Are samples available? _____
    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA _____
14. DATA OBTAINED BY _____ Date _____

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

N-2

Form 67

25-16,214

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. _____
Application No. _____
County _____

WELL RECORD

1. OWNER American T & T Co. ADDRESS 88 Horsehill Rd. Cedar KNolls, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet (Above mean sea level)
2. LOCATION Cedar Knolls, Morris Co.
3. DATE COMPLETED ~~Dec. 18, 1972~~ DRILLER ~~Wm. Stothoff Co., Inc.~~
4. DIAMETER: top 6 Inches Bottom 8 Inches TOTAL DEPTH 164 Feet
5. CASING: Type steel pipe Diameter 6 Inches Length 122 Feet
6. SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet
Range in Depth { Top _____ Feet, Bottom _____ Feet } Geologic Formation _____
Tail piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to ~~[illegible]~~ 1/4/73 Feet below surface 20
8. RECORD OF TEST: Date _____ Yield 8 Gallons per minute
Static water level 98 before pumping _____ Feet below surface
Pumping level 83 feet below surface after _____ hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped 2 HP Sub. pump How measured 2" meter
Observed effect on nearby wells none
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR Industrial AMOUNT { Average _____ Gallons Daily, Maximum _____ Gallons Daily }
11. QUALITY OF WATER unknown Sample: Yes _____ No. x
Taste _____ Odor _____ Color _____ Temp. _____ °F
12. LOG no Are samples available? _____
(Give details on back of this sheet. If electric log was made, please furnish copy) Wm. Stothoff Co., Inc.
13. SOURCE OF DATA Wm. Stothoff Co. 1/4/73
14. DATA OBTAINED BY _____ Date _____

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of pump and casing arrangements etc.)

-1722-

N-3

(9) A6

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 25-15132
Application No. _____
County _____

The redacted information consists of names and/or addresses of private individuals. Disclosure of this information would be invasive 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).

WELL RECORD

OWNER [redacted] Ex. 6 ADDRESS [redacted] Ex. 6 Morris Plains

Owner's Well No. _____ SURFACE ELEVATION _____ Feet (Above mean sea level)

LOCATION [redacted] Ex. 6 Morris Plains, N.J.

DATE COMPLETED 3-25-69 DRILLER William Beatty

DIAMETER: top 6" Inches Bottom 6" Inches TOTAL DEPTH 157' Feet

CASING: Type Steel Diameter 6 Inches Length 157' Feet

SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet

Range in Depth { Top _____ Feet / Bottom _____ Feet } Geologic Formation 0 - 25' Sand 25-150 clay 150'- 157' Sand

Tail piece: Diameter _____ Inches Length _____ Feet

WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface

Water rises to _____ Feet above surface

RECORD OF TEST: Date 3-24-69 Yield 15 Gallons per minute

Static water level before pumping 60' Feet below surface

Pumping level 80' feet below surface after 4 hours pumping

Drawdown 20 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown

Water pumped Submersible pump How measured Water Level tester

Observed effect on nearby wells none

PERMANENT PUMPING EQUIPMENT:

Type Submersible Mfrs. Name Jacuzzi

Capacity 10 G.P.M. How Driven elec. H.P. 1/2 R.P.M. _____

Depth of Pump in well 85' Feet Depth of Footpiece in well _____ Feet

Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches

USED FOR domestic AMOUNT { Average _____ Gallons Daily / Maximum _____ Gallons Daily }

QUALITY OF WATER good Sample: Yes _____ No. _____

Taste good Odor none Color cl. Temp. _____ °F

Are samples available? _____

(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)

TYPE OF DATA Drillers Log.

DATA OBTAINED BY Wm Beatty Date 3/25/69

N-4

Use other side of this sheet for additional information such as log of materials, analysis of the water, sketch map, sketch of special casing

25-13-3516

(10)

FORM 87

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DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 25-12-168
Application No. _____
County _____

WELL RECORD

Ex. 6

1. OWNER [redacted] ADDRESS Bailey Hollow Rd, Morris Plains
   Owner's Well No. _____ SURFACE ELEVATION 500' Feet (Above mean sea level)
2. LOCATION Bailey Hollow Rd, Morris Plains, N.J.
3. DATE COMPLETED June 18, 1964 DRILLER Mabey Brothers
4. DIAMETER: top 6" Inches Bottom 6" Inches TOTAL DEPTH 87' Feet
5. CASING: Type Drive Diameter 6" Inches Length 27' Feet
6. SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet
   Range in Depth { Top _____ Feet / Bottom _____ Feet } Geologic Formation Granite
   Tail piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
   Water rises to _____ Feet above surface
8. RECORD OF TEST: Date June 17, 1964 Yield 4 Gallons per minute
   Static water level before pumping 37' Feet below surface
   Pumping level 60' feet below surface after 3/4 hours pumping
   Drawdown 23' Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
   How Pumped Bailer Test How measured 5 gal. pail
   Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
   Type Did Not install Mfrs. Name _____
   Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
   Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
   Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR House hold AMOUNT { Average _____ Gallons Daily / Maximum _____ Gallons Daily }
11. QUALITY OF WATER Good Sample: Yes _____ No. _____
    Taste Good Odor None Color Clear Temp. _____ °F
12. LOG 10' Lirt, 77' Granite Are samples available? _____
    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Mabey Brothers
14. DATA OBTAINED BY Mabey Brothers Date Aug. 8, 1964

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

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Converse Environmental East Caldwell, N.J. Fairfield, CT.	WELL LOG	WELL No. MW-201/B-201

PROJECT Airtron	SHT. NO. 1 OF 6
CLIENT Litton Industries	PROJ. NO. 87-47400-01
CONTRACTOR Empire Soil Investigation, Inc.	ELEVATION (Grd) 398.51'
	DATUM AMSL
	DATE START 6-30-87
	DATE FINISH 7-17-87
	DRILLER R. Logel
	CEE REP. R. Zelley

GROUNDWATER				BORING	CASING	SAMPLE	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE		SS		
8-7-87		43.10	≈ 0.91	DIA.		2"		
				WT.		140#		
				FALL		30"		

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SYMBOL	STRATIGRAPHY	REMARKS	WELL
1						Boring was drilled on a berm @ 2.70' higher in elevation than the ground surface of MW-201	
2						Ground Surface	
3							Locking flush mount compl.
4							cement
5		S-1	18 16 18		Brown Sandy Clayey Silt, trace gravel (ML/GM) Till	Moist Firm	
6			25				Benseal Grout
7							
8							
9							
10		S-2	5 14 19		Do. (ML/GM)	Moist Firm	Sch 40 8" Dia Steel casing
11			15				
12							
13							
14							
15		S-3	10 39 14		Do. (ML/GM)	Moist Firm	Sch 40 4" Dia Flush threaded PVC riser
16			18				
17							
18							
19							cement
20		S-4	4 3 2		Brown Clay and Silt some Sand, trace Gravel (ML/GM) Till	V. Moist Slightly Firm	Bentonite Grout
21			6				
22							

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FOR INTERPRETATION OF SOIL, ROCK AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE ENVIRONMENTAL EAST REPORT, OF WHICH THIS LOG IS A PART.

N-6

Converse Environmental East Caldwell, N.J. Fairfield CT.	WELL LOG	WELL No. MW-201/B-201
PROJECT Airtron		SHT. NO. 2 OF 6
CLIENT Litton Industries		PROJ. NO. 87-47400-01

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	STRATIGRAPHY	REMARKS	WELL
23						
24			8			
25		S-5	11 14 22	Do (ML/GM) Till	No Rec.	Benseal Grout
26						
27						
28						
29				Do (ML/GM)	Dry	Sch 40 8" DIA steel casing
30		A S-6 B	10 10 10 10	Light brown sand, trace to some Silt, trace fine gravel (SW)		
31						
32						
33						
34			15			
35		S-7	16 18 19	Do (SW)	Dry	
36						
37						Sch 40 4" DIA flush threaded PVC Riser
38						
39			14			
40		S-8	20 27	Do (SW)	V. Moist	
41						
42						Cement/ Bentonite Grout
43						
44			12	Light brown sand, some Silt, trace fine gravel (SP)	Wet	
45		S-9	12 12 12		very permeable	
46						
47						

14"
8"
4"

FOR INTERPRETATION OF SOIL, ROCK AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE ENVIRONMENTAL EAST REPORT, OF WHICH THIS LOG IS A PART.

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Converse Environmental East Caldwell, N.J. Fairfield CT.	WELL LOG	WELL No. MW-201/B-201
PROJECT Airtron		SHT. NO. 3 OF 6
CLIENT Litton Industries		PROJ. NO. 87-47400-01

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	STRATIGRAPHY	REMARKS	WELL
				(SW)	Permeable	
50		A S-10 B	13 24 26 35	Brown fine sand, some Silt (SP)		
						Benseal Grout
55		A S-11 B	14 21 21 27	Do (SP) with clay seam Light Brown Sand, trace to some Silt, trace gravel (SW)		
		S-12	20 27 54 32	Light brown clay Silt, trace fine sand, trace fine gravel (ML)	Wet	Sch 40 8" DIA steel casing
60		S-13	12 16 24 27	Reddish brown clay Silt, some sand, trace fine gravel (ML/ GM) Till	Very Firm	
						Sch 40 4" DIA flush threaded PVC Riser
65		S-14	50 46 52 40	Do with layer of Silty sand		
				Brown Silt, trace to some fine sand (ML)		Cement/ Bentonite Grout
70		S-15	25 30 35 35			

FOR INTERPRETATION OF SOIL, ROCK AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE ENVIRONMENTAL EAST REPORT, OF WHICH THIS LOG IS A PART.

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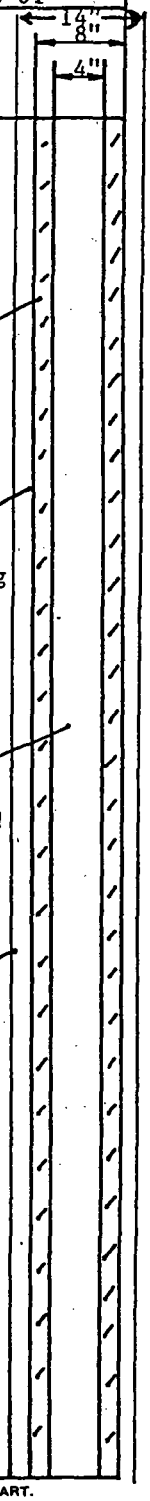
Converse Environmental East Caldwell, N.J. Fairfield CT.	WELL LOG	WELL No. MW-201/B-201
PROJECT Airtron		SHT. NO. 4 OF 6
CLIENT Litton Industries		PROJ. NO. 87-47400-01

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	STRATIGRAPHY	REMARKS	WELL
75		S-16	28, 25, 21, 20	Brown Sand, some gravel, trace Silt (SW)	Permeable Wet Loose	Benseal Grout
80		S-17	48, 45, 16, 12	Brown Gravelly Sand (SP/GP)	very permeable	Sch 40 8" DIA steel casing
85		S-18	30, 33, 19, 23	Do. (SP/GP)	very permeable	Sch 40 4" DIA flush thread PVC Riser
90		S-19	50, 47, 49, 54	Brown clayey Silt, some sand, trace gravel (ML/GM) Till	Firm	Cement/ Bentonite Grout
95		S-20	180, 65, 65, 70	Do. with cobbles	Cobbles in tip	



FOR INTERPRETATION OF SOIL, ROCK AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE ENVIRONMENTAL EAST REPORT, OF WHICH THIS LOG IS A PART.

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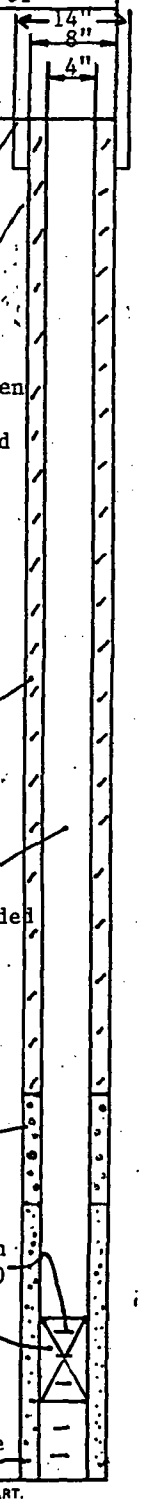
Converse Environmental East Caldwell, N.J. Fairfield CT.	WELL LOG	WELL No. MW-201/B-201
PROJECT Airtron		SHT. NO. 5 OF 6
CLIENT Litton Industries		PROJ. NO. 87-47400-01

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	STRATIGRAPHY	REMARKS
100		S-21	23 30 38 42	Gray clayey Silt (ML)	Wet Firm
105		S-22	50 55 140	Reddish brown clayey Silt, some sand, some to trace gravel (ML/GM) Till	Moist Firm
110		S-23	90 100/1"	Do (ML/GM)	Moist Firm
115		S-24	30 43 43 50 65	Do. (ML/GM)	Moist Firm
120		S-25	48 57 65 98	Gray fine sandy Silt, with layers of Silty fine sand and fine sand, some Silt (ML/SM)	Wet

WELL

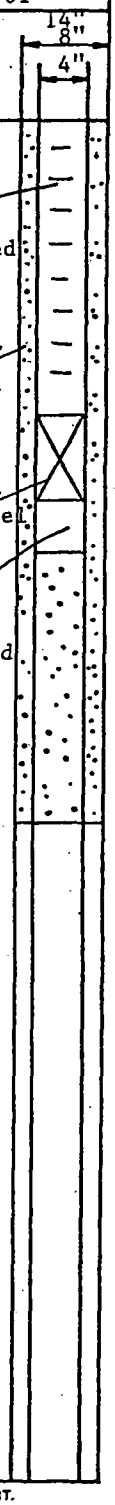


FOR INTERPRETATION OF SOIL, ROCK AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE ENVIRONMENTAL EAST REPORT, OF WHICH THIS LOG IS A PART.

Converse Environmental East Caldwell, N.J. Fairfield CT.	WELL LOG	WELL No. MW-201/B-201
PROJECT Airtron		SHT. NO. 6 OF 6
CLIENT Litton Industries		PROJ. NO. 87-47400-01

DEPTH FT.	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	STRATIGRAPHY	REMARKS
125		S-26		Do. (ML/SM)	Wet
130		S-27		Do. (ML/SM)	Wet
135		S-28	85 140	Brown clayey silt, some sand, some trace gravel	Moist Firm
				End of Boring @ 135.0'	

WELL



FOR INTERPRETATION OF SOIL, ROCK AND GROUNDWATER CONDITIONS, SEE TEXT OF CONVERSE ENVIRONMENTAL EAST REPORT, OF WHICH THIS LOG IS A PART.

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
1	State of NJ	Greystone Park Morris Plains	7,400	270	Hospital	sand/granite	173	** *
2	State of NJ	Greystone Park Morris Plains	8,000	298	Hospital	sand/granite	105	**
3	State of NJ	Greystone Park Morris Plains	8,000	224	Test	granite	75	**
4	Pineview Homes Inc.	Greystone Morris Plains	6,000	200	NA	granite	112	
5	Pineview Homes Inc.	Greystone Morris Plains	4,300	250	D	granite	85	
6	Morristown	Malapardis Rd. Morris Plains	6,100	80	Test	sand/gravel	25	
7	Ex. 6	Old Wood Road Morris Plains	4,900	125	D	Shale	8	
8	Ex. 6	Morris Plains	5,600	69	D	NA	5	
9	[redacted]	Ex. 6 Morris Plains	4,500	157	D	Sand	15	
10	Ex. 6	Baily Hollow Rd. Morris Plains	4,000	87	D	Granite	4	
11	Litton Co./Airtron	Morris Plains	2,200	293	Construction	Shale	15	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
12	Mennen Co.	Hanover Ave. Morris Plains	500	85	NA	NA	400	
13	Mennen Co.	Hanover Ave. Morris Plains	500	207	NA	Rock	NA	
14	Mennen Co.	Hanover Ave. Morris Plains	500	123	NA	Shale	NA	
15	Mennen Co.	Hanover Ave. Morris Plains	500	60	M	Sand	1	
16	Mennen Co.	Hanover Rd. Morris Plains	500	60	M	Sands/Silt	5	
17	American T&T Co.	Cedar Knolls	1,300	164	I	NA	20	
18	Swisscomatic Incorporated	NA	1,300	400	I	Sandstone	250	
19	Ex. 6	Lake Valley Rd. Morris Twshp.	6,200	80	D	Traprock	10	
20	Ex. 6	Egbert Ave. Morristown	8,100	298	D	Granite	8	
21	Ex. 6	Ex. 6	7,700	275	D	Granite	2	
22	Ex. 6	Ex. 6 Morris Plains	5,700	112	Agricultural	Sand/gravel	7	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
23	Parsippany Construction Co.	Garden St. & New St. Morristown	5,300	32	Dewatering	Silty Sand	NA	
24	Parsippany Construction Co.	Garden St. & New St. Morristown	5,300	36	Dewatering	Silty Sand	NA	
25	Texaco	48 Spring St. Morristown	6,000	12	M	Silty Clay	NA	
26	Texaco	48 Spring St. Morristown	6,000	12.5	M	Silty Clay	NA	
27	Texaco	48 Spring St. Morristown	6,000	13.7	M	Silt	NA	
28	Texaco	48 Spring St. Morristown	6,000	15.5	M	Silt	NA	
29	Texaco	48 Spring St. Morristown	6,000	13.2	M	Silt	NA	
30	Texaco	48 Spring St. Morristown	6,000	12.8	M	Silt	NA	
31	Ex. 6	Ex. 6 Morristown	10,000	210	D	Rock	NA	
32	All Soul Hospital	Morristown	10,200	506	D	Granite	205	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
33	Mac-Cullough Hall Museum	45 Mac-Cullough St. Morristown	9,300	155	D	Gravel	24	
34	Jersey Central Power & Light Co.	Morristown	6,100	140	D	Sand/gravel	15	
35	Texaco	Morris St. & Olyphant Place, Morristown	7,000	14.5	M	Sand/Silt	NA	
36	Texaco	Morris St. & Olyphant Place, Morristown	7,000	14.5	M	Sand	NA	
37	Texaco	Morris St. & Olyphant Place, Morristown	7,000	14.5	M	Sand	NA	
38	Texaco	Morris St. & Olyphant Place, Morristown	7,000	14.5	M	Sand	NA	
39	Morristown	Overlook Rd. Morristown	10,700	442	NA	NA	NA	
40	Mennen Co.	Hanover Ave. Morristown	500	110	NA	Sand	100	
41	Airtron	Hanover Ave.	—	21	M	Silty Clay	NA	
42	Airtron	Hanover Ave.	—	72	M	Sand/gravel	NA	
43	Mennen Co.	Hanover Ave.	500	100	NA	Sand	300	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
44	Ex. 6	Ex. 6 Whippany	7,200	128	D	Sand/gravel	30	
45	Whippany Paper Co.	Eden Mill, Whippany	9,000	97	I	Sand/gravel	560	**
46	Whippany Paper Co.	Eden Mill, Whippany	9,000	63	I	Sand/Gravel	026	**
47	Torcan Inc.	E. Hanover Ave. Morristown	3,800	500	I	Shale	104	
48	USGS	20' W of Whippany River 200' N of Hanover Ave.	5,000	148	M	Sand	105	**
49	NA	111 Ridgedale Rd. Morris Twship.	5,200	163	I	Gravel	70	
50	B.W.B. Corp.	160 Ridgedale Ave. Morris Twship.	5,000	350	I	Sandstone	45	
51	T. Landi & Son	Ridgedale Ave. Morristown	5,300	48	I	Sand/Gravel	90	
52	USGS 100' NW of Whippany River;	1400' N Hanover Ave. & River	5,500	100	M	NA	NA	
53	Ex. 6	Ex. 6 Morristown	9,500	291	Agricultural	Sand	22	
54	Ex. 6	Ex. 6 Whippany	7,600	125	D	Gravel	15	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
55	Ex. 6	Ex. 6 Whippany	7,600	130	D	Sand/gravel	15	
56	Exxon Co.	Whippany Rd. Morristown	8,500	20	M	Sand/Gravel	NA	
57	Exxon Co.	Whippany Rd. Morristown	8,500	14	M	Sand/Silt	NA	
58	Exxon Co.	Whippany Rd. Morristown	8,500	14	M	Sand	NA	
59	Exxon Co.	Whippany Rd. Morristown	8,500	14	M	Sand/Silt/Clay	NA	
60	Exxon Co.	Whippany Rd. Morristown	8,500	14	M	Silt/Clay	NA	
61	Exxon Co.	Whippany Rd. Morristown	8,500	15.5	M	Sand/Silt	NA	
62	Exxon Co.	Whippany Rd. Morristown	8,500	23.5	M	Silt/Clay	NA	
63	Ex. 6	Ex. 6 Convent Station	8,600	65	NA	Sand/gravel	20	
64	Mepco Inc.	Whippany Rd. Morristown	8,000	166	NA	Sand	0	

* Water Chemistry Data Available ** Pump Test Data Available

TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
65	Mepco Inc.	Whippany Rd. Morristown	8,000	140	NA	Gravel	168	
66	Mepco Inc.	Whippany Rd. Morristown	8,000	507	D	NA	22	
67	Mepco Inc.	Whippany Rd. Morristown	8,000	40	M	Silts/Sands	NA	
68	Mepco Inc.	Whippany Rd. Morristown	8,000	50	M	Silts/Sands	NA	
69	Mepco Inc.	Whippany Rd. Morristown	8,000	50	M	Silts/Sands	NA	
70	Mepco Inc.	Whippany Rd. Morristown	8,000	25	M	Silts/Sands	NA	
71	Mepco Inc.	Whippany Rd. Morristown	8,000	25	M	Silts/Sands	NA	
72	Mepco Inc.	Whippany Rd. Morristown	8,000	80	M	Silts/Sands	NA	
73	Mepco Inc.	Whippany Rd. Morristown	8,000	40	M	Silts/Sands	NA	
74	Mepco Inc.	Whippany Rd. Morristown	8,000	80	M	Silts/Sands	NA	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
75	Ex. 6	Ex. 6 Morristown	10,500	175	D	Sand/Clay	NA	
76	Ex. 6	Normandy Blvd. Morristown	10,300	197	D	Sand/Gravel	NA	
77	Ex. 6	Degan Lane, Morristown	12,000	146	D	NA	23	
78	Ex. 6	Ex. 6 Morristown	10,300	262	Agg	Shale	38	
79	Twin Oaks Indoor Tennis Courts		8,500	580	NA	Shale	100	
80	Morristown Memorial Hospital	Morristown	10,000	504	D	Sandstone	290	**
81	Allied Chemical	Columbia Rd. Morristown	12,000	273	NA	Sand/Gravel	20	
82	P.I.C. Realty Corp.	Lot 5, Bk 142 Chatham	12,200	50	M	Sand/Gravel	NA	
83	P.I.C. Realty Corp.	Lot 5, Bk 142 Chatham	12,200	50	M	Sand/Gravel	NA	
84	P.I.C. Realty Corp.	Lot 5, Bk 142 Chatham	12,200	50	M	Sand/Gravel	NA	
85	Allied Chemical	Columbia Rd. Morris Twshp.	12,000	231	NA	Sand/Gravel	20	

* Water Chemistry Data Available ** Pump Test Data Available

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TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
86	Allied Chemical	Columbia Rd. Morris Twshp.	12,000	147	NA	Sand/Gravel	0	
87	Allied Chemical	Columbia Rd. Morris Twshp.	12,000	231	NA	Sand/Gravel	50	
88	Allied Chemical	Columbia Rd. Morris Twshp.	12,000	178	NA	Sand/Gravel	NA	
89	Morristown Memorial Hospital	100 Madison Ave.	10,000	507	D	Rock	325	
90	Mt. Carmel Monastary	Madison Ave. Morris Twshp.	10,600	370	D	Shale	28	
91	Schering Realty Corp.	Lot 3, Bk 33 Madison Boro	12,300	150	Agg/I	Gravel/Sand	125	
92	Ex. 6	Old Glen Rd. Morristown	12,100	175	D	Clay	NA	
93	Allied Chemical	Columbia Rd. Whippany	12,000	253	M	Sand	329	
94	U.S. Insurance Group	305 Madison Ave.	12,500	370	I	Shale	298	
95	Jersey Central Pwr & Lt Co.	Morris Twshp.	12,900	600	I	Shale	170	
96	NJ Power & Light	Morristown	13,400	225	D	Sandstone	50	
97	Morris County Golf Club		13,500	271	I	Sand/Gravel	236	**

* Water Chemistry Data Available ** Pump Test Data Available

The redacted information consists of names and/or addresses of private individuals. Disclosure of this information would be invasive 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 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
98	Morris County Golf Club		13,500	238	D	Clay/Boulders	15	
99	Allied Chemical	Lot 86, Bk 431 Morris Twshp.	12,000	198	I	Sand/Gravel	198	
100	Ex. 6	Normandy Parkway Morristown	10,000	425	D	Rock	NA	
101	Blanchard Securities, Inc.	Columbia Rd. Hanover	13,400	132.5	D	Sand	350	**
102	Airtron	Hanover Rd.	—		M	Sand		
103	Airtron	Hanover Rd.	—		M	Sand		
104	Airtron	Hanover Rd.	—		M	Sand		
105	USGS	North of Hanover Rd.	—	100	M	Sand	NA	
106	USGS	North of Hanover Rd.	—	10	M	Sand	NA	
107	USGS	North of Hanover Rd.	—	300	M	Sand	NA	
108	NJ Bell Co.		6,800	384	I	NA	85	
109	1st National Bank		6,600	80	D	NA	15	
110	Whippany Paper		10,800	193	NA	NA	26	
111	Whippany Paper		9,000	72	I	NA	560	

* Water Chemistry Data Available ** Pump Test Data Available

TABLE 15

WELL INVENTORY SURVEY

AIRTRON, INC.
(87-47400-01)

Well No.	Owner	Address	Distance From Site (ft.)	Depth (ft.)	Use	Water Bearing Formation	Yield (gpm)	Note
112	Whippany Paper		9,000	66	I	NA	NA	
113	ITT Rayonier		7,800	128	I	NA	320	
114	ITT Rayonier		7,800	127	I	NA	15	
115	Airtron	200 Hanover Ave. Morris Plains	0	135	M	Sand/Silt	3	
116	Airtron	200 Hanover Ave. Morris Plains	0	128	M	Sand/Silt	6	
117	Airtron	200 Hanover Ave. Morris Plains	0	134	M	Sand/Silt	5	
118	Airtron	200 Hanover Ave. Morris Plains	0	72	M	Sand	3	
119	Airtron	200 Hanover Ave. Morris Plains	0	90	M	Sand	3	
120	Airtron	200 Hanover Ave. Morris Plains	0	67	M	Sand	5	

* Water Chemistry Data Available ** Pump Test Data Available

DU

Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NORTHERN BUREAU OF REGIONAL ENFORCEMENT
1259 ROUTE 46, BUILDING 2
PARSIPPANY, NEW JERSEY 07054

GEORGE G. McCANN, P.E.
DIRECTOR

DIRK C. HOFMAN, P.E
DEPUTY DIRECTOR

MAY 17 1989

Mr. William Hutchinson
Southeast Morris County MUA
P.O. Box 562M
101 Western Avenue
Morristown, New Jersey 07960

Dear Mr. Hutchinson

Re: Compliance Evaluation Inspection
Southeast Morris County Municipal
Utilities Authority
P.W. - ID No.: 1424001
Munic/County: Morristown, Morris County

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on May 3, 1989. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "CONDITIONALLY ACCEPTABLE due to the following deficiency:

1. There were no automatic alarms or windows on the chlorine room for the Wing Well and Todd Well, as required by N.J.A.C. 7:10-11.13(f).

   NOTE: Undersized mains exist within your system. All future replacement of these mains must be at least 6" unless justified by hydraulic analysis by the Department.

Since the deficiency cited is presently, or may in the future, adversely affect effluent quality of water you provide to your customers, you are required to institute measures to correct the deficiency. A written report concerning specific details of the remedial measures to be instituted, as well as an implementation timetable, must be submitted to this Division within thirty (30) calendar days of the date of this correspondence.

Please be advised that the New Jersey Safe Drinking Water Act provides for substantial penalties for violations of the Act.

New Jersey Is An Equal Opportunity Employer

P-1

Please direct all correspondence and inquiries to Dana Ulrich, of my staff, who can be reached at (201) 299-7592 or by letter through this Division.

Thank you for your cooperation.

Very truly yours,

Elaine Stallings

Elaine Stallings, Supervisor
Safe Drinking Water and Water
Supply Enforcement
Northern Bureau of Regional
Enforcement

DCU:dc

Enclosure

c: Chief Joseph M. Mikulka Northern Bureau of Regional Enforcement
Robert Williams, USEPA - Region II
Health Officer of Morris Township
Health Officer of Hanover Township
Health Officer of Morris Plains
Health Officer of Mendham
Health Officer of Harding Township
Health Officer of Florham Park Boro
Health Officer of Par-Troy Hills
Health Officer of Chatham Township
Health Officer of Randolph Township

bc: Elaine Stallings
Dana Ulrich
Bureau File THRU E. Stallings
Bureau of Safe Drinking Water - County Book
Central File/Safe Drinking Water: PW#1424001
Enforcement Actions (Virginia Kennedy)

P-2

Form DWR-143
7/81

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICES

COMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

DATE 5/3/8

GENERAL INFORMATION

PURVEYOR/ FACILITY: Southeast Morris County M.U.A.

FILE LOCATION: Morristown / Morris County | PW-ID #: 1424001

MAILING ADDRESS: 101 Western Avenue, Morristown NJ 07960

ADMIN.: William Hutchinson, Superintendent | REQUIRED LICENSES: T 3, W 4

BUSINESS TELEPHONE # Admin.: 538-5600 Licensed Operators: T 3 William Hutchinson W 4

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): See Attachment #1 : SEMCMUA Source List

Est Tot Eff Cap: 14.102

TREATMENT: source, type, capacities(mgd): See Attachment #1 SEMCMUA Source List

Est Tot Eff Cap: 14.102

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): See Attachment #2 SEMCMUA Finished Water Storage

Est Tot Cap: 16.112 mg

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd): 6" (Morris Co. MUA, Goldhill Rd, Mendham Twp.), 6" (Randolph Twp., W. Hanover Ave.), 8" (East Hanover, Melanie Lane), 4" (Madison Boro, Algonquin Pk.), 6" (Greystone Pa.

Est Tot Avail: —

AUXILIARY POWER: location, type, capabilities: See Attachment #3 SEMCMUA Booster Stations (These generators take over for the Booster Pumps. Wells and chlorinators do not have auxiliary power. Storage provides water in the event of a power outage) P-3

NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION

DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd,month,year) Max 10.692,501 7/88 MGD Min 7.376,760 11/88 MGD Annual Average 8.694,121 1988

BULK PURCHASES (provider,mgd) Morris County MUA (approx. .7 MGD)

BULK SALES (customer, mgd) Parsippany - Troy Hills (approx. .096 MGD)

NUMBER OF SERVICES 16,891 | % METERED 100

MUNICIPALITIES SERVED (est. services in each) Morris Township (6152), Morristown (4072), Hanover Twp (4143), Morris Plains (1811), Mendham (342), Harding (284), Florham Park (31), Par-Troy (22), Chatham Twp. (21), Randolph (3) | TOTAL ESTIMATED POPULATION SERVICED 65,000

CURRENT/RECENT WATER RESTRICTIONS None

NEW CONSTRUCTION (Project Numbers) None

DISTRIBUTION MAINS: Sizing 4" (min) to 24" (max)
Pressures 28 PSI (min) to 200 PSI (max)
Hydrants/Flushing Program 1800 / Annual

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
Coliform	75 / Year	Done 1988 - 3/89
Inorganics	Yearly	Done 12/88
Nitrate	Yearly	Done 12/88
Trihalomethanes	Quarterly	Done 1988
Organics	1/3 Years	Done 12/88
Turbidity	Daily	Done 1988 - 3/89
A280	2/Year	Done 3/88, 12/88
Radiological	1/4 Years	Done
Secondaries	Yearly	Done 12/88
Sodium	Yearly	Done 12/88

NAME OF LABORATORY Townley Research CERTIFICATION # 18071

ADDRESS Garden State Labs 07044
Water Works Labs 07693

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES None

TREATMENT DEFICIENCIES ~~Note~~ No Automatic alarms or windows on Chlorine rooms for Wing Well and Todd Well (NJAC 7:10-11:13) (Swing doors replace panic hardware on chlorine rooms)

NJDEP - DIVISION OF WATER RESOURCES

PUBLIC COMMUNITY WATER SUPPLY INSPECTION

COMPLIANCE EVALUATION (Continued)

STORAGE AND/OR DISTRIBUTION DEFICIENCIES None

LICENSING, MONITORING AND/OR REPORTING DEFICIENCIES None

COMPLIANCE SAMPLING VIOLATIONS: None Taken

LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT	LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT

OVERALL COMPLIANCE RATING:

☐ ACCEPTABLE ☒ CONDITIONALLY ACCEPTABLE ☐ UNACCEPTABLE

NOTICE: YOU ARE REQUIRED TO INFORM THE N.J.D.E.P. IN WRITING OF YOUR ACTUAL OR INTENDED ACTIONS TO COMPLY WITH N.J.S.A. 58:12A-1 ET SEQ. VIA IMPLEMENTATION OF REMEDIAL MEASURES TO CORRECT THE DEFICIENCIES LISTED IN THIS REPORT. FAILURE TO ADEQUATELY RESPOND IN A TIMELY FASHION WILL RENDER YOU LIABLE FOR PENALTIES OF UP TO $5,000.00 FOR EACH VIOLATION, PURSUANT TO N.J.A.C. 7:10-3.

