*Expanded Remedial Investigation/Feasibility Study and Interim Remedial Measures Report*

# Greer Toyota
# Route 9
# Town of Wappinger, New York

November 2001

THE Chazen COMPANIES

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*Focussed Remedial Investigation/Feasibility Study*
*and Interim Remedial Measures Report*

# Greer Toyota
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# Town of Wappinger, New York

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## EXECUTIVE SUMMARY

The Chazen Companies (TCC) prepared this Revised Focused Remedial Investigation/Feasibility Study (Focused RI/FS) and Interim Remedial Measures (IRMs) report for the former Greer Toyota (Greer) site located in Wappingers Falls, New York. The property is currently under new management and operates as the Wappingers Falls Toyota dealership. The property is still owned by Greer. The property is listed as a Class 2 Inactive Hazardous Waste Site (Site No. 314088) because a sample obtained from an oil/water separator in 1992 contained Perchloroethylene (PCE), and 1,1,1-trichloroethane (TCA), which was identified in samples taken from water supply wells downgradient from the Greer site. The Focused RI/FS was performed in accordance with the NYSDEC approved Work Plan, which generally conformed to the requirements outlined in 6 NYCRR Part 375 and the Order on Consent (W3-0660-93-10). The IRMs were performed in general conformance with the NYSDEC's guidance for abandoning underground storage tanks. The work was generally performed in accordance with the protocols outlined in The National Contingency Plan (40 CFR Part 300) and Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA540/G-89/004).

The Greer Toyota is located on Route 9 in Wappingers Falls, Dutchess County, New York. The site is situated at the intersection of Route 9 and Old Hopewell Road. Greer sold new and used automobiles and operated a repair shop. During Greer's operation of the property, there were two main buildings on-site: the main showroom/car repair facility and the used car showroom. The site generally does not vary from its previous configuration but there have been minor upgrades to the building.

The Greer site is situated in an area designated for industrial, commercial, and residential uses. According to the Town of Wappinger Zoning Ordinance, the site is zoned HB- Highway Business. The property is bounded by commercial facilities to the north, a State highway (Route 9) to the east, a former gasoline station on the east side of Route 9, an unnamed tributary of the Wappingers Creek to the north and west, and commercial and residential properties to the south and southwest (Figure 1).

Soil borings were installed at the Greer Toyota site on April 1 and April 2, 1998. The purpose of the soil borings was to identify whether chlorinated solvents were present in the in the vicinity of the concrete diffuser system ("diffusers"), which was connected to the septic tank and, at one point in time, the oil/water separator. The findings of the initial investigation indicated that chlorinated solvents were not present in the vicinity of the diffusers; however, oil and gasoline range hydrocarbons were found. At the request of the NYSDEC, a Supplemental Remedial Investigation (SRI) was conducted on June 25, 1999 to further investigate the soils and groundwater immediately adjacent to the diffusers. As was the case in the preliminary investigation, no chlorinated solvents were detected in the soil and groundwater samples obtained from and around the diffusers. Petroleum compounds were found in concentrations that did not exceed the soil cleanup guidance values listed in the NYSDEC's TAGM 4046. The apparent soil impacts are confined mainly to the area immediately adjacent to the northwest corner of the diffusers. Low levels of gasoline and oil range hydrocarbons were also found due north of the system at levels below the soil cleanup guidance values listed in TAGM 4046.

Interim Remedial Measures were implemented to remove two abandoned waste oil tanks at the facility. The soils surrounding the tanks were impacted with petroleum hydrocarbons and PCE. The impacted soils were excavated to the extent physically possible. Confirmatory samples were taken from the sidewalls of the excavations to verify the effectiveness of the cleanup. The data indicate that the bulk of the problem has been removed but elevated levels of petroleum hydrocarbons remain in an obviously stained area that could not be excavated because of proximity to the building foundation, which was penetrated during excavation activity. Water samples from each of the excavations also contained petroleum hydrocarbons above groundwater standards. Water encountered in the second tank pit, closest to the diffuser system, may have filled up with "gray" water from the diffuser system. Perforated piping was installed in each of the tank excavations to facilitate chemical injection and/or soil vapor extraction.

An investigation of soils surrounding the tanks in June 2001 revealed a zone of contaminated soils still exists in the vicinity of the tanks. The lateral extent of the contaminant plume has been determined. Furthermore, petroleum hydrocarbons and chlorinated solvents were all detected at concentrations below soil clean-up guidance values published in TAGM #4046 indicating that the bulk of the source had been removed during the IRM.

The installation of six bedrock monitoring wells in August 2001 yielded information regarding the hydraulic gradients and groundwater quality throughout the site. It was determined from data gathered in these wells in September 2001 that groundwater generally flows in a northwestern direction across the site. Groundwater was not encountered in appreciable quantities in the unconsolidated formation. Water levels were below the bedrock/overburden interface in all wells. The bedrock fracture system controls the presence of groundwater beneath the site. Furthermore, water chemistry sampling has revealed petroleum hydrocarbons and MTBE in several of the upgradient wells, indicating an off-site source for these compounds. Chlorinated compounds were detected in the downgradient wells.

This document includes a revised Feasibility Study. Additional possible remedial alternatives for the site are considered. The analysis includes a definition of Remedial Action Objectives, a limited screening of remedial options, development of a suite of potential remedial alternatives, and a detailed screening of the most likely remedial alternatives.

Substantial remedial efforts have been made at the Greer Toyota site. They have cleaned and removed from service the oil/water separator and have maintained point of use carbon filtration treatment systems on the impacted residences. Two abandoned waste oil tanks and more than 800 tons of impacted soils have been removed from the facility. Recently obtained data, site conditions and the IRM efforts undertaken at the site reduced the number of potentially applicable remedial alternatives to a narrow few. Remedial alternatives considered during this focused investigation include the following:

- Alternative 1: No Action. No additional remedial action including maintenance of the existing point of use treatment systems.
- Alternative 2: Source Removal. Impacted sediments around the subsurface disposal system and former waste oil storage tank areas above TAGM #4046 would be removed via the use of bioremediation enhancing agents (HRC/ORC) and/or SVE systems. This alternative has potential and is considered further.
- Alternative 3: Groundwater Pump and Treat. The bedrock groundwater would be contained and controlled by hydraulic methods. Extracted groundwater would be treated and discharged. A pilot test may be warranted to determine the applicability, but in general, this alternative is discarded from consideration during the screening process.
- Alternative 4: Continued Maintenance of the Point of Use Treatment Systems. Volatile contaminants would be treated at the point of use until such time as naturally occurring attenuation reduces the contaminant levels to below the applicable standards.

The Alternatives listed above were evaluated on the basis of 1) protectiveness of human health and the environment, 2) long-term effectiveness and permanence, 3) short-term effectiveness, 4) ability to reduce toxicity or volume of contamination, 5) implementability, 6) compliance with clean-up Standards, Criteria and Guidelines (SCGs), and 7) cost.

On the basis of these criteria, a combination of Alternatives 2 and 4 is the preferred and recommended Alternative for the site. Alternative 2 reduces source load by implementing in-situ bioremediation technologies as the chosen remedial strategy, while Alternative 4 will continue to provide a high level of protection to human health until the SCGs are met. It also meets long-term health protection objectives and, since the residual chlorinated solvents found around the waste oil tank have been removed in the suspected source region, the site is at or moving towards compliance with SCGs. Alternatives 2 and 4 are a reasonable cost alternative that effectively protects human health.

# 1.0 INTRODUCTION

The Chazen Companies (TCC), on behalf of Greer, completed the Revised Focused Remedial Investigation (FRI), a Feasibility Study and Interim Remedial Measures (IRMs) at the former Greer Toyota (Greer) site located on Route 9 in Wappingers Falls, New York. The FRI and IRMs were conducted to address environmental conditions at the Greer Toyota site and to determine if the Greer site was a potential source of chlorinated solvents found in groundwater in wells adjacent to the property.

## 1.1 Purpose of Report

The purpose of the Focused Remedial Investigation/Feasibility Study and IRMs was to obtain sufficient information to characterize the soils and groundwater around the diffuser system and to alleviate the immediate threats to the environment. Specifically, the Focused RI/FS used soil borings and groundwater samples to evaluate subsurface conditions around the suspected source regions. This Expanded RI/FS incorporated six new bedrock-monitoring wells and twenty-eight soil borings around the suspected source region to further delineate the suspected source region. The IRM was implemented to remove waste oil tanks and contaminated soil that were potential sources of the impacts observed in the vicinity of the site. The results of the investigations are summarized in this report, which describes the procedures used during the field investigation and IRM, summarizes the information obtained while conducting the field activities, and discusses the conclusions. Appendices supporting this report include analytical laboratory results, soil boring and groundwater well logs and test pit results.

## 1.2 Site Background

### 1.2.1 Site Description

The former Greer Toyota is located at the intersection of Route 9 and Old Hopewell Road in the Town of Wappinger (Figure 1). The parcel is identified in the Dutchess County Real Property Tax Records as being Section 6157, Block 02, Lot 585606 and occupies approximately 2.3 acres. The site is currently under lease and operating as the Wappingers Falls Toyota-Subaru dealership. According to the Town of Wappinger Zoning Ordinance, the site is zoned HB- Highway Business (Figure 2).

The Greer site is situated in an area designated for industrial, commercial, and residential uses. While in operation, Greer Toyota sold new and used automobiles and operated a repair shop.

There are currently two main buildings on-site: the main showroom/car repair facility and the used car showroom. The current building configuration is identical to when Greer was operating at the site but there have been some modifications to the site operations. The modifications include upgrades to plumbing fixtures to low flow toilets, abandoning the underground heating oil tank and replacement of the waste oil tank system with above ground waste oil containers. The current operator of the facility has registered its waste oil tanks.

Site topography slopes gently northwestward towards an unnamed tributary to the Wappingers Creek at an elevation between 180 to 200 feet MSL. The site is fully developed and no surface water or wildlife habitats are present at the site.

The property is bounded by commercial facilities to the north, a State highway (Route 9) to the east, a former gasoline station on the east side of Route 9, a NAPA auto service center that was formerly a gas station on the west along Old Route 9, an unnamed tributary of the Wappingers Creek to the north and west, and commercial and residential properties to the south and southwest (Figure 1). Regional drainage is towards the unnamed tributary of the Wappingers Creek.

### 1.2.2 Environmental History

Chlorinated solvents were detected in wells adjacent to the Greer Toyota site in 1992. The New York State Department of Environmental Conservation (NYSDEC) and the Dutchess County Department of Health (NYSDOH) initiated an assessment of the area, which included sampling of an oil/water separator at the Greer site. Chlorinated solvents similar to those found in the wells adjacent to the Greer property were detected in the oil/water separator. The oil/water separator was attached to the maintenance shop via a floor drain. The oil/water separator drained into a concrete diffuser system located approximately 50 feet to the north of the maintenance garage area. The diffuser system managed sanitary wastes as well as the water draining from the oil/water separator. The diffuser system was designed to temporarily retain wastewater before it infiltrates into the subsurface. The system is currently designed to hold between approximately 9,000 and 11,000 gallons of wastewater. The facility has historically operated with between 25 and 40 employees, so approximately 375 to 600 gallons of wastewater was generated Monday through Saturday during operation. The system generates substantially less effluent now that low flow fixtures are in use.

The wastewater generated at the facility would have exceeded the contribution of the oil/water separator to the diffuser system by a substantial margin under normal operating conditions. It is estimated that no more than 10 to 20 gallons a week was contributed to the system through the oil/water separator except during the winter months when the contribution could have increased due to snow melting off of cars in the service area. However, the diffusers would have been the destination for floor sweepings from the shop area and those fluids may have contained unknown quantities of regulated material. Discussions with former Greer employees indicate that intentional dumping did not occur and reasonable efforts commonly used in the automotive industry were employed to collect waste oil and fluids generated during the repair process.

The oil/water separator and floor drains were sealed and the oil/water separator abandoned when it was discovered that chlorinated hydrocarbons were present at elevated levels. Recent inspection of the floor drain system indicates that the drains are still effectively sealed. Shop management personnel indicated that the floor drain system has to be periodically evacuated by hand. The solids and liquids removed from the former floor drain pit are disposed of as waste oil impacted material.

As previously mentioned, chlorinated solvents were found in a sample taken from the oil/water separator in 1992 and similar chlorinated solvents were detected in two downgradient water supply wells. This resulted in the NYSDEC listing the Greer site on the registry of hazardous waste sites (Site No. 314088). The NYSDEC suspected that Greer site was a potential source of the chlorinated solvents based on the samples obtained from the oil/water separator. Two water supply wells located downgradient from the Greer Toyota site have been impacted by, and continue to be impacted by low levels of chlorinated hydrocarbons. Water from both wells is treated via carbon filtration systems. Groundwater samples are collected from these two water supply wells and data is provided to the Dutchess County Department of Health (DCDOH) (Appendix A). The risk of ingesting impacted groundwater is mitigated through the use of the carbon filtration systems.

Private and publicly owned wells were identified within a one-mile radius of the Greer Toyota site using information obtained from the DCDOH. The business or residences with water supply wells were identified through publicly available DCDOH records. Locations of businesses and residences with public water supply and residential wells within a one-mile radius of the home are summarized on Figures 3a – 3d. The homes with private wells were located using tax parcel locations that correspond to the accompanying tax ID list provided by the DCDOH search. It should be noted that wells installed prior to 1985 are not included on the Figures since this information was not readily available. However, it is reasonable to assume that houses built in areas without public water supply rely on groundwater drinking wells for their potable water. This rationale was used to identify the private water supply wells located in possible downgradient locations to the Greer site.

Dutchess County Department of Health (DCDOH) initiated a well sampling program in 1992 downgradient from the fuel spill at the 7-11 site located adjacent to the Greer site on the east side of Route 9. The results of that evaluation (Appendix A) indicated that gasoline range compounds were widespread in the area, however, chlorinated solvents were detected in a few of the wells adjacent to the Greer site. The DCDOH concluded in 1992 that additional investigation was warranted to determine the source. The DCDOH listed several potential sources including the Greer site, the former Cavo Appliances building (for cleaning appliances), Napa Auto Parts (for the cleaning of auto parts), and the Halpin residence (for auto repair work) (c.f. memorandum letter from Dan O'Connor to David Ruff, contained in Appendix A). Upon discovery of the chlorinated solvents in the oil/water separator sample, the focus shifted to Greer. No samples were taken in 1992 from the diffuser system area to verify that Greer was actually the source of the chlorinated solvents observed in nearby wells and none of the other potential source areas were investigated.

The chlorinated solvents in groundwater were similar to those encountered in the Greer oil/water separator. The chlorinated solvents were thought to have been introduced to groundwater through the site's diffuser system. The oil/water separator was cleaned and sealed; however, the diffusers were not abandoned since they were and still are used to manage sanitary wastewater.

## 1.3 ARARs

Applicable or Relevant and Appropriate Requirements (ARARs) associated with the Remedial Investigation at Greer Toyota include the following:

> Work done at Greer Toyota follows regulations promulgated under 6 NYCRR Part 375, Inactive Hazardous Waste Disposal Sites, pursuant to statutory authority under Environmental Conservation Law Chapters 1-0101, 3-0301, 27-0903, 27-1315, and 52-0107.
>
> Groundwater quality standards applicable to the Greer Toyota site are published in 6 NYCRR, Chapter X, Part 703.
>
> Soil cleanup standards applicable to Greer Toyota are published in the Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046 on Determination of Soil Cleanup Objectives and Cleanup Levels.

## 1.4 Report Organization

The organization of the Greer Toyota RI/FS Report follows the suggested outline for RI/FS reports found in Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (October 1988).

# 2.0 FIELD INVESTIGATION

## 2.1 Preliminary Investigation: Soil Borings

### 2.1.1 Installation of Soil Borings (4/1/98 – 4/2/98)

Six soil borings were installed around the existing subsurface disposal system between April 1 and April 2, 1998. Locations of the soil borings are indicated on the attached site map (Figure 2). The borings were installed utilizing a track-mounted conventional soil testing drill rig. Split spoon soil samples were collected at continuous two-foot intervals in each of the borings. All borings were advanced to refusal. The soils were screened with a photo-ionization detector (PID) utilizing the jar headspace method to determine presence or absence of volatile organic compounds (VOCs). Individual boring logs for the six soil borings are included in Appendix B.

Representative soil samples were screened using a portable gas chromatograph calibrated for chlorinated solvents and petroleum range compounds. Samples exhibiting elevated levels of VOCs were forwarded to a New York State Department of Health (NYSDOH) ELAP CLP certified laboratory and analyzed for EPA 8260 (volatiles), EPA 8270 (semi-volatiles), and NYSDEC ASP '95 Rev. TAL metals. All analyses were reported in the NYSDEC ASP Category B deliverables format.

### 2.1.2 Standard Operating Procedure for GC Field Methods

GC field analysis was performed in accordance with the guidelines set forth in the NYSDEC's Bulletin titled "QC Guidelines for GC Field Methods". The Standard Operating Procedure (SOP) for GC Field Methods is detailed in Section 6.1.4.1 of the Quality Assurance Program Plan (QAPP) previously provided to the NYSDEC with the site Work Plan.

