REMEDIAL ACTION WORKPLAN

333 Smith Street
Farmingdale, NY

3 January 2000

Prepared for:

Reckson Operating Partnership, L.P.
225 Broadhollow Road
Melville, NY 11747

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Blvd.
Woodbury, NY 11797

7400217.648

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Section 1

1.0 *INTRODUCTION*

This Remedial Action Work Plan (RAWP) has been prepared on behalf of Reckson Operating Partnership, L.P. (Reckson) for the property located at 333 Smith Street, Farmingdale, NY (the Site). The RAWP has been designed to address soils and dry well sediment impacted by historical industrial activities. The RAWP does not cover ground water issues.

This RAWP document is being prepared and submitted at this time to allow the site redevelopment to proceed in a timely manner. The impacted areas of soil and dry well sediment are located in areas that will be subject to demolition or reconstruction in the planned redevelopment (the western wing of the building will be demolished and storm water dry wells will be refurbished). As such, there is an opportunity to remediate the impacted media more cost effectively than otherwise would be possible if the western wing were to remain in use. It is therefore critical that the soil and dry well sediment be addressed as soon as possible to permit redevelopment to proceed on schedule. For these reasons, this RAWP has been prepared to address soil and dry well sediment, only.

1.1 *SITE DESCRIPTION*

The Site is approximately 13 acres in size and lies between Marcus Drive to the north and Smith Street to the south (see Figure 1-1). The border between Huntington and Babylon Townships passes through the Site. The existing two-story building is 220,000 square feet in size and currently unoccupied. A large portion of the site, generally north and east of the building, is paved for use as parking facilities. A site plan is provided as Figure 1-2.

Land use in the vicinity of the site is generally commercial-industrial (light manufacturing, warehousing and offices). A small residential area is located west of the site on Republic Road.

Reckson is preparing to redevelop the Site as an office building. The current plan calls for two small portions of the building (the eastern and western wings) to be removed. The remainder of the building will be renovated.

1.2 PROJECT BACKGROUND

The history of the Site was previously described in detail as part of the "Voluntary Investigation Work Plan" (IVI Environmental, 1999), therefore only a summary is provided here. The Site was originally agricultural land until 1969 when the Fairfield Noble Corporation constructed the existing building. Fairfield produced knitted textiles, which included some dry cleaning operations using tetrachloroethene (PCE). Gould Incorporated occupied the Site in 1981 and manufactured printed circuit boards for military applications. Gould's operations included use of PCE and other chlorinated solvents for cleaning and degreasing. The Site has been vacant since 1989; Reckson purchased the property in 1998.

Reckson entered into agreement with the New York State Department of Environmental Conservation (NYSDEC) to conduct an investigation at the Site under the NYSDEC Voluntary Cleanup Program (VCP). Under this agreement (VIA Index No. W1-0819-98-07), Reckson was to conduct investigation activities to evaluate the possible presence of residual chemical contamination in soil, dry well sediment and ground water. This investigation was completed between April and July 1999. The results of the Voluntary Investigation pertinent to this RAWP are presented in Section 1.4. The results of historical Site sampling that pre-date the Voluntary Investigation are presented in Section 1.3.

1.3 HISTORICAL SITE SAMPLING RESULTS

Three Site sampling programs have preceded Reckson's Voluntary Investigation. The initial investigation was conducted in 1994 by Geraghty and Miller. This work included both soil and dry well sampling. The second investigation was performed by ATC Environmental in 1996 and consisted of dry well sediment and ground water sampling. The third investigation was conducted in 1997 by AAS Environmental and consisted wholly of ground water sampling. The results of these investigations are described in the following subsections.

1.3.1 Historical Soil Sampling Results

The vast majority of the previous soil sampling work was performed at the Site in 1994 by Geraghty and Miller. A small amount of soil sampling was also performed in 1996 by ATC Environmental. Each is discussed below.

1.3.1.1 1994 Soil Investigation

This investigation focused on five Areas of Concern (AOCs) for soil. A brief description of the work performed and the associated findings is given below:

- Former Wastewater Treatment Plant (WWTP) Settling Basin – This AOC is located in the northwest corner of the property. Two surficial composite samples were collected. One composite was formed from five discrete samples; the other was formed from seven discrete samples. In addition, two deeper samples were collected, one at 5-6′ below grade and the second at 9-10′ below grade. Each sample was analyzed for Total Petroleum Hydrocarbons (TPH), the eight RCRA metals, Volatile Organic Compounds (VOCs) and Semi-volatile Organic Compounds (SVOCs). All results were below the NYSDEC Recommended Soil Cleanup Objectives (RSCOs).

- Fuel Oil Underground Storage Tank (UST) – The facility boilers were formerly fueled by oil prior to changing to natural gas. The UST that supplied the boilers was located just off the northwest corner of the building. (Note: the UST has been removed and is longer present at the Site.) Four borings were installed at this AOC. The borings were installed to 16 feet below grade; one sample was selected for laboratory analysis from each boring based on field screening using a portable photo-ionization detector (PID). These samples were analyzed for TPH. The results ranged from none detected to 476 mg/kg.

- Two Electrical Transformers - One shallow soil sample was collected at each of the two transformers present at the Site. The samples were analyzed for PCB arochlors, however none were detected.

- WWTP Aeration Tower – According to the Geraghty and Miller report, an aeration tower existed directly south of the former settling basin. Other anecdotal information indicates that the former WWTP also utilized an aeration basin. Nevertheless, one shallow soil sample was collected where Geraghty and Miller assumed the aeration tower was located. This sample was analyzed for VOCs, SVOCs, RCRA metals and TPH. No analytes were found above the NYSDEC RSCOs.

- Waste Tank – The tank was located outside the west wall of the building and was allegedly used to contain "wastes". Two borings were installed with one sample collected from each boring at 16-20' below grade. Each sample was analyzed for VOCs, SVOCs, RCRA metals and TPH. One constituent was found above the NYSDEC RSCOs (chromium at 13.8 mg/kg).

1.3.1.2 *1996 Soil Investigation*

The scope of ATC's 1996 investigation consisted of dry well sediment and ground water sampling. One boring was installed to 28 feet below grade in the location of the former WWTP settling pond. Continuous samples were collected and screened by a PID (no response was found). Two samples (20-22' and 25-27') were analyzed for nine metals (As, Ag, Cd, Cr, Cu, Mn, Ni, Pb and Zn). The results indicated that all of these metals were below the NYSDEC RSCOs.

1.3.2 *Historical Dry Well Sediment Investigation*

Previous sampling of dry well sediment at the Site was performed as part of Geraghty and Miller's 1994 investigation, as well as ATC Environmental's 1996 investigation. Each is discussed below.

1.3.2.1 *1994 Investigation*

This investigation focused on two AOCs for dry well sediment. A brief description of the work performed and the associated findings is given below:

- Former Sanitary Leaching Pools – This AOC included five former sanitary disposal systems at various locations surrounding the building. One sample was collected from the bottom of a leach pool at each location using a Geoprobe. Each sample was analyzed for the 13 priority pollutant metals, plus VOCs. All VOC results were below the NYSDEC RSCOs. Only one metal (nickel in one sample) was detected slightly above its RSCO.

- Parking Lot Dry Wells – The investigation of this AOC included the collection of grab samples from the bottom of 22 dry wells in paved parking areas throughout the property. Each sample was analyzed for TPH. The results indicated that 16 of these samples were above the SCDHS Article 12 cleanup objective for TPH of 500 mg/kg. The results of these 16 samples ranged from 624 to 50,100 mg/kg.

1.3.2.2 *1996 Investigation*

A total of 12 dry wells were sampled as part of this work. It appears that six of these samples may have been collected in selected leach pools among the 60 that formerly accepted the effluent discharge from the former WWTP. The other six samples were collected from unidentified septic systems or dry wells. Each sample was analyzed for the eight RCRA metals. No metals in these samples were found above background conditions.

1.3.3 *Historical Ground Water Investigation*

Previous ground water sampling at the Site was performed as part of ATC Environmental's 1996 investigation and AAS Environmental's 1997 investigation. Each is discussed below.

1.3.3.1 *1996 Investigation*

The ground water component of this investigation included the collection of five Geoprobe ground water samples and the installation and sampling of five shallow monitoring wells (MW-1, MW-2, MW-3, MW-4 and MW-5).

The Geoprobe samples were generally located near the perimeter of the property (two upgradient and three downgradient). Each sample was analyzed for VOCs and total RCRA metals. Tetrachloroethene (PCE) was found in each sample ranging from 23.3 to 76.6 μg/l. Trichloroethene was also found in each sample ranging from 15.8 to 48.1 μg/l. Lead and chromium were also found above the New York State Class GA standard, however it should be noted that Geoprobe samples generally contain a large amount of suspended solids. Since inorganic constituents often occur naturally in these suspended solids, Geoprobe ground water samples usually exhibit inaccurately high metals concentrations and thus are not representative of the actual ground water quality.

The five monitoring wells were installed near the location of the Geoprobe borings. Each sample was analyzed for VOCs and dissolved RCRA metals. The results were similar to the Geoprobe data with the exception that in well MW-4 (directly south of the building), PCE was found at much higher levels (200 μg/l). No metals were found above the New York State Class GA standards. It was concluded from this work that PCE and TCE were present in the ground water entering the Site from upgradient, but the result in MW-4 also indicated that an on-site source of PCE contamination could not be ruled out.

1.3.3.2 *1997 Investigation*

This investigation consisted of the installation of two additional shallow monitoring wells (MW-6 and MW-7) and the collection of seven Geoprobe ground water samples. Seven monitoring wells were sampled (two new and five existing) and analyzed for VOCs. The results indicated the presence of PCE at levels ranging from 20 to 81 µg/l. Four of the seven Geoprobe sampling locations were situated within the western half of the building, the other three were located outside the north, east and south walls. Each Geoprobe ground water sample was analyzed for VOCs. The results showed PCE at concentrations between ND and 1,500 µg/l. The highest levels (990 to 1,500 µg/l) were found beneath the western half of the building.

1.4 *VOLUNTARY INVESTIGATION SAMPLING PROGRAM*

This section presents a summary of the Voluntary Investigation findings. A detailed report on the implementation of this work will be provided in the Voluntary Investigation Report, which will be submitted as a separate document.

1.4.1 ***Voluntary Investigation Soil Sampling***

The soil investigation program was completed as per the Voluntary Investigation Work Plan with minor modifications that were agreed to in the field and previously documented in writing by ERM on behalf of Reckson. This section presents the soil sampling results, only (dry well sampling results are presented in Section 1.4.2; ground water sampling results are presented in Section 1.4.3). In brief summary, the soil investigation was done using a phased approach consisting of the following steps:

- Floor Drain Survey - The purpose of the floor drain survey was to identify potential discharge points/areas of concern and to guide subsequent sampling efforts. The survey was performed using a variety of techniques including downhole TV camera, downhole radio transmitter and breaking the floor for visual tracing. The locations of the drains surveyed are shown in Figure 1-3. The results of the survey are provided in Table 1-1.

- Soil Gas Survey - The soil gas survey was performed as a screening exercise, also for the purpose of guiding subsequent sampling efforts. Twenty borings were installed with four soil gas samples collected at 2, 10, 20 and 30 feet below grade. Each soil gas sample was screened in the field with a portable photo-ionization detector (PID). The sample with the highest PID result in each boring (20 samples total) was sent to a State-certified laboratory for analysis of VOCs using EPA Method 8021 (modified). The locations of the soil gas borings are shown in Figure 1-4. This figure also gives a three dimensional interpretation of the PID screening results; the PID data is provided in Table 1-2. The laboratory analytical results are provided in Table 1-3.

- Initial Soil Sampling - Based on the above information and consultation with the NYSDEC, nine locations were selected for soil sampling (GP-series samples). It should be noted that soil samples were collected at or near the location of each elevated soil gas sample (this includes soil gas samples B-1, B-4, B-6, B-7, B-9 and B-13). The borings were installed using a Geoprobe with one Macrocore sample four feet in length collected in each five-foot interval. Each sample was screened in the field for VOCs using the PID and for metals using an X-Ray Fluorescence (XRF) unit. These screening results are presented in Table 1-4. The boring depths were variable, based on the findings of the screening analyses. One to two samples per boring were selected based on the field screening results and consultation with the NYSDEC. These samples were analyzed for the following parameters:

    - VOCs using Method 8260;
    - Base neutral compounds (BNs) using Method 8270;
    - TAL metals using Methods 6010 and 7471; and
    - Hexavalent chromium using Method 7196.

  The results are presented in Table 1-5 (a-c). Preliminary evaluation of these data indicated PCE impacted soil beneath the northwest portion of the building.

- Additional Soil Sampling - A second round of soil samples was collected to further characterize and delineate the extent of the PCE impacts beneath the building. These samples were analyzed in the field using a portable gas chromatograph and photo-ionization detector (GC-PID). This was done so that the delineation boring locations could be selected based on immediate sample results. Ten percent of the total samples were sent for confirmatory analysis to a New York State certified off-site fixed laboratory. A tabular summary of these results is given as Table 1-6.

Table 1-7 presents a summary of the overall soil boring program and Figure 1-5 shows the location of each soil boring.

1.4.2 *Voluntary Investigation Sediment Sampling*

A number of dry wells are utilized at the Site for storm water recharge. Most of these dry wells are found in paved areas and are manifested at the surface with slotted covers to allow inflow of water. Several others are connected to roof leaders and do not intersect the ground surface. Some dry wells are designed to accept both overland flow and roof drainage. In addition, there are 60 abandoned leach pools that received wastewater from the former WWTP at the Site. In accordance with the approved Work Plan (as subsequently modified by agreement with the NYSDEC and SCDHS), 18 storm water dry wells and the three lead leach pools of the former WWTP leach field were sampled during the recent investigative activities. In addition to these drainage structures, sediment contained at the bottom of an abandoned and filled-in concrete tank located outside the west wall of the building (GP-9) was also sampled. (Note: this is likely the same tank where soil was sampled during Geraghty and Miller's 1994 investigation.)

The dry well sediment sampling locations (see Figure 1-7) were selected based on the results of the floor drain survey and historical sampling results of storm water dry wells for TPH (see Section 1.3.2.1). The samples were collected and analyzed as indicated below:

- The initial phase was conducted concurrently with the Geoprobe soil sampling program described above in Section 1.4.1. These samples were collected in the manner previously discussed and are denoted by the prefix "GP-".

- The second phase of sampling was conducted separately and consisted of the collection of one grab sediment sample from a selection of storm water dry wells. These samples are denoted by the prefix "DW-".

- All sediment samples were analyzed in the laboratory for the following parameters:

  - VOCs using Method 8260;
  - Base neutral compounds (BNs) using Method 8270;
  - TAL metals using Methods 6010 and 7471; and
  - Hexavalent chromium using Method 7196.

A summary of the sediment sampling program is provided in Table 1-8.

The laboratory analytical results are given as Table 1-9 (a-c).

1.4.3 *Voluntary Investigation Ground Water Sampling*

The voluntary ground water investigation included the following components:

- Installation of eight new monitoring wells (MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14 and MW-15);

- Sampling of the new wells, plus all existing wells at the Site (total of 14). Note that this total does not include existing well MW-7 which is not located on the Reckson property;

- Collection of shallow ground water samples 40 feet below grade (the water table occurs at 35 feet below grade) in Geoprobe borings GP-5 and GP-6;

- Collection of deep ground water samples 74 feet below grade using a Hydropunch tool at monitoring well locations MW-10 and MW-14; and

- Analysis of all samples for VOCs using EPA Method 624. All samples except the deep ground water samples were also analyzed for:

- SVOCs using EPA Method 8270;
- TAL Metals using EPA Method 200.7 (Method 7470 for mercury);
- Hexavalent Chromium using EPA Method 7196;
- Flouride using EPA Method 340.1; and
- Total Cyanide using EPA Method 335.4.

The locations of all ground water monitoring wells as well as the water table contours of 6 July 1999 are shown on Figure 1-7. The voluntary investigation ground water sampling results are provided in Table 1-10.

Section 2

2.0 *EVALUATION OF REMEDIAL REQUIREMENTS FOR SITE SOIL AND DRY WELL SEDIMENT*

2.1 *EVALUATION OF REMEDIAL REQUIREMENTS FOR SITE SOIL*

2.1.1 *Identification of Chemicals of Concern in Soil*

The soil sampling results presented in Tables 1-5 and 1-6 were reviewed to determine the chemicals of concern (COCs) in Site soil. In total, twenty-two organic compounds (nineteen VOCs and three BNs) were detected in Site soil. Nine of the 19 VOCs were detected at trace levels in only one sample. Due to the limited frequency of detection and the low concentrations, these 9 VOCs were not considered to be COCs. The remaining 13 organic COCs are:

VOCs
Tetrachloroethene
1,2-dichlorobenzene
1,2,4-trichlorobenzene
1,2,3-trichlorobenzene
Trichloroethene
2-butanone
1,3,5-trimethylbenzene
1,2,4-trimethylbenzene
Ethylbenzene
Naphthalene

BNs
Bis(2-Ethylhexyl)phthalate
di-n-butyl phthalate
Dimethylphthalate

To identify the inorganic COCs in Site soil, the concentrations of inorganic constituents in soil were compared to the recommended soil cleanup objectives (RSCOs) provided in New York State TAGM HWR-94-4046. The RSCOs for inorganic constituents are based on eastern US background soil concentrations. As such, these values represent acceptable soil background concentrations for NYSDEC and can therefore be used for screening purposes. This comparison is provided in Table 2-1 for inorganic constituents.

Comparison of the inorganic constituent concentrations in Site soil to the RSCOs indicates that eight (8) inorganic constituents were detected in Site soil at concentrations greater than New York State background concentrations as provided by the RSCOs. They are:

Arsenic	Copper	Selenium
Cadmium	Iron	Zinc
Chromium	Nickel	

These eight (8) inorganic constituents will therefore be retained as the inorganic chemicals of concern.

In summary, the Site soil contains twenty-one COCs; 13 organic compounds and eight inorganic constituents.

2.1.2 *Potential Exposure Pathways and Development of Soil Cleanup Levels*

The proposed development plan for the Site calls for demolition of the west wing of the building, removal of the slab and construction of an asphalt parking area. As discussed above, the COCs for Site soil include VOCs, BNs and metals. An exposure pathway analysis has therefore been performed for these COCs taking into consideration the future use of the Site.

Based on the COCs in Site soil and the proposed future use of the site, three potential exposure pathways exist for soil located beneath the building. They are:

- Direct contact with Site soil;
- Volatilization of VOCs from Site soil to indoor air and inhalation of vapors by commercial workers; and
- Leaching of chemicals in Site soil to ground water.

Additional discussion regarding these exposure pathways is provided below.

2.1.2.1 *Direct Contact by Construction Workers*

Under the proposed development plan, the west wing of the Site building will be demolished and its slab removed. Consequently, construction workers will come into contact with Site soil underlying the west wing building slab during these activities. In addition, potential future direct contact exposures to soils remaining under the building and outside the building were also considered.

The risk-based direct contact cleanup criteria provided in New York State TAGM HWR-94-4046 will be used to evaluate direct contact risks presented by VOCs and SVOCs in Site soil. Since risk-based direct contact cleanup levels are not provided in New York State TAGM HWR-94-4046 for inorganic constituents, an alternate cleanup level will be used for the inorganic COCs, as explained below.

The U.S. Environmental Protection Agency (USEPA) Region III Superfund Technical Support Section has developed cleanup criteria for the exposure of industrial workers to soil. The EPA criteria are listed in the *Risk-Based Concentration Table* prepared by USEPA Region III, dated 1 April 1999 (USEPA, 1999). The EPA criteria are based on exposure equations provided in the *Risk Assessment Guidance for Superfund (RAGS), Vol. 1, Human Health Evaluation Manual, Part A*, EPA/540/1-89/002, USEPA, December 1989, while the exposure factors are those recommended in RAGS or supplemental guidance from the Superfund program. The EPA criteria were therefore used in this analysis to provide a basis for the evaluation of the inorganic COCs in Site soil.

Use of the EPA criteria for construction worker exposures is conservative (i.e., it provides a large safety factor) since construction workers will be exposed to Site soil for much less time than the assumed exposure for the industrial worker (250 days per year for 25 years).

A comparison of the concentrations of the COCs present in Site soil to their respective cleanup standards (i.e., direct contact RSCOs for VOCs and SVOCs and the EPA criteria for inorganics) is presented in Table 2-2. As indicated in the table, arsenic exceeds its calculated direct contact cleanup level in five out of ten soil samples and PCE exceeds its NYSDEC TAGM cleanup level in one out of thirty soil samples. Therefore, the presence of arsenic and PCE in the Site soil present a potential direct contact risk to construction workers at the Site. These direct contact, or more accurately dermal contact, risks can be mitigated with the use of appropriate clothing to prevent dermal exposure during construction related activities.

2.1.2.2 *Volatilization to Indoor Air and Inhalation by Commercial Workers*

VOCs in Site soil have the potential to volatilize into the Site building. As such, volatilization to indoor air and inhalation of these vapors has been evaluated.

The following equation will be used to determine Risk-Based Safe Levels (RBSLs) for inhalation of indoor air by commercial workers:

$$RBSL_s = \frac{RBSL_a}{VF_{sesp}}$$

where:

$RBSL_s$ = risk-based screening level for inhalation of vapors from subsurface soil, mg/kg - soil
$RBSL_a$ = risk-based screening level for inhalation of air, mg/m^3 - air
VF_{sesp} = volatilization factor from subsurface soil to enclosed space (indoor) air, $(mg/m^3 - air)/(mg/kg - soil)$.

For carcinogens: $RBSL_a = \frac{TR \times BW \times AT_c \times CF}{IR \times ED \times EF \times SF}$

For noncarcinogens: $RBSL_a = \frac{THI \times BW \times AT_{nc} \times CF \times RfD}{IR \times ED \times EF}$

where:

TR = target risk or the increased chance of developing cancer over a lifetime due to exposure to a chemical
BW = body weight, kg
AT_c = averaging time for carcinogens, years
CF = conversion factor, 365 days/year
IR = inhalation rate, m^3/day
ED = exposure duration, years
EF = exposure frequency, days/year
SF = chemical-specific inhalation slope factor, $(mg/kg\ day)^{-1}$
THI = target hazard index
RfD = chemical-specific reference dose for inhalation, mg/kg day
AT_{nc} = averaging time for noncarcinogens, years.

$$VF_{sesp} = \frac{(H\rho_s/(\theta_{ws} + K_s\rho_s + H\theta_{as})) \times ((D_s^{eff}/L_s)/(ER \times L_B)) \times CF}{1 + (D_s^{eff}/L_s)/(ER \times L_B) + ((D_s^{eff}/L_s)/(D_{crack}^{eff}/L_{crack})\eta)}$$

where:

H = Henry's Law constant, cm^3-water/cm^3-air
ρ_s = soil bulk density, g/cm^3
θ_{ws} = volumetric water content in vadose zone soils, cm^3-water/cm^3-soil
K_s = soil-water sorption coefficient, g-water/g-soil
θ_{as} = volumetric air content in vadose zone soils, cm^3-air/cm^3-soil
D_s^{eff} = effective diffusion coefficient in soil based on vapor-phase concentration, cm^2/sec
L_s = depth to subsurface impacted soil sources, cm
ER = enclosed space air exchange rate, changes/second
L_B = enclosed space volume/infiltration area ratio, cm
D_{crack}^{eff} = effective diffusion coefficient through foundation cracks, cm^2/sec
L_{crack} = enclosed space foundation or wall thickness, cm
η = areal fraction of cracks in foundation walls, cm^2-cracks/cm^2-total area
CF = conversion factor, 10^3 cm^3-kg/m^3-g

The RBSLs assume that potential commercial worker receptors would be present at a site for 250 days per year (frequency) and for 25 years (duration). The parameters used in the calculations are given in Table 2-3.

Table 2-4 presents a comparison of the Site soil concentrations of COCs to the RBSLs for inhalation of indoor air. This table indicates that PCE exceeds its RBSL of 2,760 μg/kg in five out of thirty samples.

2.1.2.3 *Leaching to Ground Water*

Site soil has the potential to leach to ground water. As such, the ground water data for the Site was reviewed to determine which COCs in Site soil present a potential for leaching to ground water. Ground water concentrations downgradient of the Site soil sampling area (i.e., the Site building) and from Geoprobe ground water sampling locations within the building (VOCs only) were first compared to ground water concentrations in upgradient wells. As shown in Figure 1-7, ground water wells MW-1, MW-2, MW-13 and MW-14 are upgradient wells and wells MW-4, MW-9 and MW-10 are located downgradient of the Site building.

The purpose of this screening was to eliminate COCs contributed from off-Site sources. Chemicals present in excess of background ground water concentrations were then compared to the NYS Class GA ground water standards. Inorganic data from the Geoprobe ground water samples were not considered in this evaluation because samples collected in this fashion contain a significant amount of suspended solids. Since inorganic constituents often occur naturally in these suspended solids, Geoprobe ground water samples generally exhibit inaccurately high inorganics concentrations and thus are not representative of the ground water quality.

The comparison of downgradient and Geoprobe ground water sampling results to background concentrations, which is presented in Table 2-5, indicates that three (3) chemicals are consistently present above the background ground water concentrations in excess of the Class GA standards. They are: cis-1,2-dichloroethene (cis-1,2-DCE), trichloroethene (TCE) and PCE (i.e., PCE and its degradation products). Although methylene chloride, toluene and ethylbenzene were also sporadically detected at concentrations above the Class GA standards, their limited frequency of detection and slight exceedances do not warrant further consideration. No BNs exceeded the Class GA standards in monitoring wells downgradient of the impacted soil area, nor in the Geoprobe ground water samples from within the impacted soil area. Similarly, no inorganic constituents exceeded the Class GA standards in monitoring wells downgradient of the impacted soil area.

This comparison indicates that Site soil concentrations of the VOCs identified above may be posing an impact to ground water risk. To determine whether this is the case, the soil sampling results for PCE and its degradation products TCE and cis-1,2-DCE were compared to the New York State TAGM HWR-94-4046 RSCOs for impact to ground water. This comparison is presented in Table 2-6. This table indicates that PCE exceeds its RSCO for leaching to ground water (1,400 μg/kg) in eight out of thirty samples.

2.1.3 *Extent of Affected Site Soil*

Based on the analyses presented above, the following conclusions have been reached:

- Site soil concentrations of arsenic (at sampling locations GP-4, GP-7, GP-11, GP-12 and plating room) and PCE (at sampling location GP-13) present a direct contact risk for construction workers;

- Site soil concentrations of PCE present an inhalation of indoor air risk for future Site commercial workers; and
- Site soil concentrations of PCE present a leaching to ground water risk.

The PCE NYSDEC cleanup standard for leaching to ground water (i.e., 1,400 μg/kg) is more conservative than the NYSDEC direct contact cleanup level (i.e., 14,000 μg/kg) and the calculated volatilization to indoor air cleanup level (i.e., 2,760 μg/kg). Consequently, the extent of affected soil is defined by the more conservative PCE cleanup level (i.e., 1,400 μg/kg) as shown in Figure 2-1. This figure indicates that all PCE impacted soil is located beneath the west wing of the building. The impacted area is complex in configuration because the PCE source is apparently from a network of abandoned concrete troughs and pits. It is difficult to determine the precise locations where PCE may have escaped these structures, but it seems likely that this has occurred at multiple locations.

The available data regarding the vertical extent of PCE above the 1,400 μg/kg criteria indicates that the impacted soil appears to be limited to the upper five to ten feet. Boring locations GP-5 and GP-11 demonstrate a sharp drop-off in PCE concentration within this range. PID screening data (not shown in Figure 2-5) from borings B2-1, B2-7, B2-11 and B2-12 also indicates that the PCE impacted zone does not extend beyond ten feet below the floor slab.

In addition to PCE impacted soil, a limited amount of Site soil also presents a direct contact risk for arsenic. Soil samples exceeding the EPA criteria were located at GP-4, GP-7, GP-11, GP-12 and the plating room. Sampling locations GP-11 and GP-12 can be addressed as part of the remedial activities for the PCE impacted soils.

Additional discussion regarding the remedial plan for soil (i.e., excavation and off-Site disposal) is presented in Section 3.1.

2.2 *EVALUATION OF REMEDIAL REQUIREMENTS FOR DRY WELL SEDIMENT*

To determine the remedial needs for sediment located within Site storm water dry wells and leach pools, the sediment sampling results provided in Table 1-9 were compared to action levels established by the Suffolk County Department of Health Services (SCDHS) (Article 12, SOP 9-95). These action levels, which are based on a leaching to ground water exposure pathway, are used to determine whether remedial action is needed. In addition to the action levels, Article 12 also contains cleanup levels which must be met when remediation is deemed necessary.

A summary of the sampling results showing the exceedances of the SCDHS Article 12 action levels is provided in the following table.