INSPECTOR: Dana Ulrich
Signature

Dana Ulrich
Name

Environmental Specialist Tr.
Title

Northern Bureau Regional Enf.
Region

PERSON INTERVIEWED: Charles Brown
Peter Ubertaccio
Name

Municipal Workers
Title

South East Morris County
Organization
Municipal Utility Auth

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Attachment #1

SOUTHEAST MORRIS COUNTY MUNICIPAL UTILITIES AUTHORITY

SOURCE	PUMP RATE/CAPACITY	TREATMENT
1. Black Brook Well #1 Near Morristown Airport Columbia Turnpike Hanover Township	1,034 GPM/1.489 MGD	Black Brook Wells 1 & 2 1. Gas chlorination (W + T 50# capacity) 2. Iron and Manganese removal (6 greensand filters with quarterl $KMnO_4$ regeneration)
~~2. Black Brook Well #2~~ Near Morristown Airport (closest to the road) Columbia Turnpike Hanover Township	~~904 GPM/1.30 MGD~~	
3. Clyde Potts Reservoir jct - Cold Hill Road/ Woodland Road Mendham Township	NA/1.8 MGD	1. Lime addition (pH adjustment) 2. Gas chlorination (2 F + P 50# capacity 3. Polymer addition 4. CO_2 feed - not used 5. $KMnO_4$ addition - to be added.
4. Lidgerwood Well jct Lidgerwood Parkway/ Headley Road Morristown	Approx. 300 GPM/0.432 MGD Summer well	Gas chlorination (W + T 10# capacity)
5. Littleton Well #1 Adjacent to Brevent Plaza (in woods) Littleton Avenue Parsippany-Troy Hills	Approx. 200 GPM/0.288 MGD currently off-line	Littleton Wells 1 & 2 Gas chlorination (W + T 20# capacity) Now Hypochlorinatio. (5/3/89)
6. Littleton Well #2 Adjacent to Brevent Plaza (closest to road) Littleton Road Parsippany-Troy Hills	220 GPM/0.317 MGD currently off-line	
7. Normandy Well Above entrance to Morristown Airport, Columbia Turnpike Hanover Township	Approx. 400 GPM/0.576 MGD	Hypochlorination (gas chlorination expected 1986)

D-6

Attachment #1

SOURCE	PUMP RATE/CAPACITY	TREATMENT
8. Sand Spring Well Sand Spring Road Harding Township	Flowing artesian well/0.70 MGD Approx. 500 GPM	Gas chlorinati (W + T 10# ca city)
9. Shongum Well West Hanover Avenue Morris Township	50-100 GPM/0.108 MGD at 75 GPM	Gas chlorinati (W + T 20# ca city)
10. Todd Well Ridgedale Avenue Hanover Township	1575 GPM/2.268 MGD	Gas chlorinati (W + T 10# cap city)
11. Turnbull Lane Well In Convent News Apart- ment Complex, Franklin Street Morris Township/Morristown border	Approx. 250 GPM/0.360 MGD	Gas chlorinati (W + T 10# cap city)
12. Wing Well Ridgedale Avenue Hanover Township	3.100 GPM/4.464 MGD	Gas chlorinati (W + T 10# cap city)

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Attachment #2

SOUTHEAST MORRIS COUNTY
MUNICIPAL UTILITIES AUTHORITY

FINISHED WATER STORAGE	CAPACITY (in million gallons)
1. Bailey Hollow Ground Tank Bailey Hollow Road Morris Township	0.300
2. Baird Place Elevated Tank Baird Place (near Troy Hills Road) Hanover Township	1.000
3. Easley Ground Tank Eagle Nest Road Morris Township	2.000
4. Highland Woods (Shongum) Ground Tank off Tower Lane (near Lord Sterling Drive) Morris Township	0.500
5. Horse Hill (Countrywood) Ground Tank Countrywood Drive Hanover Township	1.000
6. Jones Woods Ground Tank off Western Avenue (behind Villa Walsh) Morris Township	2.000
7. Jones Woods Standpipe (same location as #6)	0.300
8. Littleton (Olde Idlewild) Concrete Ground Tank off Trowbridge Road on Dogwood (in woods) Morris Plains	0.120
9. Morris Plains Tank Route 53 (in Foxwood development) Morris Plains	1.000
10. Mountain Way (New Idlewild) Ground Tank Tower Hill Road Parsippany-Troy Hills	0.300
11. Normandy Standpipe #1 Oak Park Drive (near Woodruff Road) Morris Township	0.296
12. Normandy Standpipe #2 see #11	0.446

Attachment #2

FINISHED WATER STORAGE	CAPACITY (in million gallons)
13. Picatinny Ground Tank #1 by Hillcrest Avenue and Dorothy Drive (near Jones Woods) Morris Township	3.000
14. Picatinny Ground Tank #2 see #13	3.000
15. Rayonier Elevated Tank Fieldstone Drive (near Westview Drive) Hanover Township	0.200
16. Skyline Elevated Tank Skyline Drive Morris Township	0.150
17. Skyline Standpipe see #16	0.500

10. Mountain Way (New Idlewild) Ground Tank — 0.300
Tower Hill Road
Parsippany-Troy Hills

11. Normandy Standpipe #1 — 0.296
Oak Park Drive (near Woodruff Road)
Morris Township

12. Normandy Standpipe #2 — 0.446
see #11

17. Skyline Standpipe
see #16

Attachment #3

SOUTHEAST MORRIS COUNTY MUNICIPAL UTILITIES AUTHORITY

BOOSTER STATIONS	EQUIPMENT
1. Black Brook Near Morristown Airport Columbia Turnpike Hanover Township	Two pumps
2. Country Wood Poplar Drive and Countrywood Drive Hanover Township	1. Three variable speed pumps. 2. ONAN 120 kw generator
3. Jockey Hollow Western Avenue (across from former resevoir) Morris Township	1. Two pumps 2. Auxiliary generator
4. Jones Woods (unused for 3-4 years) Hillcrest Avenue Morris Township	1. Three pumps (one is direct drive) 2. Auxiliary engine
5. Knollwood Knollwood Terrace (near Deer Run) Mendham Township	Off-line since start up of Clyde Potts water treatment plant
6. Lake Valley (junction of Mill Road Morris Township	2 pumps (1 serves as a backup)
7. Malapardis Malapardis Road Morris Plains	1. One pump (direct drive) 2. Auxiliary engine
8. Mountain Way Mountain Way Morris Plains	1. Three pumps (one is direct drive) 2. Auxiliary engine (one pump and motor in process of being refurbished)
9. Shongum West Hanover Avenue Morris Township	Two pumps
10. Summit Road Summit Road (near Michael Road) Mendham Township	One pump (used only when Clyde Potts is in service)
11. Todd/Wing (emergency use) off Ridgedale Avenue Hanover Township	One pump

Let's protect our earth

PAR - TROY TWP

MORRIS

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NORTHERN BUREAU OF REGIONAL ENFORCEMENT
1259 ROUTE 46, BUILDING 2
PARSIPPANY, NEW JERSEY 07054

GEORGE G. McCANN, P.E.
DIRECTOR

DIRK C. HOFMAN
DEPUTY DIREC

AUG 09

Parsippany-Troy Hills Water Department
1001 Parsippany Boulevard
Parsippany, New Jersey 07054

Attention: Frank Boyarski, Superintendent

Dear Mr. Boyarski:

Re: Compliance Evaluation Inspection
Parsippany-Troy Hills Water Department
P.W. - ID No.: 1429001
Munic/County: Parsippany-Troy Hills Township, Morris County

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on June 30, 1988. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "UNACCEPTABLE" due to the following deficiencies:

1. Failure to notify customers of potential sources and adverse health effects of lead in drinking water before June 19, 1988 as required in the 1986 amendments to the Federal Safe Drinking Water Act.

2. The chlorinator at well #9 was not operating at the time of the inspection.

3. The chlorine room fan at well #15 was inoperable.

4. The overflow pipe screen was damaged at the Hector Road Tank.

5. During the inspection it was observed that contaminated ground water from well #7 is actively being pumped and discharged to a tributary of the Passaic River. This activity is governed by the New Jersey Pollutant Discharge Elimination System (NJPDES) Regulations, N.J.A.C. 7:14A-1 et seq. These regulations state: "No person shall discharge any pollutant except in conformity with a valid NJPDES permit." Our records indicate no such permit

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exists for your facility. Parsippany-Troy Hills Township is therefore DIRECTED to contact the Bureau of Information Systems (BIS) at the following address to acquire the necessary materials for a NJPDES permit application. The completed application must be submitted to:

Chief George Caporale
Bureau of Information Systems
Wastewater Facilities Management Element
Division of Water Resources
CN-029
Trenton, New Jersey 08625

Any questions concerning the completion of the application should be addressed to Chief George Caporale or the BIS staff, who may be reached at (609) 984-4428.

A pre-application conference is strongly recommended and can be arranged by calling the Bureau of Industrial Waste Management at (609) 292-4860.

Since the deficiencies cited are presently, or may in the future, adversely affect the quantity and/or quality of water you provide to your customers, you are DIRECTED to institute measures to correct the deficiencies in a timely fashion. A written report concerning specific details of the remedial measures to be instituted, as well as an implementation timetable, must be submitted to this Division within thirty (30) calendar days of the date of this correspondence.

The New Jersey Safe Drinking Water Act (N.J.S.A. 58:12A-1 et seq.) provides for substantial monetary penalties for violations of the Act.

Failure to comply with the above in a timely fashion will result in the initiation of enforcement action by this Department. This shall in no way be construed, however, to indicate any exemption on your part from possible penalties for violations indicated by the Compliance Evaluation Inspection, as stated above.

Please direct all correspondence and inquiries to Charles Ziegmont, of my staff, who can be reached at (201) 299-7592 or by letter through this Division.

Very truly yours,

Joan Rogauskas

Joan Rogauskas
Acting Supervisor
Northern Bureau of Regional
Enforcement

A18:mv

Enclosure

Form DWR-143
7/81

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICES

COMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

DATE 6/28 + 6/30/

GENERAL INFORMATION

PURVEYOR/ FACILITY: PARSIPPANY - TROY HILLS WATER DEPARTMENT

FILE LOCATION: PAR-TROY TOWNSHIP / MORRIS COUNTY | PW-ID #: 1429001

MAILING ADDRESS: 1001 PARSIPPANY BLVD., PARSIPPANY NJ 0705

ADMIN.: FRANK BOYARSKI | REQUIRED LICENSES: T-1 / W-4

BUSINESS TELEPHONE # Admin.: 201 263-7099 | Licensed Operators: T-2 BOYARSKI W-4

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): 17 ACTIVE WELLS. See "sheet A which is attached

Est Tot Eff Cap: 11.276 M.

TREATMENT: source, type, capacities(mgd): GAS CHLORINATION @ ALL WELLS. ADVANCED 10 lb CAPACITIES

Est Tot Eff Cap: 11.276 M

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): 9 Storage TANKS ACTIVE See attached "sheet B"
1.0 MG TANK BEING CONSTRUCTED ON MANTAIN WAY

Est Tot Cap: 9.5 MG

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd):
MOUNTAIN LAKES WATER DEPT 6" LINE @ LAKESIDE RD.
DENVILLE WATER DEPT 6" LINE @ FOXHILL

Est Tot Avail:

AUXILIARY POWER: location, type, capabilities:
RIGHT ANGLE DRIVES @ WELLS 12, 13, 14 + 15
DIESEL GENERATOR @ Well 4 and 8 - 1, 2, 3: + Booster FIELD

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NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION

Pag

DELIVERY INFORMATION

PLANT DELIVERED WATER (mgd,month,year) Max 7.28 MGD 8/87 Min 5.16 MGD 12/87 Annual 6/87 → 5/8 Average 6.16 MGD

BULK PURCHASES (provider,mgd) SOUTHEAST MORRIS CO. MUA

BULK SALES (customer, mgd) NONE (PROPOSAL TO SELL 25 - .5 MGD TO E. HAM

NUMBER OF SERVICES 12,514 % METERED 100

MUNICIPALITIES SERVED (est. services in each) PAR - TROY TWP (EXCEPT THE SW CORN SERVICED BY PURCHASING FROM SEMCMUA approx 100 Homes + 3 [illegible]

TOTAL ESTIMATED POPULATION SERVICED 55,000

CURRENT/RECENT WATER RESTRICTIONS NONE

NEW CONSTRUCTION (Project Numbers) ① MTN WAY 1.0 MG STORAGE TANK ③ WELL #20 - MALDA BROOK ② WELL #19 - FORGE POND

DISTRIBUTION MAINS: Sizing 4" (LK HIGHWATER) (min) to 16" (max)
Pressures 20 psi (min) to 175 psi (max)
Hydrants/Flushing Program ≈ 1525 / YEARLY

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
A-280	2/yr	5/25/88 Must [illegible]
Coliform	65/MO.	80/MO.
Inorganics	ONCE/3 YRS.	6/18/88
Nitrate	ONCE/3 YRS.	6/18/88
Trihalomethanes	ONCE/90 Days	5/10/88
Organics	NA	—
Turbidity	NA	—
RADIONUCLIDES	CYCLE/4 yrs	DUE 1990
SECONDARIES	ONCE/3 yrs	DUE 9/88

NAME OF LABORATORY ① ICM - RANDOLPH (THM) CERTIFICATION # 14116

ADDRESS ② PAR-TROY WATER DEPT (COLI) # 14076 ③ PASSAIC VALLEY #160

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES WELL #7 is being pumped to waste without a NJPDES PERMIT.

TREATMENT DEFICIENCIES GAS CHLORINATOR AT WELL #9 WAS NOT OPERATING

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NJDEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION

COMPLIANCE EVALUATION (Continued)

STORAGE AND/OR DISTRIBUTION DEFICIENCIES Hector Road Overflow Pipe Has Damaged Screen. Undersized mains within system

LICENSING, MONITORING AND/OR REPORTING DEFICIENCIES None Noted

COMPLIANCE SAMPLING VIOLATIONS: No samples taken

LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT	LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT

OVERALL COMPLIANCE RATING:

☐ ACCEPTABLE ☐ CONDITIONALLY ACCEPTABLE ☒ UNACCEPTABLE

NOTICE: YOU ARE REQUIRED TO INFORM THE N.J.D.E.P. IN WRITING OF YOUR ACTUAL OR INTENDED ACTIONS TO COMPLY WITH N.J.S.A. 58:12A-1 ET SEQ. VIA IMPLEMENTATION OF REMEDIAL MEASURES TO CORRECT THE DEFICIENCIES LISTED IN THIS REPORT. FAILURE TO ADEQUATELY RESPOND IN A TIMELY FASHION WILL RENDER YOU LIABLE FOR PENALTIES OF UP TO $5,000.00 FOR EACH VIOLATION, PURSUANT TO N.J.A.C. 7:10-3.

INSPECTOR: Charles Ziegmont
Signature

Charles Ziegmont
Name

Environmental Specialist
Title

Northern
Region

PERSON INTERVIEWED: Jack Foreman
Name

Assistant Operator
Title

Par-Troy Water Dei
Organization

P-17

SHEET A

ACTIVE PUMPING STATIONS	LOCATION	WELL MOTOR/PUMP PUMPING RATE WELL CAPACITY	CHLORINE MOTOR/PUMP
Well #1A Pump House Road	In the woods, past the end of Princess Street	100 hp 420 GPM 0.605 MGD	5 hp
Well #3 Vail Road	At the end of Eileen Court, by school and tank	50 hp 350 GPM 0.504 MGD	1.5 hp
Well #4 Parsippany Boulevard	Parsippany Blvd., rear of former Post Office, near Route 46	60 hp 225 GPM 0.324 MGD	1.5 hp
Well #4A Parsippany Boulevard	same as #4	100 hp 900 GPM 1.296 MGD	1.5 hp
Well #7 Halsey Road	East of Jefferson Road	100 hp 500 GPM 0.720 MGD	N/A
Well #8-1, 8-2, and 8-3 South Beverwyck Road (150 hp at booster station at this well field)	Approx. 200' South of Quinby Court on South Beverwyck	15 hp 300 GPM 0.432 MGD 15 hp 400GPM 0.576 MGD 30 hp 600 GPM 0.864 MGD	N/A
Well #9 Homer Street	Between Sparton Avenue and Grecian Street	75 hp 540 GPM 0.778 MGD	2 hp
Well #10 Cherry Hill Road			

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SHEET A - PAGE 2

ACTIVE PUMPING STATIONS	LOCATION	WELL MOTOR/PUMP PUMPING RATE WELL CAPACITY	CHLORINE MOTOR/PUMP
Well #11 Troy Meadow Road	Approx. 400' East of Parkside Drive on Troy Meadow Road	60 hp 70 GPM 0.101 MGD	2 hp
Well #12 Fairfield Road	Between Parsippany Blvd., and Mamora Road on Fairfield Rd.	75 hp 300 GPM 0.432 MGD	1.25 hp
Well #13 Marsha Terrace Flowing artesian	Extension of Marsha Terrace	100 hp 425 GPM 0.612 MGD	2 hp
Well #14 Holmdel Road	At end of Sylvan Way, in Prudential Campus	125 hp 700 GPM 1.008 MGD	3 hp
Well #15 Ball Avenue	Between North Beverwyck Road and Condit Street	40 hp 150 GPM 0.216 MGD	2 hp
Well #17 Pump House road	Behind Water Department office, off Pump House Road	100 hp 700 GPM 1.080 MGD	1 hp
Well #18 Ulysses Street	Approx. 300' East of Grecian Street, in same park as well #9	100 hp 750 GPM 1.080 MGD	1 hp

PUMPING STATIONS OUT OF SERVICE

Well #1	Pump House Road
Well #2	Behind Police Station

SHEET A - PAGE 3

PUMPING STATIONS OUT OF SERVICE

Well #5-1 #5-2 #5-3	Entrance at the Ferncrest Apartments approximately 1,500' West of Route 53. Station is located in the wooded area of the Ferncrest Apartments.
Well #6	At the end of Elm Avenue

SHEET B

"x" - Tank has cathodic protection system

STORAGE TANKS Name, type and location	CAPACITY (MG)
1. Brooklawn Ground Tank At end of Fairview Place, entrance from Arlington Avenue, off Park Road.	2.0 "x"
2. Hector Road Ground Tank Between Skyview Terrace Road Fernview Road.	1.0
3. Knoll Road Elevated Tank Between homes #580 and #594.	2.0 "x"
4. Lackawanna Elevated Tank In Foxhill Park Industrial Complex off Rt. 46E, behind Esselte Pentaflex.	1.0 "x"
5. Powder Mill South Elevated Tank At top of Continental Road.	0.5 "x"
6. Puddingstone Ground Tank Puddingstone Heights Development on High Ridge Road.	0.5 "x"
7. Route 10 Standpipe Route 10 West, between Rt. 53 and Powder Mill Road.	1.0 "x"
8. Route 287 Elevated Tank Pomeroy Road, between Smith Road and Webro Road.	1.0 "x"
9. Vail Road Elevated Tank At end of Eileen Court, by school and well #3.	0.5
10. Mountain Way Tank At end of Mountain Way	1.0 "x"

P-21

Let's protect our earth

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NORTHERN BUREAU OF REGIONAL ENFORCEMENT
1259 ROUTE 46, BUILDING 2
PARSIPPANY, NEW JERSEY 07054

GEORGE G. McCANN, P.E.
DIRECTOR

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

SEP 7 1989

Mr. Dwight Longley, Borough Administrator
Florham Park Borough Hall
111 Ridgedale Avenue
Florham Park, New Jersey 07932

Dear Mrs. Longley:

Re: Compliance Evaluation Inspection
Florham Park Water Department
P.W. - ID No.: 1411001
Munic/County: Florham Park Borough, Morris County

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on July 27, 1989.

Your facility received a rating of "ACCEPTABLE". A copy of the completed inspection report form is enclosed for your information. Please address any deficiencies noted therein.

NOTE: Undersized mains exist within your system. All future replacement of these mains and all new mains must be at least 6" in diameter, unless justified by hydraulic analysis and approved by the Department

This Division anticipates your continued cooperation in operating your facilities in a responsible and efficient manner.

Very truly yours,

James Christakos

James Christakos
Environmental Specialist
Ground Water and Safe Drinking
Water Enforcement
Northern Bureau of Regional
Enforcement

A20:dc

New Jersey Is An Equal Opportunity Employer

Form DWR-143
7/81

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
ENFORCEMENT & REGULATORY SERVICES

COMPLIANCE EVALUATION INSPECTION
PUBLIC COMMUNITY WATER SUPPLY

DATE July 27, 1989

GENERAL INFORMATION	
PURVEYOR/ FACILITY Florham Park Water Department	
FILE LOCATION Florham Park Borough / Morris County	PW-ID # 1411001
MAILING ADDRESS 111 Ridgedale Ave, Florham Park, N.J. 07932	
ADMIN. Dwight Longley	REQUIRED LICENSES T - 3 W - 4
BUSINESS TELEPHONE # Admin.: 377-5800 Licensed Operators: T-3 R. Tantillo W-4 R. Tantillo	

FACILITY DESCRIPTION

SOURCES: descriptions, locations, capacities(mgd): Well #1 - Capped and Sealed
Well #2 - 1000 GPM (1.44 MGD) - on Columbia Avenue.
Well #3 - 650 GPM (0.936 MGD) - at the Recreation Field.
Well #4 - 1300 GPM (1.872 MGD) - on Elm Street Est Tot Eff Cap: 4.248 MGD

TREATMENT: source, type, capacities(mgd): All three wells have Gas Chlorination (WRT - capacity of 10#/day, each)
Wells 2, 3 and 4 are sequestered with Sodium Hexametaphosphate for manganese.
A chlorine detector and a Scott Air Pack is located in the Well House
of Well #4 Est Tot Eff Cap: 4.248 MGD

FINISHED WATER STORAGE: descriptions, locations, capacities(mg): There are two storage tanks.
1. 0.25 MG elevated tank at Columbia Turnpike.
2. 1.00 MG standpipe at Pollard Avenue
Est Tot Cap: 1.25 MG

EMERGENCY INTERCONNECTIONS: descriptions, available gallonage(mgd):
1. Madison Water Department: 6" - 12" lines - 0.500 MGD
2. East Hanover Water Department: 8" lines - 0.500 MGD
Est Tot Avail: 1.0 MGD

AUXILIARY POWER: location, type, capabilities:
Well #2 - Propane engine with a right angle drive.
Well #3 - Gasoline engine with a right angle drive.
Well #4 - Diesel Generator.

N.DEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION

DELIVERY INFORMATION		
PLANT DELIVERED WATER (mgd,month,year)	Max 1.908 MGD July 88	Min 0.875 MGD Feb '89 — Annual Average 1.209 MGD 7/88 - 6/89
BULK PURCHASES (provider,mgd)	NONE	
BULK SALES (customer, mgd)	NONE	
NUMBER OF SERVICES	3,040	% METERED 100
MUNICIPALITIES SERVED (est. services in each)	1. Madison - 3 services	
	2. East Hanover - 10 services	
	3. Balance in Florham Park	TOTAL ESTIMATED POPULATION SERVICED 11,579
CURRENT/RECENT WATER RESTRICTIONS	Odd and Even Days - Lawns, Car washing.	Since 1982.
NEW CONSTRUCTION (Project Numbers)	Very Little	
DISTRIBUTION MAINS:	Sizing 4" (min) to 12" (max) Pressures 55 psi (min) to 90 psi (max) Hydrants/Flushing Program ~350 hydrants/ once per year	

MONITORING & REPORTING

PARAMETER(S)	FREQUENCY REQUIRED	FREQUENCY PERFORMED
Coliform	13 per month	13 per month
Inorganics	Every three years	Done 2/87; Due 2/90
Nitrate	" " "	" "
Trihalomethanes	Four per year	Done 8/88, 11/88, 2/89, 7/89; Due 9/89, 12/89
Organics	—	—
Turbidity	—	—
A-280	Twice per year	Done 11/88, 3/89; Due 12/89
Secondary	Every three years	Done 2/87; Due 2/90
Radiological	Every four years - Qtly.	Done 1986; Due 1990

NAME OF LABORATORY Madison Health Dept. | Environmental Profile Labs. CERTIFICATION # 14049 | 15526

ADDRESS Madison, New Jersey | Toms River, N.J.

COMPLIANCE EVALUATION

SOURCE DEFICIENCIES NONE

TREATMENT DEFICIENCIES NONE

N JEP - DIVISION OF WATER RESOURCES
PUBLIC COMMUNITY WATER SUPPLY INSPECTION

COMPLIANCE EVALUATION (Continued)

STORAGE AND/OR DISTRIBUTION DEFICIENCIES Undersized mains exist within your system.

LICENSING, MONITORING AND/OR REPORTING DEFICIENCIES NONE

COMPLIANCE SAMPLING VIOLATIONS: No Samples Taken

LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT	LOCATION	DATA SOURCE	PARAM	MAX CONTMNT LEVEL	RESULT

OVERALL COMPLIANCE RATING:

☑ ACCEPTABLE ☐ CONDITIONALLY ACCEPTABLE ☐ UNACCEPTABLE

NOTICE: YOU ARE REQUIRED TO INFORM THE N.J.D.E.P. IN WRITING OF YOUR ACTUAL OR INTENDED ACTIONS TO COMPLY WITH N.J.S.A. 58:12A-1 ET SEQ. VIA IMPLEMENTATION OF REMEDIAL MEASURES TO CORRECT THE DEFICIENCIES LISTED IN THIS REPORT. FAILURE TO ADEQUATELY RESPOND IN A TIMELY FASHION WILL RENDER YOU LIABLE FOR PENALTIES OF UP TO $5,000.00 FOR EACH VIOLATION, PURSUANT TO N.J.A.C. 7:10-3.

INSPECTOR: James Christakos
Signature

James Christakos
Name

Environmental Specialist
Title

Northern
Region

PERSON INTERVIEWED: Rosario Tantillo
Name

Licensed Operator
Title

Elsrham Park Water Dept
Organization

SOIL AND GROUNDWATER REMEDIAL INVESTIGATION
PHASE 1 RESULTS

LITTON INDUSTRIES, INC. - AIRTRON DIVISION
Hanover Township, New Jersey

By

CONVERSE ENVIRONMENTAL EAST

24 November 1987

Project No. 87-47400-01

Cover - 3-dimensional fish net diagram of the water table surface in the upper flow system showing the drawdown configuration due to pumping of Mennen Production Well #1. View is from the southwest looking towards the Mennen Well and Airtron beyond.

to divert surface runoff. The NJDEP state permit number was permanently placed on the protective casing of each well. Monitoring wells MW-201 and MW-206 were constructed as flush mount completions using America, Inc. locking meter boxes.

Upon completion, each deep monitoring well was developed by air methods, and by hand bailing in each of the shallow wells. All the wells contained water which was initially very turbid. Development of each well continued until the discharge became clear and until conductivity measurements stabilized.

A dedicated Well Wizard P-1201 bladder pump, with PT-5100 teflon-lined polyethylene tubing, was installed in each new and existing monitoring well. Due to the large volume of water that is necessary to purge from the 3 USGS wells, a Grundfos SP-4-6, 115 volt, 1/2 horsepower submersible pump was also installed in each of these wells.

Following construction, the elevations and locations of the monitoring wells were surveyed by a New Jersey licensed surveyor from Recon, Inc. of Whippany, New Jersey. As of this report, the horizontal coordinates of each well location is pending.

HYDROGEOLOGY

General

The Airtron site and surrounding area is underlain by two general hydrogeologic units. These consist of bedrock aquifers, and the overlying Pleistocene glacial deposits.

Bedrock

The Airtron facility is located within the far western portion of the Piedmont Physiographic Province in northern New Jersey. In the vicinity of Hanover Township, New Jersey, the rocks which underlie the Piedmont Province consist entirely of consolidated sedimentary deposits of the Boonton member of the Brunswick Formation. This formation is composed of Triassic sandstone with interbedded shales.

Approximately 2000 feet west of the site, the Brunswick Formation is truncated by the Great Border Fault which forms the actual geologic boundary between the Piedmont and the Highland Physiographic Provinces. The Whippany River, located west of the Airtron site, locally outlines the trend of this fault zone. Along this north-south trending fault, sedimentary rocks of the Brunswick Formation lie against Precambrian crystalline rocks. These crystalline rocks consist of a variety of hard gneisses, granites and schists.

The bedrock surface forms a broad trough which locally trends in a general north-south direction. The Airtron site is located along the approximate axis of this trough, with outcrops of Precambrian crystalline rocks and sediments of the Brunswick Formation exposed at the surface about 2500 feet to the west and east of the site, respectively. This depression in the bedrock surface is filled with varying thicknesses of sediments deposited during the Wisconsin glaciation.

None of the borings drilled for this investigation penetrated the underlying Brunswick Formation. The boring logs from this study indicate a depth to bedrock of greater than 138

feet. Available well logs from the surrounding area indicate that the thickness of glacial soils overlying bedrock is about 190 feet at a well located approximately 1300 feet east of the site, and about 153 feet at a well located approximately 500 feet west of the site.

Because none of the bedrock strata were penetrated by any of the borings drilled for this investigation, and because it is believed they are not hydrologically relevant to the results of this study, the hydrologic properties of the bedrock units are not detailed in this report.

Pleistocene Glacial Deposits

The glacial sediments underlying the Airtron site can be divided into at least 5 general hydrogeologic units. These consist of an upper unsaturated zone, an upper unconfined aquifer, an upper fine-grained aquitard, a lower confined aquifer, and a lower fine-grained aquitard.

Upper Unsaturated Zone

The unsaturated zone under the study area can be subdivided into at least two separate geologic units: a relatively low permeability surface till and unsaturated outwash sands above the upper aquifer.

We conducted a field reconnaisance, upgradient of MW-206, searching for an additional source. Inspection of the wooded area adjacent to MW-205 revealed the presence of an old, abandoned landfill, as shown on Drawing 7. This landfill is located several hundred feet to the southeast of monitoring well MW-205 and occupies an area of about 2 acres. Most of the material appears to have been burned as there was abundant ash and cinders present. In the far western portion of the landfill was at least 1/2 dozen 55 gallon drums sticking out of the landfill; one of which was oozing a thick, black oily substance.

Because the landfill was subsequently determined to be entirely within AT&T and Fabricated Plastics properties, no further investigation was undertaken. Although the contribution of volatile organics to the groundwater from this area has not been investigated, the location of the landfill almost exactly upgradient from monitoring well MW-206 makes it highly suspect. The presence of low levels of aliphatic volatile compounds in monitoring well MW-205 could be due to this well being located along the northern edge of a volatile plume which is migrating towards monitoring wells MW-206 and USGS-1, on its way towards the Mennen pumping well.

Based on the information discussed in this section of the report, 3 groundwater plumes with very similar chemistries have been identified. The suspected source areas and generalized plume boundaries are presented on Drawing 7. The movement of these plumes are all being controlled by gradients created by the pumping of the Mennen production well. This is also to say that contaminated groundwater within these plumes will ultimately be captured and discharged by the Mennen well.

Let's protect our earth

APR 21 1988

STATE OF NEW JERSEY
DEPT. ENVIRONMENTAL PROTECTION
DIVISION WATER RESOURCES
BUR. OF HZ. WASTE MGMT.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029
TRENTON, NEW JERSEY 08625

APR 20 1988

GEORGE G. McCANN, P.E.
DIRECTOR

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

M E M O R A N D U M

TO: Chris Mallery through Robert Plumb, Assistant Chief, Northern Bureau of Regional Enforcement, DWR

FROM: Robert A. Gallagher through David Muscalo, Supervisor, Bureau of Ground-Water Pollution Assessment, DWR

SUBJECT: Airtron Division of Litton Industries, Hanover Township, Morris County - Review of "Soil and Ground Water Remedial Investigation" Report

Summary

The subject document has been reviewed by BGWPA and the reported conclusions found to be unacceptable. The horizontal extent of ground-water of pollution which has migrated offsite has not been delineated. The report does not conclusively prove that the production well located at Mennen Corporation captures all pollution emanating from the subject site. The pollution sources (lagoons) at Airtron Division of Litton Industries (AL) have not been sufficiently investigated/remediated. Finally, AL has not applied for the appropriate NJPDES-DGW.