The gas chromatograph normally used by Chazen Environmental Services, Inc., is equipped with a photo-ionization detector (PID) and a Dry Electrolytic Conductivity Detector (DELCD). The photo-ionization detector is most sensitive to petroleum (BTEX) and double bond (alkene) halogenated solvents. The DELCD detector is sensitive specifically to chlorinated compounds.

## 2.2 Supplemental Remedial Investigations (SRI)

### 2.2.1 SRI (6/25/99)

At the request of the NYSDEC, a Supplemental Remedial Investigation (SRI) was conducted at Greer Toyota to further investigate the soils and groundwater immediately adjacent to the diffusers. Using a backhoe, the diffusers were exposed on the west, north and eastern sides. Soil was excavated until the tops and sides of the concrete diffusers were exposed at each location. A small pit was excavated to facilitate access and soil borings were installed immediately adjacent to the diffuser on the west, north and east sides. A groundwater sample was also taken at each location.

The top of the diffuser system was uncovered, and the covers to the subsurface disposal system were found and opened. The diffusers were sounded and bottom depth determined. The diffusers measured approximately 48 inches deep and approximately eight feet wide. The bottom of the diffusers appeared to be filled with crushed stone, which would account for the discrepancy since it had previously been reported that each of the four diffusers was eight feet deep by ten by ten feet wide.

Three soil borings were installed immediately adjacent to the diffusers. Locations of these soil borings are indicated on the attached site map (Figure 2). The borings were installed utilizing a direct-push drill rig. The borings were advanced from ground surface to refusal. Individual boring logs for the three soil borings are included in Appendix B.

Soil samples were collected from the three soil borings at the interface between the native soil and fill material at various depths below the bottom of the subsurface disposal system. Groundwater samples were also collected from each location. The soil and groundwater samples were forwarded to a New York State Department of Health (NYSDOH) ELAP CLP certified laboratory. The laboratory samples were analyzed for EPA Full 8260 (volatile organics).

## 2.3 Waste Oil Tank Abandonment (November 2000)

Buried waste oil tanks were identified on the property. Not much was known about the condition of the tanks and they were apparently improperly abandoned according to the applicable NYSDEC regulations. The tanks were buried beneath the northwest corner of the former Greer facility. At the request of the NYSDEC, a tank closure plan was prepared that included the excavation and removal of the waste oil tanks (letter to Vincent McCabe of the NYSDEC Spills Group dated September 25, 2000). The second tank was discovered attached to the first tank during the excavation process. Both tanks were removed. To the extent feasible, impacted soils were removed and stockpiled on-site for disposal at a facility approved to accept petroleum-contaminated wastes (Figure 4).

GAP Excavation (GAP) of Highland, New York removed the tanks from the ground. Prior to excavation, the top and sidewalls of the tank were carefully exposed to verify the dimensions of the tank (this is when the second tank was discovered). The tanks were then pulled from the ground and placed on polyethylene sheeting. The first tank was cut open to facilitate sludge removal and cleaning. The second tank was already cut open when removed. Residual fluid from the tanks was extracted and disposed of by Buckner Waste Oil Services (Buckner) of New Windsor, New York. The tanks were recycled at A&W Scrap Metal in Wappingers, New York.

Samples of the tank sludge and waste material found in and around the first tank were taken and analyzed for the compounds of concern per NYSDEC instruction. The residual liquids were pumped out and the foam filling and sludge removed. The foam was characterized after the tank had been cut. A block of the foam was extricated and cut to examine the contaminant distribution. It was obvious that the foam was not fully saturated with oil residue. Most of the foam was free of petroleum residue. The only impacted areas were those immediately in contact with either the residual fluid or sidewalls of the tank. Since it was evident that the waste oil impacts were limited to the outer horizon of the foam, the clean foam was disposed of as a regular waste and the petroleum stained foam and the sludge was drummed together and removed from the site for disposal by Buckner. Samples of the sludge were taken and analyzed for volatile organics via EPA methods 8260, semi-volatile organics via EPA method 8270, RCRA Metals and PCBs using EPA method 8080.

Both tanks were pitted and heavily rusted. Photographs of the tanks are included in Appendix C; however, it was not possible to determine if the tanks had leaked before the tanks were removed. There was some evidence of impacted soil adjacent to the first waste oil tank but the feeder line was cracked. There was also an indication that the tank was not properly sealed. One of the plugs on the top of the tank had apparently been improperly seated. Leakage could have occurred through the opening.

The connecting pipe from the shop to the first tank was cracked before the pipe reached the tank. It was readily apparent that there had been a release of waste oil through the crack in the pipe (Photographs in Appendix C). The soils adjacent to and under the cracked pipe were significantly impacted. Visual evidence indicated that the impacted soils extended to the bedrock surface beneath the cracked pipe. This broken pipe was probably the major source of the release identified in this region. The connecting pipe to the second tank was cut during the previous abandonment process but otherwise appeared to be in good condition. No other signs of failure were noted along this pipeline.

The tanks were reportedly 500-gallon steel tanks (Appendix C). During the process of selling the facility, Greer abandoned the tank by filling it with foam but did not obtain confirmatory samples to verify that the tank had not leaked. The conditions of the soils and groundwater in the vicinity of the tank had not been characterized for a release of the compounds of concern.

The soils surrounding the tank were inspected for evidence of petroleum staining. It was evident that the bulk of the staining was associated with the break in the feed line; however, impacted soils were observed at the base of first waste oil tank. Impacts were less obvious at the second tank; however, during the removal process the sidewalls of the diffuser system were inadvertently penetrated and water surrounding the diffusers drained into the excavation, obscuring the base of the excavation. No sheen was observed in the tank excavation.

Impacted soils were excavated and stockpiled temporarily on plastic sheeting on-site. Confirmatory samples were taken from various locations from the sidewalls and bottom of the excavation to verify that the impacted soils have been removed. The confirmatory samples were analyzed using USEPA Methods 8260, 8270 and RCRA metals using ASP-Level B CLP laboratory protocols. The excavation was backfilled with a clean fill material suitable for construction purposes to grade.

Groundwater was observed at the base of the excavation, immediately above the bedrock surface in the first excavation. It was not possible to ascertain whether the water was perched or representative of the zone of saturation. The water level in the excavation rose slightly over time but there was some significant precipitation during the excavation activity. It, therefore, was not possible to discern if the increased groundwater elevation was due to groundwater seepage or runoff from precipitation. The excavation was backfilled with crushed stone to facilitate later chemical injection, as warranted.

A grab groundwater sample was taken from the base of the excavation using a dedicated, pre-cleaned disposable bailer. The sample was analyzed using USEPA Methods 8260 and 8270 using ASP-Level B CLP laboratory protocols.

The second excavation filled with "gray" water when the sidewalls of the diffuser system were penetrated. A sample was taken for confirmatory purposes. The sample was analyzed using USEPA Methods 8260 and 8270 using ASP-Level B CLP laboratory protocols.

Disposal characterization samples were taken from the impacted soils stockpiled on-site. Three samples were analyzed for Total Petroleum Hydrocarbons (TPH) by EPA method 418.1, For VOCs using EPA method 8260, SVOCs using EPA method 8270 and for total RCRA Metals. The impacted soil was reportedly trucked to Boyd's Landscaping on West Graystone Road in Old Bridge, New Jersey.

## 2.4 SRI (August 2001)

At the request of the NYSDEC, a Supplemental Remedial Investigation (SRI) was conducted at Greer Toyota to address issues that were discussed during the May 1, 2001 meeting at the Region 3 NYSDEC office in New Paltz, New York. A further investigation of the soil and groundwater conditions on the Greer site outlined in the NYSDEC May 3, 2001 letter includes the following additional work:

- Additional soil borings to screen and sample soils surrounding the waste oil tanks location.
- The installation of two wells near the potential source area. A shallow and deep well cluster "should be located in near the north west corner of the building in the area, where contaminated soils that were not excavated during the underground storage tank removal, exist. The well cluster should be comprised of one shallow well above bedrock (or shallow bedrock), and a deep bedrock aquifer well."
- The installation of one or more down-gradient and one up-gradient well to characterize groundwater flow direction and water quality.

A Provisional Work Plan dated May 29, 2001 and updated on July 2, 2001 was provided to the NYSDEC and approved, addressing the above requests before the commencement of work in August 2001.

## 2.5 Installation of Bedrock Wells

Kendrick Well Drillers, Inc installed six monitoring wells on the site between August 14 and August 16, 2001. Locations of the monitoring wells are indicated on the attached site map (Figure 5). The wells were installed utilizing a conventional air-rotary drilling rig, and no split-spoon samples were collected during installation. The drilling rig and all related equipment underwent decontamination measures (steam-cleaning) after the installation of each hole to limit the potential for cross-contamination. MW-1, MW-2, MW-3, MW-4, and MW-6 were installed to a depth of 50 feet below ground surface (bgs). MW-5, located immediately down-gradient of the identified source region, was extended to 100 feet below ground surface to intersect deeper fracture systems. Six-inch diameter, stainless steel casing was installed from ground surface through approximately 2 feet of bedrock. Kendrick further seated the casing another 3-6 inches into bedrock, and poured a cement grout around the casing to create a seal between the overburden and bedrock formations. A soil sample of the overburden cuttings from MW-6 was screened with a photo-ionization detector (PID) utilizing the Ziploc bag/headspace method to determine presence or absence of volatile organic compounds (VOCs). Furthermore, rock-cutting samples were gathered during drilling through the 45' bgs depth to assess VOC existence in MW-1, MW-2, MW-3 and MW-6. PID readings from rock cutting and soil samples were all at or below 1.0 ppm. Monitoring well logs showing subsurface geology, well dimensions, and cased intervals for the six wells are included in Appendix B.

Well development by pumping and surging occurred between August 21 and August 22, 2001. Development equipment that came in contact with groundwater was decontaminated using an Alconox® solution between the development of each well. Water yields from each of the wells ranged from very little (<0.05 gpm) to modest (~3 gpm). A mini-submersible pump run by a portable gas-powered generator was capable of removing ~5-6 gpm when fully submerged at depths between 50-100 feet bgs. In MW-1, MW-3, MW-4, and MW-6, purging occurred at high rates initially as the first well volumes were purged in approximately 10-20 minutes. However, after the first volume of water was removed, the only available water for purging was from direct recharge from the bedrock fractures. These four wells generally yielded low quantities of water (1 gpm or less), and therefore development of these wells resulted in the removal of only 100 gallons. Water was generally clear after development, and no odors were detected prior to, or after development had ceased. MW-3 and MW-5 were larger producers of water (2.5 and 3 gpm, respectively), and therefore larger quantities (~370 to490 gallons of water) were removed during development. Water conditions were noted as clear and odorless after development had ceased.

## 2.6 Installation of Soil Borings (8/01/01)

Twenty-eight soil borings were installed to the north and west of the service garage on August 1 & 2, 2001. Individual boring logs for these are located in Appendix B. Locations of any previous and recent soil borings are indicated on the attached site map (Figure 2). The borings were installed utilizing a track-mounted geo-probe drill rig. Soil samples were collected at continuous four-foot intervals in each of the borings.

The overburden to consist of silty sand and gravel layers with some fill material in the area immediately around the garage, with silt and clay layers found in the northern and western borings. All borings were advanced to refusal. Refusal ranged from ~14 feet bgs near the service garage, too much shallower depths to the north and west. A bedrock outcrop at the property boundary directly north of the service building confirms that bedrock becomes shallow in this direction. The soils were screened with a photo-ionization detector (PID), utilizing the jar headspace method to evaluate whether volatile organic compounds (VOCs) exist within each sampled interval.

Sixteen representative soil samples were collected and sent for in-house GC analysis using a gas chromatograph calibrated for chlorinated solvents and petroleum range compounds. The analysis was accomplished using heated headspace methods.

Six confirmatory samples were sent to Columbia Analytical for complete EPA 8260 (volatiles) + MTBE and EPA 8270 (semi-volatiles). All analyses were reported in the NYSDEC ASP Category B deliverables format.

## 3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

### 3.1 Regional Geology

Surface features laid down or reshaped during the last stages of the Pleistocene glaciation dominate the unconsolidated geology of Dutchess County. The advances, re-advances, and melting of the continental glacier has resulted in much of the topography being covered by ice contact deposits such as glacial till, moraines, kames, eskers, and outwash. Glacial lakes that formed during the melting and retreating of the glaciers left deposits of silt and clay.

The Surficial Geologic Map of New York, prepared by Cadwell (1989) suggests that the unconsolidated deposits are glacial till and that the bedrock surface is within one to three meters of the surface. Bedrock outcrops are found to the east and west of the property.

According to the Geologic Map of New York, Lower Hudson Sheet, prepared by Fisher (1970), bedrock below the site consists of the Ordovician Austin Glen formation. The Austin Glen formation consists of graywacke and sandstone interbedded with dark, occasionally massive deep-water shales (Fisher & Warthin, 1976). The graywacke beds are generally attributed to turbidity flows that occurred into an unstable basin environment deposited during the onset of the Taconic Orogeny.

### 3.2 Local Geology

Geologic conditions encountered during the investigation confirm the regional geologic information. Outcrops of graywacke and shale are exposed in various locations on and surrounding the site. Bedrock in the vicinity of the Greer site is at or near the surface. The bedrock surface controls topography in the area, forming a very irregular surface pattern. The land surface is characterized by a series of semi-parallel ridges created by folded, steeply dipping (bedding planes dip just slightly sub-vertical), competent bedrock bordering relatively flat lying expanses that form in the zones where rock is more readily eroded. Bedding planes within the outcrops located along Route 9 (to the east of the site) exist sub-vertically, striking generally north-south (N14°E), and dipping towards the west at about 33°, while bedding planes observed in an outcrop in the northwest corner of the property are also sub-vertical and strike generally north-south (N35°E), but dip generally eastward at steep angles (~41°). These observations are a strong indication that the Greer site sits within the hinge-line of a structural syncline in which a good portion of the folded rock has been eroded away leaving only the limbs exposed. During excavation of the tanks, steep bedding planes were observed when bedrock was encountered, however it was not possible to make measurements of the bedding plane orientations in the bottom of the excavation.

## 3.3 Soils

Soils maps produced by the Dutchess County Soil Conservation Survey map the soils in the area of Greer Toyota as Urban Land Complex consisting of made lands or Dutchess Cardigan Complex soils consisting of undulating, rocky soils formed in glacial till over shallow bedrock.

Information obtained during the investigation fit the description of geology contained in the literature. Soils encountered during soil boring installation consisted primarily of either fill or native glacial till. The till consisted of brown to gray silt and clay with some fine to coarse sand and little to trace amounts of fine to coarse gravel. The fill was primarily coarse sand and gravel with little to trace amounts of silt and clay, occasional boulders and cobbles, blast or shot rock fragments and some miscellaneous brick and other construction debris. Some miscellaneous wood debris, scrap metal and tires were also encountered.

The geologic conditions encountered in the tank excavations was somewhat similar to conditions encountered in the borings; however, at around 8 feet below ground surface, a gray silty clay layer was encountered that extended to just above the bedrock surface. Immediately above the bedrock surface, a thin layer of gray sand and gravel was encountered.

Geologic conditions are discussed in more detail in Section 4.0. The geology near the tank graves is shown in cross-section on Figure 6.

## 3.4 Hydrogeology

Regional groundwater flow was found to be west northwestward, in the direction of an unnamed tributary to the Wappingers Creek. Hydrogeologic investigations conducted by the NYSDEC at other spill sites nearby indicate that groundwater flow in the vicinity of the site is generally east to west.

Saturated conditions were not encountered in any of the borings installed during the preliminary assessment performed in April 1998. Borings installed in the vicinity of the diffuser system in June 1999 reached saturated conditions at approximately 3 feet below grade. Groundwater was encountered in the borings installed immediately adjacent to the diffuser system; however, the crushed stone surrounding the diffuser system was fully saturated from approximately one foot bgs to boring termination at refusal. The fluids surrounding the diffuser system were clearly "gray water" and had a strong septic odor.

Groundwater was not encountered in appreciable quantities until the bedrock surface was encountered during the tank removal activities. Borings installed during the most recent investigation in August 2001 around the tank graves (Figure 7/Appendix B) revealed unsaturated conditions over bedrock. From each of these investigations, it is probable that groundwater is occasionally present just above the overburden/bedrock interface during periods of high water under "perched" conditions. Unsaturated conditions shown in the spring 1998 borings were installed during the time of the year that groundwater levels should be highest. Therefore, it is unlikely that the bedrock water table rises to the bedrock/overburden interface.

Overburden soils consisting of various materials (gravels through silts) are underlain by a gray silt layer lying in contact with the bedrock surface. Any precipitation recharging these soils or water discharged through the diffuser system may saturate the overburden and remain confined above the confining silt unit. Groundwater may then slowly drain to the bedrock aquifer below. This process could result in shallow groundwater levels followed by completely dry soils at different times throughout the year.