	Exceeds the SCDHS Action Levels for:		
Location	**VOCs**	**PAHs**	**Inorganics**
DW-1		X	
DW-4		X	
DW-5/6		X	
DW-9/16		X	
DW-12/14		X	
DW-19		X	
DW-20	X (PCE)	X	
DW-22		X	X (Cr, Pb)
DW-23		X	X (Cr, Pb)
DW-24		X	X (Cr, Pb)
DW-26		X	
DW-NW CNR			
GP-1 (Lead Leach Pool)			X (slight Cr)
GP-2 (Lead Leach Pool)			
GP-3 (Lead Leach Pool)		X (slight)	X (slight Cr)
GP-8	X (PCE)		X (slight Cr)
GP-9 (abandoned tank)			
GP-14 (DW-25)		X	X (Cr)
GP-15 (DW-21)		X	X (Cd, Cr, Pb)

As shown in this table, a number of parking lot storm water dry wells contain sediment having chemical concentrations in excess of the SCDHS action levels for polyaromatic hydrocarbons (PAHs). Some of these dry wells also contain sediment exceeding the SCDHS action levels for inorganic constituents; however, these exceedances were less frequent and less pronounced. In addition, two of the three lead leach pools associated with the former WWTP also exhibited limited exceedances of the SCDHS action levels for PAHs and inorganics. In addition to PAH and inorganics exceedances, two dry wells, GP-8 and DW-20, contain sediment exceeding the SCDHS action level for PCE.

A review of the ground water sampling data (see Table 1-10) also indicates an exceedence of the New York State Class GA Standard for antimony in well MW-8. Since there is no SCDHS Article 12 action level for antimony, the dry well sediment sampling data (Table 1-9) and the soil sampling data (Tables 1-5 and 1-6) were reviewed to evaluate possible sources of the antimony in ground water. It was found that five dry wells in the vicinity of MW-8 contained antimony levels above background (the background antimony level is non-detect).

Based on the above findings, the Site dry wells will be divided into the following three categories:

- PCE-impacted dry wells (i.e., GP-8 and DW-20)
- PAH-impacted dry wells; and
- Antimony-impacted dry wells.

Because the sediment contained at the bottom of the buried concrete tank located outside the west wall of the building (GP-9) did not exceed any of the SCDHS action levels, this structure will be eliminated from future discussion.

2.2.1 *PCE Impacted Storm Water Dry Wells*

The recent sampling conducted at the Site indicates that storm water dry wells GP-8 and DW-20 contain PCE at concentrations in excess of the SCDHS action level for PCE of 2,800 µg/kg. GP-8, which is located downgradient of the Site building and upgradient of monitoring well MW-9, contains sediment having a PCE concentration of 27,000 µg/kg. Dry well DW-20, which is located on the upgradient side of the Site building contains sediment having a PCE concentration of 10,000 µg/kg. Based on the presence of PCE in Site ground water in excess of the NYS Class GA standards, these dry wells will be considered potential sources of the PCE in Site ground water and will be remediated to meet the NYSDEC TAGM level for PCE of 1,400 µg/kg.

GP-8 is an abandoned dry well which has been filled in with sand and covered by asphalt. A sample was collected within GP-8 from the sediment/sludge layer underlying the sand fill. This sediment/sludge layer, which extends from 18 to 19 feet below grade, contains PCE and chromium at concentrations in excess of the SCDHS Article 12 action levels. A sample was also collected from soil underlying the sediment/sludge layer at a depth interval of 30 to 34 feet below grade. No exceedances of the SCDHS Article 12 action levels were observed at this sample interval. Based on these results, the extent of PCE contamination underlying GP-8 is limited to a zone beginning at 18 feet below grade and ending somewhere above 30 feet below grade.

DW-20 contains sediment having PCE and PAHs at concentrations in excess of the SCDHS Article 12 action levels. The vertical extent of PCE contamination in this dry well is not known. However, PAHs are generally fairly immobile, therefore it is likely that the chemicals are limited to the sediment/sludge layer. The dry well will be remediated to meet the appropriate cleanup levels (see Section 3.0 for further discussion of cleanup levels). If the vertical extent of PCE contamination extends below the excavation limit of the dry well (i.e., depth to which soil can be removed without undermining the structure), alternate remedial measures will be performed to ensure the cleanup criteria is achieved. Such alternative measures could include installation of a soil vapor extraction well within the dry well to address remaining PCE contamination.

Neither dry well GP-8 nor DW-20 are located upgradient of monitoring well MW-8. Consequently, these dry wells are not sources of the elevated antimony concentrations observed in monitoring well MW-8. Antimony was found in the sediment/sludge layer of GP-8 at a concentration of 58.1 mg/kg. However, antimony was not detected in the soil underlying the sediment/sludge layer. These data confirm that GP-8 is not a source of antimony in ground water. Nevertheless, the elevated antimony in the sediment/sludge layer will be removed as part of the excavation for PCE impacts in GP-8. Further details regarding the planned remediation of GP-8 and DW-20 is provided in Section 3.2.

2.2.2 *Storm Water Dry Wells Impacted by PAHs*

Samples from all of the sampled parking lot storm water dry wells contained PAHs in excess of their SCDHS Article 12 action levels; some also contained inorganic constituents at concentrations in excess of their SCDHS Article 12 action levels. The following 15 parking lot storm water dry wells are affected: DW-1, DW-4, DW-5, DW-6, DW-9, DW-12, DW-14, DW-16, DW-19, DW-22, DW-23, DW-24, DW-26, GP-14/DW-25, GP-15/DW-21. However, five of these dry wells (DW-21, DW-22, DW-23, DW-24 and DW-25) also contain antimony and are therefore discussed separately in Section 2.2.3. Dry wells GP-8 and DW-20 are also not considered in this section since were they previously discussed above.

The approximate extent of impacted sediment in all 15 parking lot stormwater dry wells was estimated by reviewing the analytical results for dry well GP-14 (i.e., DW-25). A sample was collected from the sediment/sludge layer located at 18 to 20 feet below grade which contained PAHs and chromium at concentrations in excess of the SCDHS Article 12 action levels. Antimony was also detected at elevated levels in this sample. An additional sample was collected from a soil interval underlying the sediment/sludge layer at 30 to 34 feet below grade; this sample did not exceed the SCDHS Article 12 action levels and antimony was present at background levels. Based on these results, the extent of PAH and inorganic contamination underlying DW-25 is limited to a zone beginning at 18 feet below grade and ending somewhere above 30 feet below grade.

Site ground water concentrations were reviewed to determine whether the PAHs and inorganic constituents present in the dry well sediment samples at concentrations above their SCDHS Article 12 action level are posing an impact to ground water. No PAHs were detected in any of the Site ground water samples and ground water concentrations of the inorganic constituents of concern in the dry well samples were below the Class GA ground water standards. Based on this evaluation, PAHs and inorganic constituents present in Site storm water dry wells are not presenting a potential for impact to ground water. Nevertheless, these 11 dry wells will be remediated to meet the SCDHS Article 12 action levels.

Remediation of these 11 dry wells will, at a minimum, entail removal of any standing liquids and removal of the sludge/sediment layer within each dry well. Post-excavation samples will then be collected to determine whether additional soil removal is needed from these structures to achieve the SCDHS Article 12 cleanup levels. Additional discussion regarding the proposed remedial activities is provided in Section 3.2.

2.2.3 *Dry Wells Impacted by Antimony*

As discussed above, well MW-8 contains antimony in excess of the New York State Class GA ground water standard. Sediment concentrations of antimony within dry wells upgradient of MW-8 were therefore reviewed. As shown in Table 1-9, sediment concentrations of antimony in the five dry wells located in the vicinity of MW-8 (i.e., DW-21, DW-22, DW-23, DW-24 and DW-25) range from 100 to 912 mg/kg. Antimony concentrations in the remaining Site storm water dry wells and all soil samples were not significant. From these data it is concluded that these five dry wells are the probable source of the antimony detected in ground water at MW-8. Based on the vertical profiling done in DW-25, the elevated antimony concentrations below the sludge/sediment interval requiring remedial action for PAHs and other inorganics may be inferred. As previously described, the impacted zone is limited to a zone beginning at the base of the dry well 18 feet below grade and ending somewhere above 30 feet below grade. As such, these potential sources of antimony in ground water will be remediated along with the PAHs and the other inorganic constituents.

In addition, as per the work plan, the three lead leach pools for the discharge system associated with the WWTP were also sampled. There were 60 leach pools in this system that have been abandoned by backfilling with sand. The samples from the three lead leach pools are designated as GP-1, GP-2 and GP-3. Comparison to the SCDHS Article 12 action levels (see Table 1-9) reveals the following:

- Chromium in GP-1 (109 mg/kg) slightly exceeded the action level of 100 mg/kg);
- Chromium in GP-3 (119 mg/kg) slightly exceeded the action level of 100 mg/kg);

- Chrysene in GP-3 (1,100 μg/kg) slightly exceeded the action level of 800 μg/kg); and

- GP-2 did not exhibit any exceedances of the SCDHS Article 12 action levels.

Based on these data, it is concluded that these three leach pools do not require remediation to comply with the SCDHS Article 12 action levels (except for antimony which is discussed separately below). Specifically, remediation of leach pools GP-1 and GP-2 is not warranted for the following reasons:

- Direct contact with the leach pool sediment will not occur;

- Leach pool GP-1 only exceeded the SCDHS Article 12 action levels for chromium, the exceedance was minimal (i.e., 109 mg/kg versus the action level of 100 mg/kg);

- Leach pool GP-2 did not exceed any of the SCDHS Article 12 action levels;

- Impacts to ground water for analytes other than antimony were not observed downgradient of the leach field; and

- Based on the low antimony concentrations detected in GP-1 and GP-2, these structures are not considered to be sources of antimony in ground water.

With regard to antimony, the three leach pools are located upgradient of monitoring well MW-8. As discussed above, this well contains an antimony ground water concentration in excess of the NYS Class GA ground water standard. Sediment concentrations of antimony within the lead leach pools GP-1, GP-2 and GP-3 were 6.4, 12.5 and 175 mg/kg, respectively. Based on the presence of chrysene and chromium at concentrations above the SCDHS Article 12 action levels, and the elevated antimony concentration, leach pool GP-3 will be remediated. The cleanup levels for these dry wells are discussed in Section 3.2.3.

3.0 REMEDIAL PLAN FOR SITE SOIL AND DRY WELL SEDIMENT

3.1 REMEDIAL PLAN FOR SITE SOIL

As discussed above, under the proposed development plan, the west wing of the Site building will be demolished and the floor slab removed. This demolition work will be conducted in the near future. To ensure that the PCE-impacted soils are not disturbed by the demolition contractor, the floor slab overlying the PCE-impacted soil will be marked out and the demolition contractor will be instructed not to remove this concrete.

A Remedial Contractor (RC) with proper OSHA HAZWOPER training and qualified to work at hazardous waste sites will be retained to remove the remaining west wing foundation and excavate the PCE impacted soil. Soil will be excavated to meet the NYSDEC leaching to ground water cleanup standard of 1,400 μg/kg. Post-excavation samples will be collected to confirm that sufficient soil has been removed. After the post-excavation results have been received and a determination is made that soil excavation is sufficient, the excavated areas will be backfilled with clean fill.

Post-excavation samples associated with the remediation of the PCE-impacted soil beneath the building will be collected and analyzed as indicated below:

- The samples will be collected using a properly decontaminated hand auger;
- Excavation sidewall samples will be collected at a frequency not less than one per each 50 feet of excavation perimeter. Selection of the sample locations will utilize PID screening to aid in identifying soils that may be over the 1,400 μg/kg cleanup criteria;

- Excavation bottom samples will be collected at a frequency not less than one per each 900 square feet of excavation bottom; and

- The post-excavation samples will be analyzed using an on-site gas chromatograph and photo-ionization detector (GC-PID). This analysis will include quantification of PCE, TCE, cis-1,2-DCE and vinyl chloride. A copy of the GC-PID Standard Operating Procedures that will be used is included herein as Appendix A. Twenty percent of the samples (or a minimum of three samples) will also be sent for confirmatory analysis by an off-site laboratory. One of the confirmatory samples will be collected from the base of the excavation at the location exhibiting the highest PID response. Each sample sent for confirmatory analysis will be analyzed for Volatile Organic Compounds, plus up to ten Tentatively Identified Compounds (VO+10) by a State-certified laboratory using EPA Method 8260 with ASP Category B deliverables.

It is also recognized that the extent of excavation may be affected by structural concerns or the practical limitations of the excavating equipment (should the excavation be deeper than expected). In the event that soil containing PCE above 1,400 μg/kg must be left in place, soil vapor extraction (SVE) will be utilized as an alternative remedial method to address these soils. If this alternative remedial method is required, a proposal for its implementation will be made at that time. The details of SVE deployment will be dependent on the depth of the target soil, whether it is located beneath the proposed new office building and its areal extent.

There are several abandoned concrete pits and troughs below the floor slab that are within the general area of impacted soil. At least one pit and one trough are known to be filled with PCE-contaminated soil. This pit and trough will be removed as part of the excavation and the waste concrete will be appropriately disposed. The discharge point of the trough will be determined by opening the floor as necessary and following this structure to its terminus. Endpoint samples will be collected as described above. Should endpoint sample results require extension of the excavation such that additional pits/troughs are encountered, these structures will also be removed.

The soil to be excavated contains PCE which is suspected to have been a dry cleaning waste product. This material, once removed, must be regulated as a F002 listed RCRA hazardous waste. As such, the soil excavated from the Site will be managed in accordance with the New York State and RCRA hazardous waste requirements for F002 listed wastes. These requirements will be defined in the bid documents prepared for the potential RCs.

The excavated soils will be loaded into trucks and transported by a licensed hauler to a facility permitted to accept F002 listed hazardous wastes. Once at the facility, the soil will be treated to meet the applicable land disposal restrictions.

3.2 *REMEDIAL PLAN FOR DRY WELL SEDIMENT*

As discussed in Section 2.2, sediment present in a number of the on-site dry wells requires remediation. This includes:

- PCE-impacted storm water dry wells GP-8 and DW-20;
- The 10 storm water dry wells which are impacted by PAHs and inorganics; and
- Five dry wells and one leach pool that are impacted by antimony, plus PAHs and/or inorganics (DW-21, DW-22, DW-23, DW-24, DW-25 and GP-3).

3.2.1 *PCE Impacted Storm Water Dry Wells*

Storm water dry wells GP-8 and DW-20 contain sediment with PCE concentrations in excess of the SCDHS Article 12 action level. As discussed above, GP-8 has been abandoned and filled in with sand. DW-20 is an existing drainage structure, however, this dry well does not currently collect surface water runoff since it is located in an unpaved area. In addition, existing site information indicates that there may be other drainage structures connected with these two PCE-impacted dry wells. The remedial program will also include addressing interconnected structures (if any).

Under the proposed remedial action, sediment located within the PCE-impacted structures would be remediated to meet the SCDHS Article 12 cleanup levels. This would entail the following tasks:

- The presence of interconnected structures will be evaluated based on the results of previous geophysical surveys or by new surveys, if necessary. Alternatively, the structures may be located by excavation. Once located, the structures will be uncovered and the bottom sediments screened using a PID. If this screening indicates that contamination is likely, remediation will be performed in the manner described below;

- Fill material within dry well GP-8 will be removed and stockpiled for re-use;

- The sludge/sediment layer will be removed from GP-8, DW-20 and any interconnected dry wells to be remediated;

- The excavated sediment will be disposed off-site as a RCRA F002 listed hazardous waste;

- A post-excavation sediment sample will be collected in GP-8 after several feet of sediment/soil have been removed using a properly decontaminated hand auger. This sample will be analyzed by State-certified laboratory for VO+10 using EPA Method 8260 and seven metals (antimony, cadmium, chromium, copper, lead, nickel, and zinc) using EPA Method 6010A. These analyses will be performed by an off-site State-certified laboratory with ASP Category B deliverables;

- A post-excavation sediment sample will be collected in DW-20 after several feet of sediment/soil have been removed using a properly decontaminated hand auger. This sample will be analyzed by State-certified laboratory for VO+10 using EPA Method 8260 and Base Neutral Compounds, plus up to twenty Tentatively Identified Compounds (BN+20). These analyses will be performed by an off-site State-certified laboratory using EPA Method 8270 with ASP Category B deliverables;

- For any interconnected dry wells to be remediated, the post-excavation sediment sample will be collected as indicated above and analyzed for VO+10, plus any other constituent above the cleanup criteria in the upstream primary dry well;

- The post-excavation analytical results will be compared to the SCDHS Article 12 cleanup levels;

- If the SCDHS Article 12 cleanup levels are not met, removal of additional soil and collection of additional post-excavation samples will be performed until the cleanup levels are met;

- If the vertical extent of contamination extends below the excavation limit of the dry well (i.e., depth to which soil can be removed without undermining the structure), alternate remedial measures will be performed to ensure the cleanup criteria is achieved. Such alternative measures could include installation of a soil vapor extraction well within the dry well to address remaining PCE contamination; and

- Once acceptable excavation endpoint concentrations are confirmed, the dry well will be backfilled to the ground surface with clean fill.

The laboratory analytical program associated with the post-excavation sampling for these two dry wells is summarized in the following table.

Dry Well	Analytical Parameters	Analytical Methods
GP-8	VO+10, Sb, Cd, Cr, Cu, Pb, Ni, Zn	8260, 6010A
DW-20	VO+10, BN+20	8260, 8270

3.2.2 *Dry Wells Impacted by PAHs*

As previously discussed in Section 2.2.3.2, the 15 parking lot storm water dry wells sampled all contained sediment with contaminant concentrations in excess of the SCDHS Article 12 action level. Each of these dry wells will therefore be remediated. This section addresses the 10 of these 15 dry wells which are not impacted by antimony. Under the proposed remedial action, sediment located within these 10 dry wells would be remediated to meet the SCDHS Article 12 cleanup levels. This would entail:

- Any standing water will be removed;
- The sludge/sediment layer within the dry wells will be removed;
- A post-excavation sediment sample will be collected and analyzed in an off-site State-certified laboratory for BN+20. These analyses will be performed by an off-site State-certified laboratory using EPA Method 8270 with ASP Category B deliverables;
- The post-excavation samples will be collected using a properly decontaminated hand auger after several feet of sediment/soil have been removed. Further description of the analytical program for these dry wells is given at the end of this section;
- The excavated sediment will be characterized and disposed off-site. All analyses necessary to obtain disposal acceptance will be performed, including TCLP analysis, as required by the disposal facility. It is anticipated that this material will be accepted as a petroleum contaminated non-hazardous waste;
- Standing water will be disposed off-site (most likely at the Bergen Point POTW);
- The analytical results will be compared to the SCDHS Article 12 cleanup levels; and
- If the SCDHS Article 12 cleanup levels are not met, additional soil will be removed and additional post-excavation samples will be collected until the cleanup levels are met.

The laboratory analytical program associated with the post-excavation sampling for these 10 dry wells is summarized in the following table.

Dry Well	Analytical Parameters	Analytical Methods
DW-1	BN+20	8270
DW-4	BN+20	8270
DW-5	BN+20	8270
DW-6	BN+20	8270
DW-9	BN+20	8270
DW-12	BN+20	8270
DW-14	BN+20	8270
DW-16	BN+20	8270
DW-19	BN+20	8270
DW-26	BN+20	8270

3.2.3 *Dry Wells Impacted by Antimony*

The dry wells included in this portion of the remedial program include the five parking lot stormwater dry wells (DW-21, 22, 23, 24 and 25) that contain antimony plus one of the three lead leach pools (GP-3) associated with the former WWTP. These structures are all located in the southwest portion of the property and are suspected to be a source of antimony in ground water. In addition to antimony, these dry wells also contain PAHs and one or more of the following metals: cadmium, chromium and/or lead, at concentrations above the SCDHS Article 12 action levels.

Additional investigation will also be performed to identify possible interconnected dry wells that may be downstream of the five parking lot storm water dry wells. It is anticipated that this investigation will consist of simply viewing the dry well interior to check for overflow pipes. A magnetometer or other geophysical tools may also be used to supplement these observations, if necessary. It should also be noted that further work will be done to confirm the location of the three lead leach pools associated with the former WWTP, however this work will be performed under the Voluntary Investigation Agreement and not under this Remedial Action Work Plan. A proposal for this work will be submitted to NYSDEC under separate cover.

Under the proposed remedial action, each of these five dry wells would be remediated to meet the SCDHS Article 12 cleanup levels. This would entail:

- Sand fill will be removed and stockpiled for re-use (GP-3, only);
- The sludge/sediment layer will be removed;
- The excavated sediment will be disposed as a non-hazardous waste (pending confirmation by additional characterization sampling). All analyses necessary to obtain disposal acceptance will be performed, including TCLP analysis, as required by the disposal facility;
- A post-excavation sediment sample will be collected and analyzed for BN+20, antimony, cadmium, chromium, copper, lead, nickel, and zinc. These analyses will be performed by an off-site State-certified laboratory using EPA Methods 8270 and 6010A with ASP Category B deliverables. Further description of the analytical program for these dry wells is given at the end of this section;
- The post-excavation sample will be collected using a properly decontaminated hand auger after several feet of sediment/soil have been removed;
- The sampling results will be compared to the SCDHS Article 12 cleanup levels;
- If the SCDHS Article 12 cleanup levels are not met, additional soil will be removed and additional post-excavation samples will be collected until the cleanup levels are met;
- The five parking lot stormwater dry wells will be refurbished for continued use in stormwater management; and
- Leach pool GP-3 will be backfilled to the ground surface with clean fill.

The laboratory analytical program associated with the post-excavation sampling for these five dry wells is summarized in the following table.

Dry Well	Analytical Parameters	Analytical Methods
DW-21	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, Zn	8270, 6010A
DW-22	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, Zn	8270, 6010A
DW-23	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, Zn	8270, 6010A
DW-24	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, Zn	8270, 6010A
DW-25	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, Zn	8270, 6010A
GP-3	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, Zn	8270, 6010A

It is recognized that a cleanup level needs to be established for antimony prior to completion of the remedial program. This level will be 13.5 mg/kg, or another level that is proposed by Reckson and approved by NYSDEC. This alternate cleanup criteria will be developed by Reckson and submitted to NYSDEC in a separate document.

3.3 *AIR MONITORING PROGRAM*

3.3.1 *Work Zone Air Monitoring Program*

An air monitoring program will be conducted concurrently with the remedial activities described above. The work zone air quality will be monitored using a PID and portable dust monitor. As long as the levels at the work zone perimeter do not exceed 5.0 ppm on the PID and/or 150 $\mu g/m^3$ on the dust monitor, no additional air monitoring will be performed. (Note that the work zone perimeter monitoring associated with the remediation of the PCE-impacted soil beneath the building will be performed at the garage entrance on the west wall of the building.)

3.3.2 *Community Air Monitoring Program*

If the threshold levels stated above are exceeded at the perimeter of the work zone, a community air monitoring program will be implemented as described below.

- Volatile Organic Compounds (VOCs) will be continuously monitored at the downwind Site boundary. If total organic vapor levels exceed 5 ppm above background, excavation activities will be halted and monitoring continued under the provisions of a Vapor Emission Response Plan described below. All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review.

- Particulates will also be continuously monitored at the downwind Site boundary with a portable particulate monitor that have an alarm set at 150 $\mu g/m^3$. If downwind particulate levels, averaged over a period of 15 minutes, are greater than 150 $\mu g/m^3$ over the particulate levels at the upwind location, then excavation activities must be stopped and corrective action taken. All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review.

3.3.2.1 *Vapor Emission Response Plan*

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the downwind Site boundary, excavation activities will be temporarily halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, excavation activities can resume but more frequent intervals of monitoring, as directed by the Health and Safety Officer (HSO), must be conducted. The conditions will be discussed with the ERM Project Manager and appropriate vapor suppression techniques will be employed if deemed necessary. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the downgradient Site boundary, excavation activities can resume provided:

- The organic vapor level 200 feet downwind of the Site boundary or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background; and

- More frequent intervals of monitoring, as directed by the HSO, are conducted.

If the organic vapor level is above 25 ppm at the downwind site boundary, work activities must be shutdown. When work shutdown occurs, downwind air monitoring, as directed by the HSO, will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section below.

3.3.2.2 *Major Vapor Emission*

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the Site boundary or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following cessation of work activities, or as the result of an emergency, VOC levels persist greater than 5 ppm above background 200 feet downwind, or half the distance to the nearest residential or commercial property from the Site boundary, air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If either of the following criteria is exceeded in the 20-Foot Zone, then the Major Vapor Emission Response Plan shall be automatically implemented:

- Organic vapor levels approaching 5 ppm above background for a period of more than 30 minutes.
- Organic vapor levels greater than 10 ppm above background for any time period.

3.3.2.3 *Major Vapor Emission Response Plan*

Upon activation, the following activities will be undertaken:

- All Emergency contacts as listed in the Health and Safety Plan will be notified as appropriate.

- The local police authorities will immediately be contacted by the HSO and advised of the situation.

- Frequent air monitoring will be conducted at 30-minute intervals within the 20-Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the HSO.

3.4 *SUMMARY OF PROPOSED REMEDIAL PROGRAM*

A summary of the proposed remedial actions for site soil and dry well sediment is presented in Table 3-1. The cleanup criteria for each chemical in soil or dry well sediment that requires remediation is presented in Table 3-2. These remedial actions will:

1. Achieve the risk-based NYSDEC TAGM cleanup levels for organic compounds and the EPA criteria for inorganic constituents.

2. Eliminate leaching to ground water, volatilization to indoor air and direct contact risks posed by PCE in Site soil;

2. Achieve the SCDHS Article 12 action levels for all storm water dry well sediment at the Site;

3. Achieve the SCDHS Article 12 action levels for sediment in the three lead leach pools of the former WWTP;

4. Eliminate the source of antimony leaching to ground water;

TABLE 1-1
Floor Drain Survey Results
333 Smith Street, Farmingdale, NY

Drain ID	Drain Location	Findings
Drains 1 – 4	Four interconnected drains located in the boiler room.	Drainage leads east. Tracing ended at tee connection. Discharge point not determined.
Drain 5	Inside the garage door near NW corner of building.	Connects with Drain 7.
Drain 6	Located between Drain 8 and Drain 7	Drainage takes circuitous route, eventually terminating in abandoned pit just inside west wall.
Drain 7	Located between Drain 5 and Drain 6.	Drains west, terminates in abandoned pit just inside west wall (same as Drain 6).
Drain 8	Along south wall near SW corner of building.	Drains south, discharging to abandoned dry well outside SW corner of building.
Drains 9a, 9b, 9c	Former plating room: 2 open pipes in floor (9a, 9b); 1 overflow from sump (9c).	9b discharges to sump. Sump overflow (9c) connects with 9a. Piping leading from 9a is collapsed immediately below floor.
Drain 10	Near bathrooms in interior of building.	Connected to sanitary drainage from building interior. Discharges to house trap outside west wall of building. Trap discharges to adjacent abandoned leach pool.
Drain 11	Connection to roof leader in former flammables room.	Discharges to house trap outside north wall of flammables room. Trap discharges to same abandoned leach pool as Drain 10.