Background

Enforcement action at the subject site was initiated in 1979 as a result of a site inspection which revealed NJPDES violations and the improper use of unlined sludge beds (lagoons). Sampling of existing production wells and monitor wells installed in 1980 and 1981 confirmed that the site was a source area for ground-water pollution by volatile-organic compounds (VOCs). Pollution of a neighboring production well by VOCs (Mennen Corp. see attachment No. 1a & b) was also confirmed. Subsequent analyses of monitoring data revealed that the partial excavation of the lagoons conducted as a remedial action has not been effective

in eliminating sources of ground-water pollution. Consequently, a Directive was issued by NBRE to AL on Dec. 11, 1986 requiring that a remedial investigation be conducted at the site. The subject document presents the results of the investigation performed by AL's consultant, Converse Environmental Consultants, during the period of April-November 1986. Twenty-two soil borings and six additional monitor wells were installed at this time.

Potential sources of pollution at the AL site include: five former lagoons; a hazardous-waste-storage area, and discharges to a stream at the rear of the site. The major volatile organic pollutants identified in ground-water samples collected at the site include (in order of decreasing concentration): trichloroethylene (TCE), tetrachloroethylene (PCE), and trans-1,2-dichloroethene. Other pollutants identified in either sludge or wastewater samples from the site include: cyanide, arsenic, cadmium, chromium, copper, nickel, silver, and zinc.

Hydrogeology

The AL site is located in the Piedmont physiographic province of New Jersey. The site is underlain by at least 138 feet of unconsolidated sediments. None of the borings completed at the site encountered bedrock. The sediments are underlain by bedrock reported by Lyttle and Epstein (1987, Geologic Map of the Newark 1 X 2 Quadrangle, U.S.G.S. Map I-1715) to be the Boonton Formation of the Brunswick Group. The bedrock was not sampled in this investigation. Topography slopes generally to the east-southeast from AL toward the Whippany River.

Two aquifers in the unconsolidated deposits were encountered during investigations at the site. The deeper of the two aquifers is located at approximately 120 to 130 feet below ground surface and is confined. Elevations of the potentiometric surface of this aquifer when compared with those of the shallow aquifer indicate upward leakage of confined ground water. The water table in the shallow aquifer is encountered at depths ranging from approximately 40 to 60 feet below ground surface. The saturated thickness of this aquifer ranges from approximately 25 to 50 feet. The average hydraulic gradient in the shallow aquifer when the Mennen production well is pumping, is approximately 0.02. Locally, a shallow, perched water table may be encountered. Perched water was noted in borings B-117 and 1M at depths of less than 10 feet.

Comments/Conclusions

1. The Mennen production well is reported to be capturing

R2

analyz[illegible] Priority Pollutant Me[illegible] The analytical results [illegible]tachment No.4) show concentrations of arsenic and cadmium above NJDEP guidelines for soils.

12. AL has a NJPDES DSW permit (No. NJ0025739) for discharge to this stream. Violations of the permit for excessive concentrations of arsenic have been reported.

13. Relatively high concentrations of cadmium were reported in sludge samples from the lagoons (Attachment No.1) at AL.

14. None of the borings installed during this phase investigation at AL were completed through the lagoon sediments. Consequently, the vertical distribution of pollutants beneath the lagoons is unknown. These data are necessary for proper source remediation.

15. The DWR "Field Procedures Manual for Water Data Aquisition" states: bladder pumps may not be used "to collect samples for volatile organic analysis due to the pressure gradients to which the sample is exposed" (p. I-45). The subject report states indicates that dedicated bladder pumps were installed in most of the monitor wells and used for ground-water sampling and purging.

16. A production well at the Mennen facility intercepts polluted ground water emanting from the AL site. Ground water from this production well is used as non-contact cooling water and discharged to surface water.

17. Ground-water in the deeper aquifer has been sampled and analyzed; no detectable levels of VOC pollutants have been found.

Recommendations

1. AL should initiate recovery and treatment/disposal of polluted ground water below the subject site.

2. AL should define the offsite extent of polluted ground water.

3. AL should initiate recovery and treatment/disposal of all polluted ground water emanating from the subject site.

4. AL should apply for a NJPDES-DGW permit.

5. AL should conduct a soil and stream sediment sampling

R-3

program investigate potential metals contamination.

6. AL should investigate soil contamination by VOCs in and below the lagoons.

7. Future ground-water samples must be collected by bailer.

8. Appropriate revisions should be made to Mennen's NJPDES-DSW permit.

I will continue to assist in this matter as needed. If you have any questions, please call (609)292-0668.

RAG:kdi

cc: Arnold Schiffman, Ground Water Quality Management, DWR
Steven Spayd, BGWPA
Dennis Hart, Bureau of Case Management, DHSM
Stephen Johnson, Bureau of Ground-Water Discharge Control, DWR
Paul Kurisko, Industrial Permits, DWR
File

B-4

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

Time & Date Received By Labs _____
Lab. No. _____

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

FIELD INFORMATION

Date of Collection APRIL 8 19 80

Hour 11 A.M. ✓ P.M. _____

Sample No. C 33679

Composite Period GRAB Interval _____

Collected by KING - REUTER

Municipality MORRIS PLAINS

Residual Chlorine:
Immediate _____
Developed _____

Plant LITTON IND - AIRTRON DIV

Stream _____

Flow Rate _____

Location HANOVER RD

Temperature _____

Description and Remarks: WELL BY HANOVER RD #1

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____

Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations
	Odor (cold)		Suspended Solids		Grease & Oil		~~Ammonia~~
	Turbidity (units)		Ash		~~Cyanide~~	✓	SILVER 0.010 K
	pH		Total Solids	✓	Chromium Total 0.010 K	✓	NICKEL 0.010 K
	Acidity to pH 4		Ash	✓	Chromium Hex. .005 K	✓	VOLATILE ORG SCAN ppb
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4		(TCE)
	Nitrite N		MBAS	✓	Copper 0.005 K	✓	CADMIUM 0.002
	Nitrate N		Phenols		Lead		trichloroethylene
	Ammonia N		COD		Arsenic		34.500
	Total Kjel. N		Iron	✓	Zinc 0.011		tetrachloroethylene 1400

ND = NON-DETECTABLE: I. E. BELOW DETECTABLE LIMITS RE METHOD # 4

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes				
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

APR 29 1980
REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

S-1

H1832

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

Time & Date Received _____
By Labs
Lab. No. _____

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

FIELD INFORMATION

Date of Collection April 8 1980
Hour 12:25 A.M. _____ P.M. ✓
Sample No. C 33680
Composite Period _____ Interval _____
Collected by Long, Reuter
Municipality Morris Plains
Residual Chlorine:
Immediate _____
Plant Mennan
Developed _____
Stream _____
Flow Rate _____
Location Hanover Road
Temperature _____
Description and Remarks: well in front of bldg mennan #1

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____
Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations
	Odor (cold)		Suspended Solids		Grease & Oil	✓	Silver 0.010 K
	Turbidity (units)		Ash		Cyanide	✓	Cadmium 0.001 K
✓	pH		Total Solids	✓	Chromium Total 0.010 K	✓	Nickel 0.010 K
	Acidity to pH 4		Ash	✓	Chromium Hex. 0.005 K	✓	Volatile Org Scan ppb
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4		
	Nitrite N		MBAS	✓	Copper 0.010		trichloroethylene
	Nitrate N		Phenols		Lead		1920
	Ammonia N		COD		Arsenic		tetrachloroethylene
	Total Kjel. N		Iron	✓	Zinc 0.018		50

ND = NON-DETECTABLE; I. E. BELOW DETECTABLE LIMITS AS MEMO # 4

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

APR 21 1980
REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

S-2
H1916

PART 1-CHEMISTRY COPY

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

Time & Date Received By Labs _____
Lab. No. _____

FIELD INFORMATION

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Date of Collection APRIL 8 1980
Hour 12:45 A.M. ____ P.M. ✓

Sample No. C33681

Composite Period GRAB Interval _____

Collected by KING - REUTER

Municipality MORRIS PLAINS

Residual Chlorine:
Immediate _____
Developed _____

Plant LITTON INDS - FIRTRON DIV

Stream _____

Flow Rate _____

Location HANOVER RD

Temperature _____

Description and Remarks: WELL BY BASEBALL FIELD #2

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____

Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations
	Odor (cold)		Suspended Solids		Grease & Oil	✓	SILVER 0.010 K
	Turbidity (units)		Ash		Cyanide	✓	CADMIUM 0.002
✓	pH		Total Solids	✓	Chromium Total 0.010 K	✓	NICKEL 0.010 K
	Acidity to pH 4		Ash	✓	Chromium Hex. 0.005 K	✓	VOLATILE ORG SCAN
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4		(TCE)
	Nitrite N		MBAS	✓	Copper 0.005 K		trichloroethylene
	Nitrate N		Phenols		Lead		215
	Ammonia N		COD		Arsenic		
	Total Kjel. N		Iron	✓	Zinc 0.014		

APR 24 1980

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

S-3
H1832

CHEMISTRY COPY

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

MAY 5 12 04 PM

Time & Date Received By Labs
Lab. No.

FIELD INFORMATION

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Date of Collection APRIL 8 19 80

Hour 11:15 A.M. ✓ P.M.

Sample No. C 33678

Composite Period GRAB Interval

Collected by KING - REUTER

Residual Chlorine:
Immediate
Developed

Municipality MORRIS PLAINS

Plant LITTON IND - AIRTRON DIV

Stream

Flow Rate

Location HANOVER RD

Temperature

Description and Remarks: SLUDGE LAGOONS

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. (Confirmed Test); Fecal Coliform MPN/100 ml.

Fecal Streptococci:MPN/100 ml. Other

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations
	Odor (cold)		Suspended Solids		Grease & Oil	✓	SILVER 0.333
	Turbidity (units)		Ash	✓	Cyanide 0.303	✓	CADMIUM 0.221
✓	pH		Total Solids	✓	Chromium Total 0.818	✓	NICKEL 6.050
	Acidity to pH 4		Ash	✓	Chromium Hex. 0.007		
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4	✓	V.O. SCAN / ppb
	Nitrite N		MBAS	✓	Copper 5.342		trichloroethylene
	Nitrate N		Phenols		Lead		1760
	Ammonia N	✓	COD 354		Arsenic		ND = NON-DETECTABLE: I.E. BELOW
	Total Kjel. N		Iron	✓	Zinc 0.903		DETECTABLE LIMITS RE MEMO # 4

APR 24 1980

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

S-4

H1916

PART 1-CHEMISTRY COPY

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

Time & Date Received By Labs
Lab. No.

JUN 10 11 00 PM '80
NJ DEPT OF
DIV WATER RESOURCES
MS&E

FIELD INFORMATION

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Date of Collection 4/30/80 19

Hour 10:45 (A.M.) P.M.

Sample No. 33682

Composite Period Grab Interval

Collected by Donna Hamilton, King

Residual Chlorine:
Immediate
Developed

Municipality Morris Plains

Plant Litton Airtron

Stream Trib of Whippany River

Flow Rate Unknown

Location E Hanover Rd

Temperature 12°C

Description and Remarks: Discharge 001, Process water + storm runoff green color - Pond at rear of property, Cloudy day

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. (Confirmed Test); Fecal Coliform MPN/100 ml.

Fecal Streptococci:MPN/100 ml. Other

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)	✓	Chloride	15	✓	Sulfate	92		Other Determinations
	Odor (cold)	✓	Suspended Solids	16	✓	Grease & Oil	5. K	✓	Silver 0.010
	Turbidity (units)	✓	Ash	8	✓	Cyanide	0.006	✓	Nickel 0.018
✓	pH 8.8	✓	Total Solids	256	✓	Chromium Total	0.069	✓	Cadmium 0.003
	Acidity to pH 4	✓	Ash	134	✓	Chromium Hex.	0.005 K	✓	Aluminum 0.940
✓	Alkalinity to pH 4 106.6 J	✓	Total PO_4	0.30	✓	Ortho - PO_4	0.15	✓	V.O. Scan (GC) 25 ppb K
✓	Nitrite N 0.047		MBAS		✓	Copper	0.150	✓	Fluoride 0.7 J
✓	Nitrate N 5.2	✓	Phenols	0.019	✓	Lead	0.013		
✓	Ammonia N 0.20	✓	COD	16		Arsenic			
✓	Total Kjel. N 0.58		Iron		✓	Zinc	0.059		ND = NON-DETECTABLE; I. E. BELOW DETECTABLE LIMITS RE MEMO # 4

JUN 3 1980

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.	Lab. D.O.			Seed Required: Yes No							
Sample Conc. % PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5											

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

S-5

PART 1-CHEMISTRY COPY

H1916

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

Time & Date Received By Labs _____
Lab. No. _____

FIELD INFORMATION

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Date of Collection April 30 19 80

Hour 12:15 A.M. (P.M.)

Sample No. 33686

Composite Period Grab Interval _____

Collected by Hamilton, King

Residual Chlorine:
Immediate —
Developed —

Municipality Morris Plains

Plant Litton Airtron

Stream —

Flow Rate Unknown

Location E. Hanover Rd

Temperature 12 °C

Description and Remarks: Sludge Lagoon #2, sample taken near bottom

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____

Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)	✓	Chloride	505	✓	Sulfate	132.		Other Determinations
	Odor (cold)	✓	Suspended Solids	10095	✓	Grease & Oil	5. K	✓	Silver 0.197
	Turbidity (units)	✓	Ash	8980	✓	Cyanide	9.854	✓	Nickel 43.40
✓	pH 7.1	✓	Total Solids	19886	✓	Chromium Total	494.0		Cadmium 0.018
	Acidity to pH 4	✓	Ash	16740	✓	Chromium Hex.	0.005 K	✓	Aluminum 440.00
✓	Alkalinity to pH 4 980. J	✓	Total PO_4	400.	✓	Ortho - PO_4	349. J	✓	V.O. Scan (GC)
✓	Nitrite N 8.5 J		MBAS		✓	Copper	420.0	✓	Fluoride 201.6
✓	Nitrate N 440.	✓	Phenols	0.824	✓	Lead	0.010 K		Trichloroethylene
✓	Ammonia N 7.9	✓	COD	2666		Arsenic			50,000 ppb L
✓	Total Kjel. N 23.2 J		Iron		✓	Zinc	139.24		

NJ = NON DETECTABLE; I. E. BELOW DETECTABLE LIMITS RE MEMO # 4

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

MAY 30 1980

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

REPORT SUBMITTED DIV. OF LABORATORIES & ENDO

S-6

H1916

PART 1-CHEMISTRY COPY

Chem-25
Sept. 75

NEW JERSEY STATE DEPARTMENT OF HEALTH
STREAM OR WASTEWATER ANALYSIS

Time & Date Received _____
By Labs
Lab. No. _____

FIELD INFORMATION

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Date of Collection APRIL 8 19 80
Hour 11:15 A.M. ✓ P.M. _____

Sample No. C 33678

Composite Period GRAB Interval _____

Collected by KING - REUTER

Municipality MORRIS PLAINS

Residual Chlorine:
Immediate _____
Developed _____

Plant LITTON IND - GIRTRON DIV

Stream _____

Flow Rate _____

Location HANOVER RD

Temperature _____

Description and Remarks: SLUDGE LAGOONS

ITEMS CIRCLED BELOW ARE UNSATISFACTORY

Dilutions Requested (Bacteriological)	10	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}

LABORATORY RESULTS
BACTERIOLOGICAL

Coliform MPN/100 ml. _____ (Confirmed Test); Fecal Coliform MPN/100 ml. _____

Fecal Streptococci:MPN/100 ml. _____ Other _____

CHEMICAL AND PHYSICAL ANALYSES (mgs./liter, unless otherwise noted)

	Color (units)		Chloride		Sulfate		Other Determinations
	Odor (cold)		Suspended Solids		Grease & Oil	✓	Silver 0.333
	Turbidity (units)		Ash	✓	Cyanide 0.303	✓	Cadmium 0.221
✓	pH		Total Solids	✓	Chromium Total 0.818	✓	Nickel 6.050
	Acidity to pH 4		Ash	✓	Chromium Hex. 0.007		
	Alkalinity to pH 4		Total PO_4		Ortho - PO_4	✓	V.O. Scan / ppb
	Nitrite N		MBAS	✓	Copper 5.342		trichloroethylene
	Nitrate N		Phenols		Lead		1760
	Ammonia N	✓	COD 354		Arsenic		D = NON-DETECTABLE I.E. BELOW
	Total Kjel. N		Iron	✓	Zinc 0.903		DETECTABLE LIMITS AS NEED # 4

APR 24 1980

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

BIOCHEMICAL OXYGEN DEMAND (mgs./liter)

Field D.O.		Lab. D.O.			Seed Required:			Yes		No		
Sample Conc. %	PLEASE CIRCLE	0.1	0.2	0.5	1.0	2.0	5.0	10	25	50	75	100
BOD_5												

PART 1-CHEMISTRY COPY

H1916

CHAIN OF CUSTODY RECORD

ENVIRONMENTAL PROTECTION AGENCY – REGION II
SURVEILLANCE & ANALYSIS DIVISION
EDISON, NEW JERSEY 08817

RECEIVED
DEC 31 11 04 AM '80
NJ DEPT OF ENVIRONMENTAL PROTECTION
DIV WATER RESOURCES
MS&E

Name of Unit and Address:

Sample Number	Number of Containers	Description of Samples
C05730	3	VO samples – well # 1
C05731	3	VO samples – well # 2
C05728	5	VO samples, cyanide, metals – well # 4
C05729	5	VO samples, cyanide, metals – well # 5

ND = NON-DETECTABLE; I. E. BELOW DETECTABLE LIMITS RE MEMO # 4

DEC 30 1980

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID

Person Assuming Responsibility for Sample: Albert A. Giancarli

Time: 8:45 Date: 11-19-80

Sample Number	Relinquished By:	Received By:	Time	Date	Reason for Change of Custody
All above	Albert A. Giancarli	J M Walker	9:37	11/19/80	Lab Analysis
ALL ABOVE	J M Walker	Mahmoud S Hif	10:00	11/19	V. O. Scan
5728-29	J M Walker	Art DeLotto	9:45	11/19/80	Cyanide, AL
5728-29	J M Walker	S Freeman	10:25	Nov 19/80	Cd, Cr, Cu, Ni, Pb, Zn, Ag, ~~[illegible]~~

Page No. T-1

8/79

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY: Hanover TWP	COUNTY: Morris	STREAM:
FACILITY: Litton - Airtron	LOCATION: Hanover Ave	
REPRESENTATIVE: E G	TITLE:	COLL NAME: Giancarli - Mennel
REMARKS: well # 1		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. C05730
DATE REC'D. ____
STORET ENT. ____ READ ____

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	801118	1605,

FIELD ANALYSIS

- ☐ Water Temp °C P10, ____
- ☐ D.O.-Winkler P300, ____
- ☐ D.O.-Probe P299, ____
- ☐ pH (Field) P400, ____
- ☐ Sample Depth-ft. P3, ____
- ☐ Gage Height-ft. P65, ____
- ☐ Spec. Cond. @ 25 °C P95, ____
- ☐ Salinity 0/00 P480, ____
- ☐ Tide Stage P70211, ____

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613, ____

☐ Fecal Strept MPN /100 ml P31677, ____

☐ Tot coli MPN /100 ml P31505, ____

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC. %			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312, ____

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☑ VO scan	ppb	P		
☐		P		
☐ Chloroform		P	45	
☐ 1,1,1 trichloroethane		P	32	
☐ trichloroethylene		P	6463	
☐ tetrachloroethylene		P	1027	
☐		P		
☐ one unknown peak		P	7567	
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
			ND = NON-DETECTABLE, I.E. BELOW DETECTABLE LIMITS RE MEMO # 4
			DEC 30 1980

Chemist Review ____

Part 1 (White) - Water Quality Inventory Copy
Part 2 (Green) - Chemistry Copy
Part 3 (Pink) - Water Resources Copy (For Transmission)
Part 4 (Yellow) - Bacteriology Copy

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

T-2

Form VST-010 8/79

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY: MORRIS Co.	COUNTY: HANOVER TWP	STREAM
FACILITY: Litton - Airtron	LOCATION: HANOVER AVE	
REPRESENTATIVE: E.F.	TITLE	COLL. NAME: Giancarli - Mennel
REMARKS: well #2		

BACT. LAB NO.
DATE REC'D.
BOTTLE NO. C05731
DATE REC'D.
STORET ENT.
READ

STATION IDENTIFICATION NUMBER: SC,
YR. MO. DAY: 801118
HOUR: 1436,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN/100 ml P31677,

☐ Tot coli MPN/100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☑ VO scan	ppb	P		
☐		P		
☐ Trichloroethylene		P	53	
☐ Tetrachloroethylene		P	7	
☐		P		
☐ ONE UNKNOWN PEAK		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
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☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
			ND = NON-DETECTABLE, I.E. BELOW DETECTABLE LIMITS RE MAN # 4
			DEC 30 1980

Chemist Review _____

Part 1(White) - Water Quality Inventory Copy
Part 2(Green) - Chemistry Copy
Part 3(Pink) Water Resources Copy (For Transmission)
Part 4(Yellow) Biology Copy

REPORT SUBMITTED DIV. OF LABORATORIES & ENV.

T3

Form VST-001 8/79 RLM

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Water Analysis

MUNICIPALITY HANOVER TWP	COUNTY MORRIS	STREAM
FACILITY Litton-Airtron	LOCATION HANOVER AVE	
REPRESENTATIVE EK	TITLE	COLL NAME Giancarli-Mennel
REMARKS well #4 grab		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. C05728
DATE REC'D. ____
STORET ENT. ____ READ ____

Station Identification Number	YR. MO. DAY	HOUR	Sample No.
SC	801118	1235	P8

FIELD ANALYSIS

☐ Water Temp °C	P00010	
☐ D.O. - Winkler	P00300	
☐ D.O. - Probe	P00299	
☐ pH (Field)	P00400	
☐ Sample Depth-ft.	P00003	
☐ Stream Flow-CFS	P00061	
☐ Gage Height-ft.	P00065	
☐ Spec. Cond. @ 25°C	P00095	
☐ Salinity °/00	P00480	
☐ Tide Stage	P70211	

BACTERIOLOGICAL – DILUTIONS (REQUESTED)

	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Coliform / Total Coliform								
Fecal Streptococci								

Fecal coli #100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN/100ml P31677,

☐ Tot coli MPN/100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC. % ____

BOD ____

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

COD ☐ Low Level P335, ☐ High Level P340,

☐ TOC P00680,

☐ Color Pt - Cou	P00080	
☐ Turbidity	P00070	
☐ Suspended Solids	P00530	
☐ Suspended Solids fixed	P00540	
☐ Tot. Solids	P00500	
☐ Tot. Solids - fixed	P00510	
☐ Tot. Dissolved Solids (TDS)	P70300	

☐ pH (LAB)	P00400	
☐ Alkalinity as $CaCO_3$	P00410	
☐ Min. Acidity as $CaCO_3$	P00436	
☐ Chloride	P00940	
☐ MBAS	P38260	
☐ Phenols	P32730	
☐ Hardness - tot as $CaCO_3$	P00900	
☐ Sulfate	P00945	
☐ Oil & Grease	P00556	
☐ Petroleum Hydrocarbons	P45501	
☑ Cyanide	P00720	.009

☐ As - tot ug/l	P01002	
☑ Cd - tot ug/l	P01027	1
☑ Cr - tot ug/l	P01034	193
☑ Cu - tot ug/l	P01042	253
☐ Fe - tot ug/l	P01045	
☐ Hg - tot ug/l	P71900	
☐ Mn - tot ug/l	P01055	
☑ Ni - tot ug/l	P01067	233
☑ Pb - tot ug/l	P01051	28
☑ Zn - tot ug/l	P01092	1145

CONDITION CODES

☐ Weather Conditions	P00041	
☐ Flow Severity	P01351	
☐ ____ Severity	P013__	
☐ ____ Severity	P013__	

NUTRIENTS

LEVEL ☐ HIGH ☐ LOW

☐ NO_2 - N	P00615	
☐ $NO_2 + NO_3$ - N	P00630	
☐ NH_3 - N	P00610	
☐ Tot Kjeldhal N	P00625	
Ortho - PO_4 as P / PO_4	☐ P671, ☐ P660,	
Phosphorus-tot as P / PO_4	☐ P665, ☐ P650,	

ADDITIONAL ANALYSIS

☑ Ag	P ppb	17
☑ Al	P ppb	46035
☐ ____	P ____	

RESULTS mg/L unless otherwise noted

Date	Time	CHAIN OF CUSTODY From (Name)

ND = NON-DETECTABLE: I. E. BELOW DETECTABLE LIMITS PER MEMO # 4

DEC 30 1980

Chemist Review ____

Part 1 (White) - Water Quality Inventory Copy
Part 2 (Green) - Chemistry Copy
Part 3 (Pink) - Water Resources Copy (For Transmission)
Part 4 (Yellow) - Bacteriology Copy

REPORT SUBMITTED DIV. OF LABORATORIES & EPID.

T-4

Form VST-001 RLN
8/79

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Water Analysis

MUNICIPALITY: HANOVER TWP	COUNTY: MORRIS	STREAM
FACILITY: Litton - Airtron	LOCATION: HANOVER AVE	
REPRESENTATIVE: EE	TITLE	COLL NAME: Giancarli - Mennel
REMARKS: Well # 5 grab		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. C05729
DATE REC'D. ____
STORET ENT. ____ READ ____

Station Identification Number	YR. MO. DAY	HOUR	Sample No.
SC	801118	1220	PB

FIELD ANALYSIS

- ☐ Water Temp °C P00010,
- ☐ D.O. - Winkler P00300,
- ☐ D.O. - Probe P00299,
- ☐ pH (Field) P00400,
- ☐ Sample Depth-ft. P00003,
- ☐ Stream Flow-CFS P00061,
- ☐ Gage Height-ft. P00065,
- ☐ Spec. Cond. @ 25 °C P00095,
- ☐ Salinity 0/00 P00480,
- ☐ Tide Stage P70211,

CONDITION CODES

- ☐ Weather Conditions P00041,
- ☐ Flow Severity P01351,
- ☐ ____ Severity P013__,
- ☐ ____ Severity P013__,

NUTRIENTS

LEVEL ☐ HIGH ☐ LOW

- ☐ NO_2 - N P00615,
- ☐ $NO_2 + NO_3$ - N P00630,
- ☐ NH_3 - N P00610,
- ☐ Tot Kjeldhal N P00625,

Ortho - PO_4 as P / PO_4 ☐ P671, ☐ P660,

Phosphorus-tot as P / PO_4 ☐ P665, ☐ P650,

BACTERIOLOGICAL – DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	-10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli #100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN/100ml P31677,

☐ Tot coli MPN/100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC. %

BOD ____

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

COD ☐ Low Level P335, ☐ High Level P340,

☐ TOC P00680,

- ☐ Color Pt - Cou P00080,
- ☐ Turbidity P00070,
- ☐ Suspended Solids P00530,
- ☐ Suspended Solids fixed P00540,
- ☐ Tot. Solids P00500,
- ☐ Tot. Solids - fixed P00510,
- ☐ Tot. Dissolved Solids (TDS) P70300,

- ☐ pH (LAB) P00400,
- ☐ Alkalinity as $CaCO_3$ P00410,
- ☐ Min. Acidity as $CaCO_3$ P00436,
- ☐ Chloride P00940,
- ☐ MBAS P38260,
- ☐ Phenols P32730,
- ☐ Hardness - tot as $CaCO_3$ P00900,
- ☐ Sulfate P00945,
- ☐ Oil & Grease P00556,
- ☐ Petroleum Hydrocarbons P45501,
- ☑ Cyanide P00720, .001K

- ☐ As - tot ug/l P01002,
- ☑ Cd - tot ug/l P01027, 1
- ☑ Cr - tot ug/l P01034, 33
- ☑ Cu - tot ug/l P01042, 151
- ☐ Fe - tot ug/l P01045,
- ☐ Hg - tot ug/l P71900,
- ☐ Mn - tot ug/l P01055,
- ☑ Ni - tot ug/l P01067, 93
- ☑ Pb - tot ug/l P01051, 113
- ☑ Zn - tot ug/l P01092, 205

ADDITIONAL ANALYSIS

- ☑ Ag P ppb, 10K
- ☑ Al P ppb, 26550
- ☐ ____ P ____

RESULTS mg/L unless otherwise noted

ND — NON-DETECTABLE, L. L. BELOW DETECTABLE LIMITS (REVIEW) # 4

DEC 30 1980

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

Date	Time	CHAIN OF CUSTODY From (Name)

Chemist Review ____

Part 1 (White) - Water Quality Inventory Copy
Part 2 (Green) - Chemistry Copy
Part 3 (Pink) - Water Resources Copy (For Transmission)
Part 4 (Yellow) - Bacteriology Copy

T-5

WITH BALLPOINT PEN

WATER ANALYSIS

MUNICIPALITY: HANOVER TWP	COUNTY: MORRIS	STREAM:
FACILITY: Litton - Airtron	LOCATION: HANOVER AVE	
REPRESENTATIVE: EE	TITLE:	COLL NAME: Giancarli - Mennel
REMARKS: well # 4		

DATE REC'D.
BOTTLE NO. C05728
DATE REC'D.
STORET ENT. READ

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	801118	1235,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC. %			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☑ VO scan	ppb	P		
☐		P		
☐ chloroform		P	32	
☐		P		
☐ 2 UNKNOWN PEAKS		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)

ND = NON-DETECTABLE: I. E. BELOW DETECTABLE LIMITS RE MEMO # 4

DEC 30 1980

REPORT SUBMITTED
DIV. OF LABORATORIES & EPID.

Chemist Review _____

Part 1(White) - Water Quality Inventory Copy Part 3(Pink) - Water Resources Copy(For Transmission)
Part 2(Green) - Chemistry Copy Part 4(Yellow) - Bacteriology Copy

T-6

8/79

PLEASE TYPE OR PRINT WITH BALLPOINT PEN

Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY: HANOVER TWP	COUNTY: MORRIS	STREAM:
FACILITY: Citton-Airtron	LOCATION: HANOVER AVE	
REPRESENTATIVE: EE	TITLE:	COLL NAME: Giancarli-Mennel
REMARKS: VEN #-5		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. C05729
DATE REC'D. ____
STORET ENT. ____ READ ____

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	801118	1220,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC. %

BOD

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☑ VO scan	ppb	P		
☐		P		
☐ 1,1,1 trichloroethane		P	8	
☐ trichloroethylene		P	760	
☐ tetrachloroethylene		P	78	
☐ 1 UNKNOWN PEAK		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)

ND = NON-DETECTABLE BELOW DETECTABLE LIMITS RE MEMO # 4

DEC 30 1980

REPORT SUBMITTED

Chemist Review ____

Part 1(White) - Water Quality Inventory Copy
Part 2(Green) - Chemistry Copy
Part 3(Pink) - Bacteriologist's Copy (For Transmission)
Part 4(Yellow) - Bacteriology Copy

T-7

FINAL REPORT OF
GROUNDWATER MONITORING PROGRAM
AirTron - DIVISION OF LITTON INDUSTRIES
MORRIS PLAINS, NEW JERSEY

For

AirTron

By

CONVERSE WARD DAVIS DIXON, INC.

10 August 1981

Project No. 81-07125-01

PROGRAM DESCRIPTION

Chemical analyses for this project consisted of analysis for TOC and TCE on soils and TCE on groundwater. Eighteen (18) soil samples were analyzed for TOC. Duplicate analyses for TCE were performed on six (6) soil samples. Five (5) groundwater samples were analyzed for TCE. All analyses were performed by General Testing Inc. Analysis was performed by GC Methods.

TABLE 2

ANALYTICAL RESULTS OF SOIL SAMPLES - CONCENTRATION OF TRICHLOROETZYLENE (TCE) AND TOTAL ORGANIC CARBON (TOC), JUNE 1981

I don't believe that this is ppb in soil! It must be ppm!