To enhance the understanding of the groundwater quality and groundwater flow characteristics in the bedrock aquifer below the site, six new groundwater wells penetrating 50-100' below the subsurface were installed between 8/14/01 and 8/16/01 (Figure 5). A well was placed at each corner of the property and a shallow/deep couplet was placed in the source area for a determination of the local hydraulic gradient. A groundwater flow contour map was generated based on data collected on September 21, 2001 (Figure 5/Table 9) and indicates that groundwater residing within the bedrock aquifer under the site contains a strong northwestern flow component. Between monitoring wells MW-1 and MW-5 (horizontally separated by approximately 540 feet), a vertical drop in water level of approximately 12 feet was measured. From these measurements, an averaged 0.02 hydraulic gradient under the site indicates that recharge occurs along the eastern property boundary, while groundwater discharges along the northwestern edge of the property (between MW-4 and MW-5).

During the drilling process, the first few feet of bedrock encountered were described as "brown, heavily weathered shale" in monitoring wells 1 and 2, while monitoring wells 3 through 6 revealed less weathered, gray fractured shale after drilling through overburden soils (Appendix B). Beyond the first few feet of bedrock drilling, fractures were encountered in each well with enough frequency to assume that a high degree of water bearing fracture connectivity exists within the shallow stretches of this formation (50 feet bgs). As stated earlier, it may be possible that the site sits within the center of a structural synform. A high degree of fracturing in this formation both parallel to and transverse to the bedding planes was observed in the rock outcrop in front of the Rent-All Center on Route 9. Furthermore, bedding planes range from very brittle, paper-thin gray shale beds to slightly thicker siltstone units (up to 3 feet). The folded bedding planes consisting of alternating thin/brittle and thick/soft layers are most likely fractured to a greater extent if the units were strictly massive and never previously folded. This increased fracture density should allow groundwater flow to follow the gradient with relative ease. Furthermore, the large fracture density, coupled with water level data suggesting flow towards the northwest, significantly lessens the likelihood that groundwater flow is strictly confined to the direction of bedding plane orientations. Although there is some anisotropy imposed by the northeast-southwest linear trend observed in the bedrock surface inherent within this aquifer, groundwater predominantly migrates westward offsite along the northwestern property boundary to the unnamed swamp that lies to the west of site, which contains a stream outlet that eventually discharges to the Wappingers Creek.

## 4.0 NATURE AND EXTENT OF CONTAMINATION

### 4.1 Source Area

Samples taken from the oil/water separator on the Greer Toyota site in May and September of 1992 contained chlorinated solvents and gasoline and oil range petroleum hydrocarbons at elevated levels. The oil/water separator samples taken in May 1992 contained elevated levels of chlorinated solvents and gasoline range compounds. Subsequently, the oil/water separator was pumped out and pressure washed, which resulted in dramatically reduced levels in September sample (Appendix A).

The bulk of the impacts in the oil/water separator were petroleum compounds but Tetrachloroethylene (PCE), Trichloroethylene (TCE), cis,1,2-dichloroethylene (DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (DCA) and Freon were detected at various levels ranging up to as high as 7900 ppb. Compounds similar to those found in the oil/water separator were found in groundwater samples taken in wells at two adjacent properties.

### 4.1.1 The Diffuser System

Sanitary wastes are managed at the site by a septic tank for solids management. Liquid waste from the septic tank drained to the diffuser system. The same system is currently managing sanitary wastes at the site. Prior to abandonment, the oil/water separator also emptied into the diffuser system (Figure 2). The diffuser system reportedly consisted of 4 side by side –8 feet wide by 10 feet long by 8 feet deep perforated, open bottom, concrete tanks placed immediately adjacent to each other connected by a series of flange pipes. The actual depth of the diffusers is 4 feet based on the field-testing but the diffusers were filled with crushed stone, which could have limited access to the base of the system. Borings installed adjacent to the diffusers encountered native soils at approximately 8 to 10 feet below ground surface. The diffuser tanks are partially filled with, and surrounded by crushed, washed stone. The diffusers are situated in a trench approximately 50' long by 20' wide. The trench was reportedly excavated into soil; bedrock was reportedly not encountered during the installation of the trench (c.f. personal communication with Cindy Greer). Bedrock is shallow in the vicinity of the diffusers. Bedrock was encountered in soil borings installed less than 25 feet away from the diffuser and bedrock outcrops were observed approximately 50 to 60 feet to the west of the diffusers. The diffuser system is designed to hold approximately 9000 to 11,000 gallons of wastewater, which is more than ample based on the number of employees working at the site. Assuming that the average employee generates approximately 15 gallons of wastewater per day, the 25 to 40 employees at the Greer site generate approximately 375 to 600 gallons of wastewater per day (Design Standards for Wastewater Treatment Works, NYSDEC, 1988). However, the rate of percolation for the existing native soils may be very low, which results in long retention times.

### 4.1.2 Waste Oil Tanks

Unregistered waste oil tanks were in existence at the Greer site. The tank was foam filled in place but no tank closure samples were obtained during closure. Since the tank should have been registered, proper documentation of closure was mandated by the NYSDEC. As part of the ongoing investigation, Greer scheduled the removal of the waste oil tank from the property. During the removal process it was discovered that there were actually two waste oil tanks connected in series. Neither the first or second tank had visible outlets at the surface.

Impacted soils were encountered around both tanks; however, the most significant concentrations were identified adjacent to the first tank closest to the maintenance garage. The worst area was under the point where the fill pipe had cracked. The impacts had migrated downward in a fairly narrow band away from the break in the line. Excavation of the impacted soil was continued to the extent practical or until refusal was encountered. However, some of the impacted soil extended beneath or very near the corner of the maintenance garage, limiting full excavation. Photographs of the excavations are presented in Appendix C. Confirmatory samples were taken from the sidewalls of the excavation and analyzed for the full suite of 8021, 8270 and RCRA metals using ASP-Level B CLP laboratory protocols.

## 4.2 Concentrations and Extent of the Compounds of Concern

### 4.2.1 Analytical Results, Preliminary Investigation (April 1998)

Six soil borings were installed on April 1 and April 2, 1998 around the diffuser system. Samples were taken continuously at two feet intervals in each of the borings using a conventional soil-boring rig. Soil samples were screened in the field using a PID and soil from each boring was analyzed using a portable gas chromatograph (GC) calibrated for the compounds of concern (Table 1). The portable GC was calibrated for PCE, TCE, 1,2-DCE and gasoline range compounds. Based on the results of the GC screening, samples were forwarded to an ELAP certified laboratory for confirmatory analysis. The samples were analyzed using EPA method 8260 (volatiles), EPA method 8270 (semi-volatiles), and NYSDEC ASP '95 Revised TAL metals. All analyses were done using ASP Level B protocols and are summarized in Table 2.

The locations of the borings coincided with locations selected by the NYSDEC during a site walkover. The boring locations, SB-1, SB-2 and SB-3, were selected based on what were thought to be the dimensions of the diffusers as determined by eyewitness accounts and a sketch map provided by Daley Sanitation, who installed the diffusers (Appendix A). Three additional borings (B-4, B-5 and B-6) were added in the northwest corner of the diffuser system because bedrock was encountered at very shallow depth (Figure 2). Field GC screening results from B-2 indicated trace levels of chlorinated solvents at or below the sensitivity range of the portable gas chromatograph. The presence of the chlorinated compounds was not confirmed via laboratory analysis. Petroleum hydrocarbons were detected and the laboratory results confirmed the presence of petroleum hydrocarbons. Some TAL metals were also detected.

The laboratory results indicated that the petroleum-contaminated soils were limited to the soil surrounding borings B-2 and B-3. These two borings are likely to be on the downgradient edge of the diffuser system.

The petroleum compounds with the highest detected concentrations in B-2 were ethylbenzene, toluene, and xylene compounds. None of these compounds exceeded the recommended soil cleanup objectives listed in TAGM 4046. Similar compounds were detected in B-3 but at even lower levels (Table 2, and Appendix D).

### 4.2.2 Analytical Results, Supplemental Investigation (June 1999)

The results of the preliminary investigation may not have been representative of actual conditions. It turns out that the borings were located further away from the diffuser system then was optimal. The residual source for the chlorinated solvents observed in the two downgradient water supply wells was not encountered. The NYSDEC mandated further investigation to characterize the suspected source region. Working in conjunction with the NYSDEC, three additional soil borings were installed on June 25, 1999 immediately adjacent to the diffusers. These borings, identified as SB-1, SB-2 and SB-3, are depicted on Figure 2 and the boring logs are contained in Appendix D. The boring locations were selected by first exposing the top and sides of the diffuser tanks and removing any obstacles to drilling. The rig was positions so that the borings could be advanced within one foot of the sidewalls of the diffusers. The locations of the borings were discussed and approved by the NYSDEC and a NYSDEC engineer witnessed the sampling activities.

Soil and groundwater samples were taken from each boring location (Figure 2) screened using a portable gas chromatograph. Based on the field GC screening results, samples were forwarded to an ELAP approved laboratory and analyzed for chlorinated volatile organic compounds (CVOCs) using EPA method 8260. The laboratory results were similar to those found during the preliminary assessment. No CVOCs were detected and only petroleum hydrocarbons were present at detectable levels. Additionally, no chlorinated solvents were found in either the gas chromatograph field screening.

Petroleum hydrocarbons were detected in both the soil and groundwater samples taken from around the diffuser system. These compounds detected included Chlorobenzene, 2-butanone, m&p-xylene, and toluene (Table 3). These compounds did not exceed the recommended soil cleanup guidance values listed in TAGM 4046; however, groundwater samples taken from around the diffusers had levels of petroleum compounds above the groundwater standards listed in TOGS 1.1.1 and 6 NYCRR Part 703 (Table 3).

### 4.2.3 Analytical Results, Waste Oil Tank Closure and IRMs

The two tanks were successfully removed from the property and properly disposed of. To the extent practical and feasible, impacted soils were removed until there was no indication of remaining impacts. It was not possible to remove all of the impacted soil due to site constraints. Some of the impacted soils still remain in the vicinity of the northwest corner of the repair garage building. The boundaries of the excavated material are defined on Figure 4.

The impacted soil was trucked to Boyd's Landscaping on West Graystone Road in Old Bridge, New Jersey. Boyd's is a New Jersey Department of Environmental Protection and Energy (NJDEPE) approved soil-recycling facility. TCC obtained and provided characterization samples from the soil pile, which were provided to the disposal facility (Appendix E). The recycling facility is allowed to accept impacted soils up to the NJDEP limit of 3000 ppm. Some tires and metal piping that was mixed in with the loads of contaminated soil were returned to the site. The tires and metals were segregated and recycled using the existing tire and metal recycling bin.

Tank Sludge and Soil Samples

Samples were taken of the sludge material from the tanks and pipelines associated with the both waste oil tanks during the fall of 2000. The samples taken from pipeline leading into Tank 1 (the tank closest to the building), GT-1 contained elevated levels of gasoline range compounds including Benzene at 7,000 ppb, MTBE at 38,000 ppb, Ethylbenzene at 29,000 ppb, toluene at 91,000 ppb, o-Xylene at 5,900 ppb and m&p Xylene at 110,000 ppb. Also present in the sample was Tetrachloroethylene at 1,500 ppb. Tetrachloroethylene, commonly known as perc or PCE was a common component of brake cleaning fluid.

No other compounds were reported in the sludge sample; however, it is important to note that the detection limits for the heavier fraction hydrocarbons (motor oil, etc) were equal to 170,000 ppb or greater. The sample was diluted 500 times to limit the possibility of damage to the gas chromatograph. The samples are run at a higher detection limit because the preliminary screening indicated significantly elevated levels of petroleum hydrocarbons. If the sample was run at lower detection limits it could have damaged the packed column used to detect the petroleum hydrocarbons. The dilution method is common and acceptable under ASP Level B protocols.

It is entirely likely that a substantial amount of petroleum related compounds were present in the sludge but at levels below the detection limit. The sample had the consistency and odor of weathered motor or fuel oil.

A second sample of the sludge from Tank #1 was also forwarded to the lab for confirmatory purposes. This sample (GT-T1-SL) contained Xylene compounds at about 35,100 ppb and Bis,(2-Ethylhexyl) Phthalate at 83,000 ppb but no other compounds were detected. This sample was also substantially diluted.

The sample of the sludge (GT-4) taken from under the tank contained Ethylbenzene at 640 ppb, Toluene at 2,300 ppb, o-Xylene at 3,400 ppb and m&p Xylene at 3,400 ppb. Tetrachloroethylene was not detected in this sample.

As was the case with the other sludge sample, no other petroleum compounds were detected. This samples was diluted and also analyzed at higher detection limits (170,000 ppb or greater) so it is entirely likely that petroleum related compounds were present in the sludge but at levels below the dilution factor detection limit. This sample had the consistency and odor of a highly weathered motor or fuel oil.

Other samples taken from the soils immediately surrounding the tank were also impacted with similar contaminants. Samples GT-2 and GT-3 were soil samples taken from the soils in the immediate vicinity of the tank grave. Sample GT-2 was impacted with PCE at 2,100 ppb, o-Xylene at 15,000 ppb and m&p Xylene at 2,600 ppb. Sample GT-3 was impacted with MTBE at 800 ppb, PCE at 2,200 ppb and o-Xylene at 2,700 ppb. Both samples had a strong petroleum odor but were non-detect for the heavier fraction petroleum hydrocarbons. As was the case with the previous samples, higher detection limits were used for the 8270 analysis.

Sample GT-5 was a sludge sample taken at the end of the pipe that entered into the second tank. The sample contained a substantial percentage of BTEX compounds. Benzene was detected at 240,000 ppb, MTBE at 16,000 ppb, Ethylbenzene at 380,000 ppb, Toluene at 1,700,000 ppb, o-Xylene at 580,000 ppb and m&p Xylene at 1,400,000 ppb. The detection limits were higher than preferred so other compounds may have been present but at levels below the method detection limit. The 8270 results were also non-detect but, once again, the sample was substantially diluted (3,000 times) to avoid damage to the gas chromatograph. This sample was essentially product with a strong oil smell.

A second sample of the sludge from Tank #2 had Benzene (1,600 ppb), Ethylbenzene (6,800 ppb), toluene (15,000 ppb) and Xylene (39,000 ppb) but no other compounds. This sample was also substantially diluted (2,220 times) so other compounds may be present but below the method detection limits.

The sample results are contained in Appendix E and listed in Table 5.

## Interim Remedial Measures

The soils beneath the first tank and to some extent the second tank were obviously impacted. The soils were stained gray-green and odiferous. It was determined that clear benefits would be obtained by the immediate removal of the impacted material. To the extent possible and practical, obviously stained soils were excavated and stockpiled on-site for off-site disposal. Confirmatory samples were taken at various locations and at various depths (geologically dependent) to evaluate whether soil cleanup guidance values were met.

Geologic conditions vary in the vicinity of the release. Samples were taken from each of the geologic horizons to characterize distribution. Four distinct soil horizons were encountered beneath the first tank grave (See the cross-section, Figure 6 and photographs included in Appendix C). The first soil horizon consists mainly of construction grade run of bank material that was probably imported during construction of the facility. This horizon was found between 2 and 7 feet below ground surface although the thickness varied somewhat. The second unit consisted primarily of construction and demolition debris mixed with bank run fill. Pieces of wood, concrete, metal and occasional tires were encountered at various locations throughout this horizon. Below the construction and demolition debris, the soils consisted mainly of gray silty clay to fine sand and silt. This silty clay unit was most likely the native soil condition prior to development of this parcel. The gray clay layer was approximately 4 to 6 feet thick.

Below the clay unit, a layer of fine to coarse gray sand with some fine gravel was encountered. There was some evidence of moistness in these sandy soils and water began collecting in the excavation once this zone was penetrated. However, there was precipitation occurring when this unit was exposed, so it could not be determined with any certainty whether these soils were saturated. Weathered and competent limestone or dolomitic limestone bedrock was encountered beneath the sandy layer at around 13 to 15 feet below ground surface, so it is possible that the groundwater encountered in this horizon was perched groundwater.

Samples of the contaminated material were taken from the different horizons to determine the vertical extent of the impacts. Those samples were analyzed on a portable gas chromatograph calibrated for the compounds of concern. The samples were taken from the upper fill horizons (GC-1), the gray silty clay (GC-2) and the sandy layer just above the bedrock surface (GC-3). The results indicate that the impacts are relatively uniformly distributed. There are inherent inaccuracies in the field GC screening method so the results may not be accurate but the results are likely to be representative. The soils were visually stained with depth so it is likely that the release had occurred over a long period of time. Enough material had been released that it had penetrated the clay horizon.

GC-1 contained relatively small amounts of CVOCs, mainly TCE and the same condition applied for GC-2, which contained about the same level of TCE. The sample taken from GC-3 also contained TCE, but at about 20 times the concentration found in GC-1 and GC-2. The component of the spill was gasoline and oil range compounds, the chlorinated solvents were only a minor component. The full range of gasoline compounds was detected including naphthalene. The impacts were fairly uniformly distributed, although slightly lower in total in the lower sandy horizon above the bedrock surface.

The presence of gasoline and oil range compounds in the soils immediately beneath the tank is not surprising given the tank's use as a waste oil receptacle. The release resulted from system integrity failure. The main source of the impacts seems to be the feeder line failure but evidence indicates that both tanks had failed. To the extent possible, the impacted soils were removed and confirmatory sidewall and bottom samples were taken at various locations surrounding the excavation to determine the effectiveness of the IRMs. The results of the confirmatory testing are summarized in Table 5.