TABLE 1-2
Soil Gas PID Screening Results - 333 Smith Street

	X	Y	Z	D		X	Y	Z	D
B1	80	294	2	5.0	**B11**	77	75	2	11.0
			10	16.8				10	13.0
			20	58				20	6.0
			30	15.2				30	5.5
B2	155	294	2	7.0	**B12**	14	115	2	5.0
			10	12.0				10	4.2
			20	17.0				20	4.4
			30	22.0				30	4.0
B3	17	226	2	11.0	**B13**	29	52	2	32
			10	6.0				10	260
			20	9.0				20	110
			30	7.0				30	2.4
B4	72	227	2	62	**B14**	102	55	2	20.0
			10	32				10	9.6
			20	28				20	10.2
			30	64				30	5.4
B5	-24	283	2	1.2	**B15**	-21	90	2	1.8
			10	1.0				10	2.4
			20	1.4				20	1.8
			30	1.4				30	4.8
B6	57	189	2	190	**B16**	39	8	2	17.0
			10	20.0				10	10.0
			20	47.0				20	8.0
			30	46.0				30	10.0
B7	153	198	2	52	**B17**	152	8	2	12.0
			10	48				10	5.0
			20	26				20	7.0
			30	11.4				30	2.0
B8	9	168	2	8.0	**B18**	128	-13	2	10.2
			10	6.0				10	16.2
			20	5.0				20	19.6
			30	6.0				30	14.8
B9	109	125	2	82	**B19**	51	-11	2	8.0
			10	94				10	10.0
			20	24				20	8.0
			30	70				30	8.0
B10	-40	154	2	0.5	**B20**	-14	-17	2	8.0
			10	1.5				10	3.5
			20	2.5				20	7.0
			30	1.5				30	1.0

X, Y coordinates off
SW corner of building (0,0) in feet

Z = Depth below grade (feet)

D = PID reading
(ppm isobutylene calibration)

TABLE 1-3
Volatiles in Soil Gas
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	B-1 (20')		B-2 (30')		B-3 (2')		B-4 (30')		B-5 (30')		B-6 (2')		B-7 (2')		B-8 (2')	
Date Collected =>	4/22/99		4/22/99		4/22/99		4/23/99		4/23/99		4/22/99		4/23/99		4/23/99	
VOCs by TO-14 (mg/m^3)																
Dichlorodifluoromethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Chloromethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Chloride	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Bromomethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Chloroethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Trichlorofluoromethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Acetone	7		7		2	U	0.4	U	1.0		0.4	U	0.4	U	0.4	U
Iodomethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Carbon Disulfide	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Methylene Chloride	6		6		2	U	0.7		0.7		0.4	U	0.7		0.7	
trans-1,2-Dichlorethene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Methyl tert-butyl ether	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Acetate	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
cis-1,2-Dichloroethene	20		2		2	U	2.0		0.4	U	0.4	U	3.0		0.4	U
2,2-Dichloropropane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
2-Butanone	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Bromochloromethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Chloroform	3		3		2	U	0.7		0.6		0.4	U	0.7		0.4	U
1,1,1-Trichloroethane	2	U	2	U	2	U	0.4	U	0.4	U	1.0		0.4	U	0.4	U
1,1-Dichloropropene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Carbon Tetrachloride	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2-Dichloroethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Benzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Trichloroethene	24		7		2	U	8.0		0.4	U	2.0		13.0		0.6	
1,2-Dichloropropane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Dibromomethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Bromodichloromethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
2-Chloroethylvinyl ether	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
cis-1,3-Dichloropropene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
4-Methyl-2-pentanone	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Toluene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
trans-1,3-Dichloropropene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1,2-Trichloroethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,3-Dichloropropane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Tetrachloroethene	610	E	200		120		770.0	DE	2.0		2300.0	DE	570.0	DE	70.0	D
2-Hexanone	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Dibromochloromethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2-Dibromoethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Chlorobenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1,1,2-Tetrachloroethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Ethylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Xylenes (Total)	2	U	2	U	2	U	0.4	U	0.4	U	5.0		0.4	U	0.4	U
Styrene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Bromoform	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Isopropylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1,2,2-Tetrachloroethane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Bromobenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,3-Trichloropropane	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
n-Propylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
2-Chlorotoluene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,3,5-Trimethylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
4-Chlorotoluene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
tert-Butylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trimethylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4		0.4	U	0.4	U
sec-Butylbenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,3-Dichlorobenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.5		0.4	U	0.4	U
4-Isopropyltoluene	7		2	U	2	U	0.4	U	0.4	U	0.5		0.4	U	0.4	U
1,4-Dichlorobenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.5		0.4	U	0.4	U
n-Butylbenzene	6		2	U	2	U	0.4	U	0.4	U	0.6		0.4	U	0.4	U
1,2-Dichlorobenzene	2	U	2	U	2	U	0.4	U	0.4	U	0.5		0.4	U	0.4	U
1,2-Dibromo-3-chloropropane	2	U	2	U	2	U	0.4	U	0.4	U	0.5	B	0.4	U	0.4	U
1,2,4-Trichlorobenzene	8		2	U	2	U	0.4	U	0.4	U	1.0		0.4	U	0.4	U
Hexachlorobutadiene	8		2	U	2	U	0.4	U	0.4	U	0.9		0.4	U	0.4	U
Naphthalene	13	B	9	B	2	U	2.0		2.0		2.0	B	0.4	U	2.0	
1,2,3-Trichlorobenzene	9	U	2	U	2	U	0.4	U	0.4	U	1.0		0.4	U	0.4	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank
D=result from secondary analysis (dilution) E=value exceeds calibration range

TABLE 1-3
Volatiles in Soil Gas
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	B-9 (10')		B-10 (20')		B-11 (10')		B-12 (2')		B-13 (10')		B-14 (2')		B-15 (30')		B-16 (2')	
Date Collected =>	4/22/99		4/23/99		4/23/99		4/22/99		4/22/99		4/22/99		4/23/99		4/22/99	
VOCs by TO-14 (mg/m^3)																
Dichlorodifluoromethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Chloromethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Vinyl Chloride	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Bromomethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Chloroethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Trichlorofluoromethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,1-Dichloroethene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Acetone	0.4	U	0.4	U	0.4	U	0.4	U	2.0	B	6		1.0		2	U
Iodomethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Carbon Disulfide	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Methylene Chloride	1.0		7.0		7.0		0.4	U	1.0		6		0.7		2	U
trans-1,2-Dichlorethene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Methyl tert-butyl ether	0.4	U	0.4	U	0.4	U	0.4	U	0.5		2	U	0.4	U	2	U
1,1-Dichloroethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Vinyl Acetate	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
cis-1,2-Dichloroethene	2.0		1.0		4.0		1.0		0.7		2	U	13.0		2	U
2,2-Dichloropropane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
2-Butanone	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Bromochloromethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Chloroform	0.4	U	0.6		0.6		0.4	U	0.4	U	3		0.6		2	U
1,1,1-Trichloroethane	1.0		0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,1-Dichloropropene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Carbon Tetrachloride	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,2-Dichloroethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Benzene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Trichloroethene	6.0		0.7		2.0		0.5		0.4	U	2		1.0		2	U
1,2-Dichloropropane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Dibromomethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Bromodichloromethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
2-Chloroethylvinyl ether	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
cis-1,3-Dichloropropene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
4-Methyl-2-pentanone	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Toluene	0.4	U	0.4	U	0.4	U	0.4	U	0.4		2	U	0.4	U	2	U
trans-1,3-Dichloropropene	0.4	U	4.0		0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,1,2-Trichloroethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,3-Dichloropropane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Tetrachloroethene	1000.0	DE	0.4	U	90.0	D	14.0		19.0		180		7.0		180	
2-Hexanone	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Dibromochloromethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,2-Dibromoethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Chlorobenzene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,1,1,2-Tetrachloroethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Ethylbenzene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Xylenes (Total)	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Styrene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Bromoform	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Isopropylbenzene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,1,2,2-Tetrachloroethane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
Bromobenzene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,2,3-Trichloropropane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
n-Propylbenzene	0.4	U	1.0		0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
2-Chlorotoluene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,3,5-Trimethylbenzene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
4-Chlorotoluene	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
tert-Butylbenzene	0.4	U	1.0		0.4	U	0.4		0.4	U	2	U	0.4	U	2	U
1,2,4-Trimethylbenzene	0.4	U	0.4	U	0.4	U	0.4		0.4	U	2	U	0.4	U	2	U
sec-Butylbenzene	0.4	U	1.0		0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,3-Dichlorobenzene	0.4	U	0.4	U	0.4	U	0.4		0.4	U	2	U	0.4	U	2	U
4-Isopropyltoluene	0.4	U	1.0		0.4	U	0.6		0.4	U	2	U	0.4	U	2	U
1,4-Dichlorobenzene	0.4	U	0.4	U	0.4	U	0.4		0.4	U	2	U	0.4	U	2	U
n-Butylbenzene	0.4	U	1.0		0.4	U	0.8		0.4	U	2	U	0.4	U	2	U
1,2-Dichlorobenzene	0.4	U	0.4	U	0.4	U	0.4		0.4	U	2	U	0.4	U	2	U
1,2-Dibromo-3-chloropropane	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	2	U	0.4	U	2	U
1,2,4-Trichlorobenzene	0.4	U	0.4	U	0.4	U	1.0		0.4	U	2	U	0.4	U	2	U
Hexachlorobutadiene	0.4	U	0.4	U	0.4	U	2.0		0.4	U	2	U	0.4	U	2	U
Naphthalene	0.4	U	3.0		0.4	U	0.9	B	0.4	U	9	B	2.0		2	U
1,2,3-Trichlorobenzene	0.4	U	1.0		0.4	U	2.0		0.4	U	2	U	2.0		2	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank
D=result from secondary analysis (dilution) E=value exceeds calibration range

TABLE 1-3
Volatiles in Soil Gas
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	B-17 (2')		B-18 (20')		B-19 (10')		B-20 (2')	
Date Collected =>	4/22/99		4/23/99		4/23/99		4/23/99	
VOCs by TO-14 (mg/m^3)								
Dichlorodifluoromethane	2	U	0.4	U	0.4	U	2	U
Chloromethane	2	U	0.4	U	0.4	U	2	U
Vinyl Chloride	2	U	0.4	U	0.4	U	2	U
Bromomethane	2	U	0.4	U	0.4	U	2	U
Chloroethane	2	U	0.4	U	0.4	U	2	U
Trichlorofluoromethane	2	U	0.4	U	0.4	U	2	U
1,1-Dichloroethene	2	U	0.4	U	0.4	U	2	U
Acetone	6		1.0		1.0		6	
Iodomethane	2	U	0.4	U	0.4	U	2	U
Carbon Disulfide	2	U	0.4	U	0.4	U	2	U
Methylene Chloride	6		0.7		0.7		7	
trans-1,2-Dichlorethene	2	U	0.4	U	0.4	U	2	U
Methyl tert-butyl ether	2	U	0.4	U	0.4	U	2	U
1,1-Dichloroethane	2	U	0.4	U	0.4	U	2	U
Vinyl Acetate	2	U	0.4	U	0.4	U	2	U
cis-1,2-Dichloroethene	2	U	2.0		6.0		2	U
2,2-Dichloropropane	2	U	0.4	U	0.4	U	2	U
2-Butanone	2	U	0.4	U	0.4	U	2	U
Bromochloromethane	2	U	0.4	U	0.4	U	2	U
Chloroform	3		0.4	U	0.4	U	3	
1,1,1-Trichloroethane	2	U	0.6		0.4	U	2	U
1,1-Dichloropropene	2	U	0.4	U	0.4	U	2	U
Carbon Tetrachloride	2	U	0.4	U	0.4	U	2	U
1,2-Dichloroethane	2	U	0.4	U	0.4	U	2	U
Benzene	2	U	0.4	U	0.4	U	2	U
Trichloroethene	2	U	3.0		4.0		2	U
1,2-Dichloropropane	2	U	0.4	U	0.4	U	2	U
Dibromomethane	2	U	0.4	U	0.4	U	2	U
Bromodichloromethane	2	U	0.4	U	0.4	U	2	U
2-Chloroethylvinyl ether	2	U	0.4	U	0.4	U	2	U
cis-1,3-Dichloropropene	2	U	0.4	U	0.4	U	2	U
4-Methyl-2-pentanone	2	U	0.4	U	0.4	U	2	U
Toluene	2	U	0.4	U	0.4	U	2	U
trans-1,3-Dichloropropene	2	U	0.4	U	0.4	U	2	U
1,1,2-Trichloroethane	2	U	0.4	U	0.4	U	2	U
1,3-Dichloropropane	2	U	0.4	U	0.4	U	2	U
Tetrachloroethene	120		170.0	D	77.0	D	23	
2-Hexanone	2	U	0.4	U	0.4	U	2	U
Dibromochloromethane	2	U	0.4	U	0.4	U	2	U
1,2-Dibromoethane	2	U	0.4	U	0.4	U	2	U
Chlorobenzene	2	U	0.4	U	0.4	U	2	U
1,1,1,2-Tetrachloroethane	2	U	0.4	U	0.4	U	2	U
Ethylbenzene	2	U	0.4	U	0.4	U	2	U
Xylenes (Total)	2	U	0.4	U	0.4	U	2	U
Styrene	2	U	0.4	U	0.4	U	2	U
Bromoform	2	U	0.4	U	0.4	U	2	U
Isopropylbenzene	2	U	0.4	U	0.4	U	2	U
1,1,2,2-Tetrachloroethane	2	U	0.4	U	0.4	U	2	U
Bromobenzene	2	U	0.4	U	0.4	U	2	U
1,2,3-Trichloropropane	2	U	0.4	U	0.4	U	2	U
n-Propylbenzene	2	U	1.0		1.0		2	U
2-Chlorotoluene	2	U	0.4	U	0.4	U	2	U
1,3,5-Trimethylbenzene	2	U	0.4	U	0.4	U	2	U
4-Chlorotoluene	2	U	0.4	U	0.4	U	2	U
tert-Butylbenzene	2	U	1.0		0.4	U	6	
1,2,4-Trimethylbenzene	2	U	0.4	U	0.4	U	2	U
sec-Butylbenzene	2	U	1.0		1.0		6	
1,3-Dichlorobenzene	2	U	0.4	U	0.4	U	2	U
4-Isopropyltoluene	2	U	1.0		1.0		7	
1,4-Dichlorobenzene	2	U	0.4	U	0.4	U	2	U
n-Butylbenzene	2	U	1.0		1.0		6	
1,2-Dichlorobenzene	2	U	0.4	U	0.4	U	2	U
1,2-Dibromo-3-chloropropane	2	U	0.4	U	0.4	U	2	U
1,2,4-Trichlorobenzene	2	U	2.0		0.4	U	2	U
Hexachlorobutadiene	2	U	1.0		1.0		7	
Naphthalene	9	B	2.0		2.0		9	
1,2,3-Trichlorobenzene	2	U	2.0		0.4	U	2	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank

TABLE 1-4
XRF[1] and PID[2] Field Screening Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001

		Sample ID:	GP-01 SLUDGE	GP-02 SLUDGE	GP-03 SLUDGE	GP-04 (0-4)	GP-04 (5-9)	GP-04 (10-14)	GP-04 (15-19)	GP-04 (20-24)	GP-04 (25-29)	GP-04 (30-34)
		ERM-FAST Tracking No:	ERM001	ERM002	ERM003	ERM004	ERM005	ERM006	ERM007	ERM008	ERM009	ERM010
		ERM-FAST File ID:	212	213	214	218	219	220	221	222	223	224
		Date Collected/Analyzed:	5/3/99	5/3/99	5/3/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99
Analyte	Screening Criteria[3]	Detection Limit										
Arsenic	100	10	16	17	10 U	24	10 U	10 U	14	10 U	4.8 B	10 U
Barium	2000	10	40	81	82	62	3.7 B	12	9.3 B	41	17	35
Cadmium	20	1.0	7.4	1.0 B	3.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4
Chromium	100	55	760	23 B	380	55 U	55 U	55 U	26 B	55 U	31 B	55 U
Lead	100	10	140	2.2 B	84	11	7.4 B	5.3 B	3.2 B	3.6 B	8.2 B	2.3 B
Mercury	4	10	10 U	2.4 B	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Selenium	20	7.0	8.8	7.0 U	3.7 B	7.0 U	7.0 U	7.0 U	1.4 B	7.0 U	1.3 B	7.0 U
Silver	100	4.0	6.7	1.8 B	3.7 B	1.0 B	4.0 U	2.3 B	2.3 B	4.0 U	4.0 U	3.6 B
Antimony	-	5.0	1400.0	30.0	480.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Calcium	-	700	24000	40000	16000	2000	700 U	1100	710	800	1300	1900
Cobalt	-	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Copper	-	20	660	24	330	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Iron	-	30	6700	7600	8400	25000	2200	4200	9800	2600	2400	2400
Manganese	-	30	30 U	240	48	220	30 U	110	190	78	66	30 U
Nickel	-	60	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
Potassium	-	1500	1500 U	1600	1500 U	7800	2600	2000	2600	2600	4700	5300
Thallium	-	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	-	16	33	28	43	43	16 U	16 U	16 U	16 U	16 U	16 U
Zinc	-	11	1200	21	310	22	11 U	11 U	11 U	11 U	11 U	11 U
Percent Moisture :			47	16	40	14	1	3	2	3	5	4
PID Screening Result :			0.4	0.2	0.0	15.0	1.0	20.0	0.0	0.0	0.0	0.0

Notes:
[1]XRF results in mg/kg

[2]PID results in ppmv
(isobutylene calibration)

[3]Based on TCLP 20:1 dilution

U = Analyte not detected B = Value is below the Method Detection Limit, but above the Instrument Detection Limit

TABLE 1-4

XRF[1] and PID[2] Field Screening Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001

Analyte	Screening Criteria[3]	Detection Limit	GP-05 (0-4)	GP-05 (5-9)	GP-05 (10-14)	GP-05 (15-19)	GP-05 (20-24)	GP-05 (25-29)	GP-05 (30-34)	GP-06 (0-4)	GP-06 (5-9)	GP-06 (10-14)
ERM-FAST Tracking No:			ERM011	ERM012	ERM013	ERM014	ERM015	ERM016	ERM017	ERM018	ERM019	ERM037
ERM-FAST File ID:			225	226	227	228	229	230	231	232	233	254
Date Collected/Analyzed:			5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/4/99	5/5/99
Arsenic	100	10	24	10 U	2.3 B	10 U	6.9 B	10 U	4.1 B	10 U	2.9 B	3.8 B
Barium	2000	10	110	86	50	35	89	100	65	110	42	26
Cadmium	20	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chromium	100	55	16 B	55 U	55 U	14 B	55 U	55 U	12 B	55 U	14 B	55 U
Lead	100	10	17	3.8 B	10 U	13	10 U	5.9 B	3.0 B	17	7.5 B	4.4 B
Mercury	4	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.7 B	10 U
Selenium	20	7.0	7.0 U	7.0 U	3.8 B	7.0 U	7.0 U	7.0 U	7.0 U	3.0 B	7.0 U	7.0 U
Silver	100	4.0	4.0 U	4.0 U	4.0 U	2.9 B	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Antimony	-	5.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	7.4
Calcium	-	700	3100	700 U	750	1100	1100	880	700 U	2000	2400	700 U
Cobalt	-	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Copper	-	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Iron	-	30	16000	1900	1200	4500	1800	2200	4600	9700	12000	2800
Manganese	-	30	96	30 U	30 U	86	68	79	86	69	330	45
Nickel	-	60	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
Potassium	-	1500	9000	3000	4500	5000	3400	1800	2100	5600	6100	2000
Thallium	-	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	-	16	51	16 U	16 U	16 U	16 U	16 U	16 U	43	27	16 U
Zinc	-	11	26	11 U	11 U	11 U	11 U	11 U	11 U	14	18	11 U
Percent Moisture :			13	2	3	2	3	2	3	10	5	2
PID Screening Result :			50.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:
[1]XRF results in mg/kg

[2]PID results in ppmv
(isobutylene calibration)

[3]Based on TCLP 20:1 dilution

U = Analyte not detected B = Value is below the Method Detection Limit, but above the Instrument Detection Limit

TABLE 1-4

XRF[1] and PID[2] Field Screening Results

Reckson - 333 Smith Street

Farmingdale, New York

ERM Project Number 1574.001

Analyte	Screening Criteria[3]	Detection Limit																				
Sample ID:			GP-06 (20-24)		GP-06 (25-29)		GP-06 (30-34)		GP-07 (0-4)		GP-07 (5-9)		GP-07 (10-14)		GP-07 (15-19)		GP-07 (20-24)		GP-07 (25-29)		GP-07 (30-34)	
ERM-FAST Tracking No:			ERM038		ERM039		ERM040		ERM020		ERM021		ERM022		ERM023		ERM024		ERM025		ERM026	
ERM-FAST File ID:			255		256		257		237		238		239		240		241		242		243	
Date Collected/Analyzed:			5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99	
Arsenic	100	10	6.4	B	3.5	B	4.1	B	70		21		10	U	10	U	10	U	4.5	B	4.7	B
Barium	2000	10	15		33		10	U	74		47		63		51		61		68		11	
Cadmium	20	1.0	1.0	U	1.0	U	1.0	U	1.7		0.9	B	1.0	U	1.0	U	1.0	U	1.0	U	0.4	B
Chromium	100	55	15	B	55	U	55	U	55	U	55	U	37	B	19	B	55	U	55	U	55	U
Lead	100	10	6.0	B	10	U	3.3	B	17		28		9.8	B	6.2	B	6.2	B	4.9	B	10	U
Mercury	4	10	2.0	B	10	U	1.2	B	2.7	B	1.6	B	10	U	10	U	10	U	10	U	10	U
Selenium	20	7.0	7.0	U	2.0	B	2.7	B	2.6	B	4.3	B	4.8	B	7.0	U	7.0	U	7.0	U	7.0	U
Silver	100	4.0	2.2	B	4.0	U	2.1	B	2.1	B	4.0	U	4.0	U	4.0	U	1.5	B	4.0	U	4.0	U
Antimony	-	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Calcium	-	700	1200		700	U	1900		3400		2600		1300		900		700	U	1300		720	
Cobalt	-	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Copper	-	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Iron	-	30	2600		2500		6600		13000		15000		1300		1900		1600		3800		1900	
Manganese	-	30	37		49		30	U	47		81		45		30	U	37		170		47	
Nickel	-	60	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U
Potassium	-	1500	4200		1500	U	2700		7600		6300		3500		2300		2900		4100		3200	
Thallium	-	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	-	16	21		16	U	16	U	37		36		16	U	16	U	16	U	16	U	16	U
Zinc	-	11	11	U	11	U	11	U	20		24		11	U	11	U	11	U	11	U	11	U
Percent Moisture :			5		2		3		13		16		4		4		6		7		4	
PID Screening Result :			0.0		0.0		0.0		0.0		0.0		0.0		5.0		2.0		0.0		0.0	

Notes:

[1]XRF results in mg/kg

[2]PID results in ppmv (isobutylene calibration)

[3]Based on TCLP 20:1 dilution

U = Analyte not detected B = Value is below the Method Detection Limit, but above the Instrument Detection Limit

TABLE 1-4
XRF[1] and PID[2] Field Screening Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001

Sample ID:			GP-08 SLUDGE		GP-08 (20-24)		GP-08 (25-29)		GP-08 (30-34)		GP-10 (3-7)		GP-10 (8-12)		GP-10 (13-17)		GP-10 (18-22)		GP-10 (23-27)		GP-10 (28-33)	
ERM-FAST Tracking No:			ERM027		ERM028		ERM029		ERM030		ERM031		ERM032		ERM033		ERM034		ERM035		ERM036	
ERM-FAST File ID:			244		245		246		247		248		249		250		251		252		253	
Date Collected/Analyzed:			5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99		5/5/99	
Analyte	Screening Criteria[3]	Detection Limit																				
Arsenic	100	10	3.8	B	6.0	B	10	U	10	U	4.1	B	10	U	7.3	B	3.7	B	13		2.0	B
Barium	2000	10	32		37		38		28		58		65		76		37		38		44	
Cadmium	20	1.0	0.4	B	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.6		0.6	B	1.0	U
Chromium	100	55	500		55	U	55	U	9.1	B	14	B	34	B	55	U	55	U	55	U	12	B
Lead	100	10	270		10	U	6.7	B	3.2	B	2.4	B	16		4.1	B	3.2	B	10	U	2.8	B
Mercury	4	10	10	U	4.2	B	10	U	10	U	3.1	B	10	U	10	U	10	U	10	U	10	U
Selenium	20	7.0	17.0		7.0	U	7.0	U	5.2	B	7.0	U	7.0	U	7.0	U	7.0	U	1.2	B	7.0	U
Silver	100	4.0	1.2	B	1.3	B	1.6	B	4.0	U	1.3	B	4.0	U	3.3	B	3.4	B	4.0	U	4.0	U
Antimony	-	5.0	240.0		5.0	U	5.7		5.0	U	5.0	U	14.0		5.0	U	5.0	U	5.0	U	5.0	U
Calcium	-	700	40000		1600		1900		870		1600		26000		700	U	1300		820		1200	
Cobalt	-	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Copper	-	20	940		20	U	20	U	20	U	20	U	25		20	U	20	U	20	U	20	U
Iron	-	30	14000		1800		2700		1500		2100		5400		1700		2500		2500		2500	
Manganese	-	30	30	U	50		100		30	U	39		93		87		30	U	30	U	50	
Nickel	-	60	60	U	60	U	60	U	60	U	60	U	430		60	U	60	U	60	U	60	U
Potassium	-	1500	1500	U	3200		3300		2200		3100		3100		2600		3900		2900		2700	
Thallium	-	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	-	16	24		16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U
Zinc	-	11	380		11	U	11	U	11	U	11	U	45		11	U	11	U	11	U	11	U
Percent Moisture :			51		3		5		4		4		6		3		5		3		3	
PID Screening Result :			15.0		26.0		55.0		94.0		0.0		0.0		0.0		0.0		0.0		0.0	

Notes:

[1]XRF results in mg/kg

[2]PID results in ppmv
(isobutylene calibration)

[3]Based on TCLP 20:1 dilution

U = Analyte not detected   B = Value is below the Method Detection Limit, but above the Instrument Detection Limit

TABLE 1-4

XRF[1] and PID[2] Field Screening Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001

		Sample ID:	GP-11 (0-4)		GP-11 (5-9)		GP-11 (10-14)		GP-12 (0-4)		GP-12 (4-8)		GP-12 (8-12)		GP-13 (0-4)		GP-13 (4-8)		Plating Rm Pipe		GP-14 SLUDGE	
		ERM-FAST Tracking No:	ERM041		ERM042		ERM043		ERM044		ERM045		ERM046		ERM047		ERM048		ERM049		ERM050	
		ERM-FAST File ID:	261		262		263		264		265		266		267		268		269		270	
		Date Collected/Analyzed:	5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99	
Analyte	Screening Criteria[3]	Detection Limit																				
Arsenic	100	10	5.2	B	8.2	B	7.0	B	34		5.2	B	7.5	B	10	U	9.5	B	25		10	U
Barium	2000	10	210		170		110		250		63		67		11		62		91		42	
Cadmium	20	1.0	1.0	U	1.0	U	1.3		1.0	U	2.1		1.0	U	1.0	U	1.0	U	2.7		9.3	
Chromium	100	55	55	U	55	U	55	U	55	U	55	U	55	U	31	B	18	B	55	U	110	
Lead	100	10	15		11		10	U	16		7.7	B	2.6	B	9.0	B	2.1	B	10	B	150	
Mercury	4	10	10	U	10	U	2.2	B	10	U	10	U	1.3	B	10	U	10	U	1.2	B	10	U
Selenium	20	7.0	4.6	B	7.0	U	7.0	U	3.7	B	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	2.0	B
Silver	100	4.0	4.0	U	4.0	U	4.0	U	4.0	U	1.1	B	4.0	U	4.0	U	1.3	B	4.0	U	3.2	B
Antimony	-	5.0	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	400.0	
Calcium	-	700	3800		1400		1500		3600		1200		980		35000		950		17000		10000	
Cobalt	-	20	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Copper	-	20	20	U	20	U	20	U	20	U	20	U	20	U	100		20	U	20	U	240	
Iron	-	30	13000		4600		2300		18000		3500		4300		7400		3600		12000		7800	
Manganese	-	30	200		110		59		110		79		120		83		130		200		34	
Nickel	-	60	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U
Potassium	-	1500	6800		3200		2900		7600		3900		2400		1500	U	2600		5200		2100	
Thallium	-	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	-	16	37		16	U	16	U	55		16	U	16	U	16	U	16	U	44		19	
Zinc	-	11	16		14		11	U	33		11	U	11	U	1700		11	U	47		260	
		Percent Moisture :	10		3		4		14		2		3		4		2		7		44	
		PID Screening Result :	450.0		45.0		15.0		550.0		0.0		0.0		500.0		0.0		0.0		142.0	

Notes:
[1]XRF results in mg/kg

[2]PID results in ppmv
(isobutylene calibration)

[3]Based on TCLP 20:1 dilution

U = Analyte not detected   B = Value is below the Method Detection Limit, but above the Instrument Detection Limit

TABLE 1-4
XRF[1] and PID[2] Field Screening Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001

		Sample ID:	GP-14 (25-29)		GP-14 (30-34)		GP-15 SLUDGE		GP-15 (24-28)		GP-15 (30-34)	
		ERM-FAST Tracking No:	ERM051		ERM055		ERM052		ERM053		ERM054	
		ERM-FAST File ID:	271		278		275		276		277	
		Date Collected/Analyzed:	5/6/99		5/7/99		5/7/99		5/7/99		5/7/99	
Analyte	Screening Criteria[3]	Detection Limit										
Arsenic	100	10	10	B	3.1	B	10	U	14		4.0	B
Barium	2000	10	54		55		32		68		27	
Cadmium	20	1.0	1.5		1.0	B	23.0		1.0	U	2.4	
Chromium	100	55	55	U	55	U	320		55	U	55	U
Lead	100	10	6.8	B	6.2	B	490		8.1	B	10	U
Mercury	4	10	10	U	10	U	10	U	10	U	10	U
Selenium	20	7.0	7.0	U	7.0	U	7.5		7.0	U	6.0	B
Silver	100	4.0	4.0	U	4.0	U	6.8		4.0	U	1.6	B
Antimony	-	5.0	29.0		12.0		190.0		5.0	U	5.0	U
Calcium	-	700	1400		1200		9100		1300		860	
Cobalt	-	20	20	U	20	U	20	U	20	U	20	U
Copper	-	20	20	U	20	U	380		20	U	20	U
Iron	-	30	3300		4600		10000		3200		1800	
Manganese	-	30	30	U	30	U	30	U	30	U	38	
Nickel	-	60	60	U	60	U	60	U	60	U	60	U
Potassium	-	1500	4000		2200		1500	U	3800		2200	
Thallium	-	2.0	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	-	16	16	U	16	U	30		16	U	16	U
Zinc	-	11	11	U	11	U	440		11	U	11	U
Percent Moisture :			5		5		55		5		6	
PID Screening Result :			22.0		0.0		0.0		0.0		0.0	

Notes:
[1]XRF results in mg/kg

[2]PID results in ppmv
(isobutylene calibration)

[3]Based on TCLP 20:1 dilution

U = Analyte not detected B = Value is below the Method Detection Limit, but above the Instrument Detection Limit