Well No.	Sample No.	Sample Depth (Ft)	TOC (μg/gm)	TCE (μg/gm) Analysis No. 1		Duplicate Analysis	
MW-1	4	20	255				
	8	40	228	.038	38	.104	
	12	60	323				
MW-2	2	10	84				
	3	20	78	<.005		<.005	
	4	30	66				
	5	40	247	.160	160	.190	190
	6	50	213				
	7	60	279	.490	490	.640	640
	8	70	203				
	9	80	618				
MW-3	3	20	92				
	5	40	260	.042	42	.026	26
	7	60	113				
	9	80	76.5				
B 1	6	30	228	<.005	5	<.005	
B 3	6	30	214				
	7	35	209				

increasing w/ depth

4-3

TABLE 3

ANALYTICAL RESULTS OF GROUNDWATER SAMPLES - CONCENTRATION OF TRICHLOROETHYLENE (TCE) 13 JANUARY 1981 (NJDEP SAMPLING) AND 23 JUNE 1981 (CWDD SAMPLING)

	TCE (mg/l) ppm			
Well No.	13 January 1981		23 June 1981	
1M	.35	350	Broken	
2M	2.90	2900	.062	62 ppb
No. 1	1100.00	1,100,000 ppb !	14.60	14,600 ppb
No. 2	.14	140	--	
No. 3	.007	7	--	
MW-1	--		.007	7
MW-2	--		9.66	9660
MW-3	--		4.24	4240

NOV 26 1984

Litton Industries/Airtron Division
200 East Hanover Avenue
Morris Plains, New Jersey 07950

Attention: John Nicola, Plant Engineer

Re: Ground Water Investigation
Hanover Township/Morris County

Dear Mr. Nicola:

Enclosed is a copy of the laboratory analysis results of the samples collected on September 6 & 7, 1984. Please send me a copy of the analytical results for the duplicate samples which were collected by your consultant.

Very truly yours,

Original signed by

Jeffrey Hoffman
Enforcement Unit
Northern Region
Enforcement Element

Enclosure
A7:sv

cc: Joseph M. Mikulka, Chief, Northern Region
Steve Spayd, New Jersey Geological Survey

bcc: Jeffrey Hoffman
Region File thru J. Mikulka, J. Miller & J. DeNito
Central File/NJPDES Litton Airton

V-1

Form VST-010
8/79

PLEASE TYPE OR PRINT
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STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

CHAIN OF CUSTO

BACT. LAB NO.	
DATE REC'D.	
BOTTLE NO.	11874
DATE REC'D.	
STORET ENT.	
STORET READ	

MUNICIPALITY: Hanover Twp.	COUNTY: Morris	STREAM:
FACILITY: Litton / Airtron	LOCATION: E. Hanover Ave	
REPRESENTATIVE: E.E.	TITLE:	COLL NAME: Jeffrey Hoffman
REMARKS: Well #3		222 IOD

STATION IDENTIFICATION NUMBER: SC,

YR. MO. DAY: 840906

HOUR: 1129.

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ AROMATIC hydrocarbons		P	1	K
☐ chlorinated "		P	1	K
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
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☐		P		
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☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
			REPORT SUBMITTED
			OCT 5 1984
			NJDOH Environmental Chemistry Laboratory

Chemist Review _____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmissio
Part 4 - Bacteriology Copy

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WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY: Hanover Twp	COUNTY: Morris	STREAM:
FACILITY: Litton/Airton	LOCATION: E. Hanover Ave	
REPRESENTATIVE: EE	TITLE:	COLL NAME: Jeffrey Hoffman
REMARKS: Well #2		222 IQD

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. 11875
DATE REC'D. ____
STORET ENT. ____ READ ____

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	840906	1440,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE
SEED YES ☐ NO ☐

CONC.%			
BOD ___			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ 1,2 dichloroethene		P	65	
☐ Trichloroethene		P	61	
☐		P		
☐ Aromatic hydrocarbons		P	1	K
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
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☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)

REPORT SUBMITTED
OCT 5 1984
NJDOH Environmental Chemistry Laboratory

Chemist Review ____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmission
Part 4 - Bacteriology Copy

V-3

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STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

Chain of Custody

BACT. LAB NO.	
DATE REC'D.	
BOTTLE NO.	11878
DATE REC'D.	
STORET ENT.	
STORET READ	

MUNICIPALITY: Hanover Twp.	COUNTY: Morris	STREAM:
FACILITY: Litton / Airtron	LOCATION: E. Hanover Ave	
REPRESENTATIVE: EE	TITLE:	COLL NAME: Jeffrey Hoffman
REMARKS: MW-3		222 / QD

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	840906	1644,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25 °C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ 1,2 dichloroethene		P	294	
☐ Tetrachloroethane		P	1980	
☐ Toluene		P	3.5	
☐ 1,1,1 trichloroethane		P	10	
☐ Trichloroethene		P	3110	
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
			REPORT SUBMITTED
			OCT 5 1984
			NJDOH Environmental Chemistry Laboratory

Chemist Review _____

Part 1 - Water Quality Inventory Copy
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Part 4 - Bacteriology Copy

V-4

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STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

CHAIN OF CUSTODY

MUNICIPALITY: Hanover Twp	COUNTY: Morris	STREAM:
FACILITY: Litton / Airtron	LOCATION: E. Hanover Ave	
REPRESENTATIVE: E.E.	TITLE:	COLL NAME: Jeffrey Hoffman
REMARKS: 222 1QD		
MW-2		

BACT. LAB NO.
DATE REC'D.
BOTTLE NO. 11851
DATE REC'D.
STORET ENT.
READ

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	840907	1319,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN/100 ml P31677,

☐ Tot coli MPN/100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%

BOD

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ 1,1 dichloroethane		P	2.3	
☐ 1,1 dichloroethene		P	3.6	
☐ 1,2 dichloroethene		P	126	
☐ Tetrachloroethene		P	1110	
☐ 1,1,1 trichloroethane		P	5.2	
☐ Trichloroethene		P	9100	J
☐		P		
☐ Aromatic hydrocarbons		P	1	K
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
J = extreme dilution			

REPORT SUBMITTED
OCT 5 1984
NJDOH Environmental Chemistry Laboratory

Chemist Review _____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmission)
Part 4 - Bacteriology Copy

V-S

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8/79

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WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

CHAIN OF CUSTODY

BACT. LAB NO.	
DATE REC'D.	
BOTTLE NO.	11879
DATE REC'D.	
STORET ENT.	
STORET READ	

MUNICIPALITY: Hanover Twp	COUNTY: Morris	STREAM:
FACILITY: Litton / Airtron	LOCATION: E. Hanover Ave	
REPRESENTATIVE: EE	TITLE:	CO'L NAME: Jeffrey Hoffman 222 1QD
REMARKS: MW-2M		

STATION IDENTIFICATION NUMBER: SC, . YR. MO. DAY: 840906 HOUR: 1724,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml: ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD ___			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ chloroform		P	18	
☐ 1,1 dichloroethene		P	23	
☐ Tetrachloroethene		P	652	
☐ 1,1,1 trichloroethane		P	2.4	
☐ Trichloroethene		P	4420	
☐		P		
☐ Aromatic hydrocarbons		P	1	K
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
			REPORT SUBMITTED
			OCT 5 1984
			N.J.D.H. Environmental Chemistry Laboratory

Chemist Review _____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmissio
Part 4 - Bacteriology Copy

V-6

Form VST-010
8/79

PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY Hanover Twp	COUNTY Morris	STREAM
FACILITY Litton / Aintron	LOCATION E. Hanover Ave	
REPRESENTATIVE EE	TITLE	COLL NAME Jeffrey Hoffman
REMARKS 222 / QD Well #1		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. 11880
DATE REC'D. ____
STORET ENT. ____ READ ____

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC, ,	840906	1815,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613, ____

☐ Fecal Strept MPN/100 ml P31677, ____

☐ Tot coli MPN/100 ml P31505, ____

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312, ____

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P	,	,
☐		P	,	,
☐ Chloroform		P	,19	,
☐ 1,2 dichloroethene		P	,88	,
☐ Tetrachloroethene		P	,984	,
☐ 1,1,1 trichloroethane		P	,16	,
☐ Trichloroethene		P	,4310	,
☐		P	,	,
☐ Aromatic hydrocarbons		P	,1	K,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,
☐		P	,	,

CHAIN OF CUSTODY

DATE	TIME	FROM (NAME)	TO (NAME)
			REPORT SUBMITTED
			OCT 5 1984
			NJDOH Environmental Chemistry Laboratory

Chemist Review ____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmissi
Part 4 - Bacteriology Copy V-7

Form VST-010
8/79

PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

MUNICIPALITY Hanover Twp	COUNTY Morris	STREAM
FACILITY Meinen	LOCATION E. Hanover Ave	
REPRESENTATIVE EE	TITLE	COLL NAME Jeffrey Hoffman
REMARKS		222 1QD
Meinen Well #1		

BACT. LAB NO. ____
DATE REC'D. ____
BOTTLE NO. 11876
DATE REC'D. ____
STORET ENT. ____ READ ____

STATION IDENTIFICATION NUMBER	YR. MO. DAY	HOUR
SC,	840906	1530,

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity ‰	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN /100 ml P31677,

☐ Tot coli MPN /100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) ____ SAMPLE
SEED YES ☐ NO ☐

CONC.%			
BOD ___			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan *	ppb	P		
☐		P		
☐ chloroform		P	6.3	
☐ 1,1 dichloroethene		P	34	
☐ Tetrachloroethene		P	130	
☐ 1,1,1 trichloroethane		P	5.6	
☐ Trichloroethene		P	1460	
☐		P		
☐ + 1 unidentified peak		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)
* note - 1 out of 4 vials contained air			

REPORT SUBMITTED
OCT 5 1984
NJDOH Environmental Chemistry Laboratory

Chemist Review ____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmission
Part 4 - Bacteriology Copy

Form VST-010
8/79

PLEASE TYPE OR PRINT
WITH BALLPOINT PEN

STATE OF NEW JERSEY
Department of Environmental Protection
Division of Water Resources
WATER ANALYSIS

CHAIN OF CUSTODY

BACT. LAB NO.	
DATE REC'D.	
BOTTLE NO.	11877
DATE REC'D.	
STORET ENT.	
STORET READ	

MUNICIPALITY Hanover Twp.	COUNTY Morris	STREAM
FACILITY Mennen	LOCATION E. Hanover Ave	
REPRESENTATIVE EE	TITLE	COLL NAME Jeffrey Hoffman
REMARKS		222 IQD
Mennen Well #2		

STATION IDENTIFICATION NUMBER: SC, . YR. MO. DAY: 840906 HOUR: 1545.

FIELD ANALYSIS

☐ Water Temp °C	P10,	
☐ D.O.-Winkler	P300,	
☐ D.O.-Probe	P299,	
☐ pH (Field)	P400,	
☐ Sample Depth-ft.	P3,	
☐ Gage Height-ft.	P65,	
☐ Spec. Cond. @ 25°C	P95,	
☐ Salinity 0/00	P480,	
☐ Tide Stage	P70211,	

BACTERIOLOGICAL - DILUTIONS (REQUESTED)

Fecal Coliform / Total Coliform	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10
Fecal Streptococci	10	1	-1 10	-2 10	-3 10	-4 10	-5 10	-6 10

Fecal coli /100 ml ☐ MPN P31615, ☐ MF P31613,

☐ Fecal Strept MPN/100 ml P31677,

☐ Tot coli MPN/100 ml P31505,

BIOCHEMICAL OXYGEN DEMAND

INITIAL D.O. (lab.) _____ SAMPLE

SEED YES ☐ NO ☐

CONC.%			
BOD			

☐ BOD ☐ 5-DAY P310, ☐ 6-DAY P312,

ANALYSIS	UNITS	PARAMETER	VALUE	RMKS.
☒ V.O. Scan	ppb	P		
☐		P		
☐ 1,2 dichloroethene		P	4.2	
☐ Trichloroethene		P	64	
☐		P		
☐ Aromatic hydrocarbons		P	1	K
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		
☐		P		

DATE	TIME	CHAIN OF CUSTODY FROM (NAME)	TO (NAME)

REPORT SUBMITTED
OCT 5 1984
NJDOH Environmental Chemistry Laboratory

Chemist Review _____

Part 1 - Water Quality Inventory Copy
Part 2 - Chemistry Copy
Part 3 - Water Resources Copy (For Transmissic
Part 4 - Bacteriology Copy

V-9

Form DEP-009
1/81

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NEW JERSEY 08625

CHAIN OF CUSTODY RECORD

NAME OF UNIT AND ADDRESS: Division of Water Resources
Northern Enforcement
1474 Prospect St
Trenton NJ

SAMPLE NUMBER	Number of Containers	DESCRIPTION OF SAMPLES
11874	4	4- 40ml V.O. vials Airtron Well 3
11875	4	" " " Airtron Well-2
11876	4	" " " Mennen Well 1
11877	4	" " " Mennen Well 2
11878	4	" " " Airtron MW-3
11879	4	" " " Airtron MW-2M
11880	4	" " " Airtron Well-1
11889	2	2 " " Trip Blank
		sample # 11876 - one of four vials contained air

PERSON ASSUMING RESPONSIBILITY FOR SAMPLE: Jeffrey Hoffman

TIME: 4:00 DATE: 9/4/84

SAMPLE NUMBER	RELINQUISHED BY:	RECEIVED BY:	TIME	DATE	REASON FOR CHANGE OF CUSTODY
All Above	Jeffrey Hoffman	Kathy Miller	1130	9/7/84	DOH RECEIVING AREA
All Above	~~Ray Bayer~~ Kathy Miller	~~Ray Bayer~~	1120	9/12/84	VO scan
					REPORT SUBMITTED
					OCT 5 1984
					NJDOH Environmental Chemistry Laboratory

V-10

1/81

L. [illegible] MEN[illegible] OF ENVIRONMENTAL PR[illegible]EC
TRENTON, NEW JERSEY 08625

CHAIN OF CUSTODY RECORD

NAME OF UNIT AND ADDRESS: Division of Water Resources
Northern Enforcement
1474 Prospect St. Trenton

SAMPLE NUMBER	Number of Containers	DESCRIPTION OF SAMPLES
11881	4	4 - 40 ml V.O. vials Airtron MW-2
16890	2	2 - 40 ml V.O TRIP BLANK
		This sample was collected on 9/7/84 and was stored on ice in my locked van over the weekend

PERSON ASSUMING RESPONSIBILITY FOR SAMPLE: Jeffrey Hoffman

TIME	DATE
11:00	9/7/84

SAMPLE NUMBER	RELINQUISHED BY:	RECEIVED BY:	TIME	DATE	REASON FOR CHANGE OF CUSTODY
All Above	Jeffrey Hoffman				Transfer to Lab
	Jeffrey Hoffman	Kathy Müller	1130	9/10/84	DOH RECEIVING AREA
All Above	To Kathy Müller	[illegible]	1120	9/12/84	VO scan

REPORT SUBMITTED
OCT 5 1984
NJDOH Environmental Chemistry Laboratory

V-11

Litton AIRTRON

200 East Hanover Avenue Morris Plains New Jersey 07950 201 539-5500

January 24, 1985

State of New Jersey
Dept. of Environmental Protection
Division of Water Resources
CN-029
Trenton, N. J. 08625

Attn: Mr. Jeffrey Hoffman

Dear Mr. Hoffman:

Enclosed you will find copies of the analytical results for the second round of samples taken by our consultant as part of the Airtron quarterly monitoring program. We split the samples with Princeton Testing Laboratory and those results are also enclosed.

We will conduct the third round in March and, as in the past, we will inform you in advance so that you may participate in the program if you choose.

Please call if you have any questions pertaining to this information.

Very truly yours,

John A. Nicola

John A. Nicola
Plant Engineer

aw

cc: EBukofsky
JLoSchiavo
Converse Consultants
(Brian Elwood)

W
7-1

91 Roseland Avenue
Caldwell, New Jersey 07006

Sample Identification No.: 2759-2762
Date Sample Received: December 19, 1984
Collected From: See Below

601 METHOD

Parameter	Well #1	Well #2	Well 2M	Well MW-1
Chloromethane	< 5	< 5	< 5	< 5
Bromomethane	< 5	< 5	< 5	< 5
Dichlorodifluoromethane, Vinyl Chloride*	< 5	< 5	< 5	< 5
Chloroethane	< 5	< 5	< 5	< 5
Methylenechloride	< 5	< 5	< 5	< 5
Fluorotrichloromethane	< 5	< 5	< 5	< 5
1,1-Dichloroethene	< 5	< 5	< 5	< 5
1,1-Dichloroethane	< 5	< 5	< 5	< 5
1,2-Dichloroethene (Trans)	151	38	61	< 5
Chloroform	31	< 5	15	< 5
1,1,2-Trichloro-1,2,2-Triflouroethane	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	37	< 5	10	< 5
Carbon Tetrachloride	< 5	< 5	< 5	< 5
Bromodichloromethane	< 5	< 5	< 5	< 5
1,2-Dichloropropane	< 5	< 5	< 5	< 5
1,3-Dichloropropene (Trans)				
Trichloroethene	6100	80	1300	< 5
1,3-Dichloropropene (Cis), Chlorodibromomethane, 1,1,2-Trichloroethene	< 5	< 5	< 5	< 5
2-Chloroethylvinylether	< 5	< 5	< 5	< 5
Bromoform	8ppb	<25	<25	<25
1,1,2,2-Tetrachloroethane, Tetrachloroethlene*	1600	26	208	< 5
Monochlorobenzene	< 5	< 5	< 5	< 5

*Elute together

Laboratory Resources Inc.

Carol A. Price
Manager/Laboratory Services

91 Roseland Avenue
Caldwell, New Jersey 07006

Sample Identification No.: 2763-2765
Date Sample Received: December 19, 1984
Collected From: See Below

601 METHOD

Parameter	Well MW 2	Well MW 3	Well Men 1	Trip
Chloromethane	< 5	< 5	< 5	< 5
Bromomethane	< 5	< 5	< 5	< 5
Dichlorodifluoromethane, Vinyl Chloride*	< 5	< 5	< 5	< 5
Chloroethane	< 5	< 5	< 5	< 5
Methylenechloride	< 5	< 5	< 5	< 5
Fluorotrichloromethane	< 5	< 5	< 5	< 5
1,1-Dichloroethene	< 5	< 5	< 5	< 5
1,1-Dichloroethane	< 5	< 5	< 5	< 5
1,2-Dichloroethene (Trans)	103	19	15	< 5
Chloroform	< 5	< 5	< 5	< 5
1,1,2-Trichloro-1,2,2-Triflouroethane	< 5	< 5	< 5	< 5
1,2-Dichloroethane	< 5	< 5	< 5	< 5
1,1,1-Trichloroethane	9	10	< 5	< 5
Carbon Tetrachloride	< 5	< 5	< 5	< 5
Bromodichloromethane	< 5	< 5	< 5	< 5
1,2-Dichloropropane	< 5	< 5	< 5	< 5
1,3-Dichloropropene(Trans)	< 5	< 5	< 5	< 5
Trichloroethene	9000	2000	730	< 5
1,3-Dichloropropene (Cis), Chlorodibromomethane, 1,1,2-Trichloroethene	< 5	< 5	50	< 5
2-Chloroethylvinylether	< 5	< 5	< 5	< 5
Bromoform	<25	<25	<25	<25ppb
1,1,2,2-Tetrachloroethane, Tetrachloroethlene	1800	1400	< 5	< 5
Monochlorobenzene	< 5	< 5	< 5	< 5

*Elute together

Laboratory Resources Inc.

Carol A. Price
Manager/Laboratory Services

Converse Consultants Inc.
91 Roseland Avenue
Caldwell, New Jersey 07006

Date of Report: January 14, 1985
Sample Identification No.: 2759-2762
Date Sample Received: December 19, 1984
Collected From: See Below

T-4

602 METHOD

Parameter	Well #1	Well #2	Well 2M	Well MW-1
Benzene	< 5	< 5	< 5	< 5
Tolune	< 5	< 5	74	< 5
Ethyl Benzene	< 5	< 5	< 5	< 5
p-Xylene	< 5	< 5	< 5	< 5
m-Xylene	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5
Styrene	< 5	< 5	< 5	< 5
n-Propylbenzene	< 5	< 5	< 5	< 5

Laboratory Resources Inc.

Carol A. Price

Carol A. Price
Manager/Laboratory Services

-1208-

VT-4

Converse Consultants Inc.
91 Roseland Avenue
Caldwell, New Jersey 07006

Date of Report: January 14, 1985
Sample Identification No.: 2763-2765
Date Sample Received: December 19, 1984
Collected From: See Below

602 METHOD

Parameter	Well MW 2	Well MW 3	Well Men 1	Trip
Benzene	< 5	< 5	< 5	< 5
Tolune	< 5	< 5	< 5	< 5
Ethyl Benzene	< 5	< 5	< 5	< 5
p-Xylene	< 5	< 5	< 5	< 5
m-Xylene	< 5	< 5	< 5	< 5
o-Xylene	< 5	< 5	< 5	< 5
Styrene	< 5	< 5	< 5	< 5
n-Propylbenzene	< 5	< 5	< 5	< 5

Laboratory Resources Inc.

Carol A. Price

Carol A. Price
Manager/Laboratory Services

Testing Laboratory
3108, Princeton, N.J. 08540
U.S. Route 1
609-452-9050

QUALITY CONTROL REPORT
B. DUPLICATE ANALYSIS

Analyst: UG
Date: 1-9-85
MATRIX CODE: PE/MW

COMPOUND (Including Surrogates)			CONCENTRATION (ug/l)		Relative Percent Difference (RPD)*
Sample ID	COMPOUND NAME	METHOD	Run 1 (D_1)	Run 2 (D_2)	
Well #1	Methylene Chloride	EPA 601/602	6.6	7.1	7.3
	1,1-dichloroethylene		6.9	7.3	5.6
	1,2-dichloroethylene		160	180	12
	Chloroform		32	36	12
	1,1,1-trichloroethane		29	26	11
	Trichloroethylene		2000	2000	0
	Bromodichloromethane		< .3	< .3	0
	Tetrachloroethylene		390	450	14
	Toluene		< .5	< .5	0

$$RPD = \frac{(D_1 - D_2)}{\left[(D_1 + D_2)/2\right]} \times 100$$

princeton testing laboratory
P.O. Box 310, Princeton, N.J. 08540
Princeton Service Center
U.S. Route 1
609-452-9050

Analyst: JG
Date: 1-3-85

QUALITY CONTROL REPORT

MATRIX CODE PE/MW

A. MATRIX SPIKE ANALYSIS

COMPOUND (Including Surrogates)			CONCENTRATION (ug/l)			%
Sample ID	COMPOUND NAME	METHOD	Sample Result (SR)	Spiked Sample Result (SSR)	Spike Added (SA)	Recovery*
MW-1	Trichloroethylene	601/602	1.9	149	150	98
	Benzene		ND	55	46	119
	Tetrachloroethylene		ND	231	251	92
	Toluene		ND	83	87	95
	Chlorobenzene		ND	45	45	100
	Ethylbenzene		ND	44	45	97
	Methylene Chloride		ND	132	137	96
	1,1-dichloroethylene		ND	125	126	99
	1,1-dichloroethane		ND	113	123	92
	1,2-dichloroethylene		ND	106	126	84
	Chloroform		ND	226	233	97
	1,2-dichloroethane		ND	128	129	99
	1,1,1-trichloroethane		ND	136	135	101
	Carbon tetrachloride		ND	254	251	101
	Dichlorobromomethane		ND	305	308	99
	1,2-dichloropropylene		ND	122	120	102

*% Recovery = $\frac{(SSR - SR)}{(SA)} \times 100$

Matrix Codes:
Soil SO
Sludge SL
Drinking water DW

Sent - copies sent to S. Spayd + Central File

Litton AIRTRON

200 East Hanover Avenue, Morris Plains, New Jersey 07950 201 539-5500

August 1, 1985

Mr. Jeffrey Hoffman
State of New Jersey
Department of Environmental Protection
1259 Route #46
Parsippany, N. J. 07054

RECEIVED
DIVISION OF
WATER RESOURCES
ENFORCEMENT ELEMENT
JUL 33 1 53 PM '85

Dear Mr. Hoffman:

Enclosed are copies of the analytical results for the fourth round of samples taken on June 20, 1985 by Converse Consultants and Princeton Testing Laboratory.

Very truly yours,

John A. Nicola

John A. Nicola
Plant Engineer

cc: EBukofsky
JLoSchiavo
Brian Ellwood, (Converse Consultants)

X-1

Princeton Service Center
U.S. Route 1
609-452-9050
TLX 84-3492

princeton testing laboratory

P.O. Box 3108, Princeton, N.J. 08540

Member

Job #39049
7-12-85

	Detection Limit	2-M ug/l	Mennen	W-2
Chloromethane	20	ND	ND	ND
Bromomethane	100	ND	ND	ND
Dichlorodifluoromethane	50	ND	ND	ND
Vinyl Chloride	20	ND	ND	ND
Chloroethane	20	ND	ND	ND
Methylene chloride	50	57	52	54
Trichlorofluoromethane	50	ND	ND	ND
1,1-dichloroethene	10	ND	ND	ND
1,1-dichloroethane	10	ND	ND	ND
trans-1,2-dichloroethene	10	63	54	59
Chloroform	20	18	16	ND
1,2-dichloroethane	10	ND	ND	ND
1,1,1-trichloroethane	20	ND	ND	ND
Carbon tetrachloride	20	ND	ND	ND
Bromodichloromethane	20	ND	ND	ND
1,2-dichloropropane	10	ND	ND	ND
trans-1,3-dichloropropene	50	ND	ND	ND
Trichloroethene	20	620	800	49
Dibromochloromethane	20	ND	ND	ND
1,1,2-trichloroethane	50	ND	ND	ND
cis-1,3-dichloropropene	50	ND	ND	ND
2-chloroethylvinylether	50	ND	ND	ND
Bromoform	100	ND	ND	ND
1,1,2,2-tetrachloroethane	100	ND	ND	ND
Tetrachloroethene	20	170	170	30
Benzene	10	ND	ND	ND
Toluene	10	< 10	ND	< 10
Chlorobenzene	10	ND	ND	ND
Ethylbenzene	10	ND	ND	ND
1,3-dichlorobenzene	10	ND	ND	ND
1,2-dichlorobenzene	10	ND	ND	ND
1,4-dichlorobenzene	10	ND	ND	ND

ND=not detected

Jon Gabry, PhD
Asst. Organic Lab Manager

JG:na

X-2

Princeton Service Center
U.S. Route 1
609-452-9050
TLX 84-3492

princeton testing laboratory

P.O. Box 3108, Princeton, N.J. 08540

Member

Job #39049
7-12-85

	Detection Limit	Well W-1	MW-3
		ug/l	
Chloromethane	80	ND	ND
Bromomethane	400	ND	ND
Dichlorodifluoromethane	200	ND	ND
Vinyl Chloride	80	ND	ND
Chloroethane	80	ND	ND
Methylene chloride	200	< 200	450
Trichlorofluoromethane	200	ND	ND
1,1-dichloroethene	40	ND	ND
1,1-dichloroethane	40	ND	ND
trans-1,2-dichloroethene	40	140	400
Chloroform	80	< 80	ND
1,2-dichloroethane	40	ND	ND
1,1,1-trichloroethane	80	ND	ND
Carbon tetrachloride	80	ND	ND
Bromodichloromethane	80	ND	ND
1,2-dichloropropane	40	ND	ND
trans-1,3-dichloropropene	200	ND	ND
Trichloroethene	80	3100	2000
Dibromochloromethane	200	ND	ND
1,1,2-trichloroethane	200	ND	ND
cis-1,3-dichloropropene	80	ND	ND
2-chloroethylvinylether	400	ND	ND
Bromoform	400	ND	ND
1,1,2,2-tetrachloroethane	400	ND	ND
Tetrachloroethene	80	1300	1600
Benzene	40	ND	ND
Toluene	40	< 40	45
Chlorobenzene	40	ND	ND
Ethylbenzene	40	ND	ND
1,3-dichlorobenzene	40	ND	ND
1,2-dichlorobenzene	40	ND	ND
1,4-dichlorobenzene	40	ND	ND

ND=not detected

Jon Gabry, PhD
Asst.Organic Lab Manager

JG:na

X-3

Princeton Service Center
U.S. Route 1
609-452-9050
TLX 84-3492

princeton testing laboratory

P.O. Box 5108, Princeton, N.J. 08540

Member

Job #39049
7-12-85

	Detection Limit ug/l	MW-2
Chloromethane	200	ND
Bromomethane	1000	ND
Dichlorodifluoromethane	500	ND
Vinyl Chloride	200	ND
Chloroethane	200	ND
Methylene chloride	500	< 500
Trichlorofluoromethane	500	ND
1,1-dichloroethene	100	ND
1,1-dichloroethane	100	ND
trans-1,2-dichloroethene	100	420
Chloroform	200	ND
1,2-dichloroethane	100	ND
1,1,1-trichloroethane	200	ND
Carbon tetrachloride	200	ND
Bromodichloromethane	200	ND
1,2-dichloropropane	100	ND
trans-1,3-dichloropropene	500	ND
Trichloroethene	200	6000
Dibromochloromethane	200	ND
1,1,2-trichloroethane	500	ND
cis-1,3-dichloropropene	500	ND
2-chloroethylvinylether	500	ND
Bromoform	1000	ND
1,1,2,2-tetrachloroethane	1000	ND
Tetrachloroethene	200	2600
Benzene	100	ND
Toluene	100	ND
Chlorobenzene	100	ND
Ethylbenzene	100	ND
1,3-dichlorobenzene	100	ND
1,2-dichlorobenzene	100	ND
1,4-dichlorobenzene	100	ND

ND=not detected

Jon Gabry, PhD
Asst. Organic Lab Manager

JG:na

X-4

princeton testing laboratory
U.S. Route 1
Princeton Service Center
(609) 452-9050
P.O. Box 3108, Princeton, N.J. 08540

QUALITY CONTROL REPORT

Duplicate Analysis

JOB NO. 39049
ANALYST: RVD
DATE: 7-12-85
MATRIX: PE/MW
METHOD:

COMPOUND		CONCENTRATION (ug/1)		Relative Percent Difference (RPD)*
Sample ID	COMPOUND NAME	Run 1 (D_1)	Run 2 (D_2)	
W-2	Methylene chloride	54.3	1.81	187
	1,2-dichloroethylene	58.6	59.4	1.3
	Trichloroethylene	48.5	48.5	0
	Tetrachloroethylene	30.1	31.0	2.9
	Toluene	3.1	3.4	9.2

$$*RPD = \frac{(D_1 - D_2)}{\left[\frac{(D_1 + D_2)}{2}\right]} \times 100$$

Client:

Converse Consultants Inc.
91 Roseland Avenue
Caldwell, N.J. 07006

Date of Report: July 11, 1985
Sample Identification No. 3613-14, 3616, 3618
Date Sample Received: June 21, 1985
Collected From: Airtron Monitoring Wells

601 METHOD

Parameter	Field Blank	Trip Blank	W-1	W-2	MW-2	MW-3	Well-2M	MEN-1
Chloromethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bromomethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dichlorodifluoromethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloroethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
trans-1,2-Dichloroethene	<0.010	<0.010	0.140	0.050	0.259	0.348	0.067	0.046
Chloroform	<0.010	<0.010	0.023	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichloroethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,1-Trichloroethane	<0.010	<0.010	0.022	<0.010	0.017	0.011	<0.010	<0.010
Carbon tetrachloride	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bromodichloromethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichloropropane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
trans-1,3-Dichloropropene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Trichloroethene	<0.010	<0.010	2.463	0.066	6.850	2.082	1.115	0.896
Dibromochloromethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,2-Trichloroethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
cis-1,3-Dichloropropene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Chloroethylvinyl ether	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bromoform	<0.010	<0.010	0.029	<0.010	<0.010	<0.010	<0.010	<0.010
1,1,2,2-Tetrachloroethane	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Tetrachloroethene	<0.010	<0.010	1.050	0.033	3.125	1.672	0.200	0.199
Chlorobenzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

Laboratory Resources Inc.

Carol A. Price
Carol A. Price
Manager/Laboratory Services

All results expressed in mg/l

Certification No. 02046

-1217-

X-6

Client:

Converse Consultants Inc.
91 Roseland Avenue
Caldwell, N.J. 07006

Date of Report: July 11, 1985
Sample Identification: 3613-14, 3616, 3618
Date Sample Received: June 21, 1985
Collected From: Airport Monitoring Wells

602 METHOD

Parameter	Field Blank	Trip Blank	W-1	W-2	MW-2	MW-3	Well-2M	MEN
Benzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0
Toluene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0
Ethyl benzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	[illegible]
1,2- Dichlorobenzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	[illegible]
1,3- Dichlorobenzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01
1,4- Dichlorobenzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01
o- Xylene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01
m- Xylene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01
p- Xylene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01

Laboratory Resources Inc.

Carol A. Price
Carol A. Price
Manager/Laboratory Services

All results expressed in mg/l

Certification No. 02046

-1218-

X-7

Litton AIRTRON

200 East Hanover Avenue, Morris Plains, New Jersey 07950 201 539-5500

RECEIVED
DIVISION OF
WATER RESOURCES
ENFORCEMENT ELEMENT
JAN 16 9 04 AM '86

January 10, 1986

Mr. Jeffrey Hoffman
State of New Jersey
Department of Environmental Protection
1259 Route #46
Parsippany, N. J. 07054

Dear Mr. Hoffman:

Enclosed you will find copies of the results of the latest round of samples taken on November 20, 1985. Please call if you have questions regarding this matter.