Because of the geologic complexity at the site multiple sidewall samples were taken from the various geologic horizons on each side of the tank graves. The various sample locations and identities are shown on Figures 4 and 6. A brief summary follows:

Tank Pit #1 Results

Soil samples were taken from the east wall, south wall, west wall, south bottom and north bottom of Tank Pit #1. A composite sample was taken of the bottom material on the east and west sides of the pit. Sidewall samples were taken at different depth intervals to verify that the impacts had been removed from each geologic horizon. The sample results were compared to the values listed in NYSDEC's TAGM 4046. The results are discussed below:

Soil samples were taken from the south wall from the upper bank run horizon (A), the construction debris layer (B), the silty clay layer (C) and the lower sand unit (D). Obviously stained soils remained in place along this wall but further excavation was not possible because of the potential for undermining the building's foundation. A sample taken from the stained soil below the point where the break in the pipe was observed contained o-xylene and m&p xylene at 3,500 ppb and 2,900 ppb respectively. These results exceed the TAGM 4046 recommended cleanup value of 1.2 ppm.

A sample taken from the tank bottom on the south side of the excavation (GT-P1-SB) had elevated levels of petroleum compounds also. The sample contained o-xylene and m&p xylene at 9,900 ppb and 5,300 ppb respectively. These results exceed the TAGM 4046 recommended cleanup value of 1.2 ppm. This sample was taken from the soils just above the bedrock surface.

A sample taken from the east wall in the gray stained clay soils (GT-P1-EW-C) had elevated levels of petroleum compounds also. The sample contained o-xylene and m&p xylene at 5,800 ppb and 10,000 ppb respectively. These results exceed the TAGM 4046 recommended cleanup value of 1.2 ppm. This sample was taken from the soils just above the bedrock surface.

No other soil cleanup guidance values were exceeded in this tank grave. Chlorinated hydrocarbons were not detected at levels that exceed the action levels (Table 5).

Tank Pit #2 Results

Soil samples were taken from the west wall and bottom of Tank Pit #2 (Table 5). Unfortunately, this tank grave rapidly filled with water when the excavation apparently penetrated a zone of permeable fill material that must have been installed during construction of the diffuser system. The pit filled with gray water having a strong septic odor. No impacts were observed in the side wall samples with the exception of Bis-(2,ethylhexyl) phthalate. A composite sample was taken of the bottom material contained gasoline range compounds at levels that exceed the recommended soil cleanup guidance values. Toluene was found at 2,900 ppb, which exceed the 1.5 ppm guidance value, and xylenes were present at 22,000 ppb, which exceeds the cleanup guidance value of 1.2 ppm. Gray water accumulating in Pit #2 had sheen. The water was evacuated to the extent possible, to facilitate excavation but the influx was too rapid. Some impacted soils are likely to remain in the vicinity of Pit #2 but the volume is probably small. This tank was reportedly taken out service prior to 1990 (c.f. personal communication with Cynthia Greer). It was only used for a period of a few months. The tank was abandoned by cutting the feed line, ripping back the top of the tank and filling it in place with sand. The tank was pumped out but not thoroughly cleaned. Sludge was noted in the bottom of the second waste oil tank and, since the top of tank had been ripped open, precipitation could infiltrate the tank and come in contact with the sludge material.

It is difficult to explain the elevated levels of gasoline range petroleum compounds observed in the samples from Pit #2. The levels are similar to those observed in Tank Pit #1 and in groundwater samples taken from the diffuser system.

### 4.2.4 Analytical Results: Soil Sampling (8/01)

Six soil samples were selected out of a possible twenty-eight boring locations were forwarded to a New York State Department of Health (NYSDOH) ELAP CLP certified laboratory, and were analyzed for VOC's and SVOC's according to methods 8260 + MTBE and 8270, respectively. Analytical results are presented in Table 6 and Appendix F for samples GT-SB-4, GT-SB-16, GT-SB-20, GT-SB-22, GT-SB-26, and GT-SB-28, which were selected based on their proximity to the waste oil tanks location, and potential migration pathways. Table 7 shows results from in-house gas chromatograph analyses on sixteen samples gathered in twenty-eight of the soil borings. Data validation (Dataval, Inc.) revealed that the soil samples arrived at the laboratory two days late, and therefore were not kept at the proper holding temperatures during transport. "Positive results should be interpreted as estimations, indicative of the lowest analyte concentrations likely to be present. Undetected analytes have been rejected (DATAVAL, Inc. Report, 2001)." However, there were no handling problems with the in-house sample analysis, so the comparative analysis has allowed for a useful determination of presence or absence of the compounds of concern.

The data shows low-levels of SVOC's in GT-SB-20, GT-SB-22 and GT-SB-26 and low-levels of VOC's in GT-SB-20 and GT-SB-26. Figure 8 delineates the extent of contamination determined from PID analysis coupled with these chemistry results.

### 4.2.5 Analytical Results: Groundwater Sampling from Onsite Bedrock Wells

Six groundwater samples collected from each onsite bedrock monitoring well were forwarded to a New York State Department of Health (NYSDOH) ELAP CLP certified laboratory for VOC's and SVOC's analysis according to methods 8260 + MTBE and 8270, respectively.

Results are presented in Table 8 and Appendix F. MTBE was detected in each monitoring well, with the exception of MW-3, which was returned with a negative result. A documented spill at the "7-11" gas station located on Route 9 may have contributed MTBE found in the groundwater in two of the wells located hydraulically upgradient to the Greer source area (MW-1 and MW-2). Several other chlorinated compounds (1,1 DCA; Toluene; 1 DCA; 1,1 TCA; Vinyl Chloride; and 1,1,1 TCA) were detected in MW-4 through MW-6. The most contaminated of these six monitoring wells are those situated close to the source area (MW-5 and MW-6), which indicates that the source has migrated from the overburden soils into the groundwater residing in bedrock fractures.

Historical sampling of the Halpin well located at 4 Curry Road revealed a broader spectrum of contaminants than were found in the Greer Toyota monitoring wells.

DCDOH reported that this home was used for auto repair and the adjacent NAPA auto service center also would have used similar compounds. Raw water samples taken from the well between March 1994 and June 1999 indicate three common compounds (1,1 DCA; 1,1 TCA; and Vinyl Chloride) between the onsite source area bedrock wells and the Halpin well. Sampling at Optimum Window located at 69 Old Route 9 over the same time period revealed one common compound (1,1 DCA) and several that were not found in the Greer source area wells. This may indicate that other potential upgradient sources exist beyond the Greer site.

## 5.0 CONTAMINANT FATE AND TRANSPORT

Impacts to soils at the Greer Toyota site are found adjacent to the diffuser system and waste oil tank graves. The impacts are primarily limited to petroleum hydrocarbons; however, chlorinated solvents were detected in samples of the sludge and soil removed from immediately below the tanks. Methyl-Tertiary Butyl Ether (MTBE), BTEX compounds and other chlorinated solvents (see sections 4.2.4-4.2.5) were found in groundwater sampled from the bedrock monitoring wells and soils sampled from soil borings installed in August 2001. No chlorinated solvents were detected in samples obtained from the diffuser system so it is likely that the diffusers are not the source for the chlorinated solvents observed in groundwater. The likely source for the impacts was the waste oil tank system. The feed line was broken and a substantial release was observed. Soil samples taken from soil borings in the vicinity of the waste oil tank system revealed low-levels of MTBE, various gasoline range compounds

The diffuser system acts as a holding tank that allows sanitary wastewater to percolate into the subsurface at a rate equivalent to the permeability of the soils. The diffuser system is installed on/in native glacial till or fill, but is installed close to the bedrock surface. The till material is very dense and therefore is most likely is not very permeable. It was obvious, based on the volume of water observed in the excavations around the diffuser tanks, that the wastewater infiltrates very slowly into the subsurface. Impacted water would enter the subsurface at a very slow rate and flow in the direction of regional groundwater flow, which is towards the north-northwest, in the direction of an unnamed tributary to the Wappingers Creek.

Contaminants entering groundwater through the diffusers would be transported in the direction of groundwater flow. Shallow groundwater was also observed in the vicinity of the waste oil tanks during removal. Some groundwater was also encountered immediately above the bedrock surface. Local groundwater is likely to discharge locally into the unnamed tributary to the Wappingers Creek or into the Wappingers Creek itself. The tributary and creek most likely act as a boundary condition, intercepting localized, shallow groundwater flow. Contaminants in shallow groundwater are not likely to cross that boundary.

Flow and contaminant distribution in the bedrock aquifer is probably more complex. Shallow groundwater may migrate vertically through the fracture systems until saturated conditions are encountered when it would travel in the northwestern groundwater flow direction. As the contaminants must move through some unsaturated fractures in order to enter the groundwater, there is a potential for the build-up of contaminants within fractures.

The regional discharge point is ultimately to the Hudson River, which suggests primarily westward flow. However, the contaminant distribution observed adjacent to the Greer site does not agree with the distribution of impacts observed in the adjacent wells or the anticipated direction based on groundwater flow. The bulk of the problems were noted in locations to the north and west of the site. Local topography may be influencing the contaminant distribution pattern. The land surface slopes to the north and west towards the Hudson River, and groundwater gradients in the monitoring wells indicate a northwestern direction of flow. Localized pumping of nearby production wells probably has a much greater influence on groundwater flow and contaminant distribution. Pumping nearby production wells probably induces preferential flow through the fractures. The zone of influence created from pumping in individual wells exhibits anisotropy associated with the lineation observed in the bedrock outcrop. A component of flow under pumping conditions may become oriented with respect to the bedrock bedding plane orientation (generally north-south). Therefore, rather than concentrically shaped pumping cones, each cone may, in fact, take on a slightly elongated shape parallel to the aspect of the bedding planes or fractures. This altered pumping zone of influence may act to draw contaminants cross–gradient as is evidenced by the contaminated well at Optimum Window.

Vertical to sub-vertical fracturing in the bedrock beneath the Greer site was observed near the bottom of the waste oil tank excavation, so it is likely that contaminants enter the bedrock aquifer along these sub-vertical fractures. As the suspected source area was normally paved, minimal infiltration from precipitation occurred which reduced source loading. Groundwater was not detected above bedrock during the tank excavations so downward migration of the contaminants from the source area should be quite slow. Water discharged from within the diffuser system may migrate to the soils located around the waste oil tank area but also eventually make its way into the bedrock through the fracture system.

Other possible sources may be impacting the wells to the north of the Greer Toyota site based on groundwater flow direction (c.f. memorandum letter from Dan O'Connor to David Ruff, contained in Appendix A). The presence of gasoline range hydrocarbons in upgradient wells confirms this.

Based on the field evidence, it is difficult to attribute the source of the chlorinated VOCs observed in the nearby production wells (Figure 3) to the diffuser system. Recent DCDOH well data are summarized in Table 4. No petroleum compounds have been listed but historic data obtained after the spill at the 7-11 facility indicates that MTBE was present in these wells (c.f. memorandum letter from Dan O'Connor to David Ruff, contained in Appendix A). The oil/water separator sample suggests that wastewater impacted with chlorinated solvents may have been released through the diffuser system in the past but the diffuser system is no longer a source for these compounds and likely never was a significant source.

The data obtained around the waste oil tank suggests that the spill associated with the waste oil tanks may be the potential source of the chlorinated compounds. Twenty-eight confirmatory soil borings were installed (August 2001) around the waste oil tanks grave in order to map the extent of contamination (Figure 8). Results show that a definite non-detect (ND) boundary exists within the soils around the source. A middle boundary delineates areas identified as contaminated according to onsite analysis using a photo-ionization detector, and a central region is identified as the area where laboratory sampling indicated contamination. A comparison of this contaminant distribution pattern (Figure 9), to a depth to bedrock contour map, yields an interesting relationship. The similarity in the shapes of these two maps indicates the existence of an area of contaminant pooling in the areas where the bedrock is deepest under the previous tanks location. It is probable that contaminants have moved vertically downward from the source through the slightly sandy/gravelly soils to a clayey layer just above the bedrock surface, and then slowly seeped through this clay layer into the fractures and/or spaces between bedding planes within the bedrock formation. In this case, contaminants may have been mobilized within the groundwater through the processes of advection, dispersion and diffusion. Water levels in MW-5 and MW-6 in late September 2001 were approximately four feet below the bedrock/overburden contact. As water levels were lower than normal during this time, it is possible that the water table may rise during periods of high water and intercept the contaminated soils, mobilizing contaminants into the bedrock aquifer.

The only compound found with any significance was PCE, which was identified in the DCDOH sampling (Table 4 and Appendix A). PCE was not found in any of the bottom or sidewall samples but was present in the soil beneath the tank. However, Tank #1 was under pavement, so infiltration would be relatively minimal. No free product was encountered, but the residual source area may still remain.

### Supplemental IRMs

During the excavation of the impacted material, it was evident that there would be some benefits to creating a means of either injecting chemicals into the impacted zone or extracting air from the impacted areas. Perforated pipe was installed in distinct areas to facilitate supplemental IRMs should they be necessary. The approximately elevation of the perforated pipe is shown on Figure 6.

Perforated pipe was installed just above the bedrock surface. This pipe may lie in the saturated zone or just above it. This perforated pipe was installed to facilitate the injection of bioremediation enhancement agents and/or to extract air from this horizon. It may serve a dual use.

Another perforated pipe system was installed along the eastern wall at an elevation that corresponds to the silty clay horizon (Unit C). Stained soils remained in this area. This system would be used as a soil vapor extraction system.

The lower regions of the excavation were backfilled with permeable crushed stone. The crushed stone was brought to a level that corresponds to the top of the clay layer. The crushed stone was covered with an impermeable membrane, which, in turn, was covered with clean fill (bank run). The fill material was placed in 9-inch lifts and compacted using a vibratory compactor to limit the potential for settling.

There was an area of stained soils that remains on the south side of the investigation. A perforated pipe was installed immediately adjacent to the stained soils to facilitate soil vapor extraction. The stained soils in this area were confined mainly to the bank run and construction debris.

Tank Pit #1 was finished with approximately 1.5 feet of Item #4 to facilitate later repaving. The site has not been repaved at this point in time. A schedule for repaving the site will depend in part on the NYSDEC's final remedy for the facility.

Perforated piping was also installed in the second Tank Pit #2. The piping was installed in the area were some residual staining was observed. The pipe may actually be submerged at this point in time. The intent of using this pipe was to extract vapors from the impacted area but the pipe may be more useful to inject bioremediation enhancement compounds.

## 6.0 HUMAN HEALTH EXPOSURE ASSESSMENT

A Human Health Exposure Assessment was performed to evaluate the potential exposure routes for chemicals found in the borings and groundwater samples taken in the suspected source region. The exposure assessment evaluated potential health risks to humans in the vicinity.

Local geologic conditions in the vicinity of Greer Toyota include exposed outcrops of graywacke and shale in various locations surrounding the site. Bedrock controls topography in the area, forming a very irregular surface pattern. The land surface is characterized by a series of ridges formed by highly folding, steeply dipping rock to flat lying expanses in between. Soils overly the shale and graywacke bedrock consist primarily of silt and clay, fine medium coarse sand and gravel as well as frequent cobbles and rock fragments.

Regional groundwater flow is believed to be westward, in the direction of an unnamed tributary to the Wappingers Creek. No surface water or wildlife habitats are present at the site.

## 6.1 Identification of Chemicals of Potential Concern

Compounds of Concern (COC's) are defined as chemicals that have been identified on the site area. Based on laboratory results of soil samples collected from borings, petroleum compounds have been identified in the area adjacent to the subsurface disposal system. The compounds detected with the highest concentration levels include: 2-butanone, Chlorobenzene, ethylbenzene, toluene, and xylene compounds.

Historically, chlorinated solvents have been detected in an oil/water separator on-site and in water supply wells on nearby properties and chlorinated solvents were detected in the soil samples surrounding the waste oil tank. No chlorinated solvents were encountered in the soil or groundwater samples taken during the Focused RI/FS and SRI. PCE and other chlorinated compounds were evaluated for completeness but it important to note that those compounds were not detected in the confirmatory sidewall samples.

## 6.2 Identification of Exposure Pathways

Exposure pathways are defined as reasonable ways that humans can be exposed to Compounds of Concern (COCs). Examples of exposure pathways include ingesting contaminated soils and/or groundwater, inhalation of vapors, and direct contact through the skin. Since the source area is confined to the diffusers and the immediately adjacent areas, there exists only a limited number of ways that humans may be exposed to the COCs.

The possibility exists that petroleum vapors could migrate up through the soils; however there are no confined spaces or basements near the suspected source region, so this is not a likely exposure route. Construction workers could be potentially exposed to similarly vaporized compounds when working in excavations near the subsurface disposal system. In both cases, the exposure pathway leads to the potential for inhalation of COC's in air. Much of the potential exposure pathway has been removed during the IRMs.

Two water supply wells located downgradient from the Greer Toyota site have been impacted by chlorinated hydrocarbons and other wells by gasoline range compounds. Water from impacted wells is treated via carbon filtration systems and the risk of ingesting impacted groundwater is mitigated through the use of the carbon filtration systems.