TABLE
Volatiles in Soil
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	GP-04 (10-14)		GP-05 (0-4)		GP-05 (5-9)		GP-06 (0-4)		GP-07 (15-19)		GP-10 (3-7)		GP-11 (0-4)		GP-11 (5-9)		GP-12 (0-4)		GP-12 (4-8)		GP-13 (0-4)		GP-16 (0-4)		Plating Rm Pipe	
Date Collected =>	5/4/99		5/4/99		5/4/99		5/4/99		5/5/99		5/5/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99		5/6/99	
VOCs by 8260 (ug/kg)																							Dup of GP-13			
Dichlorodifluoromethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Chloromethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	1	J	5	U	10	U	5	U
Vinyl Chloride	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Bromomethane	5	U	5	U	51	U	5	U	5	U	5	U	5	UJ	5	U	26	U	2	J	5	UJ	10	UJ	5	UJ
Chloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Trichlorofluoromethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,1-Dichloroethene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Acetone	5	U	5	U	56	U	6	U	10	U	5	U	15	U	5	U	27	U	13	U	12	U	10	U	26	U
Iodomethane	5	U	5	U	51	U	5	U	5	U	5	U	5	UJ	5	UJ	26	UJ	5	UJ	5	UJ	10	UJ	5	UJ
Carbon Disulfide	5	U	5	U	51	U	5	U	5	U	5	U	5	UJ	5	U	26	U	5	U	5	U	10	U	5	U
Methylene Chloride	5	UJ	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Methyl tert-butyl ether	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
trans-1,2-Dichloroethene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Vinyl Acetate	5	U	5	U	51	UJ	5	U	5	U	5	U	5	UJ	5	U	26	U	5	U	5	U	10	U	5	U
1,1-Dichloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
2-Butanone	5	U	5	U	51	UJ	5	UJ	5	UJ	5	UJ	2	J	5	U	26	U	2	J	5	U	10	U	4	J
cis-1,2-Dichloroethene	5	U	5	U	51	U	5	J	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
2,2-Dichloropropane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Bromochloromethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Chloroform	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	11	B
1,1,1-Trichloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,1-Dichloropropene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Carbon Tetrachloride	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,2-Dichloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Benzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Trichloroethene	5	U	5	U	51	U	4	J	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,2-Dichloropropane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Dibromomethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Bromodichloromethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
2-Chloroethylvinyl ether	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	UJ	26	UJ	5	U	5	U	10	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
4-Methyl-2-pentanone	5	U	5	U	51	J	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Toluene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	1	J	10	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,1,2-Trichloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,3-Dichloropropane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Tetrachloroethene	5	U	2300	D	620	J	190	D	5	U	20		1100	D	28		280		51		10000	DB	27000	DB	100	
2-Hexanone	5	U	5	U	51	UJ	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Dibromochloromethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,2-Dibromoethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Chlorobenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,1,1,2-Tetrachloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Ethylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	1	J	9	J	5	U
Xylenes (Total)	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	10		10	U	5	U
Styrene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Bromoform	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Isopropylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	51	U	5	U	5	U	5	U	5	UJ	5	U	26	U	5	U	5	U	10	U	5	U
1,2,3-Trichloropropane	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
Bromobenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
n-Propylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
2-Chlorotoluene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,3,5-Trimethylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	1	J	5	U	26	U	5	U	6	J	5	J	5	U
4-Chlorotoluene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
tert-Butylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,2,4-Trimethylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	1	J	5	U	26	U	5	U	4	J	3	J	5	U
sec-Butylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	1	J	10	U	5	U
4-Isopropyltoluene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,3-Dichlorobenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,4-Dichlorobenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
n-Butylbenzene	5	U	5	U	51	U	5	U	5	U	5	U	5	UJ	5	U	26	U	5	U	3	J	10	U	5	U
1,2-Dichlorobenzene	5	U	1	J	51	U	5	U	5	U	5	U	5	U	5	U	26	U	5	U	1	J	2	J	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	51	UJ	5	U	5	U	5	U	5	U	5	U	26	U	5	U	5	U	10	U	5	U
1,2,4-Trichlorobenzene	5	U	180		200	J	5	U	5	U	5	U	37	J	32		56		70		43		31		3	J
Hexachlorobutadiene	5	U	3	J	51	UJ	5	U	5	U	5	U	5	UJ	5	U	26	U	5	U	5	U	10	U	5	U
Naphthalene	5	U	5	U	51	U	5	U	5	U	5	U	5	UJ	5	U	26	U	5	U	4	J	5	J	5	U
1,2,3-Trichlorobenzene	5	U	9		51	U	5	U	5	U	5	U	5	U	3	J	26	U	9		4	J	3	J	5	U

TABLE

Semi-Volatiles in Soil

Reckson - 333 Smith Street Farmingdale, New York

ERM Project Number 1574.001

Sample ID =>	GP-04 (10-14)	GP-05 (0-4)	GP-05 (5-9)	GP-06 (0-4)	GP-07 (15-19)	GP-10 (3-7)	GP-11 (0-4)	GP-11 (5-9)	GP-12 (0-4)	GP-12 (4-8)	GP-13 (0-4)	GP-16 (0-4)	Plating Rm Pipe
Date Collected =>	5/4/99	5/4/99	5/4/99	5/4/99	5/5/99	5/5/99	5/6/99	5/6/99	5/6/99	5/6/99	5/6/99	5/6/99	5/6/99
SVOCs by 8270 (ug/kg)												Dup of GP-13	
bis(2-Chloroethyl)Ether	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
1,3-Dichlorobenzene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
1,4-Dichlorobenzene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
1,2-Dichlorobenzene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
2,2'-oxybis(1-Chloropropane)	330 U	340 U	360 U	360 UJ	330 UJ	330 UJ	340 UJ	320 UJ	370 UJ	320 UJ	360 UJ	360 UJ	340 UJ
N-Nitroso-di-n-propylamine	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Hexachloroethane	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Nitrobenzene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Isophorone	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
1,2,4-Trichlorobenzene	330 U	280 J	360 U	360 U	330 U	330 U	670	95 J	170 J	160 J	160 J	320 J	340 U
Naphthalene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
4-Chloroaniline	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
bis(2-Chloroethoxy)methane	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Hexachlorobutadiene	330 U	340 U	360 U	360 U	330 U	330 U	340 UJ	320 U	370 U	320 U	360 U	360 U	340 U
2-Methylnaphthalene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Hexachlorocyclopentadiene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
2-Chloronaphthalene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
2-Nitroaniline	670 U	690 U	740 U	730 U	670 U	670 U	690 U	660 U	760 U	660 U	740 U	730 U	690 U
Dimethylphthalate	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	13000 D
Acenaphthylene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
2,6-Dinitrotoluene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
3-Nitroaniline	670 U	690 U	740 U	730 U	670 U	670 U	690 U	660 U	760 U	660 U	740 U	730 U	690 U
Acenaphthene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Dibenzofuran	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
2,4-Dinitrotoluene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Diethylphthalate	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
4-Chlorophenyl-phenylether	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Fluorene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
4-Nitroanaline	670 U	690 U	740 U	730 UJ	670 UJ	670 UJ	690 U	660 U	760 U	660 U	740 U	730 U	690 U
N-Nitrosodimethylamine (1)	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
4-Bromophenyl-phenylether	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Hexachlorobenzene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Phenanthrene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Anthracene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Carbazole	330 UJ	340 UJ	360 UJ	360 UJ	330 UJ	330 UJ	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Di-n-butylphthalate	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	53 J
Fluoranthene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Pyrene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Butylbenzylphthalate	330 U	340 U	360 U	360 U	330 U	330 U	340 UJ	320 UJ	370 UJ	320 UJ	360 UJ	360 UJ	340 UJ
3,3'-Dichlorobenzidine	330 U	340 U	360 U	360 U	330 U	330 U	340 UJ	320 UJ	370 UJ	320 UJ	360 UJ	360 UJ	340 UJ
Benzo(a)anthracene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Chrysene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
bis(2-Ethylhexyl)phthalate	330 U	340 U	360 U	360 U	39 J	330 U	87 J	320 U	58 J	140 J	88 J	170 J	310 J
Di-n-octylphthalate	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Benzo(b)fluoranthene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Benzo(k)fluoranthene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Benzo(a)pyrene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Indeno(1,2,3-cd)pyrene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Dibenz(a,h)anthracene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U
Benzo(g,h,i)perylene	330 U	340 U	360 U	360 U	330 U	330 U	340 U	320 U	370 U	320 U	360 U	360 U	340 U

U=Not detected J=value is estimated B=Detected in associated method blank D=Result from secondary analysis (dilution) NS=No Standard.

TABLE 1-5C

Inorganics in Soil

Reckson - 333 Smith Street Farmingdale, New York

ERM Project Number 1574.001

Sample ID => Date Collected =>	GP-04 (0-4) 5/4/99		GP-05 (0-4) 5/4/99		GP-05 (5-9) 5/4/99		GP-06 (20-24) 5/5/99		GP-07 (0-4) 5/5/99		GP-10 (8-12) 5/5/99	
Analyte (mg/kg)												
Aluminum	9720		6600		1400		809		8020		1170	
Antimony	0.22	UJ	0.16	UJ	0.20	UJ	0.18	UJ	0.22	UJ	0.55	UJ
Arsenic	3.9		3.8		2.3		1.0		15.0		0.89	
Barium	19.1	B	17.6	U	8.9	B	4.8	U	23.3		6.5	U
Beryllium	0.22	U	0.16		0.20	U	0.18	U	0.22	U	0.17	U
Cadmium	0.78		0.77		0.38	B	0.19	B	0.83		0.22	B
Calcium	282	U	1510	J	232	U	58.3	BJ	800	J	1130	J
Chromium	9.7	J	7.8	J	8.9	J	1.7	BJ	9.3	J	8.6	J
Cobalt	4.4	B	4.2	U	1.6	U	0.90	U	5.4	B	0.76	U
Copper	3.3		6.1		2.8	U	2.1	U	17.0		3.6	U
Iron	12700		11900		6140		2670		11400		4480	
Lead	5.0		6.0		2.0	U	1.5		17.9		12.8	
Magnesium	1300	J	1040	J	437	BJ	177	J	1290	J	350	J
Manganese	98.1	J	169	J	105	J	61.5	J	150	J	30.6	J
Mercury	0.044	U	0.045	U	0.053	U	0.044	U	0.049	U	0.046	U
Nickel	7.7		7.9		3.3	U	1.5	B	8.5		65.9	
Potassium	281	B	390	B	247	B	47.6	U	262	U	115	U
Selenium	7.0	U	4.6	U	3.6	U	1.5	U	4.2	U	0.59	U
Silver	1.7	U	1.8	U	0.77	U	0.38	U	1.9	U	0.61	U
Sodium	16.2	U	12.2	U	14.8	U	13.5	U	16.1	U	13.1	U
Thallium	0.32	U	0.24	U	0.30	U	0.27	U	0.32	U	0.26	U
Vanadium	14.6	J	12.1	J	4.9	U	2.2	U	16.1	J	3.1	U
Zinc	15.8		16.8		5.5		3.9	U	21.0	U	11.1	U
Hexavalent Chromium	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

U = Analyte not detected B = Value is below the CRDL, but above the IDL J= Estimated value SB = Site Background NS=No Standard

TABLE 1-5c
Inorganics in Soil
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	GP-11 (0-4)		GP-12 (0-4)		GP-13 (0-4)		GP-16 (0-4)		Plating Rm Pipe	
Date Collected =>	5/6/99		5/6/99		5/6/99		5/6/99		5/6/99	
Analyte (mg/kg)							Dup of GP-13			
Aluminum	6790		9120		1260		1510		6800	
Antimony	0.17	UJ	0.19	UJ	0.49	U	0.20	UJ	0.18	UJ
Arsenic	7.8		5.0		1.7		0.81	B	4.9	
Barium	18.4	J	19.4	J	10.0	U	10.9	U	20.5	J
Beryllium	0.17	U	0.19	U	0.18	U	0.16	U	0.18	U
Cadmium	0.60		1.0		1.5		0.59		0.57	
Calcium	1680		322		7610		11800		11900	
Chromium	10.0		12.7		12.7		5.4		12.8	
Cobalt	3.7	BJ	7.2	J	1.9	U	0.90	U	3.7	BJ
Copper	24.1		6.0		66.3		54.9		8.4	
Iron	9060		15200		10900		3490		8350	
Lead	11.3		5.6	J	7.3	J	4.4	J	8.7	J
Magnesium	1080		1260		563		675		1290	
Manganese	109	J	192	J	108	J	70.2	J	122	J
Mercury	0.051	U	0.049	U	0.049	U	0.043	U	0.048	U
Nickel	8.3	J	9.2	J	10.0	J	4.0	BJ	7.7	J
Potassium	604	J	316	J	114	J	159	J	78.0	J
Selenium	2.1	U	7.6		0.59	U	0.33	U	0.35	U
Silver	1.5	U	2.2	U	1.8	U	0.69	U	1.5	U
Sodium	12.5	U	14.1	U	1050.0		611		13.2	U
Thallium	0.25	U	0.28	U	0.76	B	0.25	U	0.26	U
Vanadium	12.1	J	16.6	J	3.7	BJ	3.0	BJ	11.9	J
Zinc	73.8		15.8		1460		820		32.9	
Hexavalent Chromium	1.0	U	1.0	U	1.0	U	4.0		1.0	U

U = Analyte not detected   B = Value is below the CRDL, but above the IDL   J= Estimated value   SB = Site Background   NS=No Standard

TABLE 1-6
Supplemental Soil Sampling Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001.04

ERM Sample ID:	B2-1(0-3)		B2-1(0-3)		B2-1(3-7)		B2-1(7-11)		B2-1(7-11)		B2-3(0-4)		B2-4(0-4)		B2-5(0-4)		B2-5(0-4)	
ERM-FAST Run No.:	14		Lab Duplicate		15		16		Lab Duplicate		8		10		11		Lab Duplicate	
Date Collected:	7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99	
Compound																		
vinyl chloride	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
1,1-dichloroethene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
trans-1,2-dichloroethene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
cis-1,2-dichloroethene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
benzene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
trichloroethene	1.0	U	280.0	U	1.0	U	20.4		16.0	U	5.1		1.5		2.8		5.0	U
toluene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
tetrachloroethene	8672.2		19000.0	D	26.8		7466.5		300.0		226.6		58.3		559.6		28.0	
ethylbenzene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
m,p-xylene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
o-xylene	1.0	U	280.0	U	1.0	U	1.0	U	16.0	U	1.0	U	1.0	U	1.0	U	5.0	U
Total VOCs	8672.2		19000.0		26.8		7486.9		300.0		231.7		59.8		562.4		28.0	
PID Screening Result	>2000		NA		5.0		730.0		NA		0.0		0.0		0.0		NA	

Note : All results in ug/kg U = Analyte not detected D = Result from secondary analysis (dilution)

TABLE 1-6
Supplemental Soil Sampling Results
Reckson - 333 Smith Street
Farmingdale, New York
ERM Project Number 1574.001.04

ERM Sample ID:	B2-6(0-4)		B2-7(0-4)		B2-9(0-5)		B2-9(5-9)		B2-10(0-4)		B2-10(4-8)		B2-11(0-4)		B2-12(0-4)		B2-13(0-4)	
ERM-FAST Run No.:	12		13		17		18		19		20		21		22		23	
Date Collected:	7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99		7/1/99	
Compound																		
vinyl chloride	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-dichloroethene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
benzene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trichloroethene	2.0		2.1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
toluene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tetrachloroethene	359.5		4345.1		1308.8		114.1		18.8		11.9		2706.8		2054.7		459.1	
ethylbenzene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m,p-xylene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
o-xylene	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total VOCs	361.5		4347.2		1308.8		114.1		18.8		11.9		2706.8		2054.7		459.1	
PID Screening Result	0.0		108.0		222.0		0.0		0.0		0.0		1346.0		75.0		0.0	

Note : All results in ug/kg U = Analyte not detected D = Result from secondary analysis (dilution)

TABLE 1-7
Summary of Soil Sampling Program
Voluntary Investigation - 333 Smith Street, Farmingdale, NY

Boring	Location	Depth	Samples Collected[1]	Field Analyses[2]	Samples Sent to Lab[1]	Lab Analyses
GP-4	North of Plating Room (Soil Gas B-4)	34 feet	0-4, 5-9, 10-14, 15-19, 20-24, 24-29, 30-34	PID, XRF	10-14	Metals, VOCs, SVOCs
GP-5	Plating Rm west doorway (Soil Gas B-6)	34 feet	0-4, 5-9, 10-14, 15-19, 20-24, 24-29, 30-34	PID, XRF	0-4 & 5-9	Metals, VOCs, SVOCs
GP-6	Near soil gas sample B-13	34 feet	0-4, 5-9, 10-14, 15-19, 20-24, 24-29, 30-34	PID, XRF	0-4	Metals, VOCs, SVOCs
GP-7	Former Loading Dock (Soil Gas B-1)	34 feet	0-4, 5-9, 10-14, 15-19, 20-24, 24-29, 30-34	PID, XRF	15-19	Metals, VOCs, SVOCs
GP-10	Abandoned pit inside west wall	32 feet	3-7, 8-12, 13-17, 18-22, 24-27, 28-32	PID, XRF	3-7	Metals, VOCs, SVOCs
GP-11	Inside Garage, NW part of building	14 feet	0-4, 5-9, 10-14	PID, XRF	0-4, 5-9	0-4 (all analytes); 5-9 (organics, only)
GP-12	Inside Garage, NW part of building	12 feet	0-4, 4-8, 8-12	PID, XRF	0-4, 5-9	0-4 (all analytes); 4-8 (organics, only)
GP-13	Inside Garage, NW part of building	8 feet	0-4, 4-8	PID, XRF	0-4	Metals, VOCs, SVOCs
Pl Rm Pipe	Below pipe in Plating Room floor	1 foot	0-1	PID, XRF	0-1	Metals, VOCs, SVOCs
GP-16	Duplicate of GP-13 (0-4)	N/A	None	None	0-4	Metals, VOCs, SVOCs
B2-1	Abandoned pit south of boiler room	11 feet	0-3, 3-7, 7-11	PID, GC/PID	0-3, 7-11	VOCs
B2-3	North of Soil Gas sample B-7	4 feet	0-4	PID, GC/PID	none	none
B2-4	Over machinery footprint on floor	4 feet	0-4	PID, GC/PID	none	none
B2-5	Near pipe stubs in floor	4 feet	0-4	PID, GC/PID	0-4	VOCs
B2-6	Near Soil gas sample B-9	4 feet	0-4	PID, GC/PID	none	none
B2-7	Delineation of impacted soil in west wing	4 feet	0-4	PID, GC/PID	none	none
B2-9	Delineation of impacted soil in west wing	9 feet	0-5, 5-9	PID, GC/PID	none	none
B2-10	Delineation of impacted soil in west wing	8 feet	0-4, 4-8	PID, GC/PID	none	none
B2-11	Delineation of impacted soil in west wing	4 feet	0-4	PID, GC/PID	none	none
B2-12	Delineation of impacted soil in west wing	4 feet	0-4	PID, GC/PID	none	none
B2-13	Delineation of impacted soil in west wing	4 feet	0-4	PID, GC/PID	none	none

Notes
[1] Sample intervals given in feet below grade
[2] PID = Photo-Ionization Detector; XRF = X-Ray Flourescence; GC/PID = Gas Chromatograph/Photo-Ionization Detector

TABLE 1-8
Summary of Dry Well Sediment Sampling Program
Voluntary Investigation - 333 Smith Street, Farmingdale, NY

Location	Description	Former Usage	Samples Field Screened[1]	Samples Sent to Lab[1]
GP-1	Lead Leach Pool Former WWTP	Recharge of treated wastewater	18-19 (sludge)	18-19
GP-2	Lead Leach Pool Former WWTP	Recharge of treated wastewater	18.5-19.5 (sludge)	18.5-19.5
GP-3	Lead Leach Pool Former WWTP	Recharge of treated wastewater	18-19 (sludge)	18-19
GP-8	Dry well off SW corner of bldg	Connected to floor drains and roof leaders	18-19 (sludge), 20-24, 25-29, 30-34	18-19
GP-9	Buried concrete tank outside west wall	Unknown	None	Sludge in tank
GP-14	Storm water dry well DW-25[2]	Recharge of parking lot runoff	20-23 (sludge), 25-29, 30-34	20-23 & 30-34
GP-15	Storm water dry well DW-21	Recharge of parking lot runoff	20-23.5 (sludge), 24-28, 30-34	20-23.5 & 30-34
DW-1	Storm water dry well DW-1	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-4	Storm water dry well DW-4	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-5/6[3]	Storm water dry wells DW-5 and DW-6	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-9/16[3]	Storm water dry wells DW-9 and DW-16	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-12/14[3]	Storm water dry wells DW-12 and DW-14	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-19	Storm water dry well DW-19	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-20	Storm water dry well DW-20	Recharge of parking lot runoff and roof drainage	None	Grab of bottom sediment[4]
DW-22	Storm water dry well DW-22	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-23	Storm water dry well DW-23	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-24	Storm water dry well DW-24	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-26	Storm water dry well DW-26	Recharge of parking lot runoff	None	Grab of bottom sediment[4]
DW-NW CNR	Dry well off NW corner of bldg	Connected to roof leaders	None	Grab of bottom sediment[4]

Notes

[1] Sample intervals given in feet below grade

[2] Originally believed to be dry well DW-24

[3] Composite sample from two dry wells

[4] Storm water dry wells all approximately 20 feet in depth (range 18 to 22)

TABLE 1-9a
Volatiles in Dry Well Sediment
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	DW-1		DW-4		DW-5/DW-6		DW-9/DW-16		DW-12/DW-14		DW-19		DW-20	
Date Collected =>		5/14/99		5/25/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99	
VOCs by 8260 (ug/kg)															
Dichlorodifluoromethane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Chloromethane	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Vinyl Chloride	400	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Bromomethane	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Chloroethane	400	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Trichlorofluoromethane	1,600	8	U	43	U	7	U	7	U	3	J	34	U	5	J
1,1-Dichloroethene	800	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Acetone	NS	57		1000	BJ	30		87		6		93	J	11	J
Iodomethane	NS	8	U	43	U	7	U	7	U	6	U	34	U	1	J
Carbon Disulfide	NS	2	J	43	U	7	U	7	U	6	U	34	U	6	U
Methylene Chloride	200	3	J	90	B	7	U	33		2	J	15	J	23	J
Methyl tert-butyl ether	200	8	U	43	U	7	U	7	U	6	U	34	U	6	U
trans-1,2-Dichloroethene	600	8	U	43	U	7	U	7	U	6	U	34	U	7	J
Vinyl Acetate	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,1-Dichloroethane	400	8	U	43	U	7	U	7	U	6	U	34	U	6	U
2-Butanone	600	16		43	U	8		21		6	U	24	J	6	U
cis-1,2-Dichloroethene	600	8	U	43	U	7	U	7	U	6		34	U	340	DJ
2,2-Dichloropropane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Bromochloromethane	400	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Chloroform	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,1,1-Trichloroethane	1,600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,1-Dichloropropene	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Carbon Tetrachloride	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,2-Dichloroethane	200	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Benzene	120	8	U	43	U	2	J	7	U	6	U	34	U	6	U
Trichloroethene	1,400	8	U	43	U	7	U	3	J	14		8	J	1100	D
1,2-Dichloropropane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Dibromomethane	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Bromodichloromethane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
2-Chloroethylvinyl ether	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
cis-1,3-Dichloropropene	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
4-Methyl-2-pentanone	NS	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Toluene	3,000	8	U	120		7	U	2	J	6	U	34	U	6	U
trans-1,3-Dichloropropene	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,1,2-Trichloroethane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,3-Dichloropropane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Tetrachloroethene	2,800	8	U	43	U	7	U	8		100		27	J	10000	D
2-Hexanone	2,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Dibromochloromethane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,2-Dibromoethane	400	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Chlorobenzene	3,400	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,1,1,2-Tetrachloroethane	600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Ethylbenzene	11,000	8	U	43	U	7	U	1	J	6	U	34	U	6	U
Xylenes (Total)	2,400	8	U	43	U	2	J	7	U	6	U	34	U	6	U
Styrene	2,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Bromoform	1,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Isopropylbenzene	5,200	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,1,2,2-Tetrachloroethane	1,200	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,2,3-Trichloropropane	800	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Bromobenzene	1,600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
n-Propylbenzene	5,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
2-Chlorotoluene	3,100	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,3,5-Trimethylbenzene	5,200	8	U	43	U	7	U	7	U	6	U	34	U	6	U
4-Chlorotoluene	3,600	8	U	43	U	7	U	7	U	6	U	34	U	6	U
tert-Butylbenzene	6,800	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,2,4-Trimethylbenzene	4,800	8	U	43	U	3	J	7	U	6	U	34	U	6	U
sec-Butylbenzene	10,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
4-Isopropyltoluene	7,800	8	U	43	U	7	U	7	U	6	U	10	J	6	U
1,3-Dichlorobenzene	3,200	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,4-Dichlorobenzene	15,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
n-Butylbenzene	6,800	8	U	43	U	7	U	7	U	6	U	8	J	6	U
1,2-Dichlorobenzene	15,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,2-Dibromo-3-chloropropane	1,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
1,2,4-Trichlorobenzene	6,800	8	U	43	UJ	7	U	7	U	6	U	11	J	6	U
Hexachlorobutadiene	15,000	8	U	43	U	7	U	7	U	6	U	34	U	6	U
Naphthalene	15,000	8	U	43	UJ	7	U	5	J	6	U	12	J	6	U
1,2,3-Trichlorobenzene	6,800	8	U	43	UJ	7	U	7	U	6	U	34	U	6	U