Very truly yours,

John A. Nicola

John A. Nicola
Plant Engineer

aw

enc.
cc: E.Bukofsky

TABLE 4
SAMPLE I.D. KEY
FOR AIRTRON WELLS

Sample I.D.	Well #
Station A	MEN-1
Station B	Well #1
Station C	MW-2
Station D	Well #2
Station E	2M
Station F	MW-3

Y-2

Client:

Converse Consultants, Inc.
91 Roseland Avenue
P.O. Box 91
Caldwell, N.J. 07006

REVISED

601 METHOD

Date of Report: 12/09/85
Sample Identification No. 6187-89, 6191-92
Date Sample Received: 11/22/85
Collected From: Airtron - Well Monitoring

Parameter	Station A	Station B	Station C	Station E	Station F
Chloromethane					
Bromomethane					
Dichlorodifluoromethane					
Vinyl Chloride					
Chloroethane					
Methylene Chloride					
Trichlorofluoromethane					
1,1-Dichloroethene					
1,1-Dichloroethane					
trans-1,2-Dichloroethene					
Chloroform					
1,2-Dichloroethane					
1,1,1-Trichloroethane					
Carbon tetrachloride					
Bromodichloromethane					
1,2-Dichloropropane					
trans-1,3-Dichloropropene					
Trichloroethene	1.205	4.629	5.987	1.367	2.188
Dibromochloromethane					
1,1,2-Trichloroethane					
cis-1,3-Dichloropropene					
2-Chloroethylvinyl ether					
Bromoform					
1,1,2,2-Tetrachloroethane					
Tetrachloroethene					
Chlorobenzene					

Laboratory Resources Inc.

Carol A. Price
Manager/Laboratory Services

All results expressed in mg/l

Certification No. 02046

Client:

Converse Consultants, Inc.

91 Roseland Avenue
P.O. Box 91
Caldwell, N.J. 07006

Date of Report: 12/09/85
Sample Identification No. 6187-6190
Date Sample Received: 11/22/85
Collected From: Airtron - Well Monitoring

601 METHOD

Parameter	Well MEN-1 Station A	Well W-1 Station B	Well MW-2 Station C	Well W-2 Station D
Chloromethane	<0.010	<0.010	<0.010	<0.010
Bromomethane	<0.010	<0.010	<0.010	<0.010
Dichlorodifluoromethane	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	<0.010	<0.010	<0.010	<0.010
Chloroethane	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethene	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	<0.010	<0.010	<0.010	<0.010
trans-1,2-Dichloroethene	0.041	0.271	0.113	0.042
Chloroform	<0.010	0.022	<0.010	<0.010
1,2-Dichloroethane	<0.010	<0.010	<0.010	<0.010
1,1,1-Trichloroethane	<0.010	0.013	<0.010	<0.010
Carbon tetrachloride	<0.010	<0.010	<0.010	<0.010
Bromodichloromethane	<0.010	<0.010	<0.010	<0.010
1,2-Dichloropropane	<0.010	<0.010	<0.010	<0.010
trans-1,3-Dichloropropene	<0.010	<0.010	<0.010	<0.010
Trichloroethene	0.789 (1.205)*	1.104(4.629)*	1.235 (5.987)*	0.041
Dibromochloromethane	<0.010	<0.010	<0.010	<0.010
1,1,2-Trichloroethane	<0.010	<0.010	<0.010	<0.010
cis-1,3-Dichloropropene	<0.010	<0.010	<0.010	<0.010
2-Chloroethylvinyl ether	<0.010	<0.010	<0.010	<0.010
Bromoform	<0.010	<0.010	<0.010	<0.010
1,1,2,2-Tetrachloroethane	<0.010	<0.010	<0.010	<0.010
Tetrachloroethene	0.204	1.130	1.113	0.031
Chlorobenzene	<0.010	<0.010	<0.010	<0.010

Laboratory Resources Inc.

Carol A. Price
Manager/Laboratory Services

All results expressed in mg/1

Certification No. 02046

Client:

Converse Consultants, Inc.
91 Roseland Avenue
P.O. Box 91
Caldwell, N.J. 07006

Date of Report: 12/09/85
Sample Identification No. 6191-6194
Date Sample Received: 11/22/85
Collected From: Airtron - well Monitoring

601 METHOD

Parameter	Well 2M Station E	Well MW-3 Station F	Trip Blank	Field Blank
Chloromethane	<0.010	<0.010	<0.010	<0.010
Bromomethane	<0.010	<0.010	<0.010	<0.010
Dichlorodifluoromethane	<0.010	<0.010	<0.010	<0.010
Vinyl Chloride	<0.010	<0.010	<0.010	<0.010
Chloroethane	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethene	<0.010	<0.010	<0.010	<0.010
1,1-Dichloroethane	<0.010	<0.010	<0.010	<0.010
trans-1,2-Dichloroethene	0.092	0.252	<0.010	<0.010
Chloroform	<0.010	<0.010	<0.010	<0.010
1,2-Dichloroethane	<0.010	<0.010	<0.010	<0.010
1,1,1-Trichloroethane	<0.010	<0.010	<0.010	<0.010
Carbon tetrachloride	<0.010	<0.010	<0.010	<0.010
Bromodichloromethane	<0.010	<0.010	<0.010	<0.010
1,2-Dichloropropane	<0.010	<0.010	<0.010	<0.010
trans-1,3-Dichloropropene	<0.010	<0.010	<0.010	<0.010
Trichloroethene	0.740 (1.367)*	0.881 (2.188)*	<0.010	<0.010
Dibromochloromethane	<0.010	<0.010	<0.010	<0.010
1,1,2-Trichloroethane	<0.010	<0.010	<0.010	<0.010
cis-1,3-Dichloropropene	<0.010	<0.010	<0.010	<0.010
2-Chloroethylvinyl ether	<0.010	<0.010	<0.010	<0.010
Bromoform	<0.010	<0.010	<0.010	<0.010
1,1,2,2-Tetrachloroethane	<0.010	<0.010	<0.010	<0.010
Tetrachloroethene	0.295	1.057	<0.010	<0.010
Chlorobenzene	<0.010	<0.010	<0.010	<0.010

Laboratory Resources Inc.

Carol A. Price
Manager/Laboratory Services

All results expressed in mg/l

Certification No. 02046

* Revised valves for trichloroethene received from Laboratory Resources on 12/16/85

Y-5

Dames & Moore
6 Commerce Drive
Cranford, New Jersey 07016
(201) 272-8300

March 28, 1986

Mr. Anthony J. Olivo
Senior Attorney
The Mennen Company
Hanover Avenue
Morristown, New Jersey 07960

Re: Site Environmental Assessment
Future Warehouse Facility
The Mennen Company
Morristown, New Jersey

Dear Mr. Olivo:

This letter report serves to transmit the results of the Environmental Assessment performed on the proposed site to be leased by The Mennen Company for a future warehouse facility opposite your existing facility (Figure 1). This assessment was performed in accordance with Dames & Moore's letter proposal dated February 20, 1986.

The objective of this environmental assessment was to provide an evaluation of the existing conditions at the site to the Mennen Company so that an informed decision may be made on whether to enter a lease agreement for the facility which is planned for the site.

In order to meet this objective within the limited time frame available, the following Site Investigation was performed.

SITE INVESTIGATION

The first phase of activities performed as part of the Site Investigation was the drilling of one soil boring and the drilling and installation of a ground water monitoring well. Drilling and monitoring well installation services were performed by Environmental Drilling, Inc. under Dames & Moore's technical supervision, using a truck-mounted, Mobile-61, rotary wash type drill rig. The soil boring, located directly adjacent to the fuel oil tank farm which borders the site (Figure 2), was sampled at five-foot intervals using a standard split spoon sampler which was advanced by a 140-pound weight falling 30 inches. Each of the soil samples collected were examined carefully for evidence of fuel oil contamination by visual inspection and screening with a portable organic vapor analyzer (OVA). A Dames & Moore geologist also classified each sample and maintained a continuous log of the boring. The log of the boring is shown in Figure 3. Upon completion the boring was grouted to the surface. The ground water monitoring well (MW-10) was installed in accordance with NJDEP specifications for ground water monitoring wells constructed in unconsolidated material. The exact specification of the monitoring wells are illustrated in Figure 3. Following installation, the monitoring well was developed for a period of one hour to remove any drilling mud or fines which remained in the sand pack or in the formation surrounding the well screen.

The next phase of the Site Investigation included the collection of ground water samples from wells W-1, W-2 and MW-10 and the collection of a sediment sample from the creek which passes through the site. The locations of each of these sampling points is illustrated on Figure 2. The original scope of work also called for the collection of a ground water sample from a third USGS well, W-3. However, we were unable to locate this well due to the presence of a thick layer of leaves and snow in the area. Each of the samples were collected in accordance with NJDEP specifications. Prior to ground water sample collection each of the wells was purged of three volumes of water using a stainless steel submersible pump and dedicated polypropylene pipe. The pump was cleaned prior to each use with a non-phosphate detergent solution then rinsed thoroughly with distilled water. The samples were collected using stainless steel bailers. Each bailer was cleaned prior to sampling with a non-phosphate detergent solution, rinsed with distilled water, rinsed with acetone, then rinsed again with distilled water. The sediment sample was collected using a stainless steel trowel which had been cleaned by the same procedure as that used for the bailers.

The final phase of the field investigation included a review of aerial photos of the site dating back to 1940 and a site reconnaissance, performed along the eastern property line of the site and adjacent to Airtron's former sludge beds.

The review of a series of six aerial photos of the site dating from 1940 to 1980 were carefully examined for evidence of past activities on the site (such as dumping or burial of materials) which may present environmental concerns in the future. No evidence was seen in these aerial photos which would indicate any activity had taken place on the site which would present an environmental concern.

The site reconnaissance was performed on March 5, 1986 by Gerard Coscia, who is a Senior Engineer with Dames & Moore. Mr. Coscia was assisted in performing the reconnaissance by Joel Landes, who is a Senior Chemical Engineer with Dames & Moore. Several traverses of the site were made to identify any evidence of potentially adverse environmental conditions such as discoloration of soils, defoliation of vegetation, mounds, or seeps. A portable organic vapor analyzer (OVA) was used to screen soils uncovered during random shallow soil probing which was conducted throughout the reconnaissance. The areas along the eastern property line of the site and the area adjacent to Airtron's former sludge beds were concentrated on most heavily.

The results of this site reconnaissance revealed no evidence which would indicate environmentally adverse conditions exist at the site other than those indicated by the analytical results of the ground water and brook sediment samples.

RESULTS OF LABORATORY ANALYSIS

Each of the samples collected were delivered to ETC Laboratories for analysis. A full priority pollutant analysis was performed on the ground water samples collected from MW-10 and W-1, as well as on the sediment sample. The sample from MW-10 was also analyzed for total petroleum hydrocarbons. The ground water sample from W-2 was only analyzed for priority pollutant volatile organic compounds. The results of these analyses are summarized on Table 1.

The results of the analysis of the ground water samples show significant concentrations of several volatile organic compounds to be present in the aquifer underlying the site. These volatile compounds include trichloroethylene, tetrachloroethylene, 1,2-trans-dichloroethylene and 1,1,1-trichloroethane. The data are consistent with the results of prior testing conducted by NJDEP.

Insignificant quantities (below method detection limits) of one base/neutral compound and several metals compounds were also detected in the sample from MW-10.

The results of the analysis of the sediment sample (Brook 1) showed significant concentrations of a number of base/neutral compounds, including anthracene, fluoroanthene, fluorene and pyrene. These compounds are commonly associated with coal tar residue. The total concentration of base/neutral compounds is approximately 1 ppm, which is less than typical NJDEP-ECRA cleanup levels (10 ppm). The sediment sample also contained relatively high concentrations of several priority pollutant metals. Concentrations for arsenic and cadmium are in excess of typical NJDEP-ECRA cleanup levels.

SUMMARY

The results of the environmental assessment of this site has revealed one area of potential concern which was not already documented in previous environmental studies in the vicinity of the site. This area of environmental concern relates to the contamination of the sediments of the creek which passes through the site.

The analytical results of the sediment sample showed both metals and base/neutral compounds to be present in the sediments in significant concentrations. The contaminants appear to have entered the creek from some point upstream from the site.

One significant consequence of the presence of these contaminants may involve the additional effort, time and expense of disposal classification testing, handling and proper disposal of any sediments which have to be removed during construction activities on the site. We recommend that dredged stream sediments not be used as fill material. We further recommend that chemical analysis of the stream water be performed if any use of this water is contemplated.

The only other environmental concern identified at the site was the presence of volatile organic compounds in the ground water. The presence of these compounds has already been well-documented and the source has already been identified. The presence of these contaminants will not impair Mennen's use of the site unless ground water pumping for use at the facility is planned.

Both the soil boring adjacent to the tank farm and the site reconnaissance revealed no evidence of any other environmental concerns at the site.

In summary, the Site Assessment did not reveal any significant environmental conditions, except as previously qualified, that would impair Mennen's use of the site for a warehouse facility.

— oOo —

Dames & Moore

If you have any questions concerning this report, please contact the undersigned.

Very truly yours,

DAMES & MOORE

Gerard M Coscia

Gerard M. Coscia
Senior Engineer

GMC:jp

Attachments

TABLE 1

SUMMARY OF LABORATORY ANALYSIS

Parameter	MW-10	USGS W-1	USGS W-2	Brook 1	Method Detection Limit	Typical ECRA "Action Levels" or NJDEP Cleanup Levels
Volatile Compounds						
Chloroform	ND	9.87	ND	ND		
Tetrachloroethylene	224	463	26.6	ND		
Toluene	47	ND	ND	ND		
1,2-Trans-dichloroethylene	242	121	59.6	ND		
1,1,1-Trichloroethane	14.3	11.7	ND	ND		
Trichloroethylene	1,270	3,110	54.3	ND		
Base/Neutral Compounds						
Acenaphthene	ND	ND	—	BMDL	63	
Anthracene	ND	ND	—	76.9		
Bis(3-Ethylhexyl) phthalate	BMDL	ND	—	ND	12	
Fluoranthene	ND	ND	—	299		
Fluorene	ND	ND	—	BMDL	63	
Phenanthrene	ND	ND	—	308		
Pyrene	ND	ND	—	245		
Priority Pollutant Metals						
Antimony	ND	ND	—	BMDL	10,000	
Arsenic	ND	ND	—	72,000		20,000
Berylium	ND	ND	—	1,000		
Cadmium	BMDL	ND	—	5,000	40	3,000
Chromium	ND	ND	—	80,000		100,000
Copper	ND	ND	—	98,000		170,000
Lead	ND	ND	—	84,000		100,000
Nickel	BMDL	ND	—	17,000	10	100,000
Silver	ND	ND	—	4,000		
Zinc	BMDL	ND	—	232,000	9	350,000

Notes:

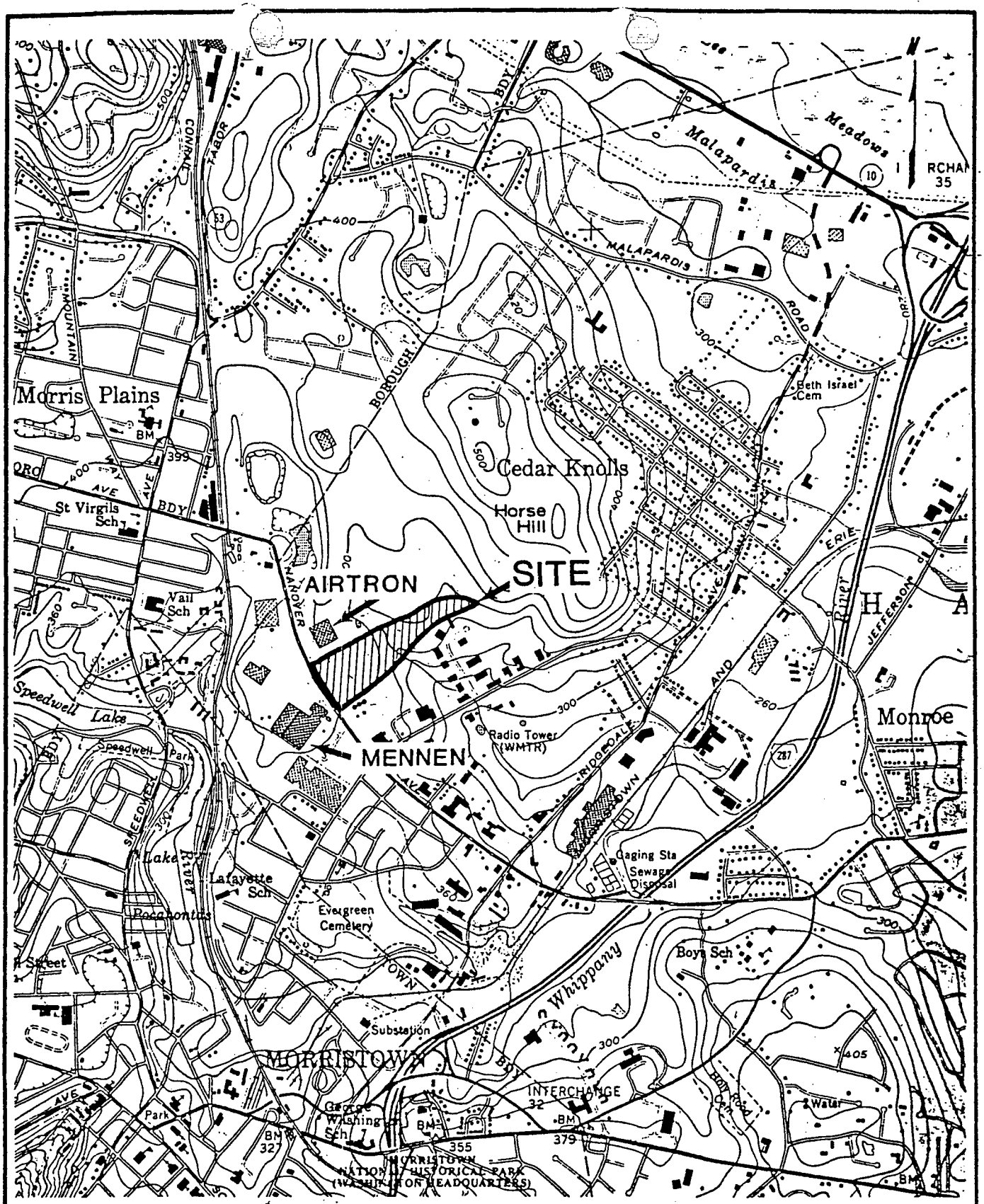
All results reported in parts per billion.

Only compounds detected in one or more samples are included in this summary.

ND = Not detected.

BMDL = Below method detection limit.

— = Not tested.



SITE LOCATION MAP

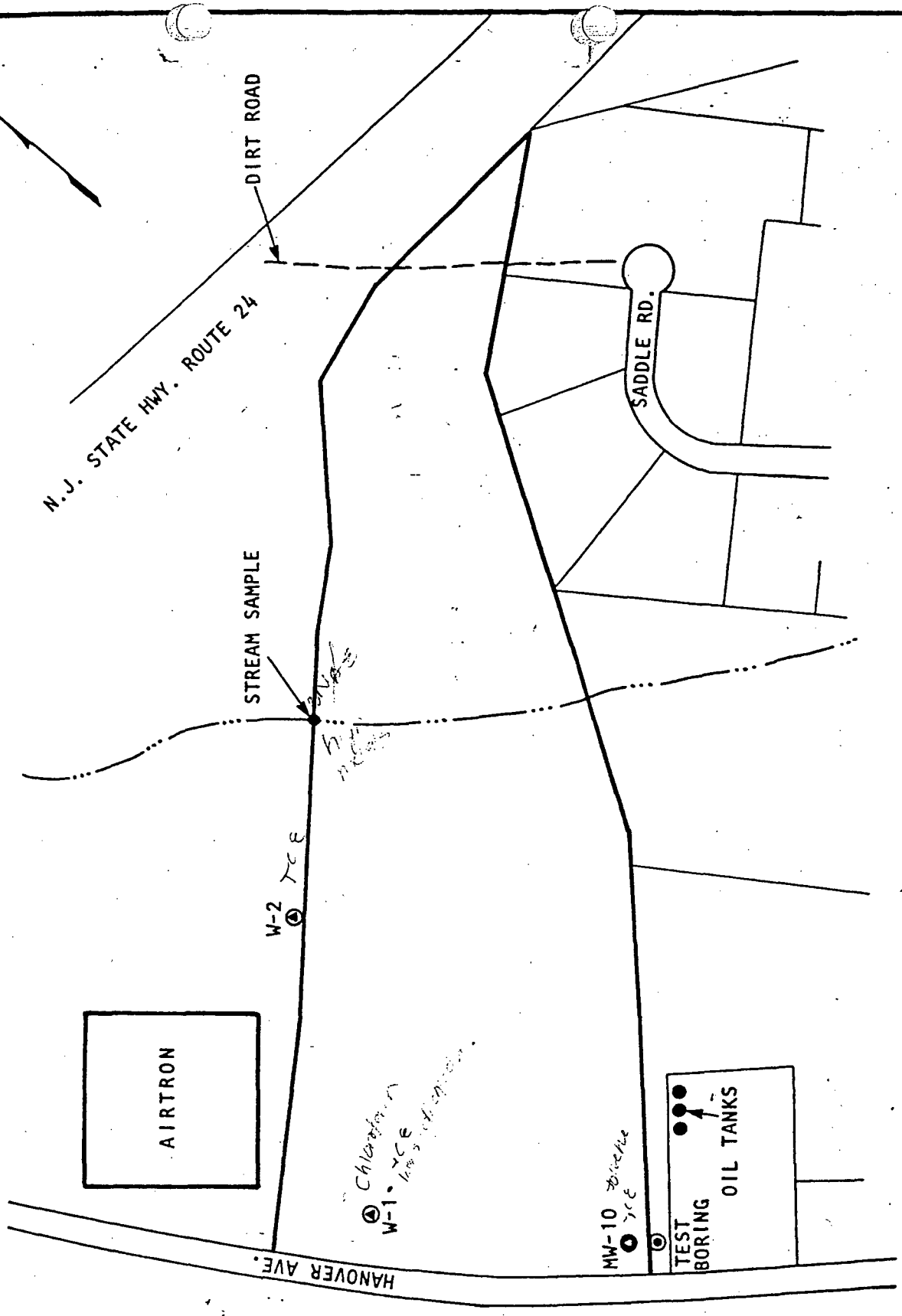
THE MENNEN COMPANY
MORRISTOWN, N.J.

0 2000 4000 FEET

DAMES & MOORE

1229

FIGURE 1



SITE MAP SHOWING SAMPLE LOCATIONS
SITE SURVEY
THE MENNEN COMPANY
MORRISTOWN, N.J.

DAMES & MOORE

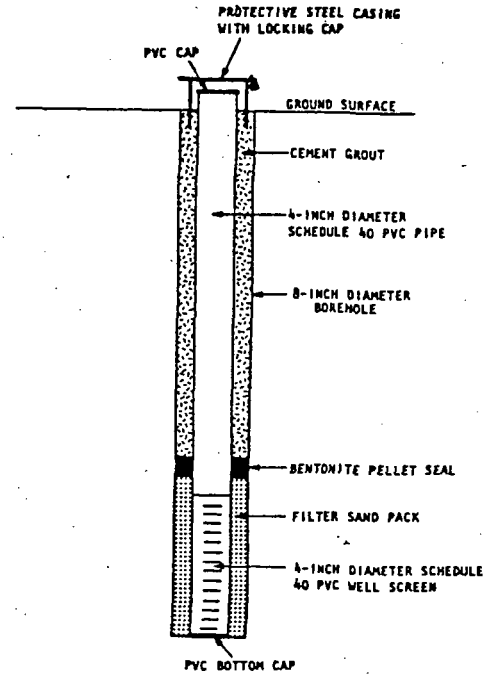
Z-7

FIGURE 2

BORING MW-10

DEPTH IN FEET	SYMBOLS	DESCRIPTIONS
0		SEE LOG OF BORING B-10 FOR STRATIGRAPHIC INFORMATION
10		
20		
30		
40		
50		
60		

1. BOREHOLE COMPLETED TO A DEPTH OF 55 FEET ON 3/1/86.
2. BORING CONVERTED TO A 4" MONITORING WELL ON 3/1/86. (SEE WELL CONSTRUCTION DETAILS)



BORING B-10

DEPTH IN FEET	SAMPLES BLOW COUNT	SYMBOLS	DESCRIPTIONS
0		ML/CL	ORANGE-BROWN CLAYEY SILT, TRACE FINE SAND, INTERBEDDED WITH GRAY SILTY CLAY, TRACE GRAVEL AND COBBLES
	44		REDDISH BROWN SILTY CLAY TO CLAYEY SILT, TRACE FINE TO MEDIUM SAND
10	42	CL/ML	GRADING WITH TRACE TO LITTLE FINE TO COARSE SAND, TRACE GRAVEL, TRACE COBBLE
	46	SM	REDDISH BROWN FINE SILTY SAND, TRACE COBBLES, TRACE GRAVEL
20	34	SP	GRAY TO ORANGE-BROWN VERY FINE TO FINE SAND WITH TRACE SILT
		ML	BROWN SILT WITH TRACE VERY FINE SAND
	94	SM	BROWN TO LIGHT BROWN FINE SILTY SAND WITH FINE LAMINATIONS OF RED-BROWN CLAY, TRACE GRAVEL
30	65		
	82	SP	GRAY-BROWN FINE TO COARSE SAND, TRACE GRAVEL, TRACE SILT
40	51		
	52		GRADING SATURATED
50	54		
	69		
60			

1. BORING COMPLETED TO A DEPTH OF 57 FEET ON 2/28/86.
2. BORING GROUTED TO THE SURFACE ON 2/28/86.

LOG OF BORINGS AND MONITORING WELL DETAILS

NOTES:
1. THE FIGURES IN THE COLUMN LABELED "BLOW COUNT" REFER TO THE NUMBER OF BLOWS REQUIRED TO DRIVE A STANDARD SPLIT-SPOON SAMPLER A DISTANCE OF ONE FOOT USING A 140 POUND DRIVE WEIGHT FALLING 30 INCHES. THE STANDARD SPLIT-SPOON SAMPLER IS 2" O.D. AND 1-3/8" I.D.
2. THE DISCUSSION IN THE TEXT OF THE REPORT IS NECESSARY FOR A PROPER UNDERSTANDING OF THE NATURE OF THE SUBSURFACE MATERIALS.

Dames & Moore

FIGURE 3

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

2-9

DAMES & MOORE

FIGURE 4

Litton Airtron

200 East Hanover Avenue, Morris Plains, New Jersey 07950 201-539-5500

RECEIVED
DIVISION OF
WATER RESOURCES
ENFORCEMENT ELEMENT

AUG 11 10 55 AM '86

August 6, 1986

Mr. Jeffrey Hoffman
State of New Jersey
Department of Environmental Protection
1259 Route #46
Parsippany, N. J. 07054

Dear Mr. Hoffman:

Enclosed you will find copies of the results of the latest round of samples taken on June 11, 1986 along with a table showing comparisons with previous values and water table elevation data. Please call if you have questions regarding this matter.

Very truly yours,

John A. Nicola

John A. Nicola
Plant Engineer

aw

cc: JLoSchiavo
E.Bukofsky

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LABORATORIES
578 LIVINGSTON AVENUE • NORTH BRUNSWICK, N.J. 08902 • (201) 249-0100

RECEIVED
JUL 16 1986
CONVERSE ENVIRONMENTAL EAST
CALDWELL, N.J.

TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P. O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1922	6-11-86	11:00	PK/WD	Water sample-2M, 59.5', Bailer

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichlor~~omethane~~	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	12	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	49	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	113	1.0
24) Toluene	18	1.0
25) 1,1,1-Trichloroethane	7.0	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	574	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

-1234-

Vincent J. Puglies
ENV. LAB. MGR.

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TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P. O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1923	6-11-86	12:00	PK/WD	Water sample-MW-2, 60.5', Bailer

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichloromethane	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	ND	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	123	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	438	1.0
24) Toluene	92	1.0
25) 1,1,1-Trichloroethane	9.8	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	1536	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

AA-3

Vincent J. Puglies
ENV LAB M GR

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TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P. O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1924	6-11-86	1315	PK/WD	Water sample-MW-3, 46.0', Bailer

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichloromethane	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	ND	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	208	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	442	1.0
24) Toluene	44	1.0
25) 1,1,1-Trichloroethane	16	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	783	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

AA-4
Vincent J. Pugliese

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TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P. O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1925	6-11-86	1430	PK/WD	Water sample-Mer-2

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichloromethane	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	ND	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	32	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	4.1	1.0
24) Toluene	ND	1.0
25) 1,1,1-Trichloroethane	ND	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	398	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

AA-5
Vincent J. Pugliese
ENV. LAB.M GR.

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TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P. O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1926	6-11-86	1510	PK/WD	Water sample-W-1, 56.7', pump

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichloromethane	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	ND	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	25	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	119	1.0
24) Toluene	5.9	1.0
25) 1,1,1-Trichloroethane	ND	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	609	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

AA-6
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TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P. O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1927	6-11-86	1540	PK/WD	Water sample-W-2, 48.5', pump

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichloromethane	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	ND	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	38	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	14	1.0
24) Toluene	ND	1.0
25) 1,1,1-Trichloroethane	ND	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	44	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

Vincent J. Puglies
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TO: Converse Environmental East
91 Roseland Avenue
Post Office Box 291
Caldwell, New Jersey 07006

ATTN: Don Smith

DATE: 7-16-86
JOB No.: 86-2249
P.O. No.: 83-07204-04
SAMPLE RECEIVED: 6-12-86/1:15PM

ANALYSIS REPORT

Sample No.	Date Collected	Time Collected	Collected By	Point of Collection
1928	6-11-86	1550	PK/WD	Water sample-Field Blank

VOLATILE ORGANIC ANALYSIS EPA 601,602 Lab ID# 12129

	RESULT(ug/l)	MDL(ug/l)
01) Benzene	ND	1.0
02) Bromoform	ND	1.0
03) Bromodichloromethane	ND	1.0
04) Bromomethane	ND	1.0
05) Carbon tetrachloride	ND	1.0
06) Chlorobenzene	ND	1.0
07) Chloroethane	ND	1.0
08) 2-Chloroethyl Vinyl Ether	ND	1.0
09) Chloroform	ND	1.0
10) Chloromethane	ND	1.0
11) cis-1,3-Dichloropropene	ND	1.0
12) Dibromochloromethane	ND	1.0
13) Dichlorodifluoromethane	ND	1.0
14) 1,1-Dichloroethane	ND	1.0
15) 1,2-Dichloroethane	ND	1.0
16) 1,1-Dichloroethylene	ND	1.0
17) trans-1,2-Dichloroethylene	ND	1.0
18) trans-1,3-Dichloropropene	ND	1.0
19) 1,2-Dichloropropane	ND	1.0
20) Ethylbenzene	ND	1.0
21) Methylene chloride	ND	1.0
22) 1,1,2,2-Tetrachloroethane	ND	1.0
23) Tetrachloroethylene	ND	1.0
24) Toluene	ND	1.0
25) 1,1,1-Trichloroethane	ND	1.0
26) 1,1,2-Trichloroethane	ND	1.0
27) Trichloroethylene	ND	1.0
28) Trichlorofluoromethane	ND	1.0
29) Vinyl chloride	ND	1.0

ND = Non Detectable
MDL = Method Detection Limit

AD-8
Vincent J. Puglies
ENV / LAB M GR

Townley RESEARCH AND CONSULTING, INC.
CHEMISTRY • MICROBIOLOGY RELATED SCIENCES
1750 W. FRONT STREET, PLAINFIELD, N. J. 07063 • (201) 757-1137

June 18, 1986

Airtron
200 East Hanover Ave.
Morris Plains, NJ 07950

Attn: John Nicola

Gentlemen:

Herewith our findings for the analysis of six samples of water, picked up by us on June 11, 1986:

TRC Sample:	6068	6069	6070	6071	6072	6073
Source:	2M	MW-2	MW-3	Mennon #2	W-1	W-2
PURGEABLE HALOCARBONS (Volatile Chlorinated Hydrocarbons), ppb.						
Bromoform	nd	nd	nd	nd	nd	nd
Bromodichloromethane	nd	nd	nd	nd	nd	nd
Bromomethane	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	nd	nd	nd	nd	nd	nd
Chlorobenzene	nd	nd	nd	nd	nd	nd
Chloroethane	nd	nd	nd	nd	nd	nd
2-Chloroethylvinyl Ether	nd	nd	nd	nd	nd	nd
Chloroform	14	nd	nd	2	4	nd
Chloromethane	nd	nd	nd	nd	nd	nd
Dibromochloromethane	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	2	nd	nd	nd	4	nd
trans-1,2-Dichloroethene	93	305	52	72	94	98
cis-1,3-Dichloropropene	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	nd	nd	nd	nd	nd	nd

Continued on page 2

NJ DEP LAB CERTIFICATION NO. 18071
FDA REGISTERED

AA-9

Townley Research & Consulting, Inc.