## 6.3 Exposure Characterization

Exposure characterization reflects an integration of toxicity information with site-specific exposure conditions. Petroleum compounds, but no chlorinated solvents, were detected in the water and soil samples collected during the Focused RI and Supplemental RI investigations. Therefore, the exposure assessment was limited to the VOCs identified on-site, including Ethylbenzene, Xylene and Toluene. Some metal compounds (Arsenic, Beryllium, Cadmium and Zinc) exceeded the soil cleanup guidance values listed in the NYSDEC's TAGM 4046 but are not mobile and not expected to present a health risk. The compounds found in the 1992 oil/water separator sample (Tetrachloroethylene (PCE), Trichloroethylene (TCE); cis-1,2-Dichloroethylene (1,2-DEC); 1,1,1-Trichloroethane (1,1,1-TCA); and 1,1-Dichloroethane (1,1-DCA)) were considered peripherally but since they were not present in detectable quantities, the risks associated with a continued source of these compounds is non-existent. The potential for human exposure to these chemicals was assessed assuming present-use and anticipated future land use conditions. In this area, the only suspected source of the VOCs is the diffuser system. This factor significantly limits the number of ways that humans might be exposed to any health risks.

The only reasonably plausible exposure route is through ingestion of contaminated drinking water. Based on the presence of VOCs in downgradient water supply wells, groundwater has been impacted in the area. It is difficult to say whether those impacts are attributable to the diffusers or the waste oil tank area based on the recently obtained data; however, impacts are mitigated via carbon filtration, so no adverse exposure elements are anticipated from this mode of transport. Groundwater in the bedrock aquifer is expected to be an average of 40 to 50 feet below the ground surface but no data are available to confirm these findings. Dilution and dispersion would surely play a role in contaminant distribution and vapors off-gassing from the bedrock aquifer are not expected to represent an exposure pathway, given the relatively low level impacts observed during the recent sampling. Groundwater is pumped from private wells but is effectively treated with carbon units before use. Due to the existing effective water treatment systems, current and future residents downgradient from the Greer Toyota site do not come into contact with contaminated groundwater.

Day laborers might also be exposed to low concentrations of gaseous VOCs while working in subsurface excavations. Based on the concentrations detected in soils, the potential impacts would be substantially below the Permissible Exposure Levels (PELs) for an 8-hour workday, established by the National Institute of Occupational Safety and Health (NIOSH). When levels are below the PELs, health affects to workers by inhalation of VOCs would not be anticipated.

In summary, the exposure assessment concluded that only limited opportunities for VOC transmission to humans exist. The most obvious potential exposure pathway via the direct ingestion of groundwater has been blocked through the use of water filtration systems. Day laborers may also be exposed to low concentrations of gaseous VOCs in subsurface excavations but health affects from such exposures are not expected based on the concentrations identified in the groundwater and will reasonably remain below the PELs established by occupational exposure programs.

## 7.0 REMEDIAL ACTION OBJECTIVES AND GENERAL RESPONSE

### 7.1 Introduction

Compounds of Concern (COCs) and Remedial Action Objectives (RAOs) for the potential exposure pathways are addressed below. Remedial Action Objectives for protecting human health and the environment are developed to focus subsequent evaluations of remedial technologies and remedial alternatives. RAOs are established based on the nature and extent of contamination, the resources currently or potentially affected, and the potential for human and environmental exposure.

### 7.2 Contaminants of Concern

Soils/Sediments

Soil/sediment samples collected from soil borings were analyzed for VOCs and SVOCs. The results of the analysis were reviewed to identify soil contaminants in excess of levels identified in NYSDEC/DHWR TAGM #4046 as soil cleanup objectives for the protection of groundwater. Only BTEX compounds were encountered. Toluene, Ethylbenzene, Xylene and Chlorobenzene were identified as compounds of concerns. Chlorinated solvents were encountered in the soils surrounding the waste oil tank but were removed as part of the IRMs. No chlorinated compounds were found in any of the confirmatory samples. Chlorinated compounds were found in shallow groundwater samples taken from the source area. It is reasonable to assume that some low levels of CVOC's may be present in the suspected source region.

The primary area of BTEX impact includes the eastern and southern corner of Tank Pit #1 and the southern bottom of Tank Pit #2. There some evidence of BTEX impacts near the northwest corner of the diffuser system. The action levels for Toluene and Xylene were exceeded at Tank Pit #1 and #2.

Groundwater

Grab groundwater samples collected from initial soil borings installed in 1998 were analyzed for VOCs. The results of the analysis were reviewed to identify contaminants in excess of levels identified in NYSDEC's Groundwater Standards as listed in 6 NYCRR Part 703. The only compounds encountered were Benzene, Chlorobenzene, Ethylbenzene, Toluene and Xylene. All of these compounds were detected above groundwater standards.

Groundwater samples collected from tank graves in October 2000 were analyzed for VOCs. The results of the analyses were reviewed to identify contaminants in excess of levels identified in NYSDEC's Groundwater Standards as listed in 6 NYCRR Part 703. Only oil and gasoline range compounds were detected. No CVOCs were detected in the sample taken from Tank grave #1; however, the laboratory substantially diluted the sample prior to analysis. The SVOC found in the sample was Bis-(2,ethylhexyl) phthalate, which is a common laboratory contaminant.

A sample taken from Tank Pit #2 (GT-P1-SW, the lab mislabeled this sample) contained no CVOCs; however, the laboratory substantially diluted this sample as well, prior to analysis.

Some SVOCs were encountered at levels that exceed the groundwater standards. The compounds 4-Methylphenol, Naphthalene and Phenol were encountered at levels that exceed the groundwater standards.

Groundwater samples taken from MW-1 through MW-6 installed in August 2001 were analyzed for the full range of VOC's and SVOC's. The results of the analyses (Table 8) were reviewed to identify contaminants in excess of the standards identified in NYSDEC's (6 NYCRR Part 703). Only oil and gasoline range compounds were detected. Two SVOCs were detected in the monitoring wells at very low levels. One compound (2-Ethylhexyl) Phthalate exceeded levels listed in T.O.G.S. 1.1.1 by 2 ppb. SVOC levels in all other instances were reported below the groundwater standards.

Gasoline range VOC's including MTBE were found at very low levels (below T.O.G.S. 1.1.1) in MW-1, MW-3 and MW-4. Groundwater standard exceedences for several compounds (Benzene, MTBE, 1,1 Dichloroethane, 1,1,1 Trichloroethane and Vinyl Chloride) were reported for MW-2, MW-5 and MW-6.

## 7.3 Remedial Action Objectives

Based on the distribution of the contaminants of concern, there does not appear to be a significant potential for chronic human exposure to the VOCs, CVOCs or SVOCs in soils. Although groundwater standards are in the bedrock aquifer, exposure is currently mitigated based on the use of carbon filtration units. Short-term exposure might occur during excavation activities in these areas or if new wells were installed without carbon filtration units attached.

The objective of Remedial Actions would be to:

- prevent ingestion
- prevent direct contact
- prevent inhalation

## 7.4 Development of Remediation Goals

The intended use of this facility remains commercial. The site will continue to sell new and used automobiles.

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet, to the extent practical and feasible, the applicable Standards, Criteria, and Guidance (SCGs) protective of human health and the environment.

At a minimum, the remedy selection should eliminate or mitigate all significant threats to the public health and to the environment presented by the soils, sediments and groundwater containing VOCs, CVOCs and SVOCs at the site through the proper application of scientific and engineering principles.

The following proposed remedial objectives selected for this site were developed to mitigate the impacts to the groundwater and the environment from soil contaminated by VOCs. They are intended to supplement the IRMs implemented at the facility.

## 7.5 General Response Actions

General Response Actions that could potentially meet the Remedial Alternatives Objectives are:

- No Action with Monitoring

- Soil Excavation
- *In-situ* Soil and Groundwater Treatment
- Site Control
- Combination of the above

## 8.0 IDENTIFICATION AND SCREENING OF TECHNOLOGY TYPES AND PROCESS OPTIONS

### 8.1 Identification and Screening of Technologies

The goal of this step in the remedial selection process is to identify technically feasible options for each General Response Action that can be used to form and ultimately select Remedial Alternatives. The evaluation begins with consideration of the No-Action strategy, to provide a baseline against which other strategies can be compared. Technologies and process options for each of the general response actions are presented in Section 8. Descriptions of these technology types and actions are discussed in the remainder of this section. Screening decisions related to technical implementability at the site are also provided. The remedial alternatives are considered in the context of the IRMs already instituted at the facility.

The no-action strategy assumes that there will be no change to the existing conditions and that the carbon filtration units would not be maintained.

### 8.1.1 No Action/Passive Remediation

No remedial action would occur under this strategy. Any improvement in groundwater quality would be the result of natural degradation of existing contamination. These processes include biodegradation, volatilization, photolysis, sorption, dispersion, and dilution. This option is clearly implementable, however, the RAO's would not be met because the carbon filtration units would not be maintained. This option will be carried through the screening procedure for comparison purposes.

### 8.1.2 Source Removal

The waste oil tanks were determined to be a potential source area. IRMs including soil removal have been implemented in the vicinity of the tanks. The IRMs were reasonably successful. The bulk of the source in the vicinity of the tanks has been removed with some exceptions. Some residual source could not be removed under and adjacent to the building foundation on the south side of the tank grave. Influx of septic water into the second tank grave limited full excavation of the SVOC impacted soil in the second tank area. The purpose of the source removal action was to prevent mechanical transport of the contaminants via infiltration and minimize volatilization from impacted zones. The removal action was implemented as an IRM but is not feasible or practical with respect to the remaining impacts. The contaminant levels near the diffuser system are not above the TAGM 4046 cleanup guidance values and the material adjacent to the foundation could not be removed because it would cause structural instability under the building. This method will not be considered further. The only remaining impacts are likely to be some low-level VOCs, CVOCs, and SVOCs in the soil and groundwater. Chlorinated compounds may be present but were at levels below the method specific detection limits. However, in some cases, the dilution limits were higher than preferred.

### 8.1.3 Passive or Active Reactive Wall Treatments

Subsurface passive barriers such as slurry walls, sheet pile walls, vitrified walls, and grout curtains are typically employed to contain contaminants and redirect shallow groundwater flow. Active reactive barriers isolate the contaminated media, prevent contaminant migration, and additionally react/sorb with the contaminants to reduce their concentrations in groundwater. Reactive walls typically involve the addition of granulated activated carbon, high surface area zero valence iron, organo-clays, zeolites, and inorganic oxides that increase the sorption ability or reactivity of the barrier. For effective isolation, the barrier should be keyed into an impervious layer; a bottom grout seal can be used in the absence of an impermeable layer and barriers are commonly used in conjunction with a cap system for complete encapsulation. The variable nature of the bedrock surface suggests that these techniques may be difficult to implement. Shallow groundwater wasn't encountered in appreciable quantities in the unconsolidated soils and therefore, is not a significant factor. Shallow water observed in the diffusers probably was generated as a result of sanitary waste disposal. Consequently, these techniques have little applicability in this environment so they are not considered further.

### 8.1.4 *In-situ* Soil and Groundwater Treatment

#### *In-Situ* Bioremediation

In-situ bioremediation relies on the natural degradation of organic compounds by microorganisms that already exist in the subsurface. *In-situ* bioremediation involves managing the environment in which these microorganisms exist so that biodegradation rates are increased and the contaminants of concern are more rapidly removed. This involves providing an environment to the subsurface to promote anaerobic or aerobic digestion by adding nutrients, and controlling temperature, pH, and water content. In general, if these parameters are maintained at reasonably optimum levels then microbial degradation is enhanced. The low permeability of the soil and bedrock surrounding the diffusers may prevent these agents from being sufficiently distributed into the bedrock aquifer; however, bioremediation has application under the conditions encountered at the Greer site. Aerobic and anaerobic degradation methods in tandem will be considered.

Naturally occurring biodegradation through microbial activity is ongoing and may effectively be removing compounds from the soil and groundwater surrounding the diffuser system but certain benefits may be available by enhancing naturally occurring processes.

Enhanced biodegradation can occur through the addition of Hydrogen Release Compounds (HRC) or Oxygen Release Compounds (ORC). Under this option, the injection of a HRC into the source region soils and source region well couplet will stimulate the degradation of chlorinated solvents through the timed release of lactic acid. Anaerobic microbes metabolize the lactic acid, which results in very low concentrations of dissolved hydrogen. Subsurface microbes will then use the hydrogen to strip the solvents of their chlorine atoms, expediting the natural decay process, which degrades the solvents into breakdown products. HRC is designed to react over a one-year period, Injection will be coupled with groundwater monitoring of the onsite wells to measure groundwater improvement throughout the year.

ORC performs the same function as the HRC but instead targets gasoline and oil range compounds by enhancing the rate of aerobic biodegradation. HRC injection will be followed with ORC at a later stage after de-chlorination of the solvents. However, the last two compound reductions (dichloroethene (DCE) to vinyl chloride to ethane (non-chlorinated)) occur faster through aerobic degradation (Lewis et al., 1998), so ORC can be injected when DCE is the predominant constituent. Oxygen is released at a very slow, controlled rate when hydrated which increases the dissolved oxygen concentrations and enhances biodegradation rates (Suthersan, 1997). Injection of ORC would occur between six months to one year after HRC injection

Biodegradation may also be enhanced by the addition of nutrients to the diffuser system. There are commercially available products that have been shown to be effective in removing BTEX compounds from soil and groundwater. This has some applicability and is relatively straightforward to implement and will receive further consideration.

<u>Soil Vapor Extraction</u>

This technique is used to extract volatile organic compounds from the vadose zone. Soil vapor extraction involves removing air from the subsurface using a blower/pump system. As a result of air flowing through the soil, VOCs are removed from the soil matrix and transferred to the gaseous phase. This technique relies on compounds having favorable physical properties, including high vapor pressure (compound prefers being in vapor phase), low aqueous solubility (compound prefers not to be in water, prefers vapor phase), and low values for the Henry's law constant (compound prefers vapor phase). Soil vapor extraction systems are not as efficient in lower permeability formations due to the more tortuous path that air must travel. Site conditions and limitations on excavation imposed by the building foundation dictate that soil vapor extraction (SVE) be considered in those areas of the site where impacted soil could not be excavated. Setups for SVE systems have been installed in Tank Pit #1 and will be considered further.

Air Sparging

Air sparging is a remedial technique that involves the introduction of air into the saturated zone in an effort to remove volatile organic compounds from groundwater. Multiple air sparging points are commonly established to increase the lateral extent of the treatment systems zone of influence. This technique will not be effective at this site because saturated soils were encountered in sufficient quantities to render this method effective. This method will not be considered further.

Vacuum-Enhanced Recovery

This technique uses both water and air as transporting agents to treat contaminated groundwater. Special high vacuum pumps are used to create a strong vacuum in a well (24 in Hg compared to 3 to 6 in Hg obtained from conventional vacuum blowers, Palmer, P.L. 1996). This pressure gradient when coupled with gravitational forces increases the amount of groundwater recovery. This technique is not likely to be applicable due to the permeability characteristics of the bedrock aquifer and is not considered further.

Bioventing

Bioventing involves increasing the volume of air (oxygen) that migrates through the vadose zone and capillary fringe region so that microbial degradation of contaminants is promoted. Soil air is introduced at wells that are installed across the vadose and capillary fringe zones. Bioventing introduces much lower airflows into the ground compared to the volumes moved through a soil vapor extraction system. This low volume of air is designed to supply enough oxygen for biodegradation processes, therefore limiting the amount of volatilization occurring in the soils. This technique is already ongoing and, by default, bioventing is incorporated into the remedial action objectives. Employment of an active system may include injection of oxygen in the gaseous phase into the subsurface as gases will more easily diffuse into lower permeable soils. Furthermore, monitoring gases in the subsurface soils (oxygen, carbon dioxide and/or methane) during remediation can reveal whether or not microbial activity has increased above pre-remediation levels. Some of the contaminants are dissolved in groundwater and bioventing is restricted to the vadose and capillary fringe regions. Contaminants have ostensibly been removed from the source region so there is little reason to utilize this method. There is no traditional vadose or capillary fringe so this method has little direct applicability. This process requires an oxygen flux through the contaminated soils matching the rates of active, aerobic biodegradation in those soils and soil moisture between 40-60% of the field capacity (Suthersan, 1997). These soil moisture conditions do not exist under current conditions. The use of naturally bioventing is ongoing and incorporated into the final mix or enhanced by the use of SVE.

### *In-situ* Soil Flushing

This remedial technique involves the addition of water or a surfactant to the impacted soil to enhance the mobility of contaminants and ultimately improve removal rates. Groundwater recovery wells are established downgradient from the impacted area that collect and remove contaminated groundwater from the subsurface. The groundwater is then disposed of or treated at the surface. Soil flushing is most effective when the contaminants of concern have low octanol-water partition coefficients, high aqueous solubility, and low soil-water partition coefficients. In addition, optimum performance is achieved when the soil has a high porosity. The compounds of concern at the site do not possess these physical properties and the porosity of the soil is estimated to be ten percent or less. As a result, *in-situ* Soil Flushing would not be an effective technique in satisfying the remedial action objectives and groundwater SCGs.