[illegible] D=result from secondary analysis (dilution). NS=No Standard

TABLE 1-9a
Volatiles in Dry Well Sediment
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	DW-22		DW-23		DW-24		DW-26		GP-01 SLUDGE		GP-02 SLUDGE		GP-03 SLUDGE		GP-08 SLUDGE	
Date Collected =>		5/14/99		5/14/99		5/14/99		5/14/99		5/3/99		5/3/99		5/3/99		5/5/99	
VOCs by 8260 (ug/kg)																	
Dichlorodifluoromethane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Chloromethane	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Vinyl Chloride	400	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Bromomethane	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Chloroethane	400	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Trichlorofluoromethane	1,600	50	U	22	U	40	U	6	U	2	J	2	J	6	J	830	U
1,1-Dichloroethene	800	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Acetone	NS	560		420		210		16		45	U	5	UJ	820	D	1700	U
Iodomethane	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Carbon Disulfide	NS	50	U	6	J	40	U	6	U	6	U	5	U	4	J	830	U
Methylene Chloride	200	26	J	42		36	J	6	U	6	U	9	U	34	BJ	830	U
Methyl tert-butyl ether	200	50	U	34		40	U	6	U	6	U	5	U	7	U	830	U
trans-1,2-Dichloroethene	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Vinyl Acetate	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,1-Dichloroethane	400	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
2-Butanone	600	150		130		59		4	J	9		5	U	300	D	830	U
cis-1,2-Dichloroethene	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	2400	
2,2-Dichloropropane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Bromochloromethane	400	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Chloroform	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,1,1-Trichloroethane	1,600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,1-Dichloropropene	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Carbon Tetrachloride	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,2-Dichloroethane	200	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Benzene	120	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Trichloroethene	1,400	12	J	5	J	40	U	6	U	6	J	5	U	2	J	390	J
1,2-Dichloropropane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Dibromomethane	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Bromodichloromethane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
2-Chloroethylvinyl ether	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
cis-1,3-Dichloropropene	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
4-Methyl-2-pentanone	NS	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Toluene	3,000	10	J	12	J	16	J	6	U	420	J	5	U	2	J	830	U
trans-1,3-Dichloropropene	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,1,2-Trichloroethane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,3-Dichloropropane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Tetrachloroethene	2,800	14	J	7	J	40	U	6	U	40		53		53		27000	
2-Hexanone	2,000	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Dibromochloromethane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,2-Dibromoethane	400	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Chlorobenzene	3,400	50	U	22	U	40	U	6	U	6	U	5	U	6	J	830	U
1,1,1,2-Tetrachloroethane	600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Ethylbenzene	11,000	100		59		86		6	U	18		5	U	3	J	830	U
Xylenes (Total)	2,400	330		360		620		6	U	170		5	U	11		830	U
Styrene	2,000	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Bromoform	1,000	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Isopropylbenzene	5,200	19	J	5	J	21	J	6	U	2	J	5	U	6	J	830	U
1,1,2,2-Tetrachloroethane	1,200	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,2,3-Trichloropropane	800	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Bromobenzene	1,600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
n-Propylbenzene	5,000	64		23		74		6	U	3	J	5	U	4	J	830	U
2-Chlorotoluene	3,100	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,3,5-Trimethylbenzene	5,200	960		64		640		2	J	32		5	U	7	U	830	U
4-Chlorotoluene	3,600	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
tert-Butylbenzene	6,800	50	U	22	U	40	U	6	U	5	J	5	U	7	U	830	U
1,2,4-Trimethylbenzene	4,800	1200		150		860		4	J	38		5	U	17		830	U
sec-Butylbenzene	10,000	50	U	22	U	20	J	6	U	6	U	5	U	3	J	830	U
4-Isopropyltoluene	7,800	90		10	J	63		6	U	7		5	U	5	J	830	U
1,3-Dichlorobenzene	3,200	50	U	22	U	40	U	6	U	6	U	5	U	22		830	U
1,4-Dichlorobenzene	15,000	50	U	13	J	70		6	U	10		2	J	130		830	U
n-Butylbenzene	6,800	50	U	22	U	40	U	6	U	6	U	5	U	5	J	830	U
1,2-Dichlorobenzene	15,000	16	J	22	U	56		6	U	6	U	3	J	16		830	U
1,2-Dibromo-3-chloropropane	1,000	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
1,2,4-Trichlorobenzene	6,800	50	U	7	J	17	J	6	U	5	J	5	U	13		190	J
Hexachlorobutadiene	15,000	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U
Naphthalene	15,000	420		170		670		3	J	4	J	5	U	11		180	J
1,2,3-Trichlorobenzene	6,800	50	U	22	U	40	U	6	U	6	U	5	U	7	U	830	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 1-9a
Volatiles in Dry Well Sediment
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	GP-08 (30-34)		GP-9 SLUDGE		GP-14 SLUDGE		GP-14 (30-34)		GP-15 SLUDGE		GP-15 (30-34)	
Date Collected =>		5/5/99		5/7/99		5/6/99		5/7/99		5/7/99		5/7/99	
VOCs by 8260 (ug/kg)													
Dichlorodifluoromethane	600	5	U	700	UJ	58	U	5	U	10	U	5	U
Chloromethane	NS	5	U	700	U	58	U	5	U	10	UJ	5	UJ
Vinyl Chloride	400	5	U	700	U	58	U	5	U	10	U	5	U
Bromomethane	NS	5	U	700	U	58	UJ	2	J	10	UJ	2	J
Chloroethane	400	5	U	700	U	58	U	5	U	10	U	5	U
Trichlorofluoromethane	1,600	5	U	700	U	58	U	5	U	6	J	5	U
1,1-Dichloroethene	800	5	U	700	U	58	U	5	U	110	U	5	U
Acetone	NS	7	U	1200	J	160	U	9	U	10	U	11	U
Iodomethane	NS	5	U	700	U	58	UJ	5	U	10	U	5	U
Carbon Disulfide	NS	5	U	700	U	58	U	5	U	10	U	5	U
Methylene Chloride	200	5	U	700	U	58	U	7	U	33	U	7	U
Methyl tert-butyl ether	200	5	U	700	U	58	U	5	U	10		5	U
trans-1,2-Dichloroethene	600	5	U	700	U	58	U	5	U	10	U	5	U
Vinyl Acetate	NS	5	U	700	U	58	U	5	U	10	U	5	U
1,1-Dichloroethane	400	5	U	700	U	58	U	5	U	10	U	5	U
2-Butanone	600	5	UJ	700	U	58	J	5	UJ	16	J	5	UJ
cis-1,2-Dichloroethene	600	5	U	700	U	58	U	5	U	10	U	5	U
2,2-Dichloropropane	600	5	U	700	U	58	U	5	U	10	U	5	U
Bromochloromethane	400	5	U	700	U	58	U	5	U	10	U	5	U
Chloroform	600	5	U	700	U	58	U	5	U	10	U	5	U
1,1,1-Trichloroethane	1,600	5	U	700	U	58	U	5	U	10	UJ	5	U
1,1-Dichloropropene	600	5	U	700	U	58	U	5	U	10	U	5	U
Carbon Tetrachloride	600	5	U	700	U	58	U	5	U	10	UJ	5	U
1,2-Dichloroethane	200	5	U	700	U	58	U	5	U	10	U	5	U
Benzene	120	5	U	700	U	58	U	5	U	2	J	5	U
Trichloroethene	1,400	5	U	700	U	17	J	5	U	10	UJ	5	U
1,2-Dichloropropane	600	5	U	700	U	58	U	5	U	10	UJ	5	U
Dibromomethane	NS	5	U	700	U	58	U	5	U	10	U	5	U
Bromodichloromethane	600	5	U	700	U	58	U	5	U	10	UJ	5	U
2-Chloroethylvinyl ether	NS	5	U	700	U	58	U	5	U	10	U	5	U
cis-1,3-Dichloropropene	NS	5	U	700	U	58	U	5	U	10	UJ	5	U
4-Methyl-2-pentanone	NS	5	U	700	U	58	U	5	U	10	U	3	J
Toluene	3,000	5	U	700	U	36	J	5	U	5	J	5	U
trans-1,3-Dichloropropene	600	5	U	700	U	58	U	5	U	10	UJ	5	U
1,1,2-Trichloroethane	600	5	U	700	U	58	U	5	U	10	UJ	5	U
1,3-Dichloropropane	600	5	U	700	U	58	U	5	U	10	U	5	U
Tetrachloroethene	2,800	2	J	700	U	42	J	5	U	10	U	5	U
2-Hexanone	2,000	5	U	700	U	58	U	5	U	19		3	J
Dibromochloromethane	600	5	U	700	U	58	U	5	U	69	B	5	U
1,2-Dibromoethane	400	5	U	700	U	58	U	5	U	10	UJ	5	U
Chlorobenzene	3,400	5	U	1800		58	U	5	U	10	U	5	U
1,1,1,2-Tetrachloroethane	600	5	U	700	U	58	U	5	U	10	U	5	U
Ethylbenzene	11,000	5	U	700	U	33	J	5	U	2	J	5	U
Xylenes (Total)	2,400	5	U	700	U	330		5	U	69		1	J
Styrene	2,000	5	U	700	U	58	U	5	U	10	U	5	U
Bromoform	1,000	5	U	700	U	58	U	5	U	10	UJ	5	U
Isopropylbenzene	5,200	5	U	700	U	58	U	5	U	10	U	5	U
1,1,2,2-Tetrachloroethane	1,200	5	U	700	U	58	U	5	U	10	U	5	U
1,2,3-Trichloropropane	800	5	U	700	U	58	U	5	U	10	U	5	U
Bromobenzene	1,600	5	U	700	U	58	U	5	U	10	U	5	U
n-Propylbenzene	5,000	5	U	700	U	58	U	5	U	10	U	5	U
2-Chlorotoluene	3,100	5	U	700	U	58	U	5	U	10	U	5	U
1,3,5-Trimethylbenzene	5,200	5	U	220	J	440		5	U	20		5	U
4-Chlorotoluene	3,600	5	U	700	U	58	U	5	U	10	U	5	U
tert-Butylbenzene	6,800	5	U	700	U	58	U	5	U	10	U	5	U
1,2,4-Trimethylbenzene	4,800	5	U	250	J	390		5	U	21		5	U
sec-Butylbenzene	10,000	5	U	700	U	58	U	5	U	10	U	5	U
4-Isopropyltoluene	7,800	5	U	150	J	50	J	5	U	6	J	5	U
1,3-Dichlorobenzene	3,200	5	U	700	U	25	J	5	U	6	J	5	U
1,4-Dichlorobenzene	15,000	5	U	1000		23	J	5	U	9	J	5	U
n-Butylbenzene	6,800	5	U	700	U	58	U	5	U	10	U	5	U
1,2-Dichlorobenzene	15,000	5	U	170	J	15	J	5	U	4	J	5	U
1,2-Dibromo-3-chloropropane	1,000	5	U	700	U	58	U	5	U	10	U	2	J
1,2,4-Trichlorobenzene	6,800	5	U	700	U	90		5	U	10		5	U
Hexachlorobutadiene	15,000	5	U	700	U	58	U	5	U	10	U	5	U
Naphthalene	15,000	5	U	160	J	1600		5	U	20	U	5	U
1,2,3-Trichlorobenzene	6,800	5	U	700	U	18	J	5	U	5	J	1	J

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 1-9a
Volatiles in Dry Well Sediment
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	DW-NW CNR		DUPLICATE		TB	
Date Collected =>		5/14/99		5/14/99		5/14/99	
VOCs by 8260 (ug/kg)				Dup of DW-26			
Dichlorodifluoromethane	600	6	U	7	U	5	U
Chloromethane	NS	6	U	7	U	5	U
Vinyl Chloride	400	6	U	7	U	5	U
Bromomethane	NS	6	U	7	U	5	U
Chloroethane	400	6	U	7	U	5	U
Trichlorofluoromethane	1,600	6	U	7	U	5	U
1,1-Dichloroethene	800	6	U	7	U	5	U
Acetone	NS	11		100		5	U
Iodomethane	NS	6	U	7	U	5	U
Carbon Disulfide	NS	6	U	7	U	5	U
Methylene Chloride	200	6	U	7	U	5	U
Methyl tert-butyl ether	200	6	U	7	U	5	U
trans-1,2-Dichloroethene	600	6	U	7	U	5	U
Vinyl Acetate	NS	6	U	7	U	5	U
1,1-Dichloroethane	400	6	U	7	U	5	U
2-Butanone	600	6	U	22		5	U
cis-1,2-Dichloroethene	600	6	U	7	U	5	U
2,2-Dichloropropane	600	6	U	7	U	5	U
Bromochloromethane	400	6	U	7	U	5	U
Chloroform	600	6	U	7	U	5	U
1,1,1-Trichloroethane	1,600	6	U	7	U	5	U
1,1-Dichloropropene	600	6	U	7	U	5	U
Carbon Tetrachloride	600	6	U	7	U	5	U
1,2-Dichloroethane	200	6	U	7	U	5	U
Benzene	120	6	U	7	U	5	U
Trichloroethene	1,400	6	U	7	U	5	U
1,2-Dichloropropane	600	6	U	7	U	5	U
Dibromomethane	NS	6	U	7	U	5	U
Bromodichloromethane	600	6	U	7	U	5	U
2-Chloroethylvinyl ether	NS	6	U	7	U	5	U
cis-1,3-Dichloropropene	NS	6	U	7	U	5	U
4-Methyl-2-pentanone	NS	6	U	7	U	5	U
Toluene	3,000	6	U	7	U	5	U
trans-1,3-Dichloropropene	600	6	U	7	U	5	U
1,1,2-Trichloroethane	600	6	U	7	U	5	U
1,3-Dichloropropane	600	6	U	7	U	5	U
Tetrachloroethene	2,800	6	U	7	U	5	U
2-Hexanone	2,000	6	U	7	U	5	U
Dibromochloromethane	600	6	U	7	U	5	U
1,2-Dibromoethane	400	6	U	7	U	5	U
Chlorobenzene	3,400	6	U	7	U	5	U
1,1,1,2-Tetrachloroethane	600	6	U	7	U	5	U
Ethylbenzene	11,000	6	U	7	U	5	U
Xylenes (Total)	2,400	6	U	7	U	5	U
Styrene	2,000	6	U	7	U	5	U
Bromoform	1,000	6	U	7	U	5	U
Isopropylbenzene	5,200	6	U	7	U	5	U
1,1,2,2-Tetrachloroethane	1,200	6	U	7	U	5	U
1,2,3-Trichloropropane	800	6	U	7	U	5	U
Bromobenzene	1,600	6	U	7	U	5	U
n-Propylbenzene	5,000	6	U	7	U	5	U
2-Chlorotoluene	3,100	6	U	7	U	5	U
1,3,5-Trimethylbenzene	5,200	6	U	3	J	5	U
4-Chlorotoluene	3,600	6	U	7	U	5	U
tert-Butylbenzene	6,800	6	U	7	U	5	U
1,2,4-Trimethylbenzene	4,800	6	U	11		5	U
sec-Butylbenzene	10,000	6	U	7	U	5	U
4-Isopropyltoluene	7,800	6	U	7	U	5	U
1,3-Dichlorobenzene	3,200	6	U	7	U	5	U
1,4-Dichlorobenzene	15,000	6	U	7	U	5	U
n-Butylbenzene	6,800	6	U	7	U	5	U
1,2-Dichlorobenzene	15,000	6	U	7	U	5	U
1,2-Dibromo-3-chloropropane	1,000	6	U	7	U	5	U
1,2,4-Trichlorobenzene	6,800	6	U	7	U	5	U
Hexachlorobutadiene	15,000	6	U	7	U	5	U
Naphthalene	15,000	6	U	4	J	5	U
1,2,3-Trichlorobenzene	6,800	6	U	7	U	5	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TAB[illegible]
Semi-Volatile Organics in Dry Well Sediment
Reckson Associates Site - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	DW-1		DW-4		DW-5/DW-6		DW-9/DW-16		DW-12/DW-14		DW-19		DW-20		DW-22		DW-23		DW-24		DW-26		GP-01 SLUDGE	
Date Collected =>		5/14/99		5/25/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99		5/3/99	
SVOCs by 8270 (ug/kg)																									
bis(2-Chloroethyl)Ether	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
1,3-Dichlorobenzene	3,200	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
1,4-Dichlorobenzene	15,000	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
1,2-Dichlorobenzene	15,000	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
2,2'-oxybis(1-Chloropropane)	NS	2000	UJ	4600	U	6500	UJ	2300	UJ	2000	UJ	6100	UJ	3900	UJ	14000	UJ	11000	UJ	25000	UJ	4200	UJ	2900	U
N-Nitroso-di-n-propylamine	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Hexachloroethane	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Nitrobenzene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Isophorone	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
1,2,4-Trichlorobenzene	6,800	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Naphthalene	15,000	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	770	J	1500	J	11000	U	5400	J	4200	U	2900	U
4-Chloroaniline	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
bis(2-Chloroethoxy)methane	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Hexachlorobutadiene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	UJ	14000	U	11000	U	25000	U	4200	U	2900	U
2-Methylnaphthalene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	840	J	3100	J	11000	U	4800	J	4200	U	910	J
Hexachlorocyclopentadiene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
2-Chloronaphthalene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
2-Nitroaniline	NS	4200	U	9400	U	13000	U	4700	U	4000	U	12000	U	7900	U	28000	U	23000	U	50000	U	8500	U	6000	U
Dimethylphthalate	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Acenaphthylene	NS	290	J	4600	U	6500	U	2300	U	2000	U	6100	U	550	J	14000	U	11000	U	25000	U	4200	U	2900	U
2,6-Dinitrotoluene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
3-Nitroaniline	NS	4200	U	9400	U	13000	U	4700	U	4000	U	12000	U	7900	U	28000	U	23000	U	50000	U	8500	U	6000	U
Acenaphthene	75,000	2000	U	4600	U	6500	U	600	J	2000	U	1000	J	500	J	14000	U	3400	J	17000	J	980	J	2900	U
Dibenzofuran	NS	2000	U	4600	U	6500	U	430	J	2000	U	920	J	570	J	1800	J	3500	J	16000	J	680	J	2900	U
2,4-Dinitrotoluene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Diethylphthalate	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
4-Chlorophenyl-phenylether	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Fluorene	75,000	470	J	510	J	1500	J	860	J	210	J	2900	J	1100	J	4200	J	8400	J	34000		2000	J	2900	U
4-Nitroanaline	NS	4200	U	9400	U	13000	U	4700	U	4000	U	12000	U	7900	U	28000	U	23000	U	50000	U	8500	U	6000	U
N-Nitrosodimethylamine (1)	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
4-Bromophenyl-phenylether	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	UJ	14000	U	11000	U	25000	U	4200	U	2900	U
Hexachlorobenzene	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Phenanthrene	75,000	9000		8700		23000		11000		5300		43000		9400	J	56000		82000		230000		28000		2900	U
Anthracene	75,000	1600	J	1600	J	4500	J	1700	J	480	J	12000		2700	J	7400	J	15000		78000		5700		2900	U
Carbazole	NS	840	J	1600	J	2600	J	1600	J	920	J	1000	J	1300	J	11000	J	14000		27000		3200	J	2900	UJ
Di-n-butylphthalate	NS	2000	U	4600	U	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Fluoranthene	75,000	18000		17000		53000		15000		9900		78000		20000	J	120000		120000		240000		54000		2900	U
Pyrene	75,000	24000		16000		46000		19000		12000		70000		26000	J	100000		110000		220000		46000		2900	U
Butylbenzylphthalate	NS	480	J	3400	J	6500	U	270	J	2000	U	6100	U	3900	UJ	14000	U	11000	U	25000	U	4200	U	2900	U
3,3'-Dichlorobenzidine	NS	2000	U	4600	UJ	6500	U	2300	U	2000	U	6100	U	3900	U	14000	U	11000	U	25000	U	4200	U	2900	U
Benzo(a)anthracene	6,000	9800		5800		25000		8300		4800		33000		12000	J	40000		52000		110000		23000		2900	U
Chrysene	800	12000		8000		24000		9300		7300		33000		16000	J	54000		50000		88000		23000		2900	U
bis(2-Ethylhexyl)phthalate	NS	13000		39000		8900		2000	J	700	J	6400		14000	J	20000		2800	J	7500	J	3700	J	6400	
Di-n-octylphthalate	NS	890	J	14000		6500	U	2300	U	2000	U	6100	U	2400	J	14000	U	11000	U	25000	U	4200	U	2900	U
Benzo(b)fluoranthene	2,200	14000		12000		30000		11000		7900		34000		31000	J	66000		60000		93000		27000		2900	U
Benzo(k)fluoranthene	2,200	7900		2800	J	12000		6000		4100		12000		14000	J	26000		16000		24000	J	9600		2900	U
Benzo(a)pyrene	22,000	8400		6300		18000		6900		5300		23000		24000	J	36000		39000		74000		18000		2900	U
Indeno(1,2,3-cd)pyrene	6,400	6600		3300	J	11000		4200		3600		13000		15000	J	31000		26000		40000		11000		2900	U
Dibenz(a,h)anthracene	75,000	1600	J	1200	J	3000	J	660	J	920	J	3200	J	1000	J	5800	J	5700	J	9600	J	2600	J	2900	U
Benzo(g,h,i)perylene	75,000	6900		3700	J	11000		3600		3500		13000		14000	J	30000		24000		38000		10000		2900	U

U=Not detected J=estimated value below the MDL B=Detected in associated method blank D=Result from secondary dilution NS=No Standard

TAB
Semi-Volatile Organics in Dry Well Sediment
Reckson Associates Site - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	GP-02 SLUDGE		GP-03 SLUDGE		GP-08 SLUDGE		GP-08 (30-34)		GP-9 SLUDGE		GP-14 SLUDGE		GP-14 (30-34)		GP-15 SLUDGE		GP-15 (30-34)		DW-NW CNR		DUPLICATE	
Date Collected =>		5/3/99		5/3/99		5/5/99		5/5/99		5/7/99		5/6/99		5/7/99		5/7/99		5/7/99		5/14/99		5/14/99	
SVOCs by 8270 (ug/kg)																						Dup of DW-26	
bis(2-Chloroethyl)Ether	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
1,3-Dichlorobenzene	3,200	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
1,4-Dichlorobenzene	15,000	1800	U	320	J	2100	U	340	U	1800		3600	U	330	U	4100	U	340	U	410	U	4200	U
1,2-Dichlorobenzene	15,000	1800	U	2500	U	2100	U	340	U	130	J	3600	U	330	U	4100	U	340	U	410	U	4200	U
2,2'-oxybis(1-Chloropropane)	NS	1800	U	2500	U	2100	U	340	UJ	380	U	3600	U	330	U	4100	U	340	U	410	UJ	4200	UJ
N-Nitroso-di-n-propylamine	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Hexachloroethane	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Nitrobenzene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Isophorone	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
1,2,4-Trichlorobenzene	6,800	1800	U	360	J	2100	U	340	U	380	U	1100	J	330	U	4100	U	340	U	410	U	4200	U
Naphthalene	15,000	1800	U	2500	U	2100	U	340	U	380	U	12000		330	U	530	J	340	U	410	U	4200	U
4-Chloroaniline	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
bis(2-Chloroethoxy)methane	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Hexachlorobutadiene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
2-Methylnaphthalene	NS	1800	U	470	J	2100	U	340	U	100	J	30000		330	U	710	J	340	U	410	U	4200	U
Hexachlorocyclopentadiene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
2-Chloronaphthalene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
2-Nitroaniline	NS	3600	U	5100	U	4400	U	680	U	780	U	7300	U	660	U	8400	U	680	U	830	U	8600	U
Dimethylphthalate	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Acenaphthylene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
2,6-Dinitrotoluene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
3-Nitroaniline	NS	3600	U	5100	U	4400	U	680	U	780	U	7300	U	660	U	8400	U	680	U	830	U	8600	U
Acenaphthene	75,000	1800	U	2500	U	2100	U	340	U	380	U	8600		330	U	4100	U	340	U	92	J	680	J
Dibenzofuran	NS	1800	U	2500	U	2100	U	340	U	380	U	6900		330	U	4100	U	340	U	76	J	500	J
2,4-Dinitrotoluene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Diethylphthalate	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
4-Chlorophenyl-phenylether	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Fluorene	75,000	1800	U	2500	U	2100	U	340	U	380	U	12000		330	U	590	J	340	U	140	J	1200	J
4-Nitroanaline	NS	3600	U	5100	U	4400	U	680	UJ	780	U	7300	U	660	U	8400	U	680	U	830	U	8600	U
N-Nitrosodimethylamine (1)	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
4-Bromophenyl-phenylether	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Hexachlorobenzene	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Phenanthrene	75,000	1800	U	1300	J	2100	U	340	U	120	J	74000	D	330	U	8100		340	U	1300		16000	
Anthracene	75,000	1800	U	2500	U	2100	U	340	U	380	U	16000		330	U	1600	J	340	U	240	J	3100	J
Carbazole	NS	1800	UJ	2500	UJ	2100	U	340	UJ	380	U	14000		330	U	4100	U	340	U	110	J	1800	J
Di-n-butylphthalate	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Fluoranthene	75,000	1800	U	1200	J	2100	U	340	U	180	J	36000		330	U	7800		340	U	1600		28000	
Pyrene	75,000	1800	U	1800	J	2100	U	340	U	250	J	58000	J	330	U	11000		340	U	1800		27000	
Butylbenzylphthalate	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	UJ	330	U	4100	U	340	U	410	U	450	J
3,3'-Dichlorobenzidine	NS	1800	U	2500	U	2100	U	340	U	380	UJ	3600	UJ	330	UJ	4100	UJ	340	UJ	410	U	4200	U
Benzo(a)anthracene	6,000	1800	U	1100	J	2100	U	340	U	120	J	21000	J	330	U	4100	J	340	U	860		12000	
Chrysene	800	1800	U	1100	J	2100	U	340	U	140	J	22000	J	330	U	6700		340	U	1000		13000	
bis(2-Ethylhexyl)phthalate	NS	260	J	8100		280	J	340	U	1300		35000	J	72	J	34000		85	J	370	J	3900	J
Di-n-octylphthalate	NS	1800	U	2500	U	2100	U	340	U	380	U	3600	U	330	U	4100	U	340	U	410	U	4200	U
Benzo(b)fluoranthene	2,200	1800	U	1100	J	2100	U	340	U	180	J	16000		330	U	6100		340	U	1200		16000	
Benzo(k)fluoranthene	2,200	1800	U	520	J	2100	U	340	U	50	J	6400		330	U	2800	J	340	U	440		4300	
Benzo(a)pyrene	22,000	1800	U	1100	J	2100	U	340	U	130	J	15000		330	U	4600		340	U	860		10000	
Indeno(1,2,3-cd)pyrene	6,400	1800	U	2500	U	2100	U	340	U	80	J	11000		330	U	4600		340	U	590		6300	
Dibenz(a,h)anthracene	75,000	1800	U	2500	U	2100	U	340	U	380	U	2900	J	330	U	4100	U	340	U	130	J	1400	J
Benzo(g,h,i)perylene	75,000	1800	U	2500	U	2100	U	340	U	93	J	12000		330	U	5000		340	U	570		6000	

U=Not detected J=estimated value below the MDL B=Detected in associated method blank D=Result from secondary dilution NS=No Standard

TABLE 1-9c
Inorganic Results in Dry Well Sediment
Reckson Associates Site - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	DW-1		DW-4		DW-5/DW-6		DW-9/DW-16		DW-12/DW-14		DW-19		DW-20		DW-22	
Date Collected =>		5/14/99		5/25/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99		5/14/99	
Analyte (mg/kg)																	
Aluminum	NS	2230		1690		1930		3480		2150		1440		2320		5610	
Antimony	NS	0.84	UJ	1.4	UJ	0.50	UJ	0.29	UJ	0.20	UJ	0.24	UJ	0.49	UJ	100	J
Arsenic	25	2.6		1.1	U	2.2		4.4		1.8		5.3		4.9		5.0	
Barium	NS	22.1		20.7	B	12.1	B	17.6	B	9.8	B	13.1	B	19.0	B	54.5	
Beryllium	8	0.22	U	0.21	U	0.22	U	0.26	U	0.18	U	0.24	U	0.23	U	0.33	U
Cadmium	10	1.6		1.8		1.2		1.0		0.48		1.3		1.3		2.4	
Calcium	NS	2070		4120		3170		2840		1190		3120		1500		5780	
Chromium	100	30.6		14.4		17.8		15.4		7.7		10.0		11.4		183	
Cobalt	NS	15.3	U	14.9	U	15.7	U	18.1	U	12.6	U	17.0	U	16.2	U	23.1	U
Copper	500	130	J	101	J	72.7	J	54.8	J	13.4	J	82.4	J	149	J	154	J
Iron	NS	4910		7130		4040		6070		5090		3750		3450		9410	
Lead	400	267		140		192		97.0		53.7		165		212		670	
Magnesium	NS	1390	J	2770	J	2000	J	1850	J	858	J	1880	J	891	J	3400	J
Manganese	NS	28.5		40.0		21.7		73.5		72.7		25.6		22.6		62.3	
Mercury	2.0	0.23	J	0.066	U	0.25	J	0.31	J	0.090	BJ	0.073	BJ	0.12	BJ	0.22	BJ
Nickel	1,000	25.0	J	11.7	J	12.2	J	11.7	J	6.3	J	7.0	J	8.2	J	22.2	J
Potassium	NS	186	U	209		126	U	190	U	124	U	78.7	U	119	U	319	
Selenium	NS	0.44	U	4.9	U	0.45	U	0.58	U	0.72	U	0.60	U	0.71	U	2.2	U
Silver	100	0.75	B	1.2	B	0.58	B	0.82	B	0.51	B	0.45	B	0.55	B	3.2	B
Sodium	NS	372		112	U	196		252		197		201		162		560	
Thallium	NS	0.33	U	0.82	B	0.34	U	0.39	U	0.27	U	0.36	U	0.35	U	0.50	U
Vanadium	NS	25.0		15.9		16.6		21.6		16.8		8.3		16.2		53.1	
Zinc	NS	237		157		130		155		49.6		125		83.2		358	
Hexavalent Chromium	NS	30	U	2.0	U	30	U	30	U	30	U	30	U	30	U	30	U

U=Analyte not detected B=Value is below the MDL, but above the IDL J=Estimated value NS= No Standard

TABLE 1-9c
Inorganic Results in Dry Well Sediment
Reckson Associates Site - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	SCDHS	DW-23		DW-24		DW-26		GP-01 SLUDGE		GP-02 SLUDGE		GP-03 SLUDGE		GP-08 SLUDGE		GP-08 (30-34)	
Date Collected =>		5/14/99		5/14/99		5/14/99		5/3/99		5/3/99		5/3/99		5/5/99		5/5/99	
Analyte (mg/kg)																	
Aluminum	NS	2800		1340		9030		2720		4160		1380		628		481	
Antimony	NS	119	J	434	J	0.73	UJ	6.4	BJ	12.5	J	175.0	J	58.1	J	0.16	UJ
Arsenic	25	5.0		3.9		8.1		3.1		2.8		1.4		0.68	B	1.0	
Barium	NS	31.8	B	40.6		50.2		24.6	B	14.6		30.2		33.0		2.5	U
Beryllium	8	0.44	U	0.36	U	0.19	U	0.34	U	0.13	U	0.18	U	0.23	U	0.16	U
Cadmium	10	2.7		1.6		2.0		0.64	B	0.48		0.50		0.38	B	0.21	B
Calcium	NS	5830		5550		10100		40300	J	852	J	10900	J	3360	J	54.4	BJ
Chromium	100	157		177		28.6		109	J	8.6	J	119	J	121	J	3.7	J
Cobalt	NS	31.1	U	25.5	U	13.0	U	2.1	B	2.5	B	1.6	B	1.1	U	1.4	U
Copper	500	159	J	159	J	71.6	J	50.5		6.3		86.9		117		1.6	U
Iron	NS	5330		5030		11200		6100		7650		5040		2380		3110	
Lead	400	644		404		308		15.5		4.2		23.4		48.8		1.2	
Magnesium	NS	2900	J	2940	J	6410	J	18300	J	487	J	4490	J	1310	J	120	J
Manganese	NS	62.4		37.9		77.1		163	J	283	J	60.4	J	16.0	J	44.9	J
Mercury	2.0	0.19	BJ	0.23	BJ	0.25	J	1.4	J	0.048	U	0.049	U	0.14	BJ	0.043	U
Nickel	1,000	15.1	J	7.4	BJ	17.5	J	6.8	B	4.4		10.7		3.0	B	2.9	B
Potassium	NS	169	U	84.9	U	361		420	B	231	B	86.5	U	27.1	U	12.6	U
Selenium	NS	1.9	U	0.73	U	0.92	U	0.68	U	2.4	U	0.37	U	0.47	U	2.1	U
Silver	100	1.8	B	1.9	B	1.0	B	4.1		1.0	U	2.2	U	1.0	U	0.43	U
Sodium	NS	781		313		278		349	B	9.6	U	147	B	151		12.0	U
Thallium	NS	0.67	U	0.55	U	0.28	U	0.51	U	0.19	U	0.28	U	0.35	U	0.24	U
Vanadium	NS	25.8		15.8		41.7		6.0	BJ	9.9	J	17.5	J	1.1	U	3.0	U
Zinc	NS	475		214		175		137		11.7		83.8		66.2	U	3.4	U
Hexavalent Chromium	NS	30	U	30	U	30	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