TRC Sample:	6068	6069	6070	6071	6072	6073
Source:	2M	MW-2	MW-3	Mennon #2	W-1	W-2
PURGEABLE HALOCARBONS (Volatile Chlorinated Hydrocarbons), ppb.						
trans-1,3-Dichloropropene	nd	nd	nd	nd	nd	nd
Methylene Chloride	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	nd	nd
Tetrachloroethylene	186	1130	370	6	220	22
1,1,1-Trichloroethane	4	nd	nd	nd	3	nd
1,1,2-Trichloroethane	nd	nd	nd	nd	nd	nd
Trichloroethylene	470	1490	540	432	368	52
Trichlorofluoromethane	nd	nd	nd	nd	nd	nd
Vinyl Chloride	nd	nd	nd	nd	nd	nd
PURGEABLE AROMATICS (Volatile Hydrocarbons), ppb.						
Benzene	nd	nd	nd	nd	nd	nd
Ethylbenzene	nd	nd	nd	nd	nd	nd
Toluene	46	62	47	nd	19	38

Note: nd = none detected

Detection Limits: Purgeable Halocarbons - 1 ppb.
Purgeable Aromatics - 1 ppb.

Very truly yours,

Mark Andersen
Lab Manager

AA-10

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES

TABLE 6

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-101.8	B-102.1	B-102.3	B-102.4	B-103.1	B-103.3	B-103.6	B-104.1	B-104.2
SAMPLE DEPTH (FT)	40.0-40.5	4.0-6.0	14.0-16.0	19.0-21.0	4.0-6.0	14.0-16.0	29.5-30.0	5.0-5.5	10.0-10.5
SAMPLE DATE	5/26/87	5/27/87	5/27/87	5/27/87	5/28/87	5/28/87	5/28/87	5/28/87	5/28/87
COMPOUND									
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	3 JB	4 JB	5 JB	4 JB	5 JB	7 JB	5 JB	23 B	2 JB
TRICHLOROFLUOROMETHANE	3 JB	3 JB	3 JB	3 JB	13 JB	4 JB	3 JB	5 JB	5 JB
1,1-DICHLOROETHENE	ND	0 JB	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ND	1 J	ND	ND	ND	ND	ND	ND	1 J
1,1,1-TRICHLOROETHANE	ND	2 JB	2 JB	2 JB	3 J	2 JB	1 JB	3 JB	2 J
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ND	1 J	1 J	ND	ND	ND	ND	ND	ND
BENZENE	ND	1 JB	1 JB	0 JB	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	1 JB	1 JB	1 JB	0 JB	ND	1 JB	ND	ND	ND
TOLUENE	2 JB	2 JB	2 JB	ND	4 JB	2 JB	2 JB	2 JB	2 JB
ETHYL BENZENE	ND	1 JB	ND	ND	ND	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND	ND	1 J	ND	ND	ND
TOTAL VOLATILES	9	16	15	9	25	17	11	33	12
LIBRARY SEARCH (VO)	ND	25	ND	ND	240	60	100	ND	20

ND - Not detected

1243

B3-1

Table continued on next page...

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES

TABLE 6 cont.

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-104.7	B-105.10	B-106.8	B-107.7	B-107.8	B-107.10	B-108.2	B-108.9	B-109.7
SAMPLE DEPTH (FT)	35.0-35.5	50.0-50.5	40.0-40.5	34.5-35.0	39.5-40.0	50.0-50.5	9.5-10.0	45.0-45.5	35.0-35.5
SAMPLE DATE	5/28/87	5/29/87	6/4/87	6/1/87	6/1/87	6/1/87	6/3/87	6/3/87	6/4/87
COMPOUND									
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	3 JB	1 JB	2 JB	5 JB	3 JB	1 JB	1 JB	2 JB	4 JB
TRICHLOROFLUOROMETHANE	7 JB	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	3 J	ND	ND	ND	ND	1 J	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	2 J	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ND	1 J	39	1 J	4 J	5 J	ND	18	28
BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	ND	2 J	21	1 J	3 J	8 J	ND	19	6 J
TOLUENE	ND	ND	2 JB	1 JB	ND	2 JB	ND	ND	ND
ETHYL BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VOLATILES	12	4	67	8	10	16	1	40	38
LIBRARY SEARCH (VO)	40	20	ND	ND	20	15	20	ND	ND

ND - Not detected

BB-2

Table continued on next page...

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES

TABLE 6 cont.

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-109.10	B-109.11	B-110.6A	B-110.6B	B-110.11	B-111.9	B-111.10	B-111.11	B-112.1
SAMPLE DEPTH (FT)	50.0-50.5	55.0-55.5	30.0-30.5	30.0-30.5	55.0-55.5	45.0-45.5	50.0-50.5	55.0-55.5	4.5-5.0
SAMPLE DATE	6/4/87	6/4/87	6/5/87	6/5/87	6/8/87	6/8/87	6/8/87	6/8/87	6/9/87
COMPOUND									
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	ND	1 JB	2 JB	1 JB	6 JB	ND	ND	ND	13 B
TRICHLOROFLUOROMETHANE	ND	3 JB	3 JB	3 JB	8 JB	3 JB	10 JB	7 JB	8 JB
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	1 J	ND	ND
1,1,1-TRICHLOROETHANE	ND	1 JB	8 J	8 J	ND	ND	ND	ND	2 J
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ND	30	3 J	2 J	ND	4 J	5 J	4 J	ND
BENZENE	ND	ND	ND	ND	ND	ND	1 J	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	1 J	ND	ND
TETRACHLOROETHYLENE	ND	11	ND	ND	3 J	3 J	3 J	3 J	ND
TOLUENE	2 JB	2 JB	ND	ND	2 JB	2 JB	2 JB	ND	1 JB
ETHYL BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VOLATILES	2	48	16	14	19	12	23	14	24
LIBRARY SEARCH (VO)	ND	ND	ND	ND	51	ND	ND	ND	ND

ND - Not detected

T245

BB-3

Table continued on next page...

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES

TABLE 6 cont.

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-112.9	B-112.11	B-113.10	B-114.3	B-114.4	B-114.7	B-115.2	B-115.5	B-115.7
SAMPLE DEPTH (FT)	45.0-45.5	55.0-55.5	50.5-51.0	14.0-14.5	20.0-20.5	29.5-30.0	10.5-11.0	25.5-26.0	35.0-35.5
SAMPLE DATE	6/9/87	6/9/87	6/10/87	6/10/87	6/10/87	6/10/87	6/11/87	6/11/87	6/11/87
COMPOUND									
VINYL CHLORIDE	ND	ND ND	ND	10 J	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	19 J	22 B	38 B	8 JB	9 JB	19 B	11 JB	17 JB	21 B
TRICHLOROFLUOROMETHANE	ND	8 JB	9 JB	13 B	13 JB	11 JB	4 JB	5 JB	8 JB
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	ND	81	3 J	95	41	4 J	13
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	3 J	3 J	3 J	3 J	ND	1 JB	1 JB	ND	ND
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	6 J	ND	6 J	43	5 J	9 J	ND	2 J	ND
BENZENE	ND	ND	0 J	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	2 J	1 J	2 J	60	67	150 B	2 JB	2 JB	4 J
TOLUENE	1 JB	1 JB	2 JB	2 J	2 J	3 JB	4 JB	4 JB	7 J
ETHYL BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VOLATILES	31	35	60	220	99	288	63	34	53
LIBRARY SEARCH (VO)	34	20	190	ND	224	310	ND	ND	ND

ND - Not detected

Table continued on next page...

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES

TABLE 6 cont.

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-116.8	B-117.1A	B-117.4	B-117.7	B-118.4	B-118.8	B-118.9	B-119.1	B-119.4
SAMPLE DEPTH (FT)	40.0-40.5	4.5-5.0	20.0-20.5	35.0-35.5	20.0-20.5	39.5-40.0	44.5-45.0	5.0-5.5	19.5-20.0
SAMPLE DATE	6/11/87	6/11/87	6/11/87	6/11/87	6/15/87	6/15/87	6/15/87	6/15/87	6/15/87
COMPOUND									
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	2 JB	220 J	2 JB	2 JB	3 J	3 J	16 JB	22 B	19 B
TRICHLOROFLUOROMETHANE	8 JB	520 JB	11 JB	8 JB	12 B	12 B	ND	10 JB	10 JB
1,1-DICHLOROETHENE	ND	ND	ND	ND	7 J	6 J	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	3 J	1,900	8 J	5 J	8 J	2 J	53	ND	ND
CHLOROFORM	ND	91 J	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	1 J	ND	10 J	6 J	ND	1 J	1 J
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	11 J	740 J	3 J	4 J	13	9 J	74	ND	ND
BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	5,800	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	35	ND	16	29	7 J	15	55	ND	5 J
TOLUENE	11	8,700	25	11	2 JB	2 JB	ND	2 J	2 J
ETHYL BENZENE	ND	340 J	ND	ND	ND	ND	ND	ND	1 JB
TOTAL XYLENES		1,400			ND	ND	ND	ND	ND
TOTAL VOLATILES	70	19,711	66	59	62	55	198	35	38
LIBRARY SEARCH (VO)	ND	2,000	20	ND	140 B	150 B	490 B	220 B	220 B

ND - Not detected

Table continued on next page...

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN SOIL SAMPLES

TABLE 6 cont.

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-119.7	B-120.4	B-121.5A	B-122.4	B-122.6	B-122.7
SAMPLE DEPTH (FT)	34.0-36.0	19.5-20.0	24.5-25.0	19.0-19.5	29.0-29.5	34.5-35.0
SAMPLE DATE	6/15/87	6/17/87	6/17/87	6/17/87	6/17/87	6/17/87
COMPOUND						
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	22 B	9 JB	9 JB	8 JB	12 JB	10 JB
TRICHLOROFLUOROMETHANE	10 JB	4 JB	2 JB	3 JB	4 JB	5 JB
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	ND	2 J	ND	16
CHLOROFORM	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	ND	1 J	ND	ND
1,2-DICHLOROPROPANE	ND	ND	5 J	ND	ND	ND
TRICHLOROETHYLENE	5 J	ND	ND	4 J	2 J	78
BENZENE	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	29	ND	ND	52	4 J	150
TOLUENE	2 J	2 J	2 J	2 J	2 J	1 J
ETHYL BENZENE	ND	1 JB	ND	ND	1 JB	ND
TOTAL XYLENES	ND	ND	ND	ND	ND	ND
TOTAL VOLATILES	68	16	18	72	25	260
LIBRARY SEARCH (VO)	250 B	ND	ND	ND	ND	ND

ND - Not detected

Table continued on next page...

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN WATER BLANKS

TABLE 6 cont.

RESULTS FOR WATER BLANKS IN ug/l

SAMPLE NUMBER	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
SAMPLE DATE	5/26/87	5/27/87	5/28/87	5/29/87	6/1/87	6/3/87	6/4/87	6/5/87	6/8/87	6/9/87
COMPOUND										
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	2 JB	6 JB	7 J	5 J	5 JB	4 JB	2 J	4 J	8 JB	ND
TRICHLOROFLUOROMETHANE	ND	3 JB	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	4 J	2 J	2 J	3 J	ND	3 J	3 J	ND	ND	ND
TRICHLOROETHYLENE	ND	ND	ND	ND	2 J	ND	ND	ND	ND	ND
BENZENE	ND	0 J	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	2 JB	2 JB	2 JB	1 JB	5 J	ND	ND	1 J	2 J	ND
ETHYL BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL VOLATILES	8	13	11	9	12	7	5	5	10	0
LIBRARY SEARCH (VO)	ND	ND	ND	ND	140	20	ND	ND	ND	11

ND - Not detected

Table continued on next page...

RB-7

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN WATER BLANKS

TABLE 6 cont.

RESULTS FOR WATER BLANKS IN ug/l

SAMPLE NUMBER	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
SAMPLE DATE	6/10/87	6/11/87	6/15/87	6/17/87
COMPOUND				
VINYL CHLORIDE	ND	ND	ND	ND
METHYLENE CHLORIDE	1,100 B	4,300 B	5,500 B	4 B
TRICHLOROFLUOROMETHANE	ND	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND	ND
TRANS-1,2,-DICHLOROETHENE	ND	ND	ND	ND
CHLOROFORM	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ND	ND	ND	5 J
TRICHLOROETHYLENE	ND	ND	ND	ND
BENZENE	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND
TETRACHLOROETHYLENE	ND	ND	ND	ND
TOLUENE	ND	56 JB	68 JB	2 J
ETHYL BENZENE	ND	ND	ND	ND
TOTAL XYLENES	ND	ND	ND	ND
TOTAL VOLATILES	1,100	4,356	5,568	11
LIBRARY SEARCH (VO)	ND	ND	ND	ND

ND - Not detected

Table continued on next page...

TABLE 7

AIRTRON 87-47400-01

CHEMICAL TEST RESULTS FOR
BASE NEUTRAL AND
ACID EXTRACTABLE
COMPOUNDS IN SOIL SAMPLES

ALL RESULTS IN ug/kg

SAMPLE NUMBER	B-103.1	B-104.1
SAMPLE DEPTH (FT)	4.0-6.0	5.0-5.5
SAMPLE DATE	5/28/87	5/28/87
BASE NEUTRALS:		
DI-N-BUTYL PHTHALATE	2,150 B	3,140 B
ACID EXTRACTABLES:		
NO COMPOUNDS DETECTED	ND	ND

ND - Not detected

Table continued on next page..

ROUND 1 - GROUNDWATER ANALYSES

TABLE 8

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	MW-1	MW-2	MW-2M	MW-3	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206	MW-412	USGS-1
SAMPLE DATE:	8/18/87	8/18/87	8/19/87	8/18/87	8/17/87	8/17/87	8/18/87	8/18/87	8/18/87	8/17/87	8/17/87	8/17/87
PARAMETER:												
METHYLENE CHLORIDE	9 B	580 J	ND	1,200 B	8 B	ND	ND	190 B	ND	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 J	2 J	5 J
1,1-DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 J	3 J	3 J
TRICHLOROETHYLENE	ND	7,200	2,000	2,000	ND	ND	ND	ND	32	3,300 D	3,200 D	9,000 D
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	15	28
TETRACHLOROETHYLENE	ND	3,000	530	1,500	ND	ND	ND	ND	ND	2,000 D	2,000 D	2,900 D
TRICHLOROLFLUOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 J	ND	1 J
TRANS-1,2-DICHLOROETHENE	ND	180 J	180 J	230 J	ND	ND	ND	ND	ND	510 D	480 D	520 D
TOLUENE	1 JB	94 JB	ND	96 JB	ND	ND	ND	1 J	1 JB	ND	1 JB	ND
TOTAL VOLATILES	10	11,054	2,710	5,026	8	0	0	191	33	5,830	5,701	12,476
LIBRARY SEARCH	13	ND	ND	ND	ND	ND	ND	ND	ND	28	6	53

ND - Not detected
D - Dilution factor of 50.

Table continued next page...

ROUND 1 - GROUNDWATER ANALYSES

TABLE 8 cont.

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	USGS-2	USGS-3	USGS-6	MENN-10	MENN PROD-1	TRIP	TRIP
SAMPLE DATE:	8/17/87	8/18/87	8/18/87	8/17/87	8/18/87	8/18/87	8/17/87
PARAMETER:							
METHYLENE CHLORIDE	12	11 B	14 B	ND	650 B	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	46	ND	4 J	1,300 D	1,100	5 JB	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	ND	6	ND	ND	ND
TETRACHLOROETHYLENE	26	ND	4 J	450 D	180 J	5 JB	ND
TRICHLOROLFLUOROMETHANE	4 J	ND	ND	2 J	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	36	ND	ND	230 J	53 J	ND	ND
TOLUENE	ND	ND	1 JB	ND	90 JB	ND	ND
TOTAL VOLATILES	124	11	23	1,988	2,073	10	0
LIBRARY SEARCH	37	ND	ND	90	ND	9	9

ND - Not detected
D - Dilution factor of 50.

Table continued next page...

AIRTRON 87-47400-01

TABLE 9

ROUND 1 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
BASE NEUTRAL COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	MW-1	MW-2	MW-2M	MW-3	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206	MW-412	USGS-1
SAMPLE DATE:	8/18/87	8/18/87	8/19/87	8/18/87	8/17/87	8/17/87	8/18/87	8/18/87	8/18/87	8/17/87	8/17/87	8/17/87
PARAMETER:												
BIS(2-ETHYLYHEXYL) PHTHALATE	11 JB	ND	ND	8 JB	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-OCTYL PHTHALATE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ND	ND	ND	ND	2 J	ND	ND	ND	ND	ND	ND	ND
DIETHYL PHTHALATE	ND	ND	2 J	ND	ND	ND	ND	ND	20 J	5 J	ND	ND
TOTAL BASE NEUTRALS	11	0	2	8	2	0	0	0	20	5	0	0
LIBRARY SEARCH (B/A/N)	1,300	ND	ND	29	ND	ND	ND	ND	ND	ND	ND	ND

ND- Not detected

Table continued next page...

AIRTRON 87-47400-01

TABLE 9 cont.

ROUND 1 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
BASE NEUTRAL COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	USGS-2	USGS-3	USGS-6	MENN-10	MENN PROD-1	TRIP	TRIP
SAMPLE DATE:	8/17/87	8/18/87	8/18/87	8/17/87	8/18/87	8/18/87	8/17/87
PARAMETER:							
BIS(2-ETHYLYHEXYL) PHTHALATE	ND	16 JB	ND	6 JB	ND	ND	ND
DI-N-OCTYL PHTHALATE	ND	ND	ND	ND	ND	ND	ND
DI-N-BUTYL PHTHALATE	ND	ND	ND	ND	ND	ND	ND
DIETHYL PHTHALATE	ND	ND	ND	ND	ND	ND	ND
TOTAL BASE NEUTRALS	0	16	0	6	0	0	0
LIBRARY SEARCH (B/A/N)	13	ND	ND	ND	ND	ND	ND

ND- Not detected

Table continued next page...

AIRTRON 87-47400-01

TABLE 10

ROUND 1 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
ACID EXTRACTABLE COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	MW-1	MW-2	MW-2M	MW-3	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206	MW-412	USGS-1
SAMPLE DATE:	8/18/87	8/18/87	8/19/87	8/18/87	8/17/87	8/17/87	8/18/87	8/18/87	8/18/87	8/17/87	8/17/87	8/17/87
PARAMETER:												
No Compounds Detected	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND - Not detected

Table continued next page...

AIRTRON 87-47400-01

TABLE 10 cont.

ROUND 1 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
ACID EXTRACTABLE COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	USGS-2	USGS-3	USGS-6	MENN-10	MENN PROD-1	TRIP	TRIP
SAMPLE DATE:	8/17/87	8/18/87	8/18/87	8/17/87	8/18/87	8/18/87	8/17/87
PARAMETER:							
No Compounds Detected	ND	ND	ND	ND	ND	ND	ND

ND - Not detected

Table continued next page...

AIRTRON 87-47400-01

TABLE 11

ROUND 1 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
PESTICIDES/PCB's
IN WATER SAMPLES

ALL RESULTS IN ug/l

1-12-88

SAMPLE NUMBER:	MW-1	MW-2	MW-2M	MW-3	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206	MW-412	USGS-1
SAMPLE DATE:	8/18/87	8/18/87	8/19/87	8/18/87	8/17/87	8/17/87	8/18/87	8/18/87	8/18/87	8/17/87	8/17/87	8/17/87
PARAMETER:												
No compounds detected	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND - Not detected

B3-17

Table continued next page...

TABLE 11 cont.

ROUND 1 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
PESTICIDES/PCB's
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER:	USGS-2	USGS-3	USGS-6	MENN-10	MENN PROD-1	TRIP	TRIP
SAMPLE DATE:	8/17/87	8/18/87	8/18/87	8/17/87	8/18/87	8/18/87	8/17/87
PARAMETER:							
No compounds detected	ND	ND	ND	ND	ND	ND	ND

ND - Not detected

Table continued next page...

ROUND 1 - GROUNDWATER ANALYSES

TABLE 12

CHEMICAL TEST RESULTS FOR
METALS, CYANIDE & PHENOLS
IN WATER SAMPLES

ALL RESULTS IN UG/L

SAMPLE NUMBER:		MW-1	MW-2	MW-2M	MW-3	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206	MW-412	USGS-1
SAMPLE DATE:		8/18/87	8/18/87	8/19/87	8/18/87	8/17/87	8/17/87	8/18/87	8/18/87	8/18/87	8/17/87	8/17/87	8/17/87
ANALYTE	NJDEP GUIDELINES*												
ANTIMONY	---	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60	<60
ARSENIC	50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
BERYLLIUM	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CADMIUM	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
CHROMIUM	50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
COPPER	1,000	<30	<30	<30	<30	<25	<25	<30	<30	<30	<25	<25	<25
LEAD	50	<5.0	<5.0	<5.0	<5.0	8.2	<5.0	6	<5.0	<5.0	<5.0	<5.0	<5.0
MERCURY	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NICKEL	---	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
SELENIUM	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SILVER	50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
THALLIUM	---	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
ZINC	5,000	<20	<20	<20	<30	34	27	<20	<20	<20	99	106	32
CYANIDE	200	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
PHENOLS	---	<5	11	<5	<5	<5	<5	<5	9	<5	<5	<5	97

* - Used informally in evaluating possible cleanup requirements.

Table continued next page...

ROUND 1 - GROUNDWATER ANALYSES

TABLE 12 cont.

CHEMICAL TEST RESULTS FOR
METALS, CYANIDE & PHENOLS
IN WATER SAMPLES

ALL RESULTS IN UG/L

SAMPLE NUMBER:		USGS-2	USGS-3	USGS-6	MENN-10	MENN PROD-1	Q-001	TRIP	TRIP
SAMPLE DATE:		8/17/87	8/18/87	8/18/87	8/17/87	8/18/87	8/18/87	8/18/87	8/17/87
ANALYTE	NJDEP GUIDELINES*								
ANTIMONY	---	<60	<60	<60	<60	<60	<60	<60	<60
ARSENIC	50	<10	<10	<10	<10	<10	<10	<10	<10
BERYLLIUM	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
CADMIUM	10	<10	<10	<10	<10	<10	<10	<10	<10
CHROMIUM	50	<10	<10	<10	<10	<10	<10	<10	<10
COPPER	1,000	<25	<30	<30	<25	110	<30	<30	<30
LEAD	50	<5.0	<5.0	<5.0	<5.0	23	<5.0	<5.0	<5.0
MERCURY	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
NICKEL	---	<40	<40	<40	<40	40	<40	<40	<40
SELENIUM	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SILVER	50	<10	<10	<10	<10	<10	<10	<10	<10
THALLIUM	---	<10	<10	<10	<10	<10	<10	<10	<10
ZINC	5,000	111	<30	<20	90	130	<20	<20	<20
CYANIDE	200	<5	<5	<5	<5	<5	<5	<5	<5
PHENOLS	---	6	36	<5	<5	<5	<5	<5	<5

* - Used informally in evaluating possible cleanup requirements.

Table continued next page...

ROUND 2 - GROUNDWATER ANALYSES

TABLE 13

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER	MW-1	MW-2	MW-2M	MW-3	MW-6	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206
SAMPLE DATE	10/1/87	10/1/87	10/1/87	9/30/87	10/1/87	10/1/87	9/30/87	9/30/87	9/30/87	10/1/87	10/1/87
PARAMETER											
METHYLENE CHLORIDE	ND	1,900	410	136 JB	3 JB	ND	6 B	5 B	100 B	ND	2,600
1,1-DICHLOROETHENE	ND	ND	ND	ND	1 J	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ND	ND	ND	ND	1 J	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	1 JB	6,700 B	1,800	2,564	2,500 DB	ND	ND	ND	ND	43 B	3,200 B
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND	10	1 JB	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	1 JB	2,900 B	520 B	2,153	2,000 DB	1 JB	ND	ND	ND	1 JB	2,500 B
TRICHLOROLFLUOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ND	180 J	ND	287	300 D	ND	ND	ND	ND	ND	510
TOLUENE	1 JB	ND	50 JB	152 JB	2 JB	ND	3 J	2 J	4 J	ND	ND
TOTAL P.P. VOLATILES	3	11,680	2,780	5,292	4,817	2	9	7	104	44	8,810
LIBRARY SEARCH	ND	950	ND	770	5	ND	6	6	15	ND	2,000

ND - Not detected

D - Dilution factor of 50.

Table continued next page...

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ROUND 2 - GROUNDWATER ANALYSES

TABLE 13 cont.

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANIC COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l.

SAMPLE NUMBER	MW-408	USGS-1	USGS-2	USGS-3	MENN-10	MENN PROD-1	TRIP	TRIP
SAMPLE DATE:	10/1/87	9/30/87	9/30/87	9/30/87	10/1/87	10/1/87	9/30/87	10/1/87
PARAMETER:								
METHYLENE CHLORIDE	50 B	110 J	ND	2 JB	740	110	3 JB	11
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ND	8,850	25	1 JB	1,800 B	1,200 JB	ND	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	ND	3,240	11	1 JB	620 B	200 JB	1 JB	ND
TRICHLOROLFLUOROMETHANE	ND	ND	2 J	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ND	635	37	ND	310	60 J	ND	ND
TOLUENE	1 JB	86 J	1 J	1 JB	55 JB	140 JB	1 JB	1 JB
TOTAL P.P. VOLATILES	51	12,921	76	5	3,525	1,710	5	12
LIBRARY SEARCH	5	940	9	ND	300	ND	6	ND

ND - Not detected

D - Dilution factor of 50.

Table continued next page...

TABLE 14

AIRTRON 87-47400-01

ROUND 2 - GROUNDWATER ANALYSES

CHEMICAL TEST RESULTS FOR
BASE NEUTRAL COMPOUNDS
IN WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER	MW-1
SAMPLE DATE:	10/1/87
PARAMETER:	
BIS(2-ETHYLYHEXYL) PHTHALATE	6 JB
DI-N-OCTYL PHTHALATE	35 B
TOTAL BASE NEUTRALS	41
LIBRARY SEARCH	170

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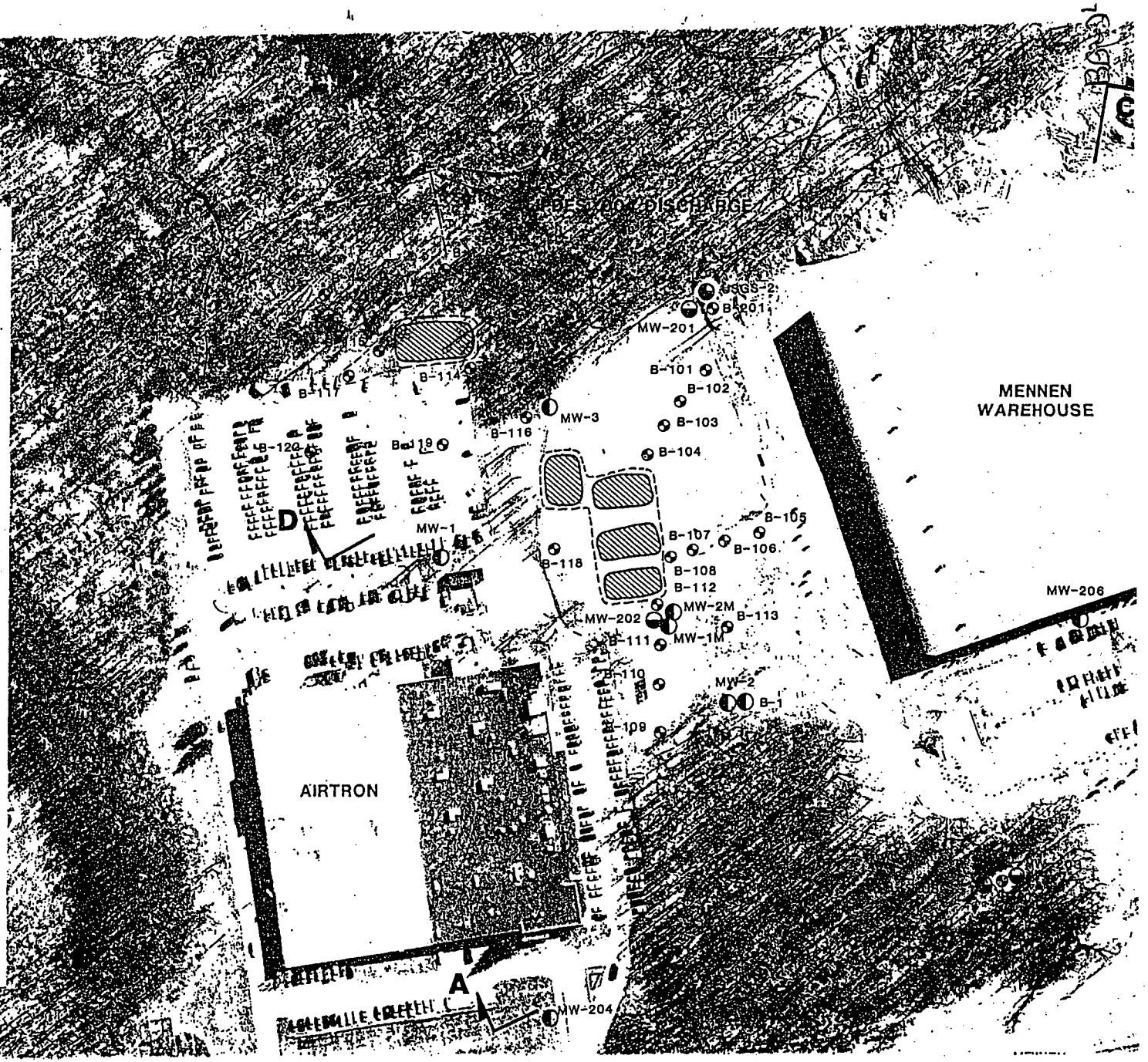
IS SUMMARY

TOTAL VOLATILE ORGANIC COMPOUNDS (ug/kg)	TOTAL BASE NEUTRAL COMPOUNDS* (ug/kg)
0	
	1290
100	
21	2280
8	
28	
10	
63	
0	
5	
6	
6	
29	
34	
0	
44	
12	
10	
63	
5	
17	
7	
17	
58	
48	
243	
211	
44	
61	
21,707	
61	
50	
55	
48	
194	
31	
34	
64	
23	
14	
79	
21	
252	



RESULTS OF
SAMPLING AND ANALYSIS PROGRAM
QUARTERLY GROUNDWATER MONITORING
SAMPLING DATE: APRIL 26, 1988
LITTON INDUSTRIES
AIRTRON DIVISION
HANOVER TOWNSHIP, NEW JERSEY

By

CONVERSE ENVIRONMENTAL EAST

June 30, 1988

Project No. 87-47400-01

CC-1

TABLE 1
BASE/NEUTRAL AND ACID EXTRACTABLE COMPOUNDS
AIRTRON - LITTON CORPORATION
87-47400-01
ALL RESULTS IN UG/L

PARAMETER	MW-1
BASE/NEUTRAL COMPOUNDS	
BIS (2-ETHYL HEXYL) PHTHALATE	2 B
ACID EXTRACTABLE COMPOUNDS	N.D.
LIBRARY SEARCH (BN/AE)	83

B - ANALYTE FOUND IN LAB BLANK

N.D. - NOT DETECTED

CC-2

TABLE 2
VOLATILE ORGANIC COMPOUNDS
AIRTRON - LITTON CORPORATION
87-47400-01
ALL RESULTS IN UG/L

COMPOUND	MW-201	MW-201 A	MW-201 *	MW-202	MW-202 B	MW-202 *	MW-203	MW-203 C
BENZENE	2	N.D.	N.D.	N.D.	1	N.D.	N.D.	N.D.
BROMODICHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BROMOFORM	1 B	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BROMOMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
CARBON TETRACHLORIDE	2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
CHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
DIBROMOCHLOROMETHANE	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHENE	2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHANE	1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,2-DICHLOROETHENE	4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
cis-1,3-DICHLOROPROPENE	2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
ETHYLBENZENE	2 B	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
METHYLENE CHLORIDE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	1 B	1
TETRACHLOROETHYLENE	2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
TRICHLOROETHYLENE	2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
TRICHLOROFLUOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1,1-TRICHLOROETHANE	2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
TOLUENE	2 B	N.D.	N.D.	0.8 B	1	N.D.	1 B	1
LIBRARY SEARCH	10	N.D.	N.D.	N.D.	N.D.	N.D.	11	6
TOTAL	25	0	0	0.8	2	0	2	2