### Pumping Wells/Recovery Wells

Pumping wells at this site could be drilled and screened in the bedrock aquifer. The installation of pumping wells can be used to create a capture zone. The variable hydraulic conductivity of the bedrock aquifer will affect the radius of influence of any recovery wells. The zone of influence may effectively contain the contaminant plume but there are no guarantees that the plume would be captured. This technique may be improved by using techniques to enhance the hydraulic conductivity of the formation (i.e. hydro-fracturing). A pilot-pumping test of the onsite-monitoring well (MW-5) could be performed to determine the effective radius of influence of monitoring wells, and any local homeowner wells will be evaluated to determine the limits and map the capture zone.

The existing production wells are currently entraining, to some extent, the impacted groundwater and providing a means for treatment. So, in effect, pump and treat is already used to control the plume. There is no suitable location to discharge treated water in this area so this method may not be practical but will be evaluated because it has potential.

### 8.1.5 Site Control and Carbon Filtration Maintenance

No remedial technology would be implemented under this strategy, other than those already employed. The source was removed when the oil water separator was cleaned and decommissioned. Residual petroleum impacts reside in the area surrounding the diffusers. Any improvement in groundwater quality would be the result of natural degradation of existing contamination. This alternative involves the continued use of carbon filtration on the two nearby impacted wells. This strategy is clearly implementable, however, there is no assurance that the groundwater SCGs will be met within any predictable time frame. This option meets the remedial action objectives and it will be carried through the detailed screening analysis.

## 9.0 DEVELOPMENT AND SCREENING OF ALTERNATIVES

### 9.1 Introduction

The general types of Remedial Alternatives can include no action, limited action, containment and control, source removal with *ex-situ* treatment and/or off-site disposal, and *in-situ* source area treatment. Based on the remedial objectives and general response actions selected for the Greer Toyota site and technology screening presented in the previous section, Remedial Alternatives are developed in this section for the site. The possible alternatives may incorporate several components discussed in the previous section in order to meet the RAOs. At this stage, the Alternatives are described and screened on the basis of 1) long-term effectiveness, 2) reduction of toxicity/mobility/volume, 3) short-term effectiveness, 4) implementability, and 5) cost. Final recommendations are selected to remain consistent with the overall program criteria to 1) protect human health and the environment and to 2) comply with SCGs for the site.

### 9.2 General Site Considerations

The following sections describe possible remedial scenarios for the Greer Toyota site. However, an equally important consideration must be given to the fact that this facility has ongoing business concerns. Whatever remedial alternative is selected must take the business concerns under consideration. The remedial alternatives were selected to meet the RAOs while providing minimal disruption to the daily business operation.

The impacted area is currently used for automobile storage. Also, the existing diffuser system is actively in use as part of the sanitary waste management system.

## 9.3 Remedial Alternatives

### 9.3.1 Remedial Alternative 1 – No Action

No remedial action of any sort would take place under this alternative. Any change or improvement in soil and/or groundwater quality would be the result of natural degradation of existing contamination. Risks to human health and the environment from the overburden plume exist because the groundwater standards are exceeded and this alternative assumes that the carbon filtration units are removed. Other risk factors are minimal since the only potential human receptors would be workers involved with short-term excavation projects.

This alternative involves no monitoring or remediation of any conditions at the site and assumes that the carbon filtration units would no longer be used. Although this option could be implemented, it provides no mitigation to existing problems and relies on naturally occurring processes. There would be no reduction in the toxicity and mobility of the contaminants and potential health risk factors that do not exist under the current scenario would surface. There are no foreseeable costs associated with this alternative but it does not meet the overall objectives of Title 5 and does not insure compliance with the SCGs.

This alternative can easily be implemented. However, there is no assurance that the soil and groundwater SCGs will be attained within any predictable time frame. The no action alternative will be included in the detailed screening and analysis of alternatives.

### 9.3.3 Alternative 2 – Source Removal

IRMs have been implemented to remove obviously impacted soils surrounding the waste oil tanks. To the extent possible and practical, all but a small amount of residual source adjacent to or beneath the footprint of the building has been removed. Some residual source may remain in the vicinity of the diffusers but it cannot be removed without causing significant hardship to the owner of the facility.

Since the IRM's removed the bulk of the contaminated soil from the suspected source area, this alternative includes excavation of an unknown quantity of petroleum-impacted soil around the existing diffuser system. This would greatly inconvenience an ongoing commercial business establishment. Given the levels of impacts observed in the diffuser region, little real benefit would be gained. No CVOCs or VOCs were found above the soil cleanup guidance values established in TAGM #4046. Technically, no soils require excavation. The minimal short-term risks to human health and the environment associated with the compounds found in the vicinity of the diffusers would be eliminated through excavation; however, levels below the SCGs are defined as being non-threatening to the environment. This alternative would have little effect on impacted groundwater.

It is apparent that the existing diffuser system was constructed by excavating into relatively impermeable soils and that bedrock is very shallow in the areas immediately to the west of the diffuser system. Impacted soil, if present, is likely to be limited to the backfill placed around the diffusers. Some residual petroleum impacts may be present in the fractured rock surrounding the diffusers, but these could not be removed via excavation. Consequently, this alternative does not eliminate the long-term threat to human health and the environment associated with VOCs in groundwater since VOCs are already mobilized in the bedrock aquifer.

A major expense is required under this alternative for the excavation. The removal of the diffusers, testing soils in the field and the removal, transport, and disposal of impacted soil would cost approximately $75,000 to $100,000. It is not likely that any substantial, immediate change in groundwater quality would be observed based on the nature of the bedrock aquifer so carbon filtration would still be necessary for an extended period.

This alternative will be reviewed further. This alternative provides some reduction in risk because a source if present, would be removed, but based on the recently obtained groundwater evidence, there would be little improvement in long-term water quality so the threat of ingestion still remains.

### In-Situ Source Removal

The introduction of bioremediation enhancement agents such HRC and ORC the source region may reduce the levels of chlorinated solvents and BTEX compounds currently observed. HRC/ORC injection would occur through a perforated PVC pipe installed in the waste oil tank grave during backfilling as well as in the bedrock monitoring wells MW-5 and MW-6, installed in August 2001 near the suspected source area. The use of bioremediation enhancement agents would effectively mitigate impacts to both soil and groundwater. Based on observed chemistry data, chemical injection could be effectively implemented for approximately $25,000 to $75,000 with subsequent O&M costing approximately $7,500. Total cost in present dollars would be approximately $300,000.

### 9.3.4 Alternative 3 – Groundwater Pump and Treat

Under this alternative, VOCs and SVOCs in the bedrock aquifer would be contained and controlled by hydraulic methods. Since this alternative would not include any source removal, improvements in groundwater quality would result primarily from dispersion and dilution as naturally replenished groundwater flowing through the source area would continually be removed. As detailed in the no action alternative (Section 9.3.1), risks to human health and the environment are low for the impacted aquifers, assuming continued use of the carbon filtration units. It is anticipated that this alternative would involve semi-annual monitoring of down-gradient wells. Samples would be analyzed using EPA methods 8260.

This alternative could utilize the recently installed bedrock wells as pump and treat wells. The deep well, MW-5, could be used as a bedrock recovery well downgradient from the breakthrough area. The discharge from the well would be run through an air stripping treatment system. MW-5 is in a suitable location to act as a bedrock recovery well based on the distribution of contaminants reaching the bedrock aquifer. A pilot aquifer tests would be performed to determine the hydraulic properties of the capture zone. An estimated groundwater removal rate of approximately one to five gallons per minute is likely.

The impacted groundwater would be treated via an air-stripping unit or carbon filtration and be discharged to an unknown location (perhaps the existing source area). The estimated cost for installing a bedrock recovery well and an air-stripping unit would be $50,000. Costs for long term monitoring would be approximately $6,000 per year for 30 years. Operation and maintenance costs for the next 30 years would be approximately $6,500 per year. Total costs in present dollars for this alternative, would be approximately $450,000.

This alternative is implementable. However, the effectiveness of bedrock recovery wells in this area may be marginal due to the limited permeability of the formation. This method may not meet the SCGs for the site. Carbon would still be required on the impacted residents. Consideration of a pilot test to determine effectiveness will be included in the detailed screening and analysis in Section 10.0.

### 9.3.5 Alternative 4 – Site Control and Carbon Filtration

This alternative is essentially a no action alternative except that it includes continued maintenance of the existing carbon filtration units and improvements to the site that reduce infiltration into the source region. It should be noted, however, that the suspected source region is coupled to the existing subsurface disposal system so there will always be at least some flows to the area. The existing carbon filtration systems effectively manage CVOCs and eliminate potential health risks.

These methods demonstrate short-term and long-term effectiveness regarding VOC and SVOC contaminant protection/reduction and can be implemented readily.

The minimal risks to human health and the environment associated with the source region would be eliminated through this combined approach. This approach takes advantage of naturally occurring attenuation and provides point of use protection. Groundwater samples would be collected periodically to confirm that the cleanup objectives were being met.

Since this alternative eliminates the long-term threat to human health, long-term monitoring needs would be greatly reduced. Current contaminant levels suggest that the carbon filtration units have an effective half-life of over five years. Follow up samples could be obtained bi-annually to ensure that breakthrough has not occurred.

Expenses to date and in the future associated with this approach would be on the order of $200,000 and annual O&M costs would be approximately $4,000 to maintain the carbon units for up to ten years. Limited monitoring costs for the duration of systems operations are expected to be on the order of $6,000 annually for up to ten years. The cost in present dollars to implement this alternative would be approximately $160,000.

This alternative will be reviewed further.

### 9.4 Alternatives Screening Summary

The previous text sections have evaluated remedial alternatives including the no-action alternative and several more aggressive alternatives for the project area. This sub-section summarizes the findings of this section and indicates which remedial alternatives will be subjected to more detailed evaluation in Section 10.0. All Technology Types not screened out in Section 8 but not needed in one of the Alternatives in this section will no longer be considered in this Remedial Alternatives assessment.

Alternatives appropriate for further consideration include the no-action alternative (to serve as a comparative baseline), and several others discussed above. In developing the Alternatives summarized above, the following considerations were generally applicable:

1. No chlorinated VOCs were encountered in any of the borings installed around the diffuser system. BTEX compounds were present but at very low levels.

2. Bedrock conditions at the site make it impractical to consider direct source removal as a viable alternative. These methods all appear to pose relatively high costs given the intended use of the facility. Source removal through the injection of ORC will have some benefit with respect to the BTEX compounds but would not effectively address chlorinated solvents in groundwater, instead, HRC would be needed to remove chlorinated solvents.

3. Recent analysis of soil chemistry in borings around the waste oil tank location suggests that chlorinated solvents at low levels, and gasoline range contaminants remain and are present as residual product adhering to soil grains and as dissolved material in groundwater.

With these considerations in mind, three Alternatives and the No Action Alternative will be considered in Section 10.0.

## 10.0 DETAILED ANALYSIS OF ALTERNATIVES

In this section, each Alternative passing the screening process of the previous section is defined in more detail and evaluated in terms of the following criteria:

- Overall protectiveness of human health and the environment.
- Compliance with SCGs, including action-specific, and location-specific SCGs.
- Long-term effectiveness and permanence, focusing on the reliability and adequacy of controls
- Reduction in toxicity, mobility, or volume.
- Short-term effectiveness, focusing on the protection of community, workers, and environment during remedial actions.
- Implementability
- Cost (capital cost, annual operation and maintenance costs)

### 10.1 Alternative 1 – No Action

#### 10.1.1 Overall Protectiveness of Human Health and Environment

Protectiveness of human health and the environment under the no action alternative would not be ensured unless natural attenuation of existing contamination in site groundwater is occurring. The groundwater plume is migrating in a northwesterly direction. Contaminant levels are likely to reduce more rapidly as a result of the IRM's implemented for the source region.

There is little risk to human health from VOCs in soil or overburden groundwater except during short-term excavation activities. Based on shallow VOC headspace concentrations detected, airborne VOC concentrations in shallow excavations less than approximately 6 feet below grade would not be greater than Permissible Exposure Limits (PELs) established by OSHA. The overburden groundwater would present a human health risk if it were used for potable and non-potable water sources. Shallow groundwater is not used as a potable water supply because, characteristically, the overburden soils do not produce usable quantities of potable water.

Nonetheless, the no action alternative does not reduce toxicity or mobility of the CVOCs in groundwater and does not provide protection to the bedrock groundwater beneath the site. Therefore, this alternative cannot be considered protective of human health.

### 10.1.2 Compliance with SCGs

The no action alternative would not meet the soil cleanup objectives or groundwater quality standards published in TAGM #4046 and 6 NYCRR, Part 700 – 706, respectively. Therefore, this alternative does not result in rapid compliance with chemical-specific SCGs although long-term VOC attenuation would eventually lead to this result.

Any future improvements in soil or groundwater quality would be the result of natural degradation, dispersion and dilution processes. The time frame for SCGs to be attained under this alternative is difficult to estimate. The VOCs in the soil and water matrix may require up to 30 or more years to reach SCGs.

### 10.1.3 Long Term Effectiveness and Permanence

The no action alternative would result in a slow decline in groundwater VOC concentrations over time. The source area is currently being depleted of the mass of VOCs and, therefore, the levels of VOCs in groundwater will diminish over time. The existing VOCs appear to be predominantly in the dissolved phase. This alternative does not impose plume management and so the potential exists for the dissolved VOCs to continue to impact the downgradient water supply wells. Without carbon filtration, consumption of the groundwater presents a risk. Therefore, this alternative cannot be considered to include permanent remediation.

### 10.1.4 Reduction of Toxicity, Mobility, or Volume

This alternative does not employ treatment techniques to reduce the toxicity and volume of VOCs. All reductions in the mass and toxicity of VOCs would occur as a result of natural degradation processes. This alternative also does not provide any type of containment to reduce mobility of contaminants.

### 10.1.5 Short-Term Effectiveness

This alternative would not be effective in protecting human health and the environment in the short term because there are risks of VOC exposures via consumption of impacted groundwater.

### 10.1.6 Implementability

There are no implementability concerns (technical feasibility, administrative feasibility, and service and material availability) regarding this alternative since no action would be taken.

### 10.1.7 Cost

With the exception of long-term monitoring costs, there would be no cost associated with this alternative since no action is being taken.

## 10.2 Alternative 2 - Source Removal via *In-Situ* Bioremediation and SVE

### 10.2.1 Overall Protectiveness of Human Health and Environment

This alternative includes HRC/ORC injection in the waste oil tank grave area, ORC injection in the diffuser system area and the operation of an SVE system in the waste oil tank grave. It does not include additional excavation since there is only a limited amount of permeable backfill around the diffusers that could be effectively removed. This method would be moderately effective with respect to impacts in the bedrock surface although only through dispersion of the bioremediation enhancement agents.

The highest potential risk to human health is ingestion of impacted groundwater. Some minor exposure pathways exist to construction workers in temporary excavations. The groundwater risk pathway is addressed indirectly by this method because the bioremediation process can occur in both the unsaturated and saturated zones.

SVE systems have some application in the former tank grave area. HRC/ORC compound injection could address the residual impacts in soils and groundwater.

### 10.2.2 Compliance with SCGs

Under this alternative, the overburden soils would be brought into compliance with the SCGs outlined in TAGM #4046. Compliance may be obtained through active reduction and enhanced naturally occurring attenuation, with existing chlorinated solvent groundwater standards published in 6 NYCRR, Part 700 - 706. Compliance may also be possible with the BTEX standards.

### 10.2.3 Long Term Effectiveness and Permanence

The risk of human health exposure to VOC contaminants in the soils and water would be addressed, but the time frame for compliance is unknown. Improvement in groundwater quality would occur over time and result from natural degradation, dispersion and dilution of impacts, therefore, this method can potentially be considered to include permanent remedy.

### 10.2.4 Reduction of Toxicity, Mobility, or Volume

This alternative does employ techniques to reduce the volume of CVOCs, VOCs and SVOCs, however, reductions in the contaminant levels observed in groundwater would occur slowly as a result of natural degradation processes.

### 10.2.5 Short-Term Effectiveness

This alternative would provide limited protection of human health and the environment in the short term. During the short-term construction phase, protection of workers and the environment would be accomplished through adherence to OSHA standards. This alternative could be implemented immediately following a Record of Decision.

### 10.2.6 Implementability

The various actions included in this alternative are clearly implementable and structures are already installed to ensure straightforward implementation. The injection of bioremediation enhancement agents (HRC/ORC) in the tank graves and diffusers and impacted soil is feasible and given the current site conditions would be effective in controlling long-term migration of contaminants. Operation of the SVE system would effectively remove some residual source in the areas adjacent to the building foundation.

### 10.2.7 Cost

Total costs in present dollars for implementation of this alternative would be approximately $150,000 but the benefits versus costs would be marginal.

ORC injection would cost approximately $50,000 but, once again, the benefit would focus on the BTEX concentrations not the chlorinated hydrocarbons.