U=Analyte not detected B=Value is below the MDL, but above the IDL J=Estimated value NS= No Standard

TABLE 1-9c
Inorganic Results in Dry Well Sediment
Reckson Associates Site - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID => Date Collected =>	SCDHS	GP-9 SLUDGE 5/7/99		GP-14 SLUDGE 5/6/99		GP-14 (30-34) 5/7/99		GP-15 SLUDGE 5/7/99		GP-15 (30-34) 5/7/99		DW-NW CNR 5/14/99		DUPLICATE 5/14/99	
Analyte (mg/kg)														Dup of DW-26	
Aluminum	NS	1350		3390		624		9410		622		8140		1950	
Antimony	NS	4.0	U	226	J	5.7	J	912	J	1.5	U	0.37	UJ	0.24	UJ
Arsenic	25	1.7		3.5		2.0		10.0		0.58	B	4.4		1.7	
Barium	NS	7.2	BJ	32.7	J	3.0	U	144	J	3.2	U	30.0		12.0	B
Beryllium	8	0.16	U	0.26	U	0.18	U	0.72	U	0.20	U	0.20	U	0.24	U
Cadmium	10	0.52		3.7		0.55		403		0.30	B	1.1		0.61	
Calcium	NS	1400		5050		96.8		8640		71.5	B	1450		7840	
Chromium	100	6.3		160		3.9		356		13.6		25.7		7.5	
Cobalt	NS	1.2	BJ	2.8	U	0.67	J	9.9	BJ	0.44	BJ	14.3	U	16.7	U
Copper	500	21.6		300		3.0	B	496		2.5	B	37.4	J	30.4	J
Iron	NS	4360		6460		4970		24700		2240		9850		4090	
Lead	400	10.6	J	192	J	1.4	J	771	J	1.9	J	45.2		55.1	
Magnesium	NS	534		2190		147		3170		225		1420	J	4950	J
Manganese	NS	40.5	J	73.2	J	21.1	J	196	J	11.6	J	80.4		30.3	
Mercury	2.0	0.078	B	0.15	B	0.041	U	0.84		0.050	U	0.056	U	0.071	BJ
Nickel	1,000	4.2	J	9.3	J	2.9	J	57.8	J	1.8	BJ	9.9	J	7.8	J
Potassium	NS	103	J	250	J	97.4	J	336	J	121	J	423		152	U
Selenium	NS	0.38	U	0.52	U	2.6	U	1.8	U	1.3	U	1.0	U	0.95	U
Silver	100	1.6	U	2.0	U	0.99	U	11.2		1.1	U	1.0	B	0.68	B
Sodium	NS	30.2	B	185		13.4	U	246		15.2	U	192		126	
Thallium	NS	0.24	U	0.39	U	0.27	U	1.1	U	0.30	U	1.0	B	0.36	U
Vanadium	NS	3.8	U	11.0	J	2.7	U	49.1	J	3.0	U	20.4		22.3	
Zinc	NS	55.5		400		7.7		767		4.3	B	93.5		56.9	
Hexavalent Chromium	NS	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	30	U	30	U

U=Analyte not detected B=Value is below the MDL, but above the IDL J=Estimated value NS= No Standard

TABLE 10a
Volatiles in Ground Water
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID => Date Collected =>	NY TOGS	MW-1 06/07/99		MW-2 06/08/99		MW-3 06/08/99		MW-4 06/08/99		MW-5 06/07/99		MW-6 06/07/99		MW-7 06/08/99	
VOCs by 624 (ug/l)														Dup. of MW-2	
Chloromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	2	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	3	J	5	U	5	U	5	U	5		3	J	5	U
Methylene Chloride	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Methyl tert-butyl ether	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	3	J	5	U	5	U	13		5		4	J	5	U
Chloroform	7	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	6		5	U	5	U	5	U	8		6		5	U
Carbon Tetrachloride	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	19		3	J	1	J	5		29		21		3	J
1,2-Dichloropropane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinyl ether	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	44		11		23		96		61		49		10	
Dibromochloromethane	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Ethylbenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Xylenes (Total)	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 10a
Volatiles in Ground Water
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID => Date Collected =>	NY TOGS	MW-8 06/08/99		MW-9 06/08/99		MW-10 06/08/99		MW-10D 05/27/99		MW-11 06/07/99		MW-12 06/07/99		MW-13 06/07/99		MW-14 06/07/99	
VOCs by 624 (ug/l)																	
Chloromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	2	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	5	U	5	U	5	U	4	J	3	J	2	J	5	U	5	U
Methylene Chloride	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Methyl tert-butyl ether	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	12		25		6		5		3	J	2	J	1	J	5	U
Chloroform	7	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	5	U	5	U	5	U	8		5		4	J	3	J	5	U
Carbon Tetrachloride	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	2	J	8		12		27		17		16		10		2	J
1,2-Dichloropropane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinyl ether	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	32		110		440	D	53		36		34		72		45	
Dibromochloromethane	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Ethylbenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Xylenes (Total)	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 10a
Volatiles in Ground Water
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID => Date Collected =>	NY TOGS	MW-14D 05/27/99		MW-15 06/08/99		GP-05 (aq) 5/4/99		GP-06 (aq) 5/5/99		TB 05/27/99		TB 06/08/99		TB 06/07/99	
VOCs by 624 (ug/l)															
Chloromethane	5	5	U	5	U	10	U	5	U	5	U	5	U	5	U
Vinyl Chloride	2	5	U	5	U	10	U	5	U	5	U	5	U	5	U
Bromomethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	5	U	5	U	5	U	5	U	1	J	1	JB	4	JB
Methyl tert-butyl ether	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	5	U	4	J	11		1	J	5	U	5	U	5	U
Chloroform	7	5	U	5	U	5	U	5	U	5	U	1	J	5	U
1,1,1-Trichloroethane	5	1	J	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5		2	J	15		3	J	5	U	5	U	5	U
1,2-Dichloropropane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	50	5	UJ	5	U	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinyl ether	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	27		20		300	D	50		5	U	5	U	5	U
Dibromochloromethane	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	5	5	U	5	U	5	U	5	U	5	U	1	J	5	U
Ethylbenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Xylenes (Total)	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 10b
Semi-volatiles in Ground Water
Reckson - 333 Smith Street Farmingdale, New York

Sample ID =>	NY TOGS	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6		MW-7		MW-8	
Date Collected =>		06/07/99		06/08/99		06/08/99		06/08/99		06/07/99		06/07/99		06/08/99		06/08/99	
SVOCs by 8270 (ug/l)														Dup of MW-2			
bis(2-Chloroethyl)Ether	1.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	4.7	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	4.7	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isophorone	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobutadiene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Chloronaphthalene	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dimethylphthalate	50.0	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Acenaphthylene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	50.0	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
4-Chlorophenyl-phenylether	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitrosodimethylamine (1)	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	0.35	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chrysene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-octylphthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	ND	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TA[illegible] 10b

Semi-volatiles in Ground Water

Reckson - 333 Smith Street Farmingdale, New York

Sample ID =>	NY TOGS	MW-9		MW-10		MW-11		MW-12		MW-13		MW-14		MW-15		GP-05 (Aq)		GP-06 (Aq)	
Date Collected =>		06/08/99		06/08/99		06/07/99		06/07/99		06/07/99		06/07/99		06/08/99		5/4/99		5/5/99	
SVOCs by 8270 (ug/l)																			
bis(2-Chloroethyl)Ether	1.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	4.7	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	4.7	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	UJ
N-Nitroso-di-n-propylamine	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isophorone	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobutadiene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Chloronaphthalene	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dimethylphthalate	50.0	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Acenaphthylene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthene	5.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	50.0	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
4-Chlorophenyl-phenylether	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
N-Nitrosodimethylamine (1)	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	0.35	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Phenanthrene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chrysene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	J	1	J
Di-n-octylphthalate	50.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	ND	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	0.002	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 1-10c
Inorganics in Ground Water
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID => Date Collected =>	NY TOGS	MW-1 06/07/99		MW-2 06/08/99		MW-3 06/08/99		MW-4 06/08/99		MW-5 06/07/99		MW-6 06/07/99		MW-7 06/08/99	
Analyte														Dup of MW-2	
Aluminum	NS	151		6.8	U	3.0	U	16.1	U	79.6	B	377		15.1	U
Antimony	3	0.75	U	0.75	U	1.5	U	0.75	U	0.75	U	0.75	U	0.75	U
Arsenic	25	1.7	U	1.5	U	1.5	U	1.5	U	1.5	U	2.8	U	2.0	U
Barium	1,000	76.4	B	38.7	B	34.8	B	48.0	B	90.9	B	291		45.3	B
Beryllium	3	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Cadmium	10	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.28	B	0.15	U
Calcium	NS	20900		16300		17300		17800		22000		18500		19000	
Chromium	200	1.3	B	0.49	B	0.73	B	4.1	B	0.52	B	0.57	B	0.61	B
Cobalt	NS	0.45	B	0.20	U	1.2	B	0.20	U	0.23	B	0.21	B	0.20	U
Copper	200	2.9	U	0.95	U	1.1	U	7.0	B	2.4	U	1.9	U	2.5	U
Iron	300	395		73.3	U	17.4	U	33.7	U	77.8	U	24.9	U	50.8	U
Lead	25	3.9	J	3.6	U	3.1	J	4.3	J	5.3	J	3.5	J	5.7	J
Magnesium	35,000	6780		4330		3560		4390		7200		5470		5040	
Manganese	300	57.8		6.9	B	5.9	B	144		63.5		275		8.3	
Mercury	2	0.14	UJ	0.13	U	0.14	UJ	0.13	UJ	0.14	UJ	0.14	UJ	0.13	UJ
Nickel	100	1.1	B	0.30	U	0.30	U	0.99	B	0.30	U	2.9	B	0.30	U
Potassium	NS	2950		3710		2440	B	3370		3480		4820		4410	
Selenium	10	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Silver	50	5.2	U	0.52	U	0.30	U	0.30	U	1.9	U	0.81	U	1.0	U
Sodium	20,000	15300		18400		11900		16300		16300		14300		21500	
Thallium	4	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Vanadium	NS	0.67	B	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Zinc	300	10.0		2.6	B	3.8	B	7.0	B	3.8	B	4.2	B	2.5	B
Cyanide	100	1.0	U	1.9	B	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexavalent Chromium	50	0.01	UJ	0.01	UJ	0.01	UJ	0.01	U	0.01	U	0.01	U	0.01	UJ
Fluoride	1,500	0.06	U	0.06	U	0.11		0.07		0.14		0.14		0.12	

U=not detected J=estimated value (below MDL) B=Value below MDL but above IDL NS=No Standard NA=Not Analyzed

TABLE 1-10c
Inorganics in Ground Water
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID =>	NY TOGS	MW-8		MW-9		MW-10		MW-11		MW-12		MW-13		MW-14	
Date Collected =>		06/08/99		06/08/99		06/08/99		06/07/99		06/07/99		06/07/99		06/07/99	
Analyte															
Aluminum	NS	5.4	U	4.7	U	20.2	U	31.1	U	19.8	U	53.2	U	230	
Antimony	3	51.9		0.75	U	0.75	U	0.75	U	1.1	U	0.75	U	0.75	U
Arsenic	25	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	2.0	U	1.9	U
Barium	1,000	35.3	B	35.8	B	33.5	B	73.5	B	64.8	B	59.0	B	156	
Beryllium	3	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Cadmium	10	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.39	B
Calcium	NS	21000		16200		13400		21500		21400		18000		17500	
Chromium	200	1.4	B	4.3	B	0.57	B	0.43	B	0.34	B	0.67	B	0.52	B
Cobalt	NS	0.39	B	0.20	U	0.35	B	0.20	U	0.23	B	0.20	U	2.2	B
Copper	200	4.0	B	1.9	U	0.40	U	1.1	U	0.43	U	4.3	U	17.8	
Iron	300	48.6	U	12.1	U	62.6	U	50.2	U	56.4	U	19.2	U	72.4	U
Lead	25	4.7	J	2.8		2.3	J	2.7	J	2.8	J	3.4	J	2.6	J
Magnesium	35,000	4540		3870		3480		6490		6600		5610		5000	
Manganese	300	24.7		87.3		25.6		24.8		13.6		120		558	
Mercury	2	0.14	UJ	0.13	UJ	0.13	UJ	0.14	UJ	0.14	UJ	0.14	UJ	0.14	UJ
Nickel	100	0.67	B	0.51	B	0.30	U	0.30	U	0.30	U	0.64	B	4.8	B
Potassium	NS	2870		2880		2200	B	2920		3350		3040		4210	
Selenium	10	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Silver	50	0.30	U	0.30	U	0.30	U	0.95	U	3.7	U	2.6	U	2.2	U
Sodium	20,000	10400		12300		12100		14900		16300		13800		18100	
Thallium	4	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Vanadium	NS	1.0	B	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Zinc	300	15.3		3.6	B	2.0	U	2.6	B	5.3	B	4.4	B	6.5	B
Cyanide	100	1.0	U	2.1	B	1.0	U	1.0	U	1.0	U	1.0	U	1.3	B
Hexavalent Chromium	50	0.01	UJ	0.01	UJ	0.01	U	0.01	U	0.01	UJ	0.01	UJ	0.01	UJ
Fluoride	1,500	0.18		0.13		0.09		0.16		0.15		0.15		0.10	

U=not detected J=estimated value (below MDL) B=Value below MDL but above IDL NS=No Standard NA=Not Analyzed

TABLE 1-10c
Inorganics in Ground Water
Reckson - 333 Smith Street Farmingdale, New York
ERM Project Number 1574.001

Sample ID => Date Collected =>	NY TOGS	MW-15 06/08/99		GP-05 (Aq) 5/4/99		GP-06 (Aq) 5/5/99	
Analyte							
Aluminum	NS	11.5	U	39.0	U	841	
Antimony	3	1.6	U	2.0	UJ	2.3	UJ
Arsenic	25	1.5	U	3.0	U	3.0	U
Barium	1,000	15.3	B	55.7	B	60.5	B
Beryllium	3	0.40	U	2.0	U	2.0	U
Cadmium	10	0.15	U	2.0	U	2.0	U
Calcium	NS	10500		16600.0	J	16200.0	J
Chromium	200	0.80	B	18.6	J	114	J
Cobalt	NS	0.20	U	12.2	B	8.6	B
Copper	200	2.0	U	9.3	B	21.0	B
Iron	300	44.6	U	2520		8500	
Lead	25	2.5	J	5.2		6.6	B
Magnesium	35,000	2280	B	3750	BJ	3880	J
Manganese	300	6.4	B	633	J	350	J
Mercury	2	0.13	UJ	0.15	U	0.10	U
Nickel	100	0.30	U	16.3	B	56.8	
Potassium	NS	1640	B	3380	B	3080.0	
Selenium	10	2.5	U	4.0	U	4.0	U
Silver	50	0.50	U	5.4	B	4.8	U
Sodium	20,000	5720		11000		10400	
Thallium	4	1.5	U	3.0	U	4.2	U
Vanadium	NS	0.40	U	8.7	BJ	7.1	BJ
Zinc	300	2.9	B	98.0		264	
Cyanide	100	1.0	U	NA		NA	
Hexavalent Chromium	50	0.01	UJ	0.01	U	0.01	U
Fluoride	1,500	0.11		NA		NA	

U=not detected J=estimated value (below MDL) B=Value below MDL but above IDL NS=No Standard NA=Not Analyzed

TABLE 2-1
Comparison of Site Soil Concentrations of Inorganics to Background Concentrations
333 Smith Street Farmingdale, NY
ERM Project No. 1574-001

Sample ID => Date Collected =>	Eastern US Background (1)	GP-04 (0-4) 5/4/99	GP-05 (0-4) 5/4/99	GP-05 (5-9) 5/4/99	GP-06 (20-24) 5/5/99	GP-07 (0-4) 5/5/99	GP-10 (8-12) 5/5/99	GP-11 (0-4) 5/6/99
Analyte (mg/kg)								
Aluminum	SB	9720	6600	1400	809	8020	1170	6790
Antimony	SB	0.22 UJ	0.16 UJ	0.20 UJ	0.18 UJ	0.22 UJ	0.55 UJ	0.17 UJ
Arsenic	7.5	3.9	3.8	2.3	1.0	15.0	0.89	7.8
Barium	300	19.1 B	17.6 U	8.9 B	4.8 U	23.3	6.5 U	18.4 J
Beryllium	1	0.22 U	0.16	0.20 U	0.18 U	0.22 U	0.17 U	0.17 U
Cadmium	1	0.78	0.77	0.38 B	0.19 B	0.83	0.22 B	0.60
Calcium	SB	282 U	1510 J	232 U	58.3 BJ	800 J	1130 J	1680
Chromium	10	9.7 J	7.8 J	8.9 J	1.7 BJ	9.3 J	8.6 J	10.0
Cobalt	30	4.4 B	4.2 U	1.6 U	0.90 U	5.4 B	0.76 U	3.7 BJ
Copper	25	3.3	6.1	2.8 U	2.1 U	17.0	3.6 U	24.1
Iron	2,000	12,700	11,900	6,140	2,670	11,400	4,480	9,060
Lead	30	5.0	6.0	2.0 U	1.5	17.9	12.8	11.3
Magnesium	SB	1300 J	1040 J	437 BJ	177 J	1290 J	350 J	1080
Manganese	SB	98.1 J	169 J	105 J	61.5 J	150 J	30.6 J	109 J
Mercury	0.1	0.044 U	0.045 U	0.053 U	0.044 U	0.049 U	0.046 U	0.051 U
Nickel	13	7.7	7.9	3.3 U	1.5 B	8.5	65.9	8.3 J
Potassium	SB	281 B	390 B	247 B	47.6 U	262 U	115 U	604 J
Selenium	2	7.0 U	4.6 U	3.6 U	1.5 U	4.2 U	0.59 U	2.1 U
Silver	SB	1.7 U	1.8 U	0.77 U	0.38 U	1.9 U	0.61 U	1.5 U
Sodium	SB	16.2 U	12.2 U	14.8 U	13.5 U	16.1 U	13.1 U	12.5 U
Thallium	SB	0.32 U	0.24 U	0.30 U	0.27 U	0.32 U	0.26 U	0.25 U
Vanadium	150	14.6 J	12.1 J	4.9 U	2.2 U	16.1 J	3.1 U	12.1 J
Zinc	20	15.8	16.8	5.5	3.9 U	21.0 U	11.1 U	73.8
Hexavalent Chromium	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

U = Analyte not detected B = Value is below the CRDL, but above the IDL J= Estimated value SB = Site Background NS=No Standard
(1) Eastern US background concentrations obtained from TAGM HWR 94-4046.

TABLE 2-1
Comparison of Site Soil Concentrations of Inorganics to Background Concentrations
333 Smith Street Farmingdale, NY
ERM Project No. 1574-001

Sample ID => Date Collected =>	Eastern US Background (1)	GP-12 (0-4) 5/6/99		GP-13 (0-4) 5/6/99		GP-16 (0-4) 5/6/99		Plating Rm Pipe 5/6/99	
Analyte (mg/kg)									
Aluminum	SB	9120		1260		1510		6800	
Antimony	SB	0.19	UJ	0.49	U	0.20	UJ	0.18	UJ
Arsenic	7.5	5.0		1.7		0.81	B	4.9	
Barium	300	19.4	J	10.0	U	10.9	U	20.5	J
Beryllium	1	0.19	U	0.18	U	0.16	U	0.18	U
Cadmium	1	1.0		1.5		0.59		0.57	
Calcium	SB	322		7610		11800		11900	
Chromium	10	12.7		12.7		5.4		12.8	
Cobalt	30	7.2	J	1.9	U	0.90	U	3.7	BJ
Copper	25	6.0		66.3		54.9		8.4	
Iron	2,000	15,200		10,900		3,490		8,350	
Lead	30	5.6	J	7.3	J	4.4	J	8.7	J
Magnesium	SB	1260		563		675		1290	
Manganese	SB	192	J	108	J	70.2	J	122	J
Mercury	0.1	0.049	U	0.049	U	0.043	U	0.048	U
Nickel	13	9.2	J	10.0	J	4.0	BJ	7.7	J
Potassium	SB	316	J	114	J	159	J	78.0	J
Selenium	2	7.6		0.59	U	0.33	U	0.35	U
Silver	SB	2.2	U	1.8	U	0.69	U	1.5	U
Sodium	SB	14.1	U	1050.0		611		13.2	U
Thallium	SB	0.28	U	0.76	B	0.25	U	0.26	U
Vanadium	150	16.6	J	3.7	BJ	3.0	BJ	11.9	J
Zinc	20	15.8		1460		820		32.9	
Hexavalent Chromium	NS	1.0	U	1.0	U	4.0		1.0	U

U = Analyte not detected B = Value is below the CRDL, but above the IDL J= Estimated value SB = Site Background NS=No Standard
(1) Eastern US background concentrations obtained from TAGM HWR 94-4046.

TABLE 2-2
Evaluation of the Potential Direct Contact Risks Posed to Construction Workers By Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	NY TAGM RSCOs(1)	Maximum Soil Conc	GP-04 (10-14) 5/4/99	GP-05 (0-4) 5/4/99	GP-05 (5-9) 5/4/99	GP-06 (0-4) 5/4/99	GP-07 (15-19) 5/5/99	GP-10 (3-7) 5/5/99	GP-11 (0-4) 5/6/99
VOCs by 8260 (ug/kg)									
2-Butanone	4.00E+06	520	5 U	5 U	51 U	5 U	5 UJ	5 U	52 U
Trichloroethene	64,000	20	5 U	5 U	51 U	4 J	5 U	5 U	52 U
Tetrachloroethene	14,000	19,000	5 U	2,300 D	620 J	190 D	5 U	20	1,100 D
Ethylbenzene	8.00E+06	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U
1,3,5-Trimethylbenzene	NS	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U
1,2,4-Trimethylbenzene	NS	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U
1,2-Dichlorobenzene	7.00E+06	1	5 U	1 J	51 U	5 U	5 U	5 U	52 U
1,2,4-Trichlorobenzene	NS	200	5 U	180	200	5 U	5 U	5 U	55
Naphthalene	3.00E+05	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U
1,2,3-Trichlorobenzene	NS	16	5 U	9	16 JB	5 U	5 U	1 J	52 U

ERM Sample ID: ERM-FAST Run No.: Date Collected:	NY TAGM RSCOs(1)	Maximum Soil Conc	B2-1(0-4) 14 7/1/99	B2-1(0-4) Duplicate 7/1/99	B2-1(3-7) 15 7/1/99	B2-1(7-11) 16 7/1/99	B2-1(7-11) Duplicate 7/1/99	B2-3(0-4) 8 7/1/99	B2-9(5-9) 18 7/1/99
VOCs (ug/kg)									
Trichloroethene	64,000	20	1.0 U		1.0 U	20.4		5.1	1.0 U
Tetrachloroethene	14,000	19,000	8,672	19,000	27	7,467	300	227	114

ERM Sample ID: ERM-FAST Run No.: Date Collected:	NY TAGM RSCOs(1)	Maximum Soil Conc	B2-4(0-4) 10 7/1/99	B2-5(0-4) 11 7/1/99	B2-5(0-4) Duplicate 7/1/99	B2-6(0-4) 12 7/1/99	B2-7(0-4) 13 7/1/99	B2-9(0-5) 17 7/1/99	B2-12(0-4) 22 7/1/99
VOCs (ug/kg)									
Trichloroethene	NS	20	1.5	2.8		2.0	2.1	1.0 U	1.0 U
Tetrachloroethene	NS	19,000	58	560	28	360	4,345	1,309	2,055

Notes:
Samples exceeding the direct contact cleanup levels are highlighted.
(1) Lower of the carcinogenic and systemic toxicant USEPA health based criteria provided in TAGM HWR-94-4046

TABLE 2-2
Evaluation of the Potential Direct Contact Risks Posed to Construction Workers By Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	NY TAGM RSCOs(1)	Maximum Soil Conc	GP-11 (5-9) 5/6/99	GP-12 (0-4) 5/6/99	GP-12 (4-8) 5/6/99	GP-13 (0-4) 5/6/99	Plating Rm Pipe 5/6/99
VOCs by 8260 (ug/kg)							
2-Butanone	4.00E+06	520	5 U	26 U	5 U	520 U	3 J
Trichloroethene	64,000	20	5 U	26 U	5 U	520 U	5 U
Tetrachloroethene	14,000	19,000	28	280	51	10,000 DB	100
Ethylbenzene	8.00E+06	520	5 U	26 U	5 U	520 U	5 U
1,3,5-Trimethylbenzene	NS	520	5 U	26 U	5 U	520 U	5 U
1,2,4-Trimethylbenzene	NS	520	5 U	26 U	5 U	520 U	5 U
1,2-Dichlorobenzene	7.00E+06	1	5 U	26 U	5 U	520 U	5 U
1,2,4-Trichlorobenzene	NS	200	34	56	26	150 J	2 J
Naphthalene	3.00E+05	520	5 U	26 U	5 U	520 U	5 U
1,2,3-Trichlorobenzene	NS	16	3 J	26 U	3 J	520 U	5 U

ERM Sample ID: ERM-FAST Run No.: Date Collected:	NY TAGM RSCOs(1)	Maximum Soil Conc	B2-10(0-4) 19 7/1/99	B2-10(4-8) 20 7/1/99	B2-11(0-4) 21 7/1/99
VOCs (ug/kg)					
Trichloroethene	64,000	20	1.0 U	1.0 U	1.0 U
Tetrachloroethene	14,000	19,000	19	12	2,707

ERM Sample ID: ERM-FAST Run No.: Date Collected:	NY TAGM RSCOs(1)	Maximum Soil Conc	B2-13(0-4) 23 7/1/99
VOCs (ug/kg)			
Trichloroethene	NS	20	1.0 U
Tetrachloroethene	NS	19,000	459

Notes:
Samples exceeding the direct contact cleanup levels are highlighted.
(1) Lower of the carcinogenic and systemic toxicant USEPA health based criteria provided in TAGM HWR-94-4046

TABLE 2-2
Evaluation of the Potential Direct Contact Risks Posed to Construction Workers By Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	NY TAGM RSCOs(1)	Maximum Soil Conc	GP-04 (10-14) 5/4/99	GP-05 (0-4) 5/4/99	GP-05 (5-9) 5/4/99	GP-06 (0-4) 5/4/99	GP-07 (15-19) 5/5/99	GP-10 (3-7) 5/5/99	GP-11 (0-4) 5/6/99
SVOCs by 8270 (ug/kg)									
1,2,4-Trichlorobenzene	NS	670	330 U	280 J	360 U	360 U	330 U	330 U	670
Dimethylphthalate	8.00E+07	13,000	330 U	340 U	360 U	360 U	330 U	330 U	340 U
Di-n-butylphthalate	8.00E+06	370	330 U	340 U	360 U	360 U	330 U	330 U	340 U
bis(2-Ethylhexyl)phthalate	5.00E+04	360	330 U	340 U	360 U	360 U	39 J	330 U	87 J

Sample ID => Date Collected =>	EPA Reg. III RBCs	Maximum Soil Conc	GP-04 (0-4) 5/4/99	GP-05 (0-4) 5/4/99	GP-05 (5-9) 5/4/99	GP-06 (20-24) 5/5/99	GP-07 (0-4) 5/5/99	GP-10 (8-12) 5/5/99	GP-11 (0-4) 5/6/99
Analyte (mg/kg)									
Arsenic	3.8	15	3.9	3.8	2.3	1.0	15.0	0.89	7.8
Cadmium	NS	1.5	0.78	0.77	0.38 B	0.19 B	0.83	0.22 B	0.60
Chromium	3.10E+06	12.8	9.7	7.8	8.9	1.7 B	9.3 J	8.6	10.0
Copper	8.20E+04	66	3.3	6.1	2.8	2.1 B	17.0	3.6 B	24.1
Iron	6.10E+05	15,200	12700	11,900	6,140	2,670	11,400	4,480	9,060
Nickel	4.10E+04	66	7.7	7.9	3.3 B	1.5 B	8.5	65.9	8.3
Selenium	1.00E+04	8	7.0	4.6	3.6	1.5 B	4.2 U	0.59 B	2.1
Zinc	6.10E+05	1,460	15.8	16.8	5.5	3.9 B	21.0 U	11.1	73.8

Notes:
Samples exceeding the direct contact cleanup levels are highlighted.
(1) Lower of the carcinogenic and systemic toxicant USEPA health based criteria provided in TAGM HWR-94-4046

TABLE 2-2
Evaluation of the Potential Direct Contact Risks Posed to Construction Workers By Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	NY TAGM RSCOs(1)	Maximum Soil Conc	GP-11 (5-9) 5/6/99		GP-12 (0-4) 5/6/99		GP-12 (4-8) 5/6/99		GP-13 (0-4) 5/6/99		Plating Rm Pipe 5/6/99	
SVOCs by 8270 (ug/kg)												
1,2,4-Trichlorobenzene	NS	670	95	J	170	J	160	J	160	J	340	U
Dimethylphthalate	8.00E+07	13,000	320	U	370	U	320	U	360	U	13000	D
Di-n-butylphthalate	8.00E+06	370	320	U	370	U	320	U	360	U	53	J
bis(2-Ethylhexyl)phthalate	5.00E+04	360	320	U	58	J	140	J	88	J	310	J