N.D. - NOT DETECTED

A - O = HIDDEN DUPLICATES, ANALYSIS PERFORMED BY YORK LABORATORIES
* = DUPLICATES, ANALYSIS PERFORMED BY ICM LABORATORIES

TABLE 2
VOLATILE ORGANIC COMPOUNDS
AIRTRON - LITTON CORPORATION
87-47400-01
ALL RESULTS IN UG/L

COMPOUND	MW-203 *	MW-204	MW-204 D	MW-204 *	MW-205	MW-205 E	MW-206	MW-206 F
BENZENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	26	N.D.
BROMODICHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	19	N.D.
BROMOFORM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	16 B	N.D.
BROMOMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
CARBON TETRACHLORIDE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	25	N.D.
CHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
DIBROMOCHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,2-DICHLOROETHENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	780	400
cis-1,3-DICHLOROPROPENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
ETHYLBENZENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	29 B	N.D.
METHYLENE CHLORIDE	N.D.	12 B	2	7	2 B	N.D.	44 B	73 B
TETRACHLOROETHYLENE	N.D.	N.D.	2	N.D.	N.D.	N.D.	2100	2100
TRICHLOROETHYLENE	N.D.	N.D.	N.D.	N.D.	45	42	3200	3000
TRICHLOROFLUOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1,1-TRICHLOROETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	32	N.D.
TOLUENE	N.D.	2 B	2	N.D.	0.7	N.D.	37 B	N.D.
LIBRARY SEARCH	N.D.	5	23	5	N.D.	N.D.	N.D.	N.D.
TOTAL	0	14	6	7	47.7	42	6308	5573

N.D. - NOT DETECTED

A - O = HIDDEN DUPLICATES, ANALYSIS PERFORMED BY YORK LABORATORIES
* = DUPLICATES, ANALYSIS PERFORMED BY ICM LABORATORIES

TABLE 2
VOLATILE ORGANIC COMPOUNDS
AIRTRON - LITTON CORPORATION
87-47400-01
ALL RESULTS IN UG/L

COMPOUND	MW-1	MW-1 G	MW-2	MW-2 H	MW-3	MW-3 I	MW-2M	MW-2M J
BENZENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BROMODICHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BROMOFORM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BROMOMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
CARBON TETRACHLORIDE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
CHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
DIBROMOCHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,2-DICHLOROETHENE	N.D.	N.D.	220	190	340	360	170	N.D.
cis-1,3-DICHLOROPROPENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
ETHYLBENZENE	N.D.	N.D.	41	N.D.	N.D.	N.D.	N.D.	N.D.
METHYLENE CHLORIDE	2 B	N.D.	160 B	280 B	170 B	280 B	27 B	150 B
TETRACHLOROETHYLENE	N.D.	N.D.	3200	3000	2100	2200	420	380
TRICHLOROETHYLENE	N.D.	N.D.	7100	7800	3200	3300	1800	1500
TRICHLOROFLUOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1,1-TRICHLOROETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
TOLUENE	0.9	N.D.	75	100	74	110	20 B	N.D.
LIBRARY SEARCH	N.D.	16	N.D.	1740	N.D.	590	N.D.	N.D.
TOTAL	2.9	0	10796	11370	5884	6250	2437	2030

N.D. - NOT DETECTED

A - O = HIDDEN DUPLICATES, ANALYSIS PERFORMED BY YORK LABORATORIES
* = DUPLICATES, ANALYSIS PERFORMED BY ICM LABORATORIES

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TABLE 2
VOLATILE ORGANIC COMPOUNDS
AIRTRON - LITTON CORPORATION
87-47400-01
ALL RESULTS IN UG/L

COMPOUND	USGS-1	USGS-1 K	USGS-2	USGS-2 L	USGS-3	USGS-3 M	MENN-10	MENN-10 N
BENZENE	N.D.	N.D.	0.8	N.D.	1	N.D.	N.D.	N.D.
BROMODICHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BROMOFORM	N.D.	N.D.	N.D.	N.D.	1 B	N.D.	13 B	N.D.
BROMOMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
CARBON TETRACHLORIDE	N.D.	N.D.	N.D.	N.D.	1	N.D.	N.D.	N.D.
CHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
DIBROMOCHLOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHENE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1-DICHLOROETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,2-DICHLOROETHENE	480	420	35	48	N.D.	N.D.	230	200
cis-1,3-DICHLOROPROPENE	N.D.	N.D.	N.D.	N.D.	2	N.D.	N.D.	N.D.
ETHYLBENZENE	N.D.	N.D.	1 B	N.D.	2 B	N.D.	N.D.	N.D.
METHYLENE CHLORIDE	N.D.	66	0.9 B	N.D.	1 B	1	19 B	6 B
TETRACHLOROETHYLENE	4000	3500	62	160	2	N.D.	420	340
TRICHLOROETHYLENE	9500	7900	55	280	2	N.D.	1500	1200
TRICHLOROFLUOROMETHANE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
1,1,1-TRICHLOROETHANE	N.D.	N.D.	N.D.	N.D.	1	N.D.	N.D.	N.D.
TOLUENE	N.D.	31	1 B	N.D.	2 B	2	N.D.	N.D.
LIBRARY SEARCH	N.D.	N.D.	N.D.	N.D.	N.D.	120	N.D.	N.D.
TOTAL	13980	11917	155.7	488	15	3	2182	1746

N.D. - NOT DETECTED

A - O = HIDDEN DUPLICATES, ANALYSIS PERFORMED BY YORK LABORATORIES
* = DUPLICATES, ANALYSIS PERFORMED BY ICM LABORATORIES

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TABLE 2
VOLATILE ORGANIC COMPOUNDS
AIRTRON - LITTON CORPORATION
87-47400-01
ALL RESULTS IN UG/L

COMPOUND	MENN-P-1	MENN-P-1 O
BENZENE	19	N.D.
BROMODICHLOROMETHANE	15	N.D.
BROMOFORM	13 B	N.D.
BROMOMETHANE	N.D.	N.D.
CARBON TETRACHLORIDE	19	N.D.
CHLOROMETHANE	N.D.	N.D.
DIBROMOCHLOROMETHANE	N.D.	N.D.
1,1-DICHLOROETHENE	N.D.	N.D.
1,1-DICHLOROETHANE	14	N.D.
1,2-DICHLOROETHENE	99	35
cis-1,3-DICHLOROPROPENE	16	N.D.
ETHYLBENZENE	21 B	N.D.
METHYLENE CHLORIDE	18 B	N.D.
TETRACHLOROETHYLENE	280	220
TRICHLOROETHYLENE	1500	590
TRICHLOROFLUOROMETHANE	N.D.	9
1,1,1-TRICHLOROETHANE	29	4
TOLUENE	27 B	N.D.
LIBRARY SEARCH	123	7
TOTAL	2070	858

N.D. - NOT DETECTED

A - O = HIDDEN DUPLICATES, ANALYSIS PERFORMED BY YORK LABORATORIES
* = DUPLICATES, ANALYSIS PERFORMED BY ICM LABORATORIES

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ADDENDUM 1
ANALYTICAL TEST RESULTS
GROUNDWATER QUARTERLY SAMPLING
COLLECTED APRIL 14, 1989
ROUND 8

AIRTRON DIVISION
LITTON INDUSTRIES, INC.
HANOVER, NEW JERSEY

By
CONVERSE ENVIRONMENTAL EAST

May 17, 1989

Project No. 87-47400-01

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ADDENDUM 1

ANALYTICAL RESULTS FOR
QUARTERLY GROUNDWATER SAMPLING
ROUND 8

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MW-2	6
MW-3	6
MW-2M	3
USGS-1	6
USGS-2	5
USGS-3	4
MEN.MW-10	6
MEN.P-1	5

[rbe0225]

DD-2

YORK LABORATORIES

REPORT TRANSMITTAL

REPORT NUMBER 20890-662

DATE MAY 1, 1989

ATTENTION MR. ROBERT ZELLEY

CLIENT PROJECT CONVERSE ENVIRONMENTAL EAST - AIRTRON

The above referenced report is enclosed. Copies of this report and supporting data will be retained in our files in the event they are required for future reference.

If there are any questions concerning this report, please do not hesitate to contact us.

Very Truly Yours,

KYLE E. DOLBOW Ph.D.
President

628 ROUTE 10 • WHIPPANY NEW JERSEY 07981 • (201) 428 8181

200 MONROE TURNPIKE • MONROE, CONNECTICUT 06468 • (203) 261-4[illegible]

DP-3

May 1, 1989

#20890-662
CONVERSE ENVIRONMENTAL EAST
91 ROSELAND AVENUE
P.O. BOX 291
CALDWELL, NJ 07006

ATTENTION: MR. ROBERT ZELLEY

PURPOSE AND RESULTS

Fourteen (14) samples including a trip blank were received on April 14, 1989 for analysis by York Laboratories of New Jersey, Inc. These samples were analyzed for Priority Pollutant Volatile Organics +15 by USEPA CLP Methodology within the recommended holding time.

Results are in the following tables, with chain-of-custody and support documentation included as an Appendix.

DATA RELEASE AUTHORIZED BY: _____
Kyle E. Dolbow, Ph.D.
President

The liability of York Laboratories of New Jersey, Inc. is limited to the actual dollar value of this project.

628 ROUTE 10 • WHIPPANY NEW JERSEY 07981 • (201) 428 8181
222 MONROE TURNPIKE • MONROE, CONNECTICUT 06468 • (203) 261-[illegible]
1250 WEST CENTER COURT • SCHAUMBURG, ILLINOIS 60193 • (312) 705 [illegible]

CLIENT Converse
JOB NO. 20890-662

WATER

EPA PRIORITY POLLUTANT
VOLATILE COMPOUNDS
ug/L

Dilution Factor (DF)	1.00	1.00	1.00	1.00	1.00	1.00	Lower Limits of Detection (LLD) with no Dilution*
Method Blank I.D.	>F7291	>F7291	>F7291	>F9271	>F7291	>F7291	
Client I.D.	METHOD BLANK	TB	MW-204	MW-205	MW-206	MW-2M	
Compound Lab I.D.	QC-0371V2	662001	662002	662003	622004	622005	
Chloromethane	U	U	U	U	U	U	10
Bromomethane	U	U	U	U	U	U	10
Vinyl Chloride	U	U	U	U	U	U	10
Chloroethane	U	U	U	U	U	U	10
Methylene Chloride	U	3J	4J	U	U	3J	5
1,1-Dichloroethene	U	U	U	U	U	U	5
1,1-Dichloroethane	U	U	U	U	2J	U	5
trans-1,2-Dichloroethene	U	U	U	U	U	U	5
Chloroform	U	U	U	U	U	5	5
1,2-Dichloroethane	U	U	U	U	U	U	5
1,1, 1-Trichloroethane	U	U	U	U	10	U	5
Carbon Tetrachloride	U	U	U	U	U	U	5
Bromodichloromethane	U	U	U	U	U	U	5
2-Chloroethylvinyl ether	U	U	U	U	U	U	5
1,2-Dichloropropane	U	U	U	U	U	U	5
trans-1,3-dichloropropene	U	U	U	U	U	U	5
Trichloroethylene	U	U	U	50	DL	310	5
Benzene	U	U	U	U	U	U	5
cis-1,3-Dichloropropene	U	U	U	U	U	U	5
Dibromochloromethane	U	U	U	U	U	U	5
1,1,2-Trichloroethane	U	U	U	U	U	U	5
Bromoform	U	U	U	U	U	U	5
Tetrachloroethylene	U	U	U	U	DL	92	5
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	5
Toluene	U	U	U	U	U	U	5
Chlorobenzene	U	U	U	U	U	U	5
Ethyl Benzene	U	U	U	U	U	U	5
Acrolein	U	U	U	U	U	U	50
Acrylonitrile	U	U	U	U	U	U	50
m-Dichlorobenzene	U	U	U	U	U	U	5
o-Dichlorobenzene	U	U	U	U	U	U	5
p-Dichlorobenzene	U	U	U	U	U	U	5

*MDL (Minimum Detection Limit) = LLD X DF
DL - See Dilution Run

CLIENT Converse
JOB NO. 20890-662

WATER

EPA PRIORITY POLLUTANT
VOLATILE COMPOUNDS
ug/L

Dilution Factor (DF)	1.00	1.00	1.00	1.00	1.00	1.00	Lower Limits of Detection (LLD) with no Dilution*
Method Blank I.D.	>F7291	>F7291	>F7291	>F7291	>F7305	>F7305	
Client I.D.	MW-1	MW-2	MW-3	USGS-1	METHOD BLANK	USGS-3	
Compound Lab I.D.	662006	662007	662008	662009	QC-0371V3	662010	
Chloromethane	U	U	U	U	U	U	10
Bromomethane	U	U	U	U	U	U	10
Vinyl Chloride	U	U	U	6J	U	U	10
Chloroethane	U	U	U	U	U	U	10
Methylene Chloride	6	4J	5	4J	U	1J	5
1,1-Dichloroethene	U	3J	U	3J	U	U	5
1,1-Dichloroethane	U	U	U	1J	U	U	5
trans-1,2-Dichloroethene	U	2J	U	3J	U	U	5
Chloroform	U	U	U	7	U	U	5
1,2-Dichloroethane	U	U	U	U	U	U	5
1,1, 1-Trichloroethane	U	6	7	18	U	U	5
Carbon Tetrachloride	U	U	U	U	U	U	5
Bromodichloromethane	U	U	U	U	U	U	5
2-Chloroethylvinyl ether	U	U	U	U	U	U	5
1,2-Dichloropropane	U	U	U	U	U	U	5
trans-1,3-dichloropropene	U	U	U	U	U	U	5
Trichloroethylene	U	DL	DL	DL	U	U	5
Benzene	U	U	U	4J	U	U	5
cis-1,3-Dichloropropene	U	U	U	U	U	U	5
Dibromochloromethane	U	U	U	U	U	U	5
1,1,2-Trichloroethane	U	U	U	U	U	U	5
Bromoform	U	U	U	U	U	U	5
Tetrachloroethylene	U	DL	DL	DL	U	U	5
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	5
Toluene	1J	1J	1J	1J	U	U	5
Chlorobenzene	U	U	U	U	U	U	5
Ethyl Benzene	3J	U	U	U	U	U	5
Acrolein	U	U	U	U	U	U	50
Acrylonitrile	U	U	U	U	U	U	50
m-Dichlorobenzene	U	U	U	U	U	U	5
o-Dichlorobenzene	U	U	U	U	U	U	5
p-Dichlorobenzene	U	U	U	U	U	U	5

*MDL (Minimum Detection Limit) = LLD X DF
DL - See Dilution Run

CLIENT Converse
JOB NO. 20890-662

WATER

EPA PRIORITY POLLUTANT
VOLATILE COMPOUNDS
ug/L

Dilution Factor (DF)	1.00	1.00	1.00	1.00	1.00	50.0	Lower Limits of Detection (LLD) with no Dilution*
Method Blank I.D.	>F7305	>F7305	>F7305	>F7305	>F7322	>F7322	
Client I.D.	MEN MW-10	MEN MW-20	USGS-2	MEN P-1	METHOD BLANK	MEN P-1	
Compound / Lab I.D.	662011	662012	662013	662014	QC-0371V4	662014 DL	
Chloromethane	U	U	U	U	U	NA	10
Bromomethane	U	U	U	U	U	NA	10
Vinyl Chloride	U	U	U	U	U	NA	10
Chloroethane	U	U	U	U	U	NA	10
Methylene Chloride	U	U	4J	4J	2J	NA	5
1,1-Dichloroethene	U	U	U	U	U	NA	5
1,1-Dichloroethane	1J	1J	U	U	U	NA	5
trans-1,2-Dichloroethene	U	U	U	U	U	NA	5
Chloroform	U	U	U	U	U	NA	5
1,2-Dichloroethane	U	U	U	U	U	NA	5
1,1, 1-Trichloroethane	8	7	U	1J	U	NA	5
Carbon Tetrachloride	U	U	U	U	U	NA	5
Bromodichloromethane	U	U	U	U	U	NA	5
2-Chloroethylvinyl ether	U	U	U	U	U	NA	5
1,2-Dichloropropane	U	U	U	U	U	NA	5
trans-1,3-dichloropropene	U	U	U	U	U	NA	5
Trichloroethylene	DL	DL	36	DL	U	1600	5
Benzene	U	U	U	U	U	NA	5
cis-1,3-Dichloropropene	U	U	U	U	U	NA	5
Dibromochloromethane	U	U	U	U	U	NA	5
1,1,2-Trichloroethane	U	U	U	U	U	NA	5
Bromoform	U	U	U	U	U	NA	5
Tetrachloroethylene	DL	DL	26	110	U	NA	5
1,1,2,2-Tetrachloroethane	U	U	U	U	U	NA	5
Toluene	U	U	U	U	U	NA	5
Chlorobenzene	U	U	U	U	U	NA	5
Ethyl Benzene	U	U	U	U	U	NA	5
Acrolein	U	U	U	U	U	NA	50
Acrylonitrile	U	U	U	U	U	NA	50
m-Dichlorobenzene	U	U	U	U	U	NA	5
o-Dichlorobenzene	U	U	U	U	U	NA	5
p-Dichlorobenzene	U	U	U	U	U	NA	5

*MDL (Minimum Detection Limit) = LLD X DF
NA - Not Applicable
DL - See Dilution Run

CLIENT Converse
JOB NO. 20890-662

WATER

EPA PRIORITY POLLUTANT
VOLATILE COMPOUNDS
ug/L

Dilution Factor (DF)	100.0	100.0	200.0	200.0	200.0	200.0	Lower Limits of Detection (LLD) with no Dilution*
Method Blank I.D.	>F7322	>F7322	>F7322	>F7322	>F7322	>F7322	
Client I.D.	MEN MW-10	MEN MW-206	MW-2	MW-3	USGS-1	MEN MW-20	
Compound / Lab I.D.	662011 DL	662004 DL	662007 DL	662008 DL	662009 DL	662012 DL	
Chloromethane	NA	NA	NA	NA	NA	NA	10
Bromomethane	NA	NA	NA	NA	NA	NA	10
Vinyl Chloride	NA	NA	NA	NA	NA	NA	10
Chloroethane	NA	NA	NA	NA	NA	NA	10
Methylene Chloride	NA	NA	NA	NA	NA	NA	5
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	5
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	5
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	5
Chloroform	NA	NA	NA	NA	NA	NA	5
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	5
1,1, 1-Trichloroethane	NA	NA	NA	NA	NA	NA	5
Carbon Tetrachloride	NA	NA	NA	NA	NA	NA	5
Bromodichloromethane	NA	NA	NA	NA	NA	NA	5
2-Chloroethylvinyl ether	NA	NA	NA	NA	NA	NA	5
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	5
trans-1,3-dichloropropene	NA	NA	NA	NA	NA	NA	5
Trichloroethylene	5400	2400	6700	2700	6200	1500	5
Benzene	NA	NA	NA	NA	NA	NA	5
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	5
Dibromochloromethane	NA	NA	NA	NA	NA	NA	5
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	5
Bromoform	NA	NA	NA	NA	NA	NA	5
Tetrachloroethylene	3200	1600	2900	1500	3100	510J	5
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	5
Toluene	NA	NA	NA	NA	NA	NA	5
Chlorobenzene	NA	NA	NA	NA	NA	NA	5
Ethyl Benzene	NA	NA	NA	NA	NA	NA	5
Acrolein	NA	NA	NA	NA	NA	NA	50
Acrylonitrile	NA	NA	NA	NA	NA	NA	50
m-Dichlorobenzene	NA	NA	NA	NA	NA	NA	5
o-Dichlorobenzene	NA	NA	NA	NA	NA	NA	5
p-Dichlorobenzene	NA	NA	NA	NA	NA	NA	5

*MDL (Minimum Detection Limit) = LLD X DF
NA - Not Applicable

RESULTS OF
SAMPLING AND ANALYSIS PROGRAM
QUARTERLY GROUNDWATER MONITORING
SAMPLING DATE: AUGUST 29, 1989
ROUND 9

AIRTRON DIVISION
LITTON INDUSTRIES
HANOVER TOWNSHIP, NEW JERSEY

By

CONVERSE ENVIRONMENTAL EAST

November 3, 1989

Project No. 87-47400-01

EE-1

AIRTRON 87-47400-01

TABLE 1

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANICS IN
WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER SAMPLE DATE:	MW-1 8/29/89	MW-2 8/29/89	MW-2M 8/29/89	MW-3 8/29/89	MW-204 8/29/89	MW-205 8/29/89	MW-206 8/29/89	USGS-1 8/29/89	USGS-2 8/29/89	USGS-3 8/29/89	USGS-00* 8/29/89	MEN.MW-10 8/29/89	[illegible]
PARAMETER:													
METHYLENE CHLORIDE	ND	ND	3 J	3 J	ND	ND	130	ND	ND	ND	5 B	ND	[illegible]
1,1-DICHLOROETHENE	ND	4 J	ND	ND	ND	ND	ND	2 J	ND	ND	ND	ND	[illegible]
1,1-DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	1 J	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	ND	7600 D	1100 D	3600 D	ND	38	2400	13000 D	44	ND	ND	1400	860 [illegible]
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	6	2 J	6	ND	1 J	ND	16	ND	ND	ND	ND	2
TETRACHLOROETHYLENE	ND	2400 D	150	1500 D	ND	ND	1800	8200 D	32	ND	ND	660	170
TRICHLOROFLUOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,2-DICHLOROETHENE	ND	3 J	ND	ND	ND	ND	ND	1300 D	ND	ND	ND	ND	ND
TOLUENE	6	8	2 J	7	2 J	5 J	ND	13	1 J	1 J	ND	180	78
BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29 J	ND
CHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	18	ND	ND	ND	ND	ND
ETHYL BENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOTAL P.P. VOLATILES	6	10021	1257	5116	2	44	4330	22550	77	1	5	2269	[illegible]
LIBRARY SEARCH	ND	410	68	290	8	ND	440	325	38	ND	ND	570	51

ND - Not detected

J - Indicates that the compound was analyzed for and determined to be present in the sample. The concentration listed is an estimatean estimate which is less than the specified minimum detection limit but is greater than zero.

B - This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte

D - Sample was diluted.

* - Indicates a hidden duplicate of USGS-3

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AIRTRON 87-47400-01

TABLE 1

CHEMICAL TEST RESULTS FOR
VOLATILE ORGANICS IN
WATER SAMPLES

ALL RESULTS IN ug/l

SAMPLE NUMBER	TRIP
SAMPLE DATE:	8/29/89
PARAMETER:	
METHYLENE CHLORIDE	2 J
1,1-DICHLOROETHENE	ND
1,1-DICHLOROETHANE	ND
TRICHLOROETHYLENE	ND
CHLOROFORM	ND
1,1,1-TRICHLOROETHANE	ND
TETRACHLOROETHYLENE	2 J
TRICHLOROFLUOROMETHANE	ND
TRANS-1,2-DICHLOROETHENE	ND
TOLUENE	9
BENZENE	ND
CHLOROETHANE	ND
BROMOMETHANE	ND
1,1,2,2-TETRACHLOROETHANE	ND
VINYL CHLORIDE	ND
ETHYL BENZENE	ND
TOTAL P.P. VOLATILES	13
LIBRARY SEARCH	ND

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NEWARK FILES

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, NEW JERSEY 08625

DEC 14 1979

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Corporation Trust Company
Registered Agent for
Litton Systems, Incorporated
28 West State Street
Trenton, New Jersey 08608

Re: Litton Systems, Incorporated
Airtron Division
Morris Plains, New Jersey
NJ 0025739

Gentlemen:

There is enclosed for service upon you an Administrative Order issued by this Department pursuant to the provisions of N.J.S.A. 58:10A-10(b).

If you have any questions concerning this ORDER please feel free to contact Mr. Peter T. Lynch, Manager, Passaic-Hackensack Basin, Monitoring, Surveillance and Enforcement Element at the above address or by telephoning (201) 648-2200.

Very truly yours,

ORIGINAL SIGNED BY
ARNOLD SCHIFFMAN, DIRECTOR
DIVISION OF WATER RESOURCES

Arnold Schiffman
Director

cc: Richard A. Baker, U.S.E.P.A.
Mayor and Council Borough of Morris Plains
Leon Pieta, Production Manager, Airtron Division

FF-1

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, NEW JERSEY 08625

IN THE MATTER OF: LITTON SYSTEMS INCORPORATED AIRTRON DIVISION	ADMINISTRATIVE ORDER

The following FINDINGS are made and ORDER issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter NJDEP) and duly delegated to the Director of the Division of Water Resources by N.J.S.A. 13:1D-1 et seq; N.J.S.A. 13:1B-5 and the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. (hereinafter "The Act").

FINDINGS OF FACT

1. On April 9, 1963, the New Jersey Department of Health (hereinafter "NJDOH") issued permit No. S-2-63-1820 to Litton Industries, Airtron Division (hereinafter "Litton-Airtron") to construct and operate an industrial waste treatment plant in the Township of Hanover, New Jersey.

2. The industrial waste treatment plant was designed to treat and neutralize acid-alkali waste and cyanide and chromium wastes as more particularly detailed in the plans specifications and engineering report submitted by Litton-Airtron to NJDOH. The design included two sludge drying beds to provide capacity for the storage and drying of nontoxic, inert metallic oxides and sludge resulting from the waste treatment operations. The design also specified that liquid in the sludge beds would be dissipated by evaporation and percolation and that dried sludge would be disposed of in an area acceptable to NJDOH. Means were to be provided whereby excess liquid in the sludge beds could be returned to the inlet of the rinse water settling tank.

3. Pursuant to N.J.S.A. 13:1D-1 et seq. the powers of NJDOH relating to this permit have been transferred to and vested in the Commissioner of NJDEP.

4. On February 13, 1979, NJDEP conducted an on site industrial inspection at the Litton-Airtron facility in Morris Plains, New Jersey. The portion of the inspection dealing with the sludge drying beds revealed that the construction, installation and operation of the

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sludge drying beds differed in several aspects from the conditions found in permit No. S-2-63-1820. These differences are:

a. The design called for two beds but the inspection revealed the existence of four drying beds. By the definition of "Treatment Works" in N.J.A.C. 7:14-1 et seq. the two additional sludge drying beds are industrial wastewater treatment systems and as such constitute installations which require a Treatment Works Approval.

b. By the terms of permit No. S-2-63-1820, the liquid associated with the sludge should dissipate by evaporation and percolation and the resulting dried sludge should be disposed of in an area acceptable to NJDEP. The inspection, however, revealed that the liquid has never dissipated sufficiently to allow the sludge to dry and that the sludge has never been removed from the beds.

c. The materials discharged to the sludge beds are not in accordance with the terms of permit No. S-2-63-1820. The beds were designed to receive the sludges produced in three closed loop treatment systems for the contents of the cyanide, chromium and copper/chromium rinse tanks in the plating operation. The beds were also designed to receive the entire contents (liquid and sludge) of two batch treatment tanks which treat collected floor spillage. The inspection revealed that in addition to floor spillage the contents of every tank within the plating room is treated in either of the floor spillage batch treatment tanks and discharged to the sludge beds.

5. The operation of the sludge drying beds in a manner inconsistent with the terms of permit No. S-2-63-1890, constitutes a violation of The Act and of N.J.A.C. 7:14-2.6.

ORDER

NOW THEREFORE IT IS ORDERED THAT;

6. Litton-Airtron shall discontinue the use of the four sludge beds within thirty (30) days from receipt of this ORDER.

7. Litton-Airtron shall remove and dispose of all waste materials from the sludge beds in a manner acceptable to the NJDEP within thirty (30) days from receipt of this ORDER.

8. Litton-Airtron shall obtain a modification from NJDEP of permit No. S-2-63-1820 for the sludge beds in accordance with N.J.A.C. 7:14-1 et seq. if Litton-Airtron desires to resume their use.

9. Litton-Airtron shall install wells to monitor the groundwater quality in the area of the subject sludge beds. A representative of the Divisions's Ground Water Management Unit will specify the number, design and location of these wells.

10. Litton-Airtron shall submit a written report, within thirty (30) days from receipt of this ORDER, detailing the corrective actions taken and the alternate method of sludge handling and disposal.

11. Any submission of information required by this ORDER shall be made to:

Mr. Peter T. Lynch, Manager
Passaic-Hackensack Basin
Division of Water Resources
Monitoring, Surveillance
and Enforcement Element
1100 Raymond Boulevard, Room 510
Newark, New Jersey 07102

12. NOTICE IS HEREBY GIVEN that pursuant to N.J.S.A. 52:14-B-1 et seq. and N.J.S.A. 58:10A-10(b) Litton-Airtron is entitled to a hearing before NJDEP. Any hearing request must be delivered to the address below within twenty (20) business days from receipt of this ORDER. The request should mailed to:

Office of Regulatory Affairs
Division of Water Resources
P. O. Box CN-029
Trenton, New Jersey 08625

13. NOTICE IS FURTHER GIVEN that pursuant to N.J.S.A. 52:14B-1(b)(4) and N.J.A.C. 15:15-10.2(b)(4), the applicant shall furnish NJDEP with a definite and detailed statement of the matters it will assert in the requested hearing. Specifically, it is requested that:

(a) Litton-Airtron specify which if any of the FINDINGS OF FACT set forth are denied; and

(b) Litton-Airtron specify its own version of the FINDINGS OF FACT; and

(c) Litton-Airtron specify that portion of the ORDER, paragraphs 6 through 10, which aggrieves Litton-Airtron.

If there are no FINDINGS OF FACT in dispute, NJDEP may deny the request for a hearing. Any matters not contested shall be considered in full force and effect.

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14. NOTICE IS FURTHER GIVEN that if no request for a hearing is received within twenty (20) business days, this ORDER shall become final.

15. NOTICE IS FURTHER GIVEN that pursuant to N.J.S.A. 58:10A-10(e) any person who violates this ORDER shall be subject to civil penalties of up to $10,000 per day for each day of violation.

16. NOTICE IS FURTHER GIVEN that pursuant to N.J.S.A. 58:10A-10(f) willful or negligent violation of the Act is a misdeameanor punishable, upon conviction, by criminal penalties of up to $25,000 per day of violation.

This ORDER shall be effective upon receipt.

DATE: DEC 14 1979

ORIGINAL SIGNED BY
ARNOLD SCHIFFMAN, DIRECTOR
DIVISION OF WATER RESOURCES

Arnold Schiffman
Director

FE-5

Form HWM-004
3/87

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
~~5th Fl., 401 E. State St., Trenton, N.J. 08625~~
1259 RT 46 PARSIPPANY 07054

Pg 1 of 2

NOTICE OF VIOLATION

ID NO. NJD 030 239412 DATE 9/23/87

NAME OF FACILITY AIRTRON INC.

LOCATION OF FACILITY 200 E. HANOVER AVE., HANOVER 07950

NAME OF OPERATOR ROBERT CHAPMAN

You are hereby NOTIFIED that during my inspection of your facility on the above date, the following violation(s) of the Solid Waste Management Act, (N.J.S.A. 13:1E-1 et seq.) and Regulations (N.J.A.C. 7:26-1 et seq.) promulgated thereunder and/or the Spill Compensation and Control Act, (N.J.S.A. 58:10-23.11 et seq.) and Regulations (N.J.A.C. 7:1E-1 et seq.) promulgated thereunder were observed. These violation(s) have been recorded as part of the permanent enforcement history of your facility.

DESCRIPTION OF VIOLATION NJAC 7:26 - 7.4(h)1+2 FAILURE TO RECEIVE COPIES of PT B of MANIFEST #'S NYA 5565537, NJ 0218088 7:26-9.4(d)4iV WASTE NOT SEGREGATED BY WASTE TYPE. 7:26-9.4(d)4V CONTAINERS NOT ARRANGED SO THAT LABELS ARE VISIBLE, 7:26-9.4(g)5 NO ANNUAL REVIEW of TRAINING

Remedial action to correct these violations must be initiated immediately and be completed by 10/23/87. Within fifteen (15) days of receipt of this Notice of Violation, you shall submit in writing, to the investigator issuing this notice at the above address, the corrective measures you have taken to attain compliance. The issuance of this document serves as notice to you that a violation has occurred and does not preclude the State of New Jersey, or any of its agencies from initiating further administrative or legal action, or from assessing penalties, with respect to this or other violations. Violations of these regulations are punishable by penalties of $25,000 per violation.