## 10.3 Alternative 3 – Groundwater Pump and Treat

Under this alternative, CVOCs, VOCs and SVOCs in the bedrock aquifer would be contained and controlled by hydraulic methods. Since this alternative would not include any source removal, improvements in groundwater quality would result primarily from dispersion and dilution as naturally replenished groundwater flowing through the source area would continually be removed. During the most recent investigation, groundwater was shown to reside primarily within bedrock fractures below the site, with an occasional perched water table in the first few feet of overburden above the bedrock surface. Contaminants within overburden soils and upper fractures are occasionally mobilized when either groundwater levels rise into this zone or surface water/precipitation percolates downward through this region. A pump and treat system would limit the possibility of contamination migrating away from the source area. This option will enhance the groundwater quality downgradient of the remediation wells, by capturing impacted groundwater before it migrated away from the source region. Risks to human health and the environment are low assuming continued use of the carbon filtration units. A pilot test may be warranted to evaluate the overall effectiveness of this approach.

### 10.3.1 Overall Protectiveness of Human Health and Environment

This alternative includes the installation of a pump and treat well to limit the potential for off-site contaminant migration. The highest potential risk to human health is ingestion of impacted groundwater. This method does not eliminate that risk but may reduce the risk by reducing the levels of contaminated groundwater migrating away from the site. It is likely that carbon filtration would be required for some undefined period of time. The exposure risk associated with contaminated soils is not addressed by this method, nor is source reduction.

### 10.3.2 Compliance with SCGs

Under this alternative, the overburden soils would not be brought into compliance with the SCGs outlined in TAGM #4046. No compliance would be obtained, except through naturally occurring attenuation, with groundwater standards published in 6 NYCRR, Part 700 - 706. If the system were 100% effective, it would prevent off-site migration, thereby removing the health risks associated with ingesting impacted groundwater at the downgradient properties. 100% interception is unlikely, so the threats associated with ingestion still remain, although greatly reduced.

### 10.3.3 Long Term Effectiveness and Permanence

The risk of human health exposure to VOC contaminants in the soils and water would not be addressed. The system has long-term effectiveness associated with it, but, the only improvements would result from reduced infiltration, natural degradation, dispersion and dilution and, therefore, cannot be considered to include permanent remediation.

### 10.3.4 Reduction of Toxicity, Mobility, or Volume

This alternative does employ techniques to reduce the volume mobility and, therefore, toxicity of VOCs, however, reductions in the contaminant levels observed in groundwater would occur as a result of natural degradation processes and the removal process.

### 10.3.5 Short-Term Effectiveness

This alternative would provide limited protection of human health and the environment in the short term. During the short-term construction phase, protection of workers and the environment would be accomplished through adherence to OSHA standards. This alternative could be implemented immediately following a Record of Decision.

### 10.3.6 Implementability

The various actions included in this alternative are clearly implementable. The installation of a pump and treat system is feasible; however, given the current site conditions could be only marginally effective in controlling migration of contaminants.

### 10.3.7 Cost

Total costs in present dollars for implementation of this alternative would be approximately $375,000-$450,000, including monitoring.

## 10.4 Alternative 4 – Site Control and Carbon Filtration

### 10.4.1 Overall Protectiveness of Human Health and Environment

This alternative is very similar to the no action alternative except that the carbon filtration units will be maintained. This alternative mitigates the most significant health risk by providing point of use treatment.

The risk to human health and the environment during short-term excavation activities results from CVOCs in the overburden aquifer and impacted soils/sediments.

### 10.4.2 Compliance with SCGs

This alternative provides no direct compliance with SCGs other than it mitigates potential groundwater issues by providing point of use treatment. This alternative does not meet the criteria outlined in TAGM#4046. Any improvements in soil or groundwater quality would result from natural attenuation, dilution, dispersion and degradation of the VOCs.

### 10.4.3 Long Term Effectiveness and Permanence

This alternative is very effective at removing the most significant human health risk factors and does so as long as the carbon filtration units are maintained. Therefore, this alternative can be considered to provide permanent remediation.

### 10.4.4 Reduction of Toxicity, Mobility, or Volume

The system would reduce the volume of CVOC contaminants in the impacted soils and the overburden groundwater aquifer via natural attenuation.

### 10.4.5 Short-Term Effectiveness

This alternative would be effective in protecting human health and the environment in the short term. This alternative could be implemented immediately following a Record of Decision.

### 10.4.6 Implementability

The various actions included in this alternative are clearly implementable and are, in fact, already operating. The alternative is technically and administratively feasible and the equipment and services are commercially available. Deed restrictions will be required on the property to ensure that equipment association with the implementation of this alternative is maintained in the future.

### 10.4.7 Cost

Greer Toyota is already funding this remedial alternative. Total annual costs are approximately $15,000. Estimated costs in current dollars would be approximately $300,000.

## 10.5 Recommended Alternative

Previous sections provided analysis of each remedial alternative for the Greer Toyota site. This section summarizes the comparative analyses and identifies a preferred alternative for the site.

### 10.5.1 Overall Protectiveness of Human Health & the Environment

The no action alternative currently poses an unacceptable risk to human health and the environment assuming the carbon filtration units are discontinued; however, there is no assurance that future impacts may not occur. Alternative 2 and 3 seeks to aggressively mitigate contaminants found on the site and thus limit their potential future impact on human health and the environment. Alternative 3 does not address source, but attempts to reduce impacts at the off-site receptors. Alternative 4 provides mitigation effectively and can be implemented but does not address the source areas. As a result, Alternative 1 is not recommended but chemical injection and SVE systems of Alternative 2 would provide effective mitigation and reduce the contaminant load in a cost effective manner.

### 10.5.2 Compliance with SCGs

None of the alternatives provide immediate compliance with the SCGs with exception of Alternative 4, which provides point of use compliance with groundwater standards. Alternatives 2 and 3 provide limited compliance or containment but are not any more effective in the long run than Alternatives 1 and 4. Alternative 2 seeks to contain source areas and so makes SCG soil compliance likely and may actually speed compliance with groundwater standards if HRC/ORC and SVE are used. Alternative 1 does nothing to move the site toward SCG compliance. In summary, a combination of Alternative 2 and Alternative 4 mitigates immediate impacts and gradually moves the site towards compliance.

### 10.5.3 Long-term Effectiveness & Permanence

Alternative 1 provides no assurance of permanent mitigation of the site. Alternative 2 provides long-term containment of the problem, which is likely to permanently assure off-site SCG compliance at some point in the future. Alternative 3 pertains to impacted groundwater but does not include source removal. Alternative 4 permanently removes CVOC and SVOC prior to consumption and mitigates potential health risks. Contaminants dissolved in groundwater remaining after implementation of Alternative 4 will self-mitigate by dilution, dispersion and attenuation. When used in conjunction with source removal via ORC and SVE systems, mitigation and compliance could be achieved sooner.

### 10.5.4 Reduction of Toxicity, Mobility, or Volume

Only Alternatives 2 and 4 lead to reductions in toxicity and volume. Alternative 2 leads to reduction in volume and mobility. Alternative 4 mitigates toxicity issues.

### 10.5.5 Short-Term Effectiveness

Only Alternatives 2 and 4 offer immediate mitigation measures. Alternative 2 does not reduce source area toxicity but does reduce volume. Alternative 4 offers immediate mitigation of health risk associated with ingestion of impacted groundwater but does not deal with the source region.

### 10.5.6 Implementability

Alternative 1 is most easily implemented since it involves no action. Alternative 3 would be very difficult and costly to implement with marginal benefits. Alternatives 2 and 4 require little additional effort and would be effective.

### 10.5.7 Cost

Alternative 1 is the least cost Alternative but offers no long-term or short-term effectiveness, nor any contaminant volume reduction. Alternative 3 is the highest cost Alternative since up front costs for containment are high and compliance monitoring to ensure viability of the containment is high. Alternative 2 has some expense associated with it but can be easily implemented using readily available technology. Alternative 4 is the least cost pro-active remedial alternative with up-front cost for equipment with only limited long-term costs because compliance monitoring is expected to be necessary only on a limited basis and no remedial O&M will be necessary.

## 10.6 Preferred Alternative

Based on the previous discussions, a combination of Alternatives 2 and 4 are preferred and recommended alternatives for this site. Alternative 4 promptly remove contaminants from the groundwater and provide the highest level of protection to human health and the environment. Alternative 2 mitigates source area and addresses groundwater impacts through the injection of HRC/ORC to the earth materials surrounding the former waste oil tanks location. It is also effective in the short- and long-terms in moving the site toward compliance with clean-up SCGs. The volume and mobility of contaminants is reduced and this method is easily implemented. This method pro-actively and appropriately protects human health and the environment by removing potential contaminants from the groundwater.

Alternatives 2 and 4 are reasonably low cost alternatives of those that include a remedial component (e.g. Alternatives 2 through 4). It achieves gradual compliance with SCGs.

Alternatives 2 and 4 are appropriate for this site because it is consistent with the intended use of the land following remediation. The site will be prepared for future light industrial use and any remaining contaminants dissolved in groundwater will self-remediate by dispersion or dilution without significant impact since the area is surrounded by parcels all serviced by municipal water and sewage facilities.

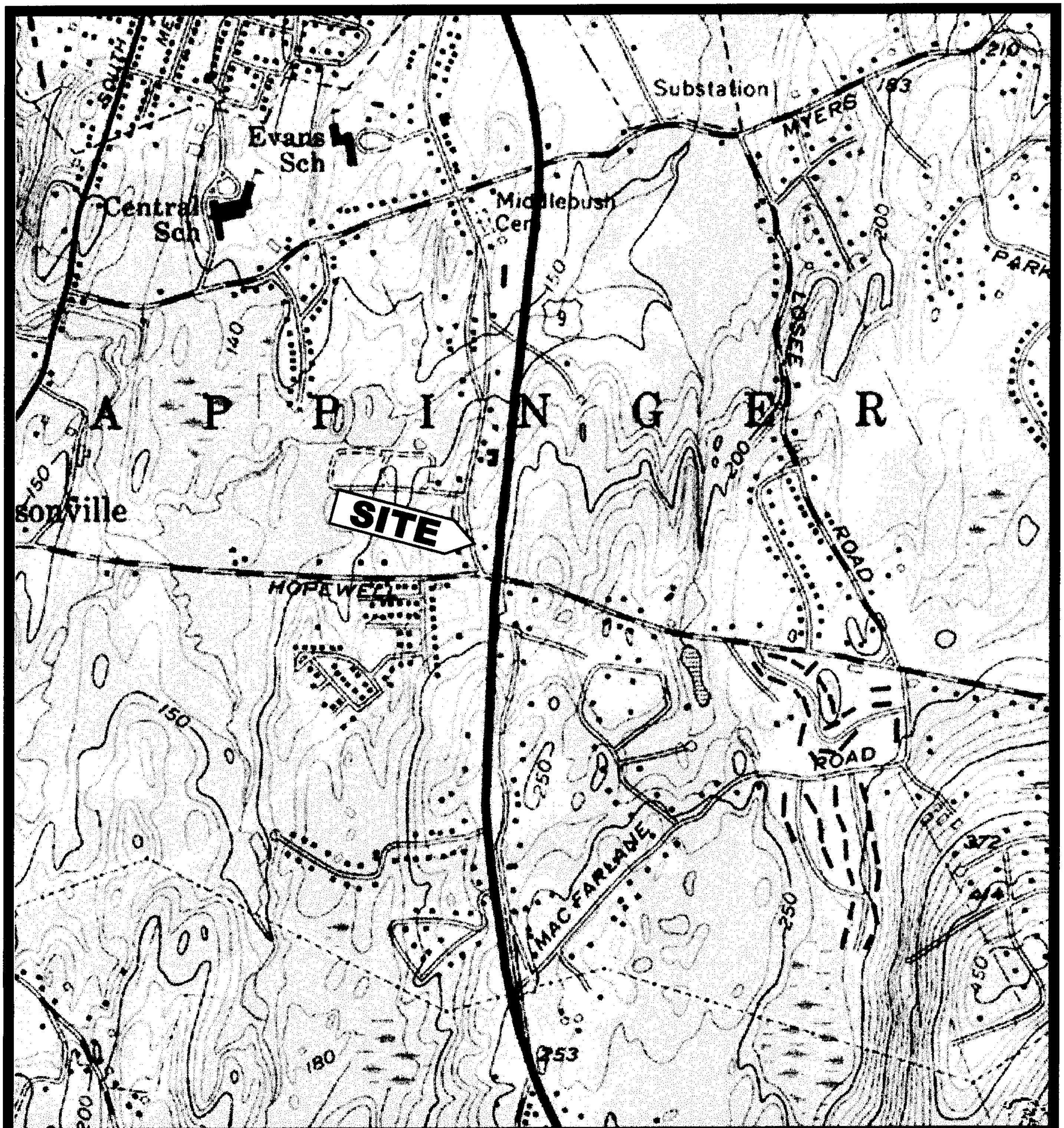
## 11.0 REFERENCES

Lewis, R.F., Dooley, M.A., Johnson, J.C. and Murray, W.A., 1998, "Sequential Anaerobic/Aerobic Biodegradation of Chlorinated Solvents: Pilot-Scale Field Demonstration" in *Designing and Applying Treatment Technologies: Remediation of Chlorinated and Recalcitrant Compounds*, Battelle Press, Columbus, Ohio, pp. 1-7.

Suthersan, Suthan S. (1997) Remediation Engineering Design Concepts. CRC Press Inc.

*X:\4\49799.24\Dan-RIFS Bedrock Wells\RIFS\Greer RIFS 2001.doc*

# FIGURES



Source

USGS Quadrangle; Wappingers Falls

## Figure 1

Scale in Feet

0 1000 2000 3000

## Site Location Map

North

January 2002

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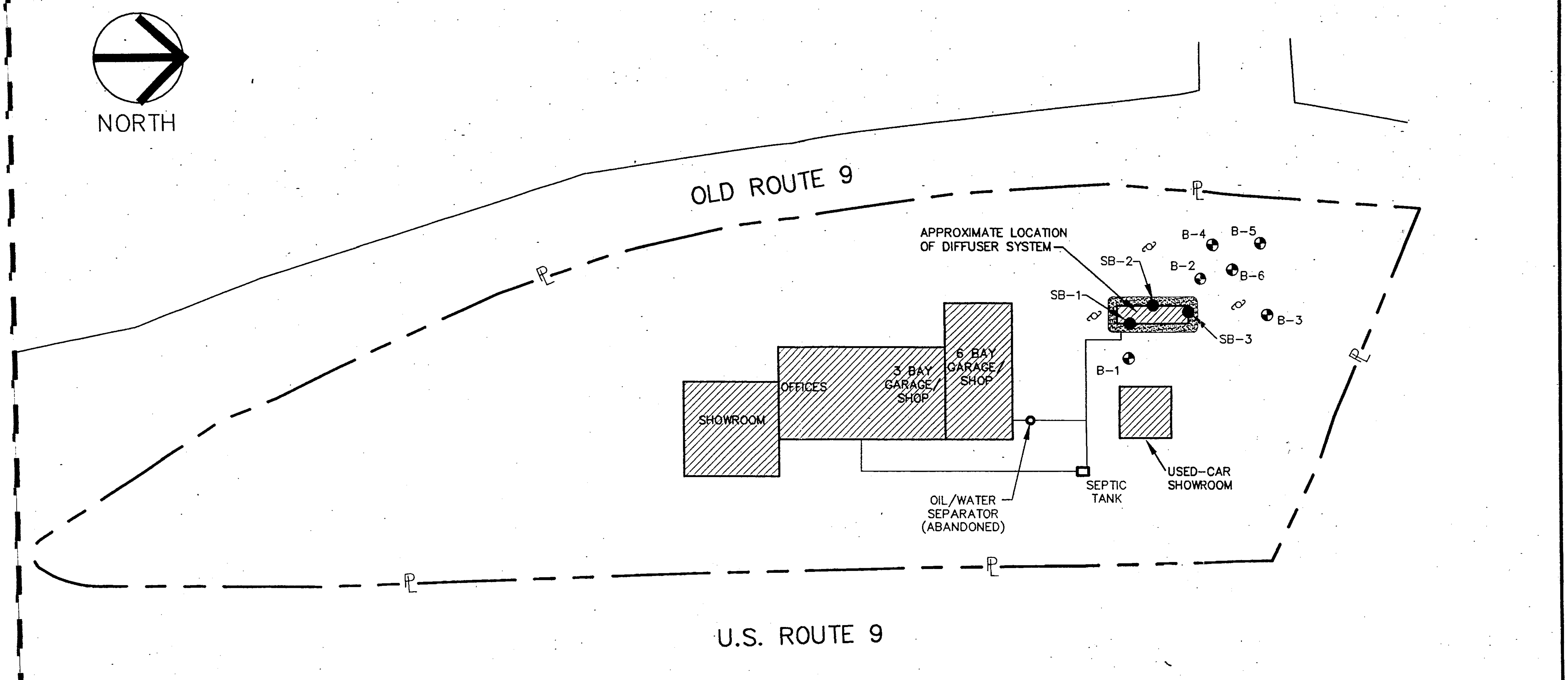
**Greer Site**
**Route 9**
**Wappingers Falls, New York**



● SOIL BORING LOCATIONS – 6/25/99
⊕ BORING LOCATIONS – 4/1/98 & 4/2/98
LIGHT POLE AND FOOTINGS

NOTE:
THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY WEHRAN, EMCON, NORTHEAST, DATED 8/25/94