Sample ID => Date Collected =>	EPA Reg. III RBCs	Maximum Soil Conc	GP-12 (0-4) 5/6/99	GP-13 (0-4) 5/6/99		Plating Rm Pipe 5/6/99	
Analyte (mg/kg)							
Arsenic	3.8	15	5.0	1.7		4.9	
Cadmium	NS	1.5	1.0	1.5		0.57	
Chromium	3.10E+06	12.8	12.7	12.7		12.8	
Copper	8.20E+04	66	6.0	66.3		8.4	
Iron	6.10E+05	15,200	15,200	10,900		8350	
Nickel	4.10E+04	66	9.2	10.0		7.7	
Selenium	1.00E+04	8	7.6	0.59	B	0.35	U
Zinc	6.10E+05	1,460	15.8	1,460		32.9	

Notes:
Samples exceeding the direct contact cleanup levels are highlighted.
(1) Lower of the carcinogenic and systemic toxicant USEPA health based criteria provided in TAGM HWR-94-4046

TABLE 2-3
Input Values for Exposure and Transport Parameters and
Identification of Chemical-Specific Parameters
333 Smith Street, Farmingdale, New York

	Commercial Worker
Exposure Parameters	
TR, target risk	1 x 10^{-6}
THI, target hazard index	1
BW, body weight, kg	70
AT_c, Averaging time for carcinogens, years	70
AT_{nc}, Averaging time for noncarcinogens, years	25
IR, Inhalation rate, m^3/day	20
ED, exposure duration, years	25
EF, exposure frequency, days/year	250
Fate and Transport Parameters	
ρ_s, soil bulk density, g/cm^3	1.7
θ_{ws}, volumetric water content in vadose zone soils, cm^3-water/cm^3-soil	0.12
θ_{as}, volumetric air content in vadose zone soils, cm^3-air/cm^3-soil	0.26
L_s, depth to subsurface impacted soil sources, cm	100
ER, enclosed space air exchange rate, changes/second	0.00023
L_B, enclosed space volume/infiltration area ratio, cm	300
L_{crack}, enclosed space foundation or wall thickness, cm	15
η, areal fraction of cracks in foundation walls, cm^2-cracks/cm^2-total area	0.01
W, width of source area parallel to wind, to ground water flow direction, cm	1500
U_a, wind speed above ground surface in the ambient mixing zone, cm/s	225
τ, averaging time for vapor flux, seconds	7.88 x 10^8
d, thickness of surficial soil zone, cm	15.24
L_{GW}, depth to ground water, cm	300

Chemical-Specific Parameters (derived for each COC from standard chemical references)
SF_i, inhalation slope factor, $(mg/kg\ day)^{-1}$
RfD, reference dose, mg/kg day
H, Henry's Law constant, cm^3-water/cm^3-air
K_s, soil-water sorption coefficient, g-water/g-soil
D_s^{eff}, effective diffusion coefficient in soil based on vapor-phase concentration, cm^2/sec
D_{crack}^{eff}, effective diffusion coefficient through foundation cracks, cm^2/sec
OPF, Oral Potency Factor, $(mg/kg\text{-}day)^{-1}$
ORD, Oral Reference Dose, mg/kg-day
DPF, Dermal Potency Factor, $(mg/kg\text{-}day)^{-1}$
DRD, Dermal Reference Dose, mg/kg-day
M, soil skin adherence factor, mg/cm^2
RAF, dermal relative adsorption factor, dimensionless
D_{ws}^{eff}, effective diffusion coefficient between ground water and soil surface, cm^2/sec

TABLE 2-4
Evaluation of Potential Indoor Air Inhalation Risks Posed to Commercial Workers by Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	Calculated RBSL	Maximum Soil Conc	GP-04 (10-14) 5/4/99	GP-05 (0-4) 5/4/99	GP-05 (5-9) 5/4/99	GP-06 (0-4) 5/4/99	GP-07 (15-19) 5/5/99	GP-10 (3-7) 5/5/99	GP-11 (0-4) 5/6/99	GP-11 (5-9) 5/6/99
VOCs by 8260 (ug/kg)										
2-Butanone	1,720,000	520	5 U	5 U	51 U	5 U	5 UJ	5 U	52 U	5 U
Trichloroethene	9,220	20	5 U	5 U	51 U	4 J	5 U	5 U	52 U	5 U
Tetrachloroethene	2,760	19,000	5 U	2,300 D	620 J	190 D	5 U	20	1,100 D	28
Ethylbenzene	573,000	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U	5 U
1,3,5-Trimethylbenzene	9,250	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U	5 U
1,2,4-Trimethylbenzene	14,500	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U	5 U
1,2-Dichlorobenzene	103,000	1	5 U	1 J	51 U	5 U	5 U	5 U	52 U	5 U
1,2,4-Trichlorobenzene	6,740,000	200	5 U	180	200	5 U	5 U	5 U	55	34
Naphthalene	NS	520	5 U	5 U	51 U	5 U	5 U	5 U	52 U	5 U
1,2,3-Trichlorobenzene	NS	16	5 U	9	16 JB	5 U	5 U	1 J	52 U	3 J

ERM Sample ID: ERM-FAST Run No.: Date Collected:	Calculated RBSL	Maximum Soil Conc	B2-1(0-4) 14 7/1/99	B2-1(0-4) Duplicate 7/1/99	B2-1(3-7) 15 7/1/99	B2-1(7-11) 16 7/1/99	B2-1(7-11) Duplicate 7/1/99	B2-3(0-4) 8 7/1/99	B2-4(0-4) 10 7/1/99	B2-5(0-4) 11 7/1/99
Trichloroethene	9,220	20	1.0 U		1.0 U	20.4		5.1	1.5	2.8
Tetrachloroethene	2,760	19,000	8,672	19,000	27	7,467	300	227	58	560

Notes:
Samples exceeding the direct contact cleanup levels are highlighted

TABLE 2-4
Evaluation of Potential Indoor Air Inhalation Risks Posed to Commercial Workers by Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	Calculated RBSL	Maximum Soil Conc	GP-12 (0-4) 5/6/99	GP-12 (4-8) 5/6/99	GP-13 (0-4) 5/6/99	Pl Rm Pipe 5/6/99
VOCs by 8260 (ug/kg)						
2-Butanone	1,720,000	520	26 U	5 U	520 U	3 J
Trichloroethene	9,220	20	26 U	5 U	520 U	5 U
Tetrachloroethene	2,760	19,000	280	51	10,000 B	100
Ethylbenzene	573,000	520	26 U	5 U	520 U	5 U
1,3,5-Trimethylbenzene	9,250	520	26 U	5 U	520 U	5 U
1,2,4-Trimethylbenzene	14,500	520	26 U	5 U	520 U	5 U
1,2-Dichlorobenzene	103,000	1	26 U	5 U	520 U	5 U
1,2,4-Trichlorobenzene	6,740,000	200	56	26	150 J	2 J
Naphthalene	NS	520	26 U	5 U	520 U	5 U
1,2,3-Trichlorobenzene	NS	16	26 U	3 J	520 U	5 U

ERM Sample ID: ERM-FAST Run No.: Date Collected:	Calculated RBSL	Maximum Soil Conc	B2-5(0-4) Duplicate 7/1/99	B2-6(0-4) 12 7/1/99	B2-7(0-4) 13 7/1/99	B2-9(0-5) 17 7/1/99	B2-9(5-9) 18 7/1/99	B2-10(0-4) 19 7/1/99	B2-10(4-8) 20 7/1/99	B2-11(0-4) 21 7/1/99	B2-12(0-4) 22 7/1/99	B2-13(0-4) 23 7/1/99
Trichloroethene	9,220	20		2.0	2.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	2,760	19,000	28	360	4,345	1,309	114	19	12	2,707	2,055	459

Notes:
Samples exceeding the direct contact cleanup levels are highlighted

TABLE 2-5

Evaluation of Ground Water Data for Potential Soil Leaching to Ground Water Risks

333 Smith Street Farmingdale, NY

				Background Wells								Downgradient Wells					
Sample ID =>	Class GA	Maximum	Maximum	MW-1		MW-2		MW-13		MW-14		MW-4		MW-9		MW-10	
Date Collected =>	GW Std	Background	DG Conc	06/07/99		06/08/99		06/07/99		06/07/99		06/08/99		06/08/99		06/08/99	
VOCs by 624 (ug/l)																	
Chloromethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	2	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	3	ND	3	J	5	U	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	ND	5.4	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Methyl tert-butyl ether	50	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	3	25	3	J	5	U	1	J	5	U	13		25		6	
Chloroform	7	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	6	ND	6		5	U	3	J	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	1	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	19	62	19		3	J	10		2	J	5		8		12	
1,2-Dichloropropane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	50	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinyl ether	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	ND	16	5	U	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	72	1500	44		11		72		45		96		110		440	D
Dibromochloromethane	50	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Ethylbenzene	5	ND	12	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Xylenes (Total)	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	50	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	ND	ND	5	U	5	U	5	U	5	U	5	U	5	U	5	U

Note: Concentrations above background levels ***and*** ground water standards are highlighted.

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 2-5

Evaluation of Ground Water Data for Potential Soil Leaching to Ground Water Risks

333 Smith Street Farmingdale, NY

				Geoprobe Samples								
Sample ID =>	Class GA	Maximum	Maximum	GP-05 (aq)		GP-06 (aq)		G-1 (aq)	G-2 (aq)	G-3 (aq)	G-4 (aq)	G-5 (aq)
Date Collected =>	GW Std	Background	DG Conc	5/4/99		5/5/99		1997	1997	1997	1997	1997
VOCs by 624 (ug/l)												
Chloromethane	5	ND	ND	10	U	5	U	ND	ND	ND	ND	ND
Vinyl Chloride	2	ND	ND	10	U	5	U	ND	ND	ND	ND	ND
Bromomethane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Chloroethane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,1-Dichloroethene	5	3	ND	5	U	5	U	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	5.4	5	U	5	U	5.4	ND	ND	ND	ND
Methyl tert-butyl ether	50	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5	3	25	11		1	J	ND	ND	ND	ND	ND
Chloroform	7	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	5	6	ND	5	U	5	U	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,2-Dichloroethane	1	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Benzene	1	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Trichloroethene	5	19	62	15		3	J	7.8	26	50	62	45
1,2-Dichloropropane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Bromodichloromethane	50	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
2-Chloroethylvinyl ether	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Toluene	5	ND	16	5	U	5	U	16	9.5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Tetrachloroethene	5	72	1500	300	D	50		240	1,500	1,100	1,400	990
Dibromochloromethane	50	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Ethylbenzene	5	ND	12	5	U	5	U	12	8.2	ND	ND	ND
Xylenes (Total)	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
Bromoform	50	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	5	U	5	U	ND	ND	ND	ND	ND

Note: Concentrations above background levels ***and*** ground water standards are highlighted.

U=not detected J=estimated value (below MDL) B=detected in associated method blank D=result from secondary analysis (dilution) NS=No Standard

TABLE 2-6
Evaluation of Potential Impact to Ground Water Risks Posed by Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	NYSDEC TAGM (1)	Maximum Soil Conc	GP-04 (10-14) 5/4/99	GP-05 (0-4) 5/4/99	GP-05 (5-9) 5/4/99	GP-06 (0-4) 5/4/99	GP-07 (15-19) 5/5/99	GP-10 (3-7) 5/5/99	GP-11 (0-4) 5/6/99	GP-11 (5-9) 5/6/99	GP-12 (0-4) 5/6/99
VOCs by 8260 (ug/kg)											
cis-1,2-Dichloroethene	NS	5	5 U	5 U	51 U	5 J	5 U	5 U	52 U	5 U	26 U
Trichloroethene	700	20	5 U	5 U	51 U	4 J	5 U	5 U	52 U	5 U	26 U
Tetrachloroethene	1,400	19,000	5 U	2,300 D	620 J	190 D	5 U	20	1,100 D	28	280

ERM Sample ID: ERM-FAST Run No.: Date Collected:	NYSDEC TAGM (1)	Maximum Soil Conc	B2-1(0-4) 14 7/1/99	B2-1(0-4) Duplicate 7/1/99	B2-1(3-7) 15 7/1/99	B2-1(7-11) 16 7/1/99	B2-1(7-11) Duplicate 7/1/99	B2-3(0-4) 8 7/1/99	B2-4(0-4) 10 7/1/99	B2-5(0-4) 11 7/1/99	B2-5(0-4) Duplicate 7/1/99
Trichloroethene	700	20	1.0 U		1.0 U	20.4		5.1	1.5	2.8	
Tetrachloroethene	1,400	19,000	8,672	19,000	27	7,467	300	227	58	560	28

Notes:
Soil samples highlighted exceed the impact to ground water soil cleanup level.
(1) NYSDEC TAGM HWR-94-4046 soil cleanup objectives to protect gw quality.

TABLE 2-6
Evaluation of Potential Impact to Ground Water Risks Posed by Site Soil
333 Smith Street, Farmingdale, NY
ERM Project No. 1574.001

Sample ID => Date Collected =>	NYSDEC TAGM (1)	Maximum Soil Conc	GP-12 (4-8) 5/6/99	GP-13 (0-4) 5/6/99	Plating Rm Pipe 5/6/99
VOCs by 8260 (ug/kg)					
cis-1,2-Dichloroethene	NS	5	5 U	520 U	5 U
Trichloroethene	700	20	5 U	520 U	5 U
Tetrachloroethene	1,400	19,000	51	10,000 B	100

ERM Sample ID: ERM-FAST Run No.: Date Collected:	NYSDEC TAGM (1)	Maximum Soil Conc	B2-6(0-4) 12 7/1/99	B2-7(0-4) 13 7/1/99	B2-9(0-5) 17 7/1/99	B2-9(5-9) 18 7/1/99	B2-10(0-4) 19 7/1/99	B2-10(4-8) 20 7/1/99	B2-11(0-4) 21 7/1/99	B2-12(0-4) 22 7/1/99	B2-13(0-4) 23 7/1/99
Trichloroethene	700	20	2.0	2.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1,400	19,000	360	4,345	1,309	114	19	12	2,707	2,055	459

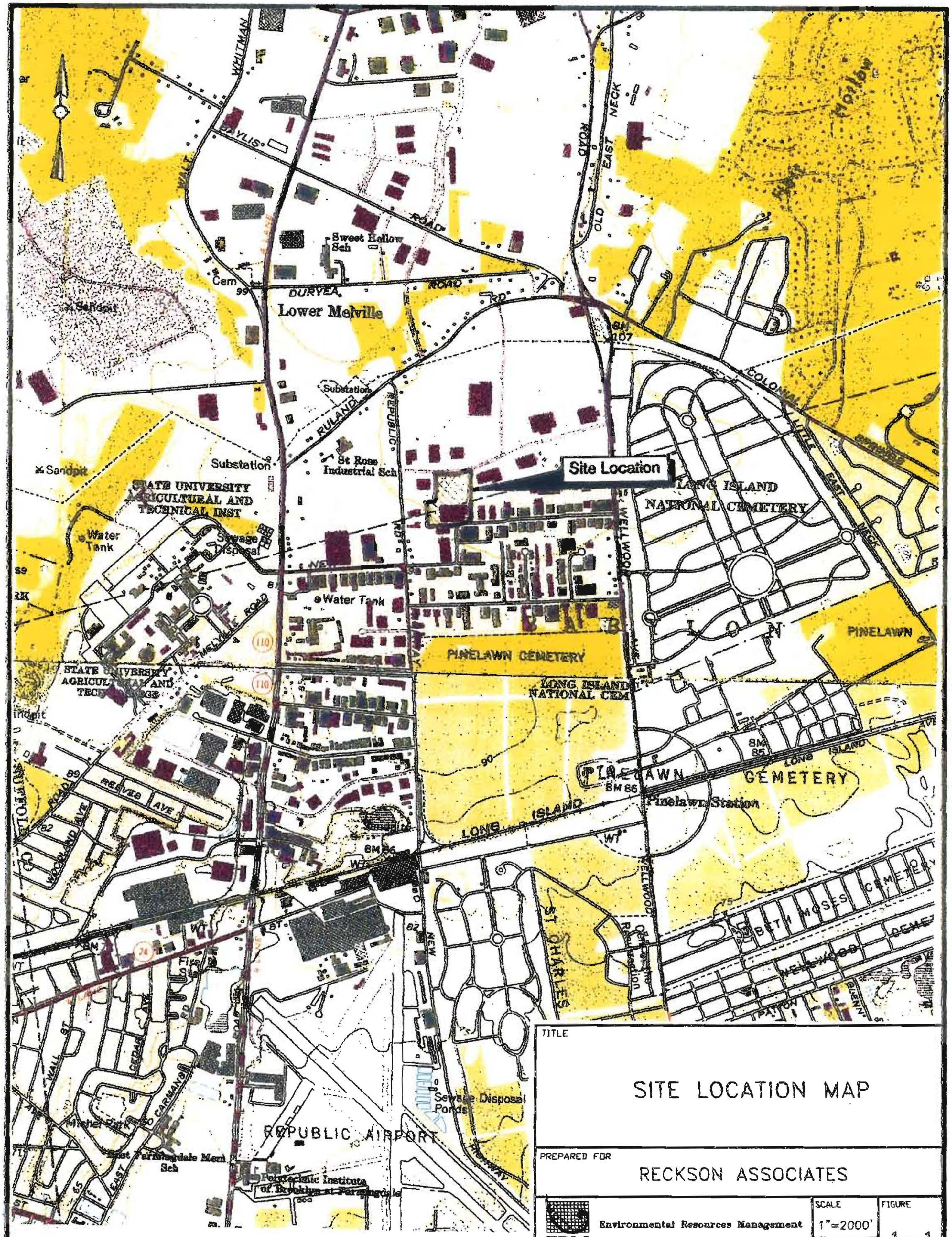
Notes:
Soil samples highlighted exceed the impact to ground water soil cleanup level.
(1) NYSDEC TAGM HWR-94-4046 soil cleanup objectives to protect gw quality.

TABLE 3-1
Proposed Remedial Action For Site Soil And Dry Wells

REMEDIAL AREA	PROPOSED REMEDIAL ACTION	POST EXCAVATION SAMPLING	DISPOSAL METHOD
Site Soil	Remove west wing of building (including floor slab) and excavate soil exceeding TAGM cleanup level of 1,400 µg/kg.	VO+10	RCRA permitted facility for F002 listed hazardous waste
PCE Impacted Dry Wells: DW-20 and GP-8	Removal of sediment exceeding TAGM cleanup level of 1,400 µg/kg. If vertical limits of excavation does not allow complete removal of PCE-impacted soil, alternate remedial measures will be performed to ensure the cleanup criteria is achieved.	GP-8: VO+10, Sb, Cd, Cu, Cr, Pb, Ni, and Zn DW-20: VO+10 and BN+20	RCRA permitted facility for F002 listed hazardous waste
PAH Impacted Dry Wells (10 stormwater dry wells)	Removal of sediment exceeding SCDHS Article 12 cleanup levels	BN+20	Off-site disposal as a non-hazardous waste
Antimony Impacted Dry Wells: Four stormwater dry wells DW-21, 22, 23, 24 and 25, plus former WWTP leach pool GP-3	Removal of sediment exceeding SCDHS Article 12 cleanup levels and/or antimony cleanup level of 13.5 mg/kg (or another level that is proposed by Reckson and approved by NYSDEC).	BN+20, Sb, Cd, Cu, Cr, Pb, Ni, and Zn	Off-site disposal as a non-hazardous waste

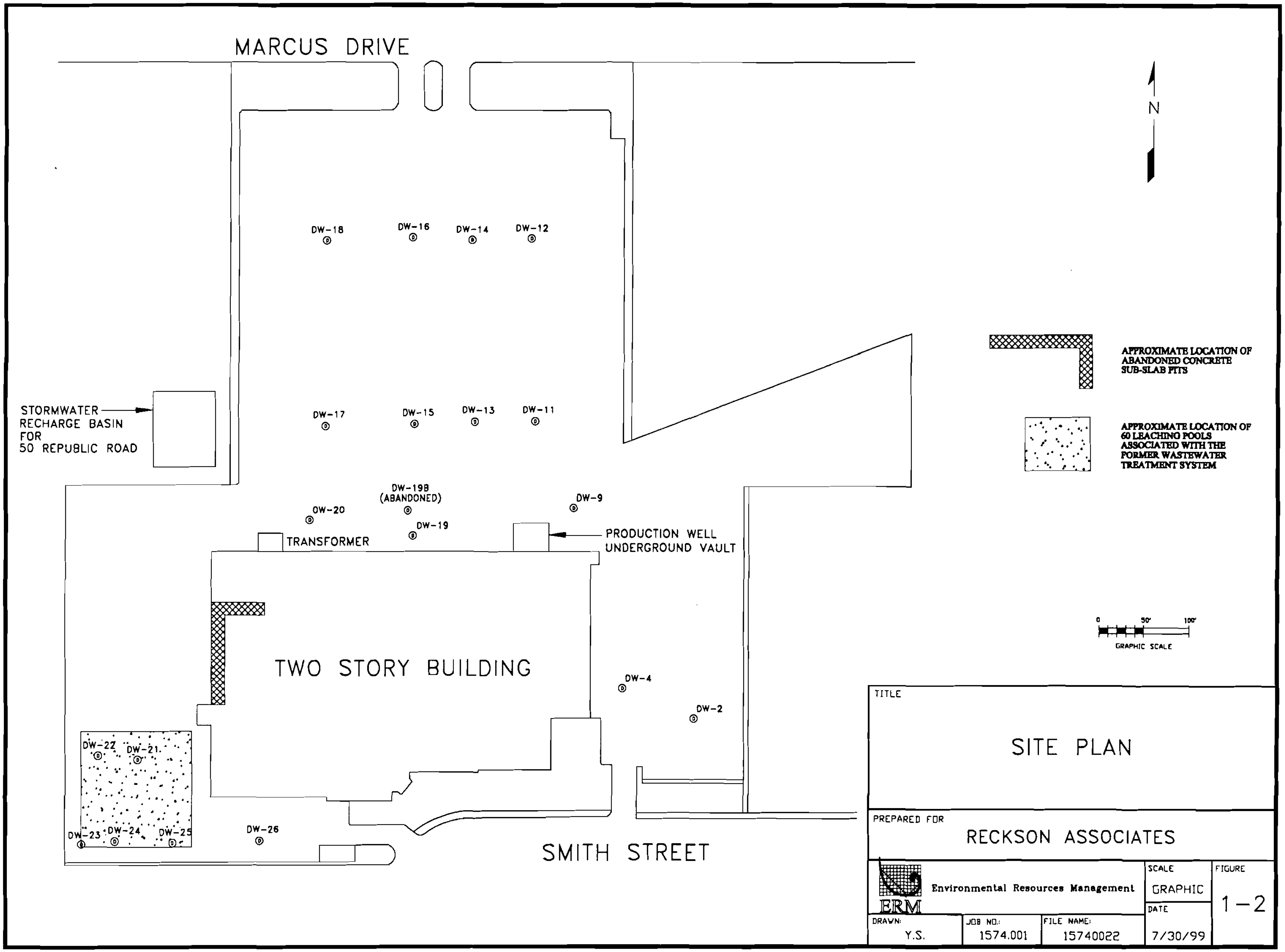
TABLE 3-2
Proposed Cleanup Criteria

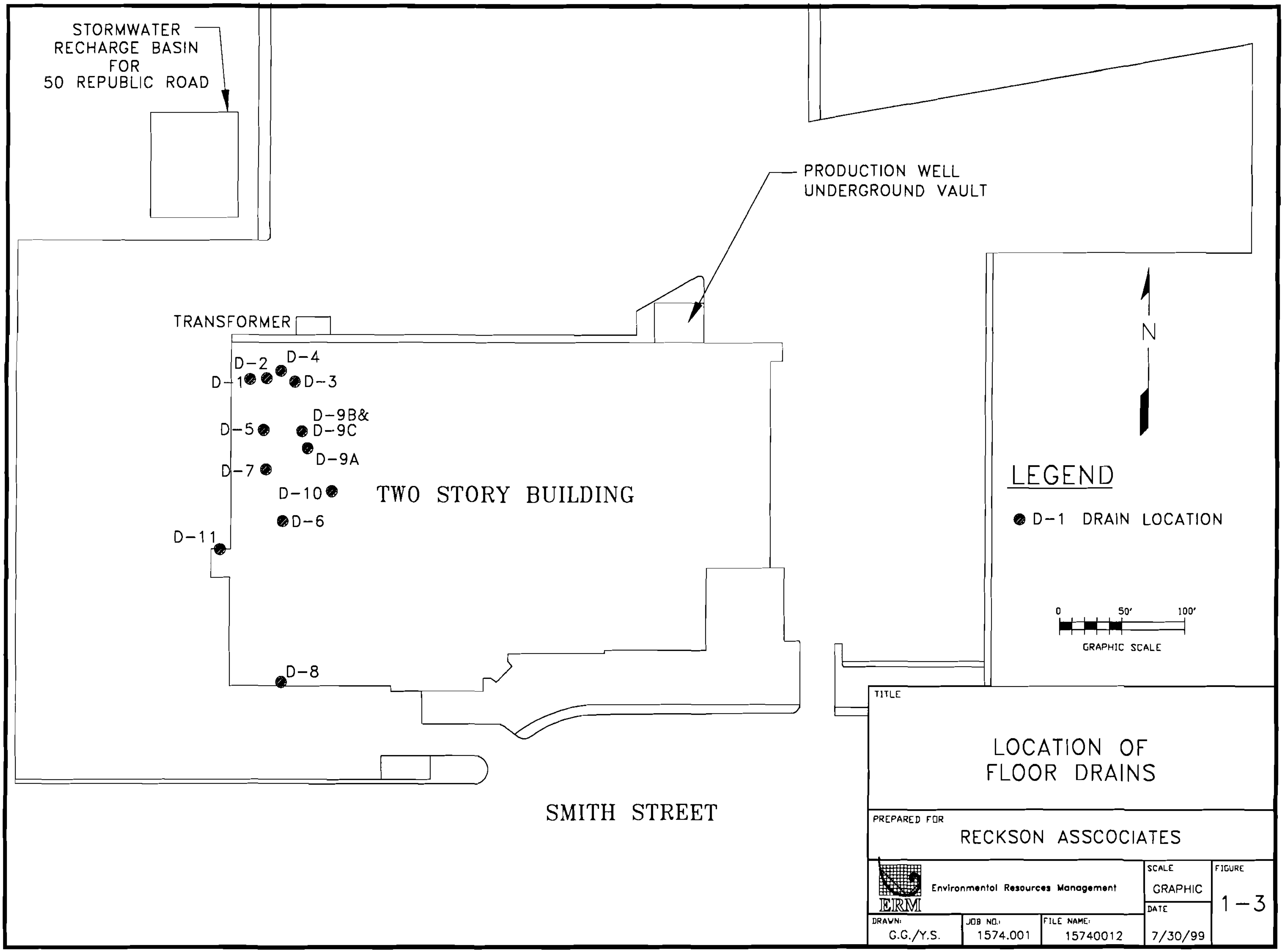
CONSTITUENT	CLEANUP CRITERIA	SOURCE
Antimony	13.5 mg/kg (or another level that is proposed by Reckson and approved by NYSDEC)	ERM to develop alternative to 13.5 mg/kg
Cadmium	1 mg/kg	SCDHS Article 12
Chromium	10 mg/kg	SCDHS Article 12
Lead	100 mg/kg	SCDHS Article 12
Tetrachloroethene	1,400 μg/kg	NYSDEC TAGM 4046
Trichloroethene	700 μg/kg	NYSDEC TAGM 4046
cis-1,2 Dichloroethene	250 μg/kg	NYSDEC TAGM 4046
Phenanthrene	50,000 μg/kg	SCDHS Article 12
Anthracene	50,000 μg/kg	SCDHS Article 12
Flouranthene	50,000 μg/kg	SCDHS Article 12
Pyrene	50,000 μg/kg	SCDHS Article 12
Benzo(a)anthracene	3,000 μg/kg	SCDHS Article 12
Chrysene	400 μg/kg	SCDHS Article 12
Benzo(b)flouranthene	1,100 μg/kg	SCDHS Article 12
Benzo(k)flouranthene	1,100 μg/kg	SCDHS Article 12
Benzo(a)pyrene	11,000 μg/kg	SCDHS Article 12
Indeno(1,2,3-cd)pyrene	3,200 μg/kg	SCDHS Article 12



TITLE				
SITE LOCATION MAP				
PREPARED FOR: RECKSON ASSOCIATES				
Environmental Resources Management (ERM)			SCALE: 1"=2000'	FIGURE: 1-1
DRAWN: Y.S.	JOB NO.: 1574.001	FILE NAME: MANUAL	DATE: 7/30/99	