MATTHEW BIGLEY

Matthew Bigley

Investigator, Division of Waste Management
Department of Environmental Protection

(201) 299-7570

DF

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, NJ 08625

Jorge H. Berkowitz, Ph.D.
Director

Let's protect our earth

Anthony J. McMahon, Assistant Director
Environmental Enforcement

ENF

IN THE MATTER OF	:	ADMINISTRATIVE ORDER AND
AIRTRON	:	
DIV. OF LITTON INDUSTRIES	:	NOTICE OF CIVIL ADMINISTRATIVE
20 EAST HANOVER AVENUE	:	
MORRIS PLAINS, N.J. 07950	:	PENALTY ASSESSMENT
LOG #A88C1327 NRA	:	

This ORDER and NOTICE are issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (the "Department") by N.J.S.A. 13:1D-1 et seq., and the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq. (the "Act"), and duly delegated to the Assistant Director for Enforcement of the Division of Environmental Quality pursuant to N.J.S.A. 13:1E-4.

FINDINGS

1. As the result of an investigation conducted on August 18, 1988, the Department has determined that at your facility located at 200 East Hanover Ave., Township of Hanover, Lot(s) 1, Block(s) 601, County of Morris, State of New Jersey, (ID #25136) you constructed, installed, or altered the following equipment without obtaining the required Permit(s) to Construct, Install or Alter Control Apparatus or Equipment, in violation of N.J.A.C. 7:27-8.3(a):

   Vapor surface cleaner which uses Genosolve solvent.

ORDER

2. NOW, THEREFORE, IT IS HEREBY ORDERED THAT on or before September 29, 1988, you obtain the required Permit(s) for the equipment listed in Paragraph 1 above. If the required Permit(s) and Certificate(s) are not obtained by the above date, you must cease installation/operation of such equipment until the Permit(s) and Certificate(s) are obtained. Such Permit(s) and Certificate(s) may be obtained by submitting application(s) VEM-003 and VEM-004 to the Bureau of Air Pollution Control.

PENALTY

3. Based upon the above FINDINGS, and a review of the entire matter, the Department hereby assesses a Civil Administrative Penalty against you in the amount of $200.00. Payment must be submitted to the Department within twenty (20) calendar days of receipt of this Order and Notice unless you request a hearing in accordance with the provisions of Paragraph 4 below. Payment must be made to the Department at the address listed in Paragraph B of Attachment I.

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GENERAL PROVISIONS

4. Pursuant to N.J.S.A. 26:2C-14.1 you are entitled to a hearing if aggrieved by this Order and Notice. Application for such a hearing must be received by the Department within twenty (20) calendar days from receipt of this Order and Notice. In applying for such hearing, you must furnish the Department with the information listed in Paragraph A of Attachment I. If no request for a hearing is received within twenty (20) calendar days, this Notice shall become a final Order and the Penalty will then become due and payable. A hearing request does not stay the terms or effect of this Order.

5. The provisions of this Order and Notice shall be binding on you, your principals, agents, employees, successors, assigns, tenants and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity.

6. No obligations imposed by this Order and Notice, with the exception of Paragraph 3, are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations imposed by this Order shall constitute continuing regulatory obligations imposed pursuant to the police powers of the State of New Jersey, intended to protect the public health, safety and welfare.

7. NOTICE IS GIVEN, that pursuant to N.J.S.A. 26:2C-19(b) and N.J.S.A. 26:2C-19(d), any person who violates the provisions of the Act, or any code, rule regulation or order promulgated or issued pursuant thereto, or who fails to pay a civil administrative penalty in full, shall be liable to a penalty of not more than $10,000 for the first offense, not more than $25,000 for the second offense, and not more than $50,000 for the third and each subsequent offense.

Dated: September 9, 1988

Anthony J. McMahon, Assistant Director
Environmental Enforcement

CERTIFIED MAIL

HH-2
GG-2

ATTACHMENT O

Source Water Assessment Report

For

Township of Parsippany-Troy Hills Water Department

James E. McGreevey, Governor
State of New Jersey

Bradley M. Campbell, Commissioner
Department of Environmental Protection

Ernest Hahn, Assistant Commissioner
Land Use Management

Michele Mateo Putnam, Administrator
Water Supply Administration

Barker Hamill, Bureau Chief
Bureau of Safe Drinking Water
401 E. State Street
PO Box 426
Trenton, New Jersey 08625-0426
(609) 292-5550

October 2004

SECTION IV - GENERAL DESCRIPTION OF YOUR WATER SYSTEM

SECTION IV – DESCRIPTION OF WATER SYSTEM

Township of Parsippany-Troy Hills Water Department
PWID # 1429001

1001 Parsippany Boulevard
Parsippany, NJ 07054
(973)263-7099

Township of Parsippany-Troy Hills Water Department is a public community water system consisting of

17 Entry Points to the Distribution System (EPTDS)
- 20 wells
- 0 wells under the influence of surface water
- 0 surface water intake(s)
- 3 purchased ground water
- 0 purchased surface water

Table 6 below contains the municipalities and the population within each of these municipalities served by Township of Parsippany-Troy Hills Water Department.

Table 6: Municipalities and Population Served

Municipality	County	Population Served - 2003
Mountain Lakes Boro	Morris	36
Parsippany Troy-hills	Morris	50000

Total pop. 50,036
÷ 20 = 2,501 pop served by each well

Distance from site

miles	Number of wells within 4 miles	pop. served
0-1 s	0	0
1-2 s	1	2,501
2-3 s	1	2,501
3-4 s	2	5,002

Total served within 4 miles s 10,004

SECTION V - INVENTORY OF TREATMENT PLANTS AND DRINKING WATER SOURCES

SECTION V - SYSTEM INVENTORY FOR: Township of Parsippany-Troy Hills Water Department

Table 7 provides the Township of Parsippany-Troy Hills Water Department'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	TREATMENT HOUSE WELL 1A	T	P				
01	002	WELL 1A/PUMP HOUSE ROAD	G	P	glacial sand and gravel	0.5846	25-07381	U
02	004	TREATMENT HOUSE WELL 3	T	P				
02	005	WELL 3/VAIL ROAD	G	P	glacial sand and gravel	0.2016	45-00032	U
03	007	TREATMENT PLANT/PARSIPPANY BLV	T	P				
03	008	WELL 4/PARSIPANY BLVD	G	P	glacial sand and gravel	0.324	25-00599	U
03	009	WELL 4A PARSIPPANY BLVD	G	P	glacial sand and gravel	1.2959	25-07545	U
04	010	TREATMENT HOUSE WELL 7	T	Y				
04	011	WELL 7/HALSEY RD	G	Y	glacial sand and gravel	0.288	25-07620	U
05	015	TREATMENT PLANT S. BEVERWYCK R	T	P				
05	016	WELL 8-1/SO. BEVERWYCK RD	G	P	glacial sand and gravel	0.432	45-00034	U
05	017	WELL 8-2 SO. BEVERWYCK RD	G	P	glacial sand and gravel	0.36	25-43870	U
05	018	WELL 8-3/SO. BEVERWYCK RD	G	P	glacial sand and gravel	0.8639	45-00036	U
06	019	TREATMENT HOUSE WELL 9	T	S				
06	020	WELL 9/HOMER ST	G	P	glacial sand and gravel	0.5904	25-11627	U
07	021	TREATMENT HOUSE WELL 10	T	P				
07	022	WELL 10 CHERRY HILL RD	G	P	glacial sand and gravel	0.288	25-11628	U

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
08	023	TREATMENT HOUSE WELL 11	T	W				
08	024	WELL 11 TROY MEADOW RD	G	P	glacial sand and gravel	0.085	25-12635	U
09	026	TREATMENT HOUSE WELL 12	T	P				
09	027	WELL 12 FAIRFIELD RD	G	P	glacial sand and gravel	0.432	25-12718	U
10	029	TREATMENT HOUSE WELL 13	T	P				
10	030	WELL 13 MARSHA TERRACE	G	P	glacial sand and gravel	0.6076	25-11106	U
11	032	TREATMENT HOUSE WELL 14	T	P				
11	033	WELL 14 SYLVAN WAY	G	P	glacial sand and gravel	1.0079	25-13259	U
12	035	WELL #15	T	P				
12	036	WELL 15/BALL AVE	G	P	glacial sand and gravel	0.216	25-15809	U
13	037	TREATMENT HOUSE WELL 17	T	P				
13	038	WELL 17 PUMP HOUSE RD	G	P	glacial sand and gravel	0.9518	25-18849	U
14	039	TREATMENT HOUSE WELL 18 (ULYSS	T	P				
14	040	WELL 18 ULYSSES ST	G	P	glacial sand and gravel	1.0799	25-18850	U
28	060	MOUNTAIN LAKES W C\	W	E				
29	062	DENVILLE TWP W D	W	E				
31	066	RANDOLPH TWP MUA	W	E				
32	068	TREATMENT HOUSE WELL 19	T	P				
32	069	WELL 19/PRUDENTIAL BUS DIST/OF	G	P	glacial sand and gravel	0.9259	25-21431	U
33	076	SMITH & MAZDABROOK RD.	T	P				
33	077	WELL 20/SMITH & MAZADABROOK RD	G	P	glacial sand and gravel	0.8856	25-27259	U
34	081	WELL NO. 21 TREATMENT PLANT TR	T	P				
34	082	WELL #21 TROY RD. LOT #2.02, 2	G	P	glacial sand and gravel	1.5062	25-40965	U

*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 Township of Parsippany-Troy Hills Water Department contains 17 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 VI - SUSCEPTIBILITY RATINGS FOR YOUR DRINKING WATER SOURCE(S)

SECTION VI – SUSCEPTIBILITY RATINGS FOR DRINKING WATER SOURCE(S)

Table 8 provides a summary of the susceptibility ratings for the system's source(s). The source column of the table provides the number of ground water and surface water sources and the number of ground water under the direct influence of surface water (GUDI) wells in the system. The other columns provide the total number of source(s) that rated high (H), medium (M), and low (L) for each of the contaminant categories.

Table 8: Summary of Susceptibility Ratings for Drinking Water Source(s)

	Pathogens			Nutrients			Pesticides			VOCs			Inorganics			Radionuclides			Radon			DBPs		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells - 20		17	3	20				5	15	20			14	6		4	16		20			6	14	
GUDI - 0																								
Surface water intakes - 0																								

To review a summary of how the other public water systems in the State of New Jersey rated, please refer to Table 5, "Summary of Statewide Susceptibility Ratings for Community Water System Sources (Percent %)" in Section III of the Source Water Assessment Report.

If a drinking water source's susceptibility is high, it does not necessarily mean the water is contaminated. High susceptibility is a vulnerability rating, not a factor determining whether or not the water is or is not meeting State and Federal Safe Drinking Water Standards. 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. Please refer to the Consumer Confidence Report (CCR) to determine if the drinking water is meeting all of the Safe Drinking Water Act regulatory requirements.

Table 9 illustrates the susceptibility rating for each individual source for each of the contaminant categories.

Table 9: Susceptibility Rating for Drinking Water Source(s)

EPTDS ID	Source ID	Source Name	Contaminant Category							
			Pathogens	Nutrients	Pesticides	VOCs	Inorganics	Radionuclides	Radon	DBPs
			Rating	Rating	Rating	Rating	Rating	Rating		Rating
01	002	WELL 1A/PUMP HOUSE ROAD	M	H	L	H	H	M	H	M
02	005	WELL 3/VAIL ROAD	L	H	L	H	M	M	H	M
03	008	WELL 4/PARSIPANY BLVD	M	H	L	H	M	M	H	M
03	009	WELL 4A PARSIPPANY BLVD	M	H	L	H	H	M	H	M
04	011	WELL 7/HALSEY RD	M	H	L	H	H	M	H	M
05	016	WELL 8-1/SO. BEVERWYCK RD	M	H	M	H	H	M	H	H
05	017	WELL 8-2 SO. BEVERWYCK RD	M	H	M	H	H	M	H	H
05	018	WELL 8-3/SO. BEVERWYCK RD	M	H	M	H	H	H	H	H
06	020	WELL 9/HOMER ST	M	H	L	H	H	M	H	M
07	022	WELL 10 CHERRY HILL RD	M	H	L	H	H	M	H	H
08	024	WELL 11 TROY MEADOW RD	M	H	L	H	M	M	H	M
09	027	WELL 12 FAIRFIELD RD	L	H	L	H	H	H	H	M
10	030	WELL 13 MARSHA TERRACE	M	H	M	H	H	M	H	H
11	033	WELL 14 SYLVAN WAY	M	H	L	H	M	M	H	H
12	036	WELL 15/BALL AVE	L	H	L	H	M	H	H	M
13	038	WELL 17 PUMP HOUSE RD	M	H	L	H	H	H	H	M
14	040	WELL 18 ULYSSES ST	M	H	L	H	H	M	H	M
32	069	WELL 19/PRUDENTIAL BUS DIST/OF	M	H	L	H	H	M	H	M
33	077	WELL 20/SMITH & MAZADABROOK RD	M	H	L	H	H	M	H	M
34	082	WELL #21 TROY RD. LOT #2.02, 2	M	H	M	H	M	M	H	M

The potential contaminant source inventory and sensitivity variables were used to determine the susceptibility ratings for the sources. For specific information on the water system's potential contaminant source inventory and sensitivity variables, please refer to the Individual Explanatory Variable Inventory and the Specific Potential Contaminant Sources Inventory, Appendix A- Attachment 1 and 2.

SECTION VII - SUSCEPTIBILITY RATINGS FOR YOUR ENTRY POINT TO THE DISTRIBUTION SYSTEM (EPTDS)

SECTION VII – SUSCEPTIBILITY RATINGS FOR ENTRY POINT TO THE DISTRIBUTION SYSTEM (EPTDS)

The Township of Parsippany-Troy Hills Water Department contains 17 EPTDS. The EPTDS and the susceptibility rating for radon and each of the seven-contaminant categories are provided in Table 11. A susceptibility rating was developed for each EPTDS because this rating represents the water that is treated and delivered to the consumer. A majority of the monitoring regulations are established for the point at which the water exits the water treatment facility, therefore the EPTDS susceptibility rating is important in determining the monitoring requirements.

The EPTDS rating was calculated by the following method. The source contribution resulted from multiplying the pumping rate for each water source by each source's susceptibility score (a point value based on the contaminant category scoring system found in Appendix A – Attachment 3). In cases where the pumping rate was not available, the pumping capacity was used. Next, all source contributions were summed and divided by the total capacity (sum of all the pumping rates and/or capacities) for the EPTDS.

$$\frac{\sum \text{Source Contributions (Source Capacity x Source Susceptibility Score Rating)}}{\text{Total Capacity } (\sum \text{ of all source capacities to the EPTDS})} = \textbf{EPTDS Susceptibility Score}$$

Key

Source Capacity: the source capacity used for determining EPTDS ratings was the same as the pumping rate used by New Jersey Geological Survey to create the source water assessment areas. If the pumping rate was not available, the pumping capacity or a default value was used. The pumping rate selection is described in the New Jersey Geological Survey's "Guidance for Well Head Protection Area Delineations in New Jersey", Appendix B- Attachment 1.

Source Contribution: the value calculated by multiplying the source's pumping rate by the source's susceptibility score rating. The susceptibility score rating is the point value based on the contaminant category scoring system, which can be found in Appendix A – Attachment 3.

Source Susceptibility Score Rating: to obtain a high, medium, or low susceptibility rating, USGS developed a susceptibility scoring system for each contaminant category (pathogens, VOCs, inorganics, nutrients, radionuclides, disinfection byproduct precursors, and pesticides). Each contaminant category has its own point system based on the susceptibility model. For example a susceptibility score range for a contaminant could be 0-5 = low susceptibility, 6-10 = medium susceptibility, and 11-20 = high susceptibility. See Appendices A- Attachment 3 for the susceptibility scoring system USGS used to determine the susceptibility ratings.

Total Capacity: is the full amount of water the sources are contributing to the EPTDS. The pumping rates/capacities are summed to determine the total capacity for the EPTDS.

For groundwater sources, only permanent, seasonal, and interim wells were used in the EPTDS rating calculation. Other wells such as emergency, reserve, and not-in-use, were not included in the source to EPTDS "roll-up", but these wells were rated on a source basis.

For public water systems that consist of a combination of well(s) and intake(s), the EPTDS received a ground water EPTDS rating and a surface water EPTDS rating. Even in circumstances where the surface water is blended with ground water, the EPTDS received two separate susceptibility ratings. A separate ETPDS rating is provided for the ground water and the surface water because separate susceptibility models were developed for ground and surface water. Ground water and surface water susceptibility models differ in susceptibility rating score, therefore, the rating results are not on the same scale.

If a facility has only one well or intake contributing to the EPTDS, that EPTDS received the same rating as the well or intake. DEP used the equation below to determine an EPTDS susceptibility rating.

Table 10 provides an example of how the EPTDS ratings were calculated. To review how the EPTDS ratings were calculated for the Township of Parsippany-Troy Hills Water Department, please refer to Appendix A- Attachment 4.

Table 10: Example of an EPTDS Susceptibility Rating Calculation

EPTDS 01

Source	Capacity (MGD)	Source Susceptibility Score Rating (0-20, low to high)	Total = Source Contribution
Well 1	1.09	20	(1.09*20) = 21.8
Well 2	1.72	10	17.2
Well 3	0.72	5	3.6
Well 4	1.48	10	14.8
Well 5	0.75	20	15.0
Total Capacity	5.76		72.4
EPTDS Susceptibility Score is 72.4 / 5.76 = 12.6			

For the above example, the sum of the source contributions for EPTDS 01 (72.4) is divided by the total capacity from all sources (5.76) giving a susceptibility score for the EPTDS of 12.6. The original range for rating sources was 0-5 low, 6-10 medium, 11-20 high. EPTDS 01 susceptibility rating was 12.6; therefore the EPTDS would receive a high rating.

Table 11 lists the susceptibility ratings for each EPTDS for the Township of Parsippany-Troy Hills Water Department.

Table 11: Susceptibility Rating for EPTDS

EPTDS ID	EPTDS Name	Contaminant Category							
		Pathogens	Nutrients	Pesticides	VOCs	Inorganics	Radionuclides	Radon	DBPs
		Rating	Rating	Rating	Rating	Rating	Rating		Rating
01	TREATMENT HOUSE WELL 1A	M	H	L	H	H	M	H	M
02	TREATMENT HOUSE WELL 3	L	H	L	H	M	M	H	M
03	TREATMENT PLANT/PARSIPPANY BLV	M	H	L	H	H	M	H	M
05	TREATMENT PLANT S. BEVERWYCK R	M	H	M	H	H	H	H	H
06	TREATMENT HOUSE WELL 9	M	H	L	H	H	M	H	M
07	TREATMENT HOUSE WELL 10	M	H	L	H	H	M	H	H
08	TREATMENT HOUSE WELL 11	M	H	L	H	M	M	H	M
09	TREATMENT HOUSE WELL 12	L	H	L	H	H	H	H	M
10	TREATMENT HOUSE WELL 13	M	H	M	H	H	M	H	H
11	TREATMENT HOUSE WELL 14	M	H	L	H	M	M	H	H
12	WELL #15	L	H	L	H	M	H	H	M
13	TREATMENT HOUSE WELL 17	M	H	L	H	H	H	H	M
14	TREATMENT HOUSE WELL 18 (ULYSS	M	H	L	H	H	M	H	M
32	TREATMENT HOUSE WELL 19	M	H	L	H	H	M	H	M
33	SMITH & MAZDABROOK RD.	M	H	L	H	H	M	H	M
34	WELL NO. 21 TREATMENT PLANT TR	M	H	M	H	M	M	H	M

Source Water Assessment Report

For

Southeast Morris County MUA

James E. McGreevey, Governor
State of New Jersey

Bradley M. Campbell, Commissioner
Department of Environmental Protection

Ernest Hahn, Assistant Commissioner
Land Use Management

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Water Supply Administration

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October 2004

SECTION IV - GENERAL DESCRIPTION OF YOUR WATER SYSTEM

SECTION IV – DESCRIPTION OF WATER SYSTEM

Southeast Morris County MUA
PWID # 1424001

19 Saddle Road
Cedar Knolls, NJ 07927
(973)326-6880

Southeast Morris County MUA is a public community water system consisting of

11 Entry Points to the Distribution System (EPTDS)
- 12 wells
- 0 wells under the influence of surface water
- 1 surface water intake(s)
- 2 purchased ground water
- 2 purchased surface water

Table 6 below contains the municipalities and the population within each of these municipalities served by Southeast Morris County MUA.

Table 6: Municipalities and Population Served

Municipality	County	Population Served - 2003
Chatham Boro	Morris	57
Hanover Twp.	Morris	12717
Harding Twp.	Morris	1131
Mendham Twp.	Morris	297
Morris Plains Boro	Morris	5589
Morris Twp.	Morris	20952
Morristown Town	Morris	11205

Total = 51,948
÷ 12 = 4,329 per well

Well Distance
miles Population Served
0-1 = 4,329
1-2 = 12,987
2-3 = 8,658
3-4 = 12,987

Total Served within
4 miles = 38,961

SECTION V - INVENTORY OF TREATMENT PLANTS AND DRINKING WATER SOURCES

SECTION V - SYSTEM INVENTORY FOR: Southeast Morris County MUA

Table 7 provides the Southeast Morris County MUA'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	BLACK BROOK PLANT	T	P				
01	003	BLACK BROOK WELL 1	G	P	glacial sand and gravel	1.3162	25-14181	U
01	004	BLACK BROOK WELL 2	G	P	glacial sand and gravel	1.1506	25-14182	U
02	006	CLYDE POTTS RESERVOIR PLANT	T	P				
02	007	CLYDE POTTS RESERVOIR	S	P	Clyde Potts Reservoir	4	smclyde	
03	008	LIDGERWOOD WELL PLANT	T	P				
03	009	LIDGERWOOD WELL	G	P	Brunswick aquifer	0.409	25-14520	U
04	010	LITTLETON WELLS PLANT	T	P				
04	011	LITTLETON WELL 1	G	P	glacial sand and gravel	0.504	45-00316	U
04	012	LITTLETON WELL 2	G	P	glacial sand and gravel	0.4694	45-00317	U
05	013	NORMANDY WELL PLANT	T	W				
05	014	NORMANDY WELL	G	W	glacial sand and gravel	0.2304	45-00351	U
06	015	SAND SPRING WELL PLANT	T	P				
06	016	SAND SPRING WELL	G	P	Brunswick aquifer	0.8078	45-00350	U
08	020	TODD WELL PLANT	T	P				
08	021	TODD WELL	G	P	glacial sand and gravel	1.2125	25-03527	U
09	022	TURNBULL LANE WELL PLANT	T	P				
09	023	TURNBULL LANE WELL	G	P	Brunswick aquifer	0.4795	25-13439	U
10	024	WING WELL PLANT	T	P				
10	025	WING WELL	G	P	glacial sand and gravel	3.3809	25-00048	U
14	062	MCCABE WELL LOT 7 BLOCK 387 KI	G	P	glacial sand and gravel	0.7733	25-33503	U

EPTDS ID	Source ID	Source Name	Water System Component *	Source Status *	Source *	Source Capacity (MGD)	Well Permit #	Confinement Status *
14	063	MCCABE WELL TREATMENT PLANT (M	T	P				
17	057	MORRIS COUNTY	W	P				
18	068	MORRIS PLAINS WELL TP MORRIS P	T	E				
18	069	MORRIS PLAINS WELL MORRIS PLAI	G	E	Brunswick aquifer	0.288	45-00039	U
30	054	NJAWC-SHORT HILLS SYSTEM	P	E				
31	059	MORRIS COUNTY MUA	W	E				
33	067	PARK AVENUE BOOSTER STATION	P	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 Southeast Morris County MUA contains 11 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 VI - SUSCEPTIBILITY RATINGS FOR YOUR DRINKING WATER SOURCE(S)

SECTION VI – SUSCEPTIBILITY RATINGS FOR DRINKING WATER SOURCE(S)

Table 8 provides a summary of the susceptibility ratings for the system's source(s). The source column of the table provides the number of ground water and surface water sources and the number of ground water under the direct influence of surface water (GUDI) wells in the system. The other columns provide the total number of source(s) that rated high (H), medium (M), and low (L) for each of the contaminant categories.

Table 8: Summary of Susceptibility Ratings for Drinking Water Source(s)

	Pathogens			Nutrients			Pesticides			VOCs			Inorganics			Radionuclides			Radon			DBPs		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells- 12		10	1	10	1			2	9	11			5	6		2	9		11			6	5	
GUDI - 0																								
Surface water intakes - 1	1				1				1		1		1					1			1	1		

To review a summary of how the other public water systems in the State of New Jersey rated, please refer to Table 5, "Summary of Statewide Susceptibility Ratings for Community Water System Sources (Percent %)" in Section III of the Source Water Assessment Report.

If a drinking water source's susceptibility is high, it does not necessarily mean the water is contaminated. High susceptibility is a vulnerability rating, not a factor determining whether or not the water is or is not meeting State and Federal Safe Drinking Water Standards. 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. Please refer to the Consumer Confidence Report (CCR) to determine if the drinking water is meeting all of the Safe Drinking Water Act regulatory requirements.

Table 9 illustrates the susceptibility rating for each individual source for each of the contaminant categories.

Table 9: Susceptibility Rating for Drinking Water Source(s)

EPTDS ID	Source ID	Source Name	Contaminant Category							
			Pathogens	Nutrients	Pesticides	VOCs	Inorganics	Radionuclides	Radon	DBPs
			Rating	Rating	Rating	Rating	Rating	Rating		Rating
01	003	BLACK BROOK WELL 1	M	H	L	H	M	M	H	H
01	004	BLACK BROOK WELL 2	M	H	L	H	H	M	H	H
02	007	CLYDE POTTS RESERVOIR	H	M	L	M	H	L	L	H
03	009	LIDGERWOOD WELL	M	H	L	H	H	M	H	M
04	011	LITTLETON WELL 1	M	H	L	H	M	M	H	M
04	012	LITTLETON WELL 2	M	H	L	H	H	M	H	M
05	014	NORMANDY WELL								
06	016	SAND SPRING WELL	M	H	M	H	M	M	H	H
08	021	TODD WELL	M	H	L	H	M	M	H	H
09	023	TURNBULL LANE WELL	M	M	L	H	H	H	H	M
10	025	WING WELL	M	H	L	H	H	M	H	H
14	062	MCCABE WELL LOT 7 BLOCK 387 KI	L	H	L	H	M	M	H	M
18	069	MORRIS PLAINS WELL MORRIS PLAI	M	H	M	H	M	H	H	H

The potential contaminant source inventory and sensitivity variables were used to determine the susceptibility ratings for the sources. For specific information on the water system's potential contaminant source inventory and sensitivity variables, please refer to the Individual Explanatory Variable Inventory and the Specific Potential Contaminant Sources Inventory, Appendix A- Attachment 1 and 2.

SECTION VII - SUSCEPTIBILITY RATINGS FOR YOUR ENTRY POINT TO THE DISTRIBUTION SYSTEM (EPTDS)

SECTION VII – SUSCEPTIBILITY RATINGS FOR ENTRY POINT TO THE DISTRIBUTION SYSTEM (EPTDS)

The Southeast Morris County MUA contains 11 EPTDS. The EPTDS and the susceptibility rating for radon and each of the seven-contaminant categories are provided in Table 11. A susceptibility rating was developed for each EPTDS because this rating represents the water that is treated and delivered to the consumer. A majority of the monitoring regulations are established for the point at which the water exits the water treatment facility, therefore the EPTDS susceptibility rating is important in determining the monitoring requirements.

The EPTDS rating was calculated by the following method. The source contribution resulted from multiplying the pumping rate for each water source by each source's susceptibility score (a point value based on the contaminant category scoring system found in Appendix A – Attachment 3). In cases where the pumping rate was not available, the pumping capacity was used. Next, all source contributions were summed and divided by the total capacity (sum of all the pumping rates and/or capacities) for the EPTDS.

$$\frac{\sum \text{Source Contributions (Source Capacity x Source Susceptibility Score Rating)}}{\text{Total Capacity } (\sum \text{ of all source capacities to the EPTDS})} = \textbf{EPTDS Susceptibility Score}$$

Key

Source Capacity: the source capacity used for determining EPTDS ratings was the same as the pumping rate used by New Jersey Geological Survey to create the source water assessment areas. If the pumping rate was not available, the pumping capacity or a default value was used. The pumping rate selection is described in the New Jersey Geological Survey's "Guidance for Well Head Protection Area Delineations in New Jersey", Appendix B- Attachment 1.

Source Contribution: the value calculated by multiplying the source's pumping rate by the source's susceptibility score rating. The susceptibility score rating is the point value based on the contaminant category scoring system, which can be found in Appendix A – Attachment 3.

Source Susceptibility Score Rating: to obtain a high, medium, or low susceptibility rating, USGS developed a susceptibility scoring system for each contaminant category (pathogens, VOCs, inorganics, nutrients, radionuclides, disinfection byproduct precursors, and pesticides). Each contaminant category has its own point system based on the susceptibility model. For example a susceptibility score range for a contaminant could be 0-5 = low susceptibility, 6-10 = medium susceptibility, and 11-20 = high susceptibility. See Appendices A- Attachment 3 for the susceptibility scoring system USGS used to determine the susceptibility ratings.

Total Capacity: is the full amount of water the sources are contributing to the EPTDS. The pumping rates/capacities are summed to determine the total capacity for the EPTDS.

For groundwater sources, only permanent, seasonal, and interim wells were used in the EPTDS rating calculation. Other wells such as emergency, reserve, and not-in-use, were not included in the source to EPTDS "roll-up", but these wells were rated on a source basis.

For public water systems that consist of a combination of well(s) and intake(s), the EPTDS received a ground water EPTDS rating and a surface water EPTDS rating. Even in circumstances where the surface water is blended with ground water, the EPTDS received two separate susceptibility ratings. A separate ETPDS rating is provided for the ground water and the surface water because separate susceptibility models were developed for ground and surface water. Ground water and surface water susceptibility models differ in susceptibility rating score, therefore, the rating results are not on the same scale.

If a facility has only one well or intake contributing to the EPTDS, that EPTDS received the same rating as the well or intake. DEP used the equation below to determine an EPTDS susceptibility rating.

Table 10 provides an example of how the EPTDS ratings were calculated. To review how the EPTDS ratings were calculated for the Southeast Morris County MUA, please refer to Appendix A- Attachment 4.

Table 10: Example of an EPTDS Susceptibility Rating Calculation

EPTDS 01

Source	Capacity (MGD)	Source Susceptibility Score Rating (0-20, low to high)	Total = Source Contribution
Well 1	1.09	20	(1.09*20) = 21.8
Well 2	1.72	10	17.2
Well 3	0.72	5	3.6
Well 4	1.48	10	14.8
Well 5	0.75	20	15.0
Total Capacity	5.76		72.4
EPTDS Susceptibility Score is 72.4 / 5.76 = 12.6			

For the above example, the sum of the source contributions for EPTDS 01 (72.4) is divided by the total capacity from all sources (5.76) giving a susceptibility score for the EPTDS of 12.6. The original range for rating sources was 0-5 low, 6-10 medium, 11-20 high. EPTDS 01 susceptibility rating was 12.6; therefore the EPTDS would receive a high rating.

Table 11 lists the susceptibility ratings for each EPTDS for the Southeast Morris County MUA.

Table 11: Susceptibility Rating for EPTDS

EPTDS ID	EPTDS Name	Contaminant Category							
		Pathogens	Nutrients	Pesticides	VOCs	Inorganics	Radionuclides	Radon	DBPs
		Rating	Rating	Rating	Rating	Rating	Rating		Rating
01	BLACK BROOK PLANT	M	H	L	H	H	M	H	H
02	CLYDE POTTS RESERVOIR PLANT	H	M	L	M	H	L	L	H
03	LIDGERWOOD WELL PLANT	M	H	L	H	H	M	H	M
04	LITTLETON WELLS PLANT	M	H	L	H	M	M	H	M
06	SAND SPRING WELL PLANT	M	H	M	H	M	M	H	H
08	TODD WELL PLANT	M	H	L	H	M	M	H	H
09	TURNBULL LANE WELL PLANT	M	M	L	H	H	H	H	M
10	WING WELL PLANT	M	H	L	H	H	M	H	H
14	MCCABE WELL TREATMENT PLANT (M	L	H	L	H	M	M	H	M

Population of people served on public water within 4 miles of the site.

	Southeast Morris Co MUA	PTH Twp. WD.
0 - 5280 = 0-1 mile	I	
5280 - 10560 = 1-2 m	III	I
10560 - 15840 = 2-3 m	II	I
15,840 - 21,120 = 3-4 m.	III	II

Total number of people served within 4 miles of the site from both water companies = 48,965

ATTACHMENT P

Listing of Geographic Correlations

Obs	Ring Area	Total Pop, 2000 census	_us_ to ring alloc factor
1	0.5	1418	0.016
2	1.0	8330	0.094
3	2.0	25755	0.291
4	3.0	23560	0.266
5	4.0	29493	0.333

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