SOURCE: U.S.G.S. QUADRANGLE MAP


MARCUS DRIVE
N
DW-18
DW-16
DW-14
DW-12
APPROXIMATE LOCATION OF ABANDONED CONCRETE SUB-SLAB PITS
STORMWATER RECHARGE BASIN FOR 50 REPUBLIC ROAD
DW-17
DW-15
DW-13
DW-11
APPROXIMATE LOCATION OF 60 LEACHING POOLS ASSOCIATED WITH THE FORMER WASTEWATER TREATMENT SYSTEM
DW-19B (ABANDONED)
DW-9
DW-20
DW-19
TRANSFORMER
PRODUCTION WELL UNDERGROUND VAULT
0
50'
100'
GRAPHIC SCALE
TWO STORY BUILDING
DW-4
DW-2
DW-22
DW-21
DW-23
DW-24
DW-25
DW-26
SMITH STREET
TITLE
SITE PLAN
PREPARED FOR
RECKSON ASSOCIATES
ERM
Environmental Resources Management
SCALE
GRAPHIC
DATE
7/30/99
FIGURE
1-2
DRAWN:
Y.S.
JOB NO.:
1574.001
FILE NAME:
15740022



TITLE

LOCATION OF FLOOR DRAINS

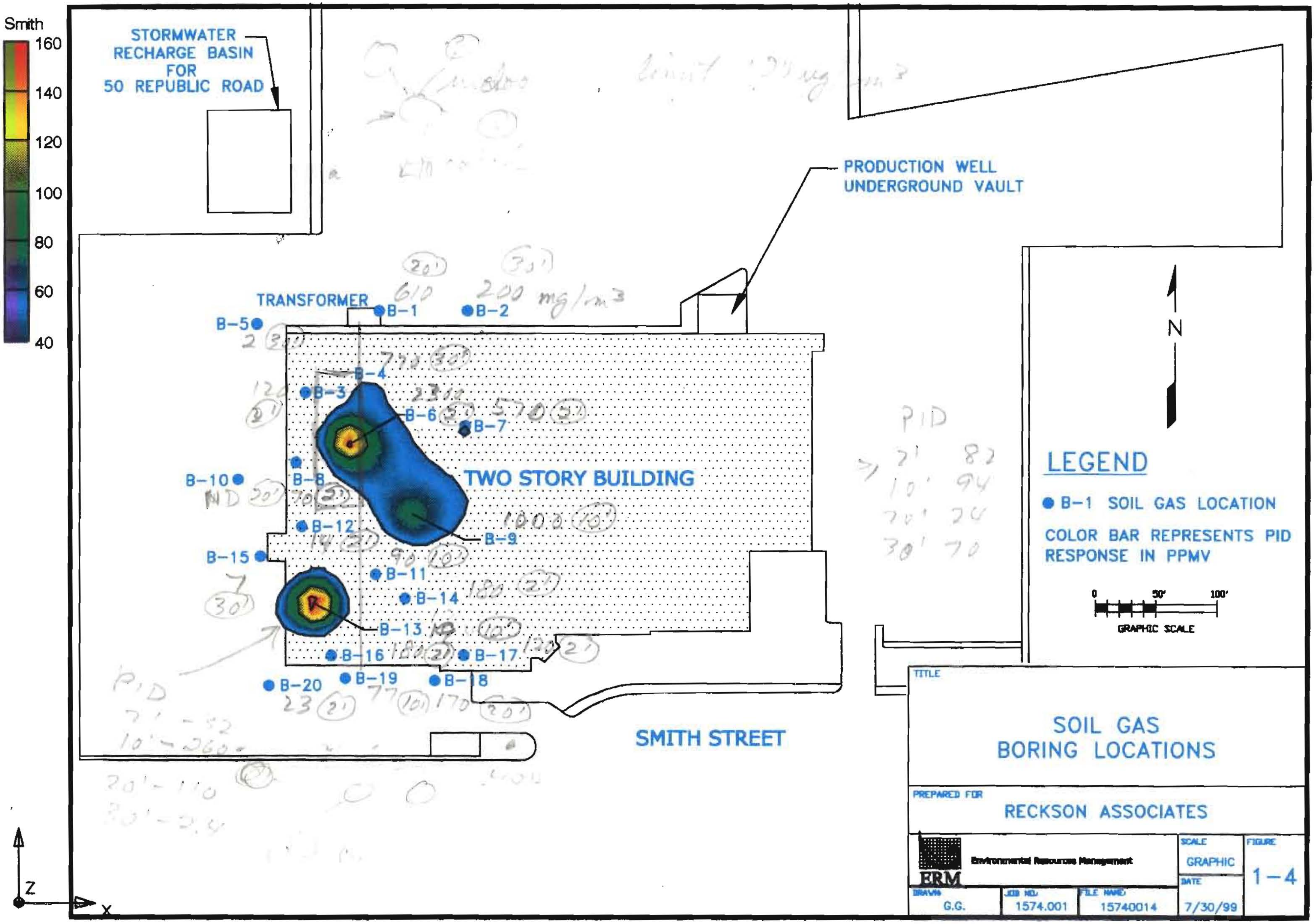
PREPARED FOR

RECKSON ASSCOCIATES

ERM Environmental Resources Management

SCALE	FIGURE
GRAPHIC	1-3
DATE: 7/30/99	

DRAWN:	JOB NO.:	FILE NAME:
G.G./Y.S.	1574.001	15740012



Smith
160
140
120
100
80
60
40
STORMWATER RECHARGE BASIN FOR 50 REPUBLIC ROAD
PRODUCTION WELL UNDERGROUND VAULT
TRANSFORMER
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
B-14
B-15
B-16
B-17
B-18
B-19
B-20
TWO STORY BUILDING
SMITH STREET
N
LEGEND
B-1 SOIL GAS LOCATION
COLOR BAR REPRESENTS PID RESPONSE IN PPMV
0
50'
100'
GRAPHIC SCALE
TITLE
SOIL GAS BORING LOCATIONS
PREPARED FOR
RECKSON ASSOCIATES
ERM
Environmental Resources Management
SCALE
GRAPHIC
FIGURE
1-4
DATE
7/30/99
DRAWN
G.G.
JOB NO.
1574.001
FILE NAME
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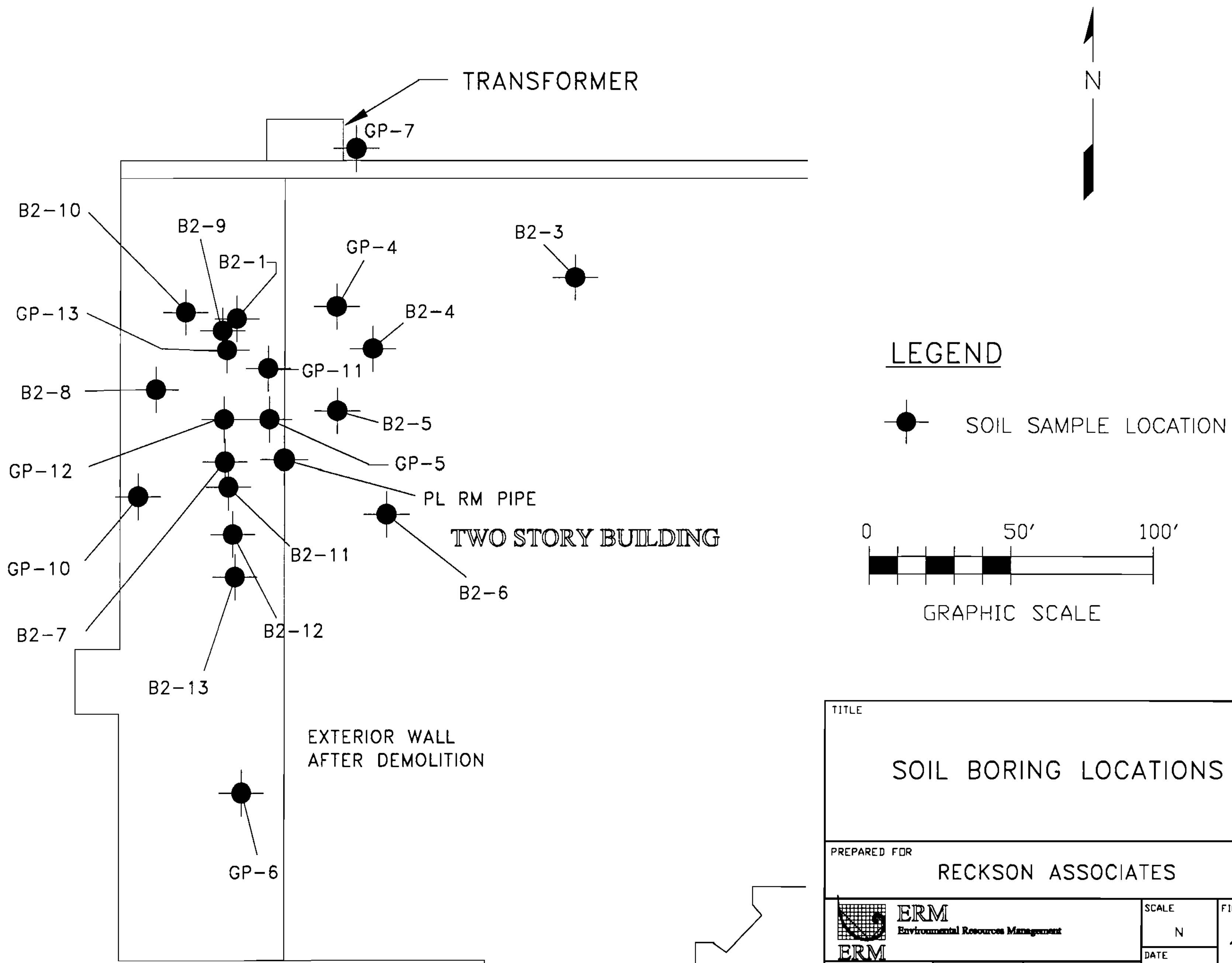

TITLE

SOIL BORING LOCATIONS

PREPARED FOR

RECKSON ASSOCIATES

ERM
Environmental Resources Management

SCALE	FIGURE
N	1-5
DATE 7/30/99	

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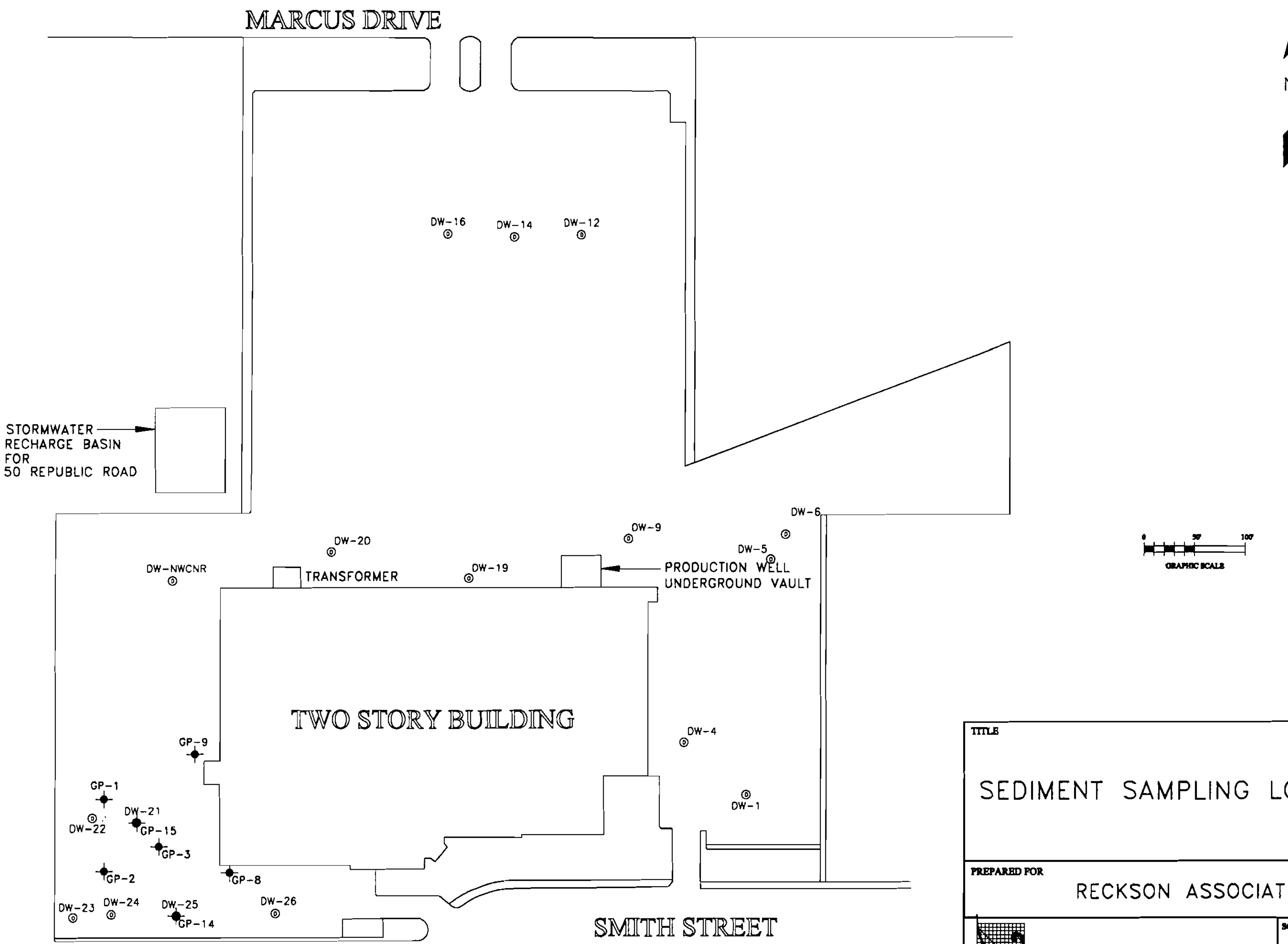

TITLE

SEDIMENT SAMPLING LOCATIONS

PREPARED FOR

RECKSON ASSOCIATES

ERM Environmental Resources Management

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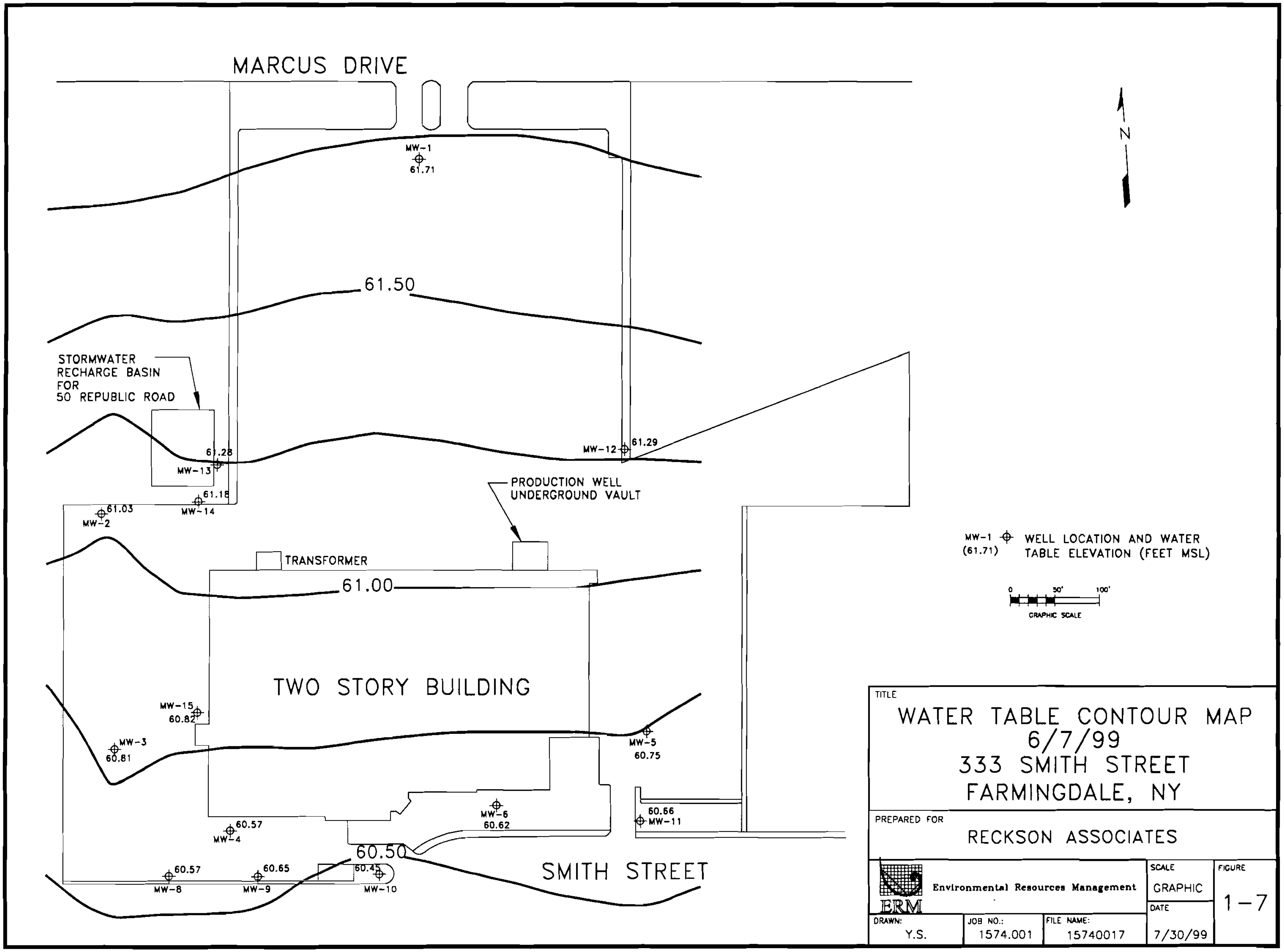
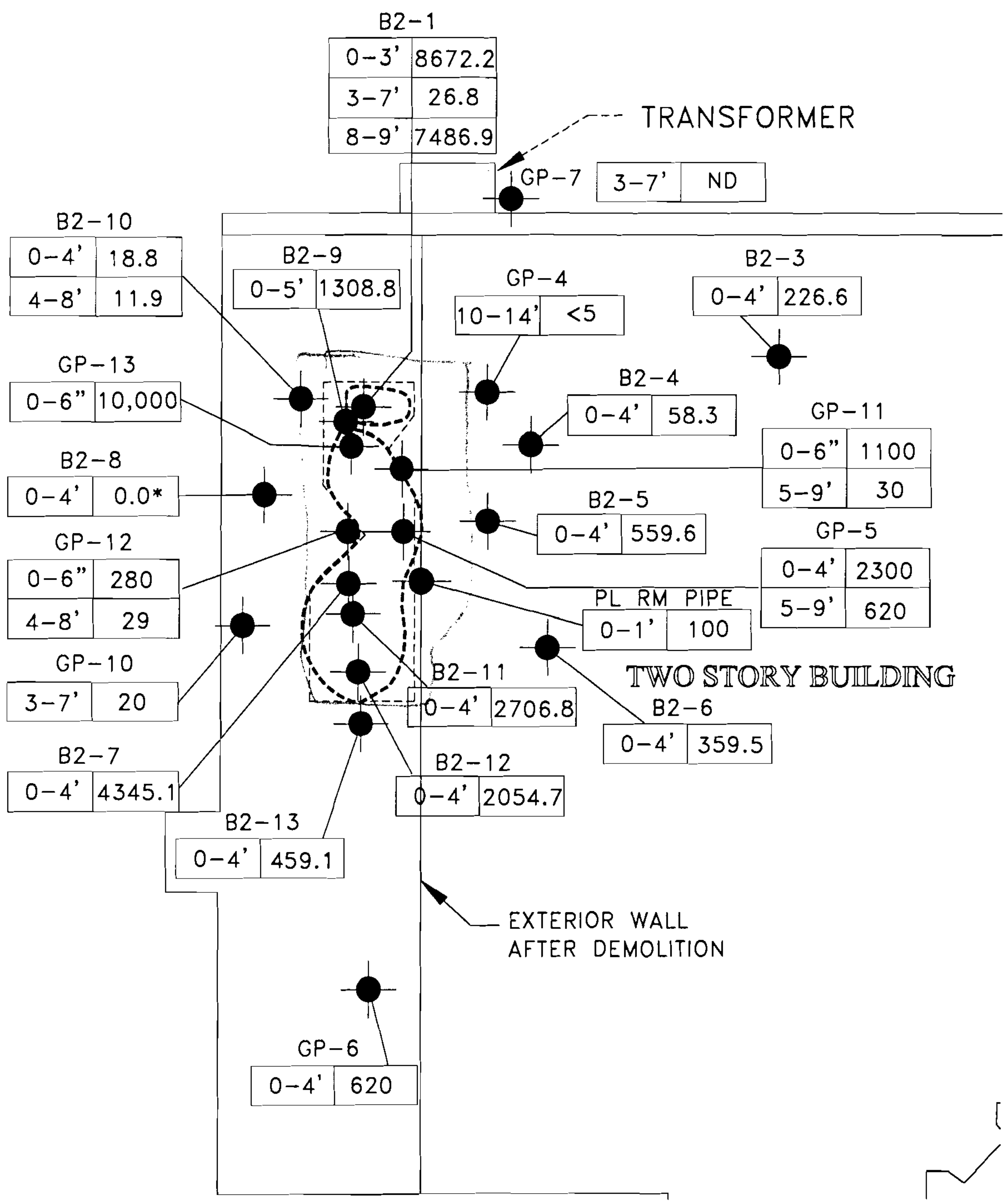


MARCUS DRIVE
N
MW-1
61.71
61.50
STORMWATER RECHARGE BASIN FOR 50 REPUBLIC ROAD
61.28
MW-13
MW-12
61.29
61.18
MW-14
61.03
MW-2
PRODUCTION WELL UNDERGROUND VAULT
TRANSFORMER
61.00
TWO STORY BUILDING
MW-15
60.82
MW-3
60.81
MW-5
60.75
MW-6
60.62
60.66
MW-11
60.57
MW-4
60.50
60.57
MW-8
60.65
MW-9
60.45
MW-10
SMITH STREET
MW-1 (61.71) WELL LOCATION AND WATER TABLE ELEVATION (FEET MSL)
0
50'
100'
GRAPHIC SCALE
TITLE
WATER TABLE CONTOUR MAP
6/7/99
333 SMITH STREET
FARMINGDALE, NY
PREPARED FOR
RECKSON ASSOCIATES
ERM
Environmental Resources Management
SCALE
GRAPHIC
FIGURE
1-7
DATE
7/30/99
DRAWN:
Y.S.
JOB NO.:
1574.001
FILE NAME:
15740017



LEGEND

SOIL SAMPLE LOCATION

1400 ug/Kg CONTOUR

0-4' 100 SAMPLE INTERVAL AND PCE CONCENTRATION (ug/Kg)

TITLE

DELINEATION OF PCE IMPACTED SOIL

PREPARED FOR

RECKSON ASSOCIATES

ERM-Northeast
Environmental Resources Management
ERM

DRAWN: Y.S.	JOB NO.: 1574.001	FILE NAME: 15740015	SCALE: NONE DATE: 7/30/99	FIGURE: 2-1

APPENDIX A

ERM Standard Operating Procedure
for Field Analysis of Chlorinated Alkenes by GC-PID

ERM-FAST®
FIELD GC ANALYSIS AND SAMPLE PREPARATION PROCEDURES

Introduction

ERM will use a portable gas chromatograph (GC) to analyze water or soil samples collected on site. The GC will be used to provide quantitative data for determining the concentration of unsaturated chlorinated volatile organic compounds (VOCs) in the samples.

ERM will prepare and analyze calibration standards that contain site-specific compounds targeted at appropriate concentrations.

Headspace GC Analysis

Calibration

A three point initial calibration will be used for the purpose of this investigation within a range that contains the PCE cleanup criteria of 1,400 μg/kg. The GC will be calibrated with 500 μg/L, 1000 μg/L, and 2000 μg/L standards. The linear response of the three standards must have a minimum correlation coefficient of 0.95. A mid-point calibration standard (1000 μg/L) shall be analyzed as a continuing calibration every 10 samples or daily, and shall have a minimum 30% RPD with the mid-point of the initial calibration.

Standards will be prepared by adding an appropriate amount of 200 mg/l Supelco methanol-solution stock standard into 20 ml of organic-free water contained in a 40 ml screw cap vial with a Teflon®-lined septum. The following formula will be used to calculate the required volume of stock standard to be diluted into the organic free water to obtain the calibration standard:

$$V_S = (20\text{ ml} \cdot C_W)/200\text{ mg/l}$$

Where:

V_S = volume of stock standard (ml)
C_W = desired standard concentration of volatile compound (mg/l)

Water Sample Preparation

Water samples will be prepared for analysis by transferring 20 milliliters (ml) of sample from the sample vial to a 40 ml screw cap vial with a Teflon®- lined septum. This results in a headspace volume equal to 20 ml, which is equal to that of the headspace volume of the calibration standards. In the event that samples required dilution due to high levels of volatile organic compounds, the appropriate amount of sample (< 20 ml) will be added to the 40 ml vial and organic-free water will be added to make the total aqueous and headspace volumes each equal to 20 ml. For samples that are suspected of having high concentration, the water sample will be diluted to obtain the best achievable accuracy.

Prior to equilibration, the 40 ml headspace vial will be shaken vigorously for one minute to promote equilibration of volatile components between the aqueous phase and the headspace of the vial.

Water Sample Analysis and Quantitation

A Field-portable GC will be used to analyze the water samples for the VOCs of concern. Compound separation will be achieved using a wide bore capillary column. An isothermal oven enables temperature-controlled separation and identification of the volatile compounds. 5 to 250 μl of headspace from the headspace vial will be withdrawn through the Teflon® septum with a Hamilton gas tight syringe. This headspace aliquot will then be injected into the GC for analysis.

Qualitative identification of the compounds of interest will be made by matching the retention times (compound elution times) of sample chromatograms to those of the compounds in the calibration chromatograms. Quantitation of qualitatively identified compounds will be based on the ratio of the response area of the compound identified in the sample to the average calibration factor of that compound in the calibration standards. Quantitation for compounds not identified based on retention time comparisons will not be performed. The following formula will be used to calculate sample compound concentrations:

$$Cs = \frac{As \bullet Vu \bullet Cu}{Au \bullet Vs}$$

where:

C_S = Concentration of compound in the water (μg/l)
A_S = Response area of compound in the sample (mv sec)
V_u = Injection volume of the standard (μl)
C_u = Concentration of compound in the standard (μg/L)
A_u = Response area of compound in the standard (mv sec)
V_S = Injection volume of headspace sample (μl)

Soil Sample Preparation

Soil samples will be prepared for analysis by placing approximately 10 grams of soil (from the sample vial) into a tared 40 ml screw cap vial with a Teflon lined septum, which contained 15 ml of organic free water. The amount of soil added to the vial will be adjusted so that the headspace of the sample equaled that of the standard (20 ml). In the event that the samples required dilution due to high levels of volatile organic compounds, the appropriate amount of sample (< 10 grams) will be added to the 40 ml vial and organic-free water will be added to make the total aqueous and headspace volumes each equal to 20 ml. All sample weights will be obtained by use of a tare balance accurate to 0.1 g. Prior to equilibration, the extraction vessel will then be shaken vigorously for one minute to aid in breaking up the soil and increase the soil surface area exposed to promote equilibration of volatile components between the aqueous phase and the headspace of the vial.

Soil Sample Analysis and Quantification

5 to 250 ul of Headspace from the extraction vessel will be withdrawn through the Teflon septum with a Hamilton gas tight syringe, and injected into the calibrated GC.

Qualitative identification of the compounds of interest will be made by retention time (RT) matching of the sample chromatograms to those of the compounds in the standard chromatograms. Quantitation will be performed based on the ratio of the response area of the compound identified in the sample to the response area of that compound in the standard. The following formula will be used to calculate sample compound concentrations:

$$Cs = \frac{As \bullet Vu \bullet Cu}{Au \bullet Vs \bullet Wt}$$

where:

C_u = Concentration of compound in the soil (ug/kg)
A_s = Response area of compound in the sample (mv sec)
V_u = Injection volume of the standard (ul)
C_u = Micrograms of compound in the standard (ug)
A_u = Response area of compound in the standard (mv sec)
V_s = Injection volume of headspace sample (ul)
W_t = Weight of soil extracted (kg)

Quality Control

Quality control measures for the field GC analysis will include the analysis of blanks, duplicates, and calibration standards. Analysis of blanks will be performed to determine effects of carry-over, equipment and ambient-air contamination. Analysis of duplicate samples will be collected to allow determination of analytical precision. Analysis of calibration standards will be performed to demonstrate equipment stability as well as operator performance.

A method blank will be prepared from an aqueous matrix known to be free of targeted compounds. The blank shall be processed and analyzed in exactly the same manner as all environmental samples. These blanks will be screened for all targeted compounds immediately following initial and continuing calibration standard analysis and following out of control sample analyses. The peak area for the target compounds shall be less than half the area of the reporting detection limit.
One duplicate analysis will be performed on every 10^{th} sample analyzed. The duplicate shall be processed and analyzed in exactly the same manner as all environmental samples.

Additionally, 20% of all samples analyzed shall be submitted to a NYSDOH ELAP certified laboratory for confirmation.

Reporting

Report forms will be generated at the completion of the sample analysis period. Results will be generally available on the same day as sample collection.