7/28/99 – ADD SEPTIC TANK
7/6/99 – ADD SOIL BORINGS

THE
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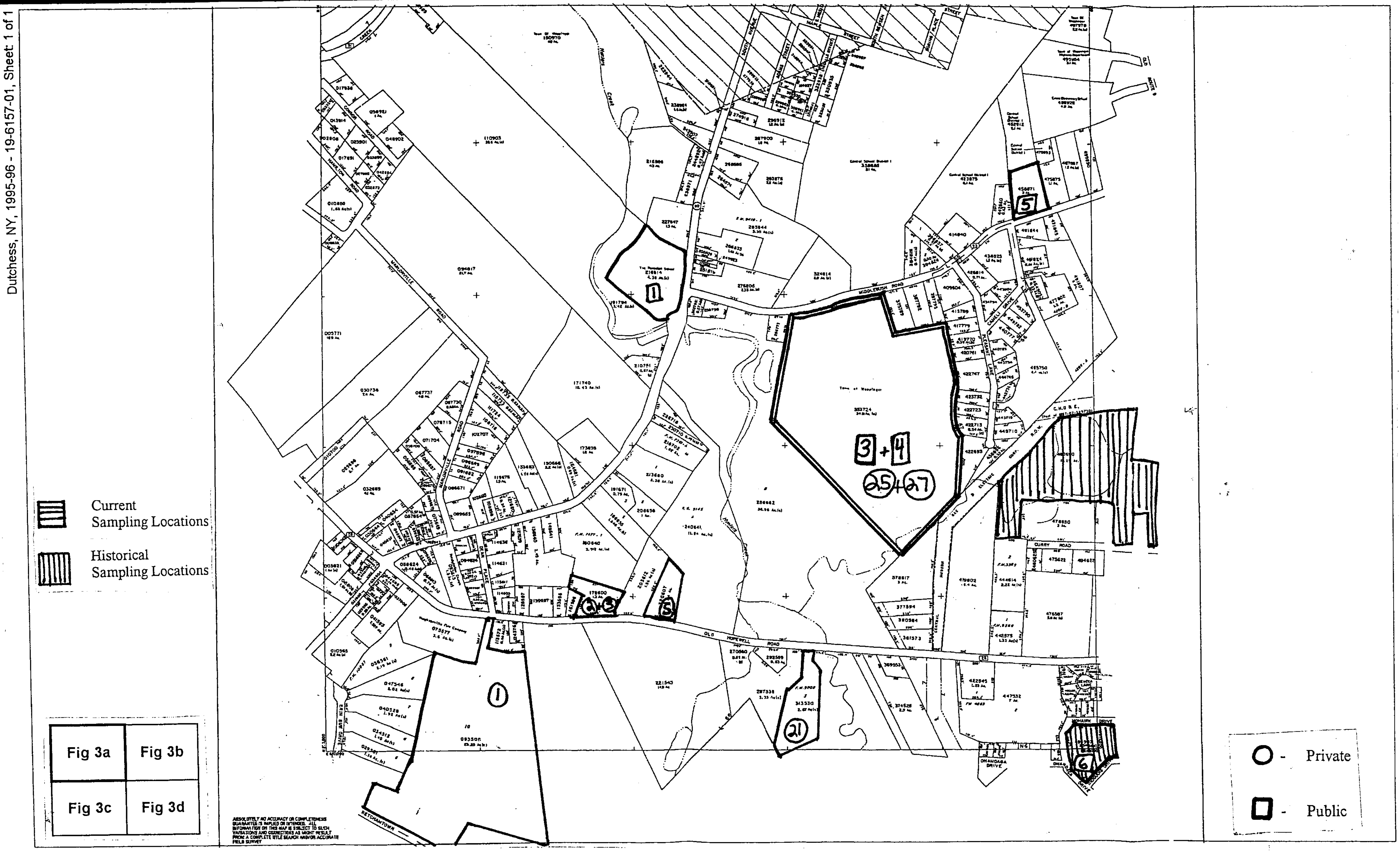
GREER TOYOTA

## REVISED
## SITE MAP

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

| | |
|---|---|
| drawn: JAS | check: A.M.M. |
| date: 6/10/99 | scale: 1"=60' |
| project no. 49799.24 | |
| sheet no. **Figure 2** | |



North

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Chazen
COMPANIES
July, 1999

Scale
Scale not available

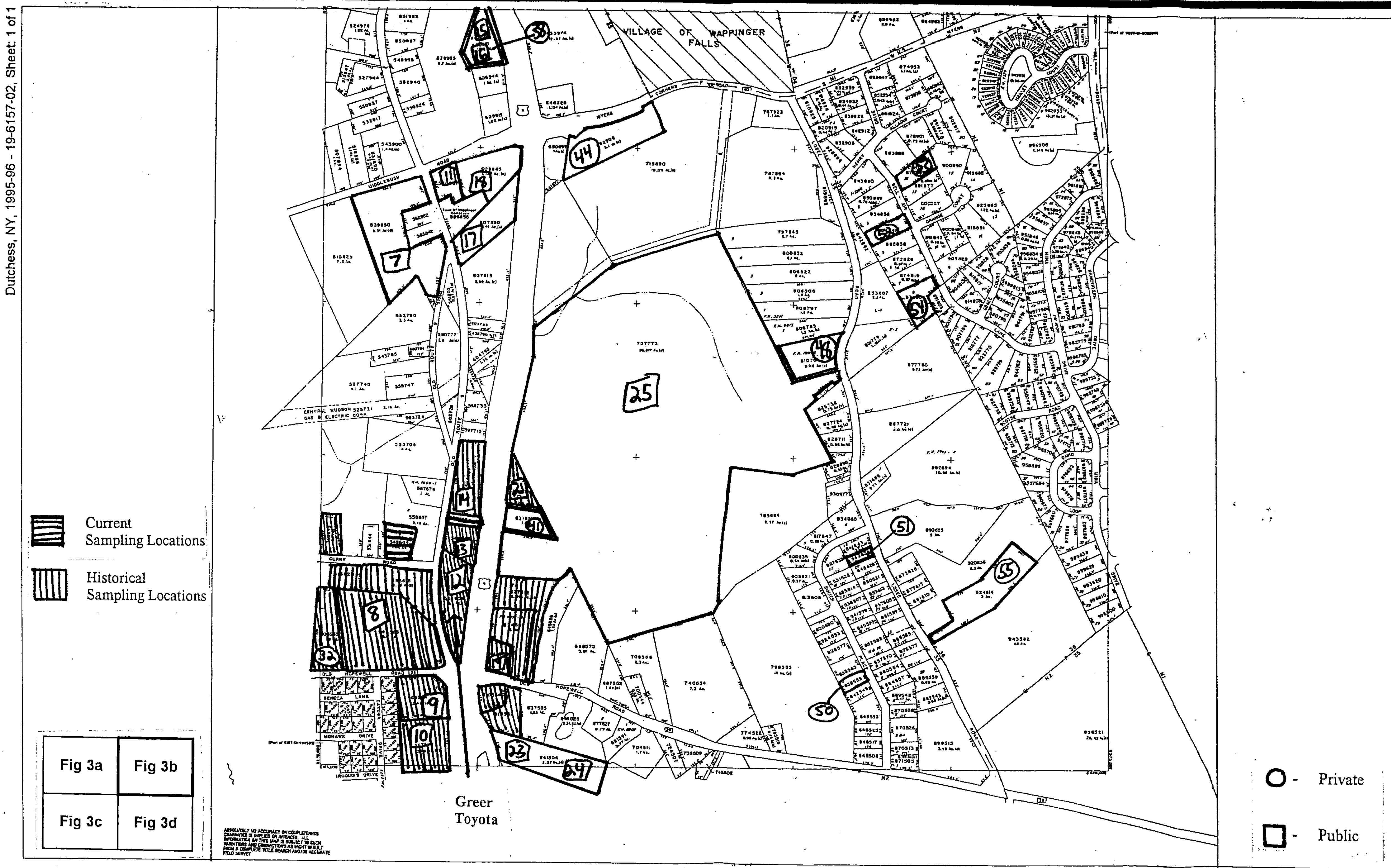
Source
Experian WinData Tax Map 19-6157-01

Greer Toyota
Route 9
Town of Wappinger, New York

Figure 3a

Off Site Well Location Map

Note: Well information is provided on lists of private and public wells within a one (1) mile radius of Greer Toyota. Information was provided by DCDOH.



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|---|---|
| THE Chazen COMPANIES<br>July, 1999 | Scale<br>Scale not available<br>Source<br>Experian WinData Tax Map 19-6157-02 |

North

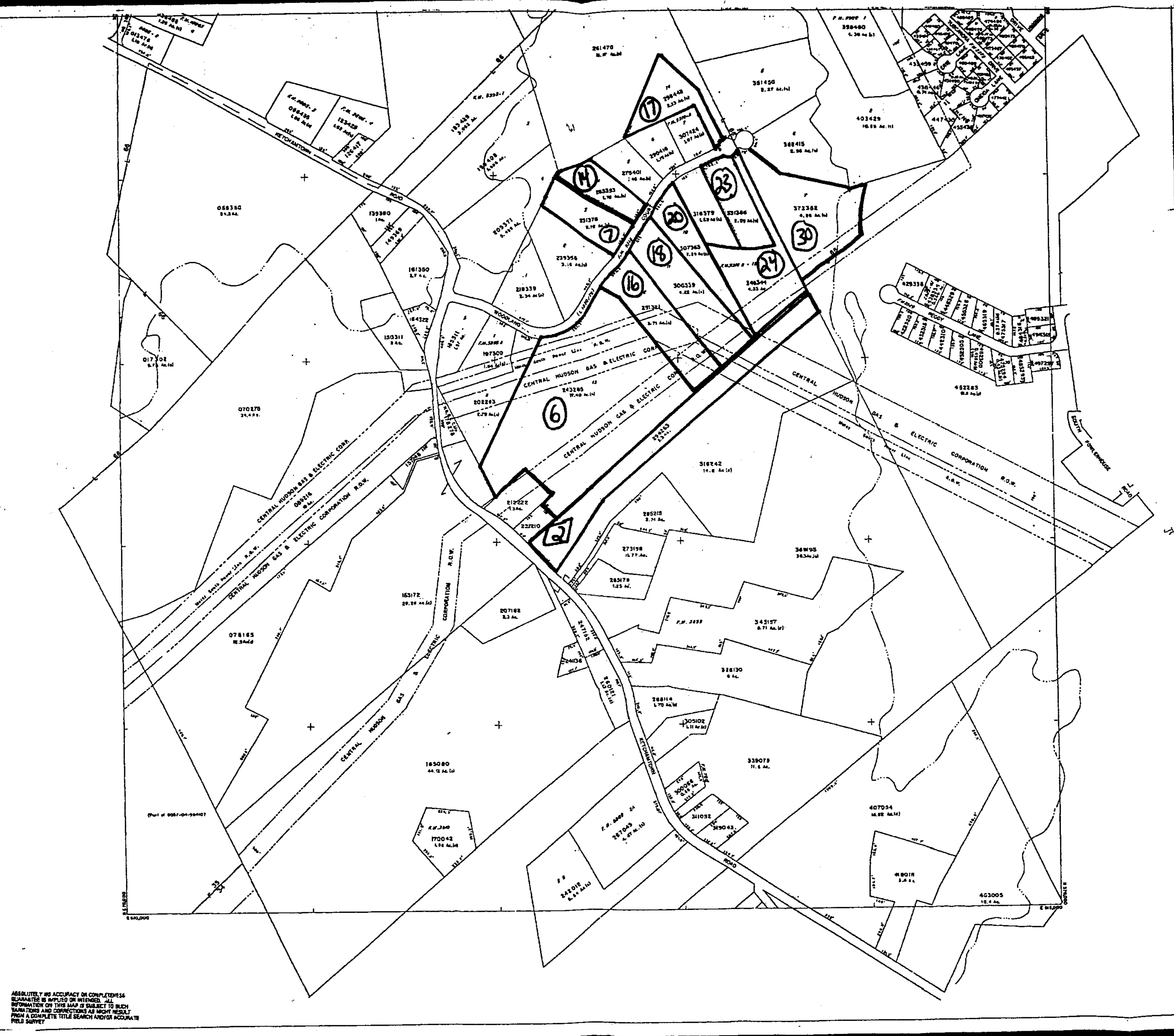
**Greer Toyota**
**Route 9**
**Town of Wappinger, New York**

**Figure 3b**

**Off Site Well Location Map**

Note: Well information is provided on lists of private and public wells within a one (1) mile radius of Greer Toyota. Information was provided by DCDOH.

Dutchess, NY, 1995-96 - 19-6157-03, Sheet: 1 of 1



▤ Current Sampling Locations

▥ Historical Sampling Locations

| | |
|---|---|
| Fig 3a | Fig 3b |
| Fig 3c | Fig 3d |

○ - Private

☐ - Public

North

THE Chazen COMPANIES

July, 1999

Scale
Scale not available

Source
Experian WinData Tax Map 19-6157-03

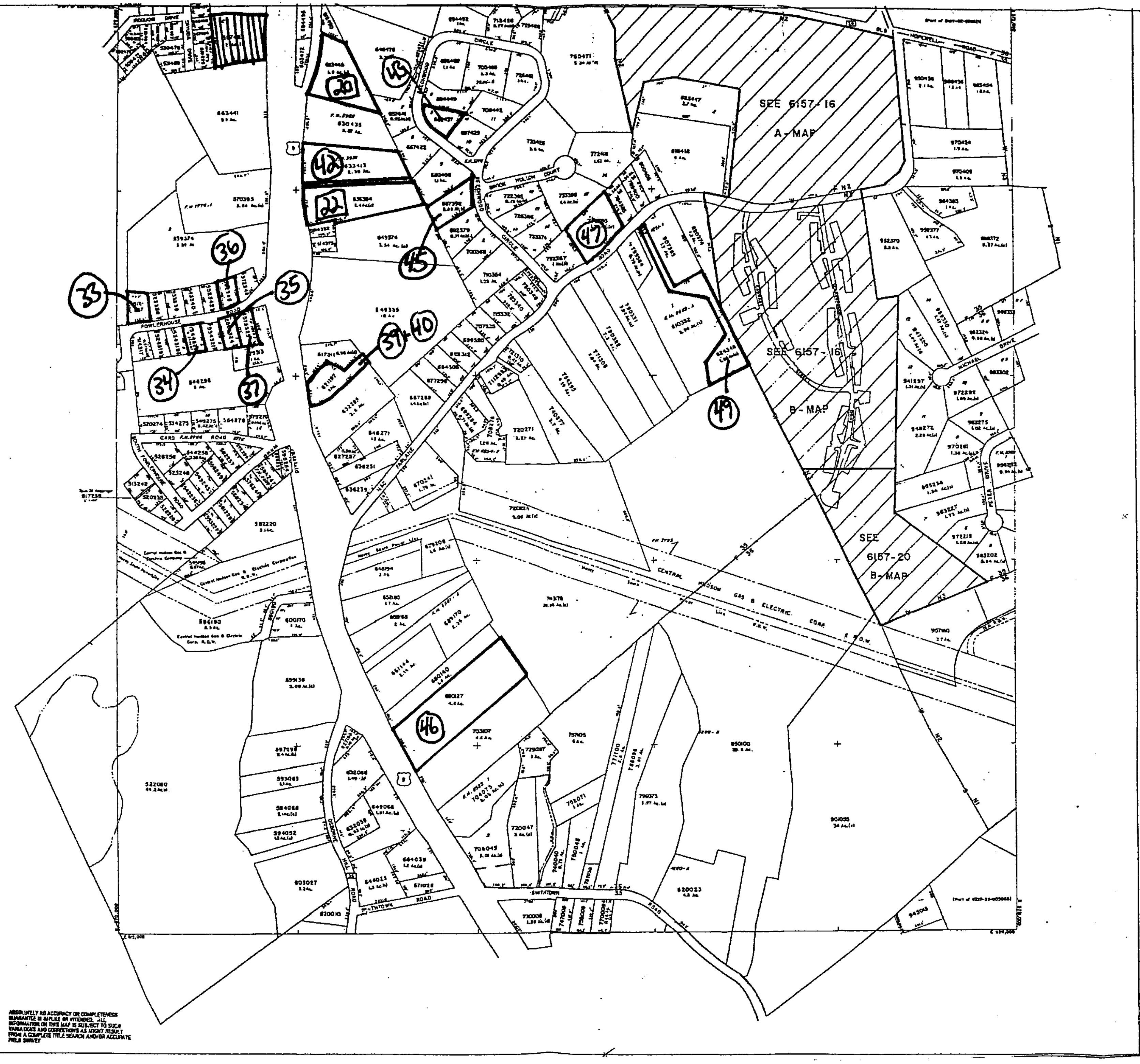
Greer Toyota
Route 9
Town of Wappinger, New York

## Figure 3c

## Off Site Well Location Map

Note: Well information is provided on lists of private and public wells within a one (1) mile radius of Greer Toyota. Information was provided by DCDOH.

Dutchess, NY, 1995-96 - 19-6157-04, Sheet: 1 of 1



▤ Current Sampling Locations

▥ Historical Sampling Locations

| | |
|---|---|
| Fig 3a | Fig 3b |
| Fig 3c | **Fig 3d** |

○ - Private

☐ - Public

North

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July, 1999

Scale
Scale not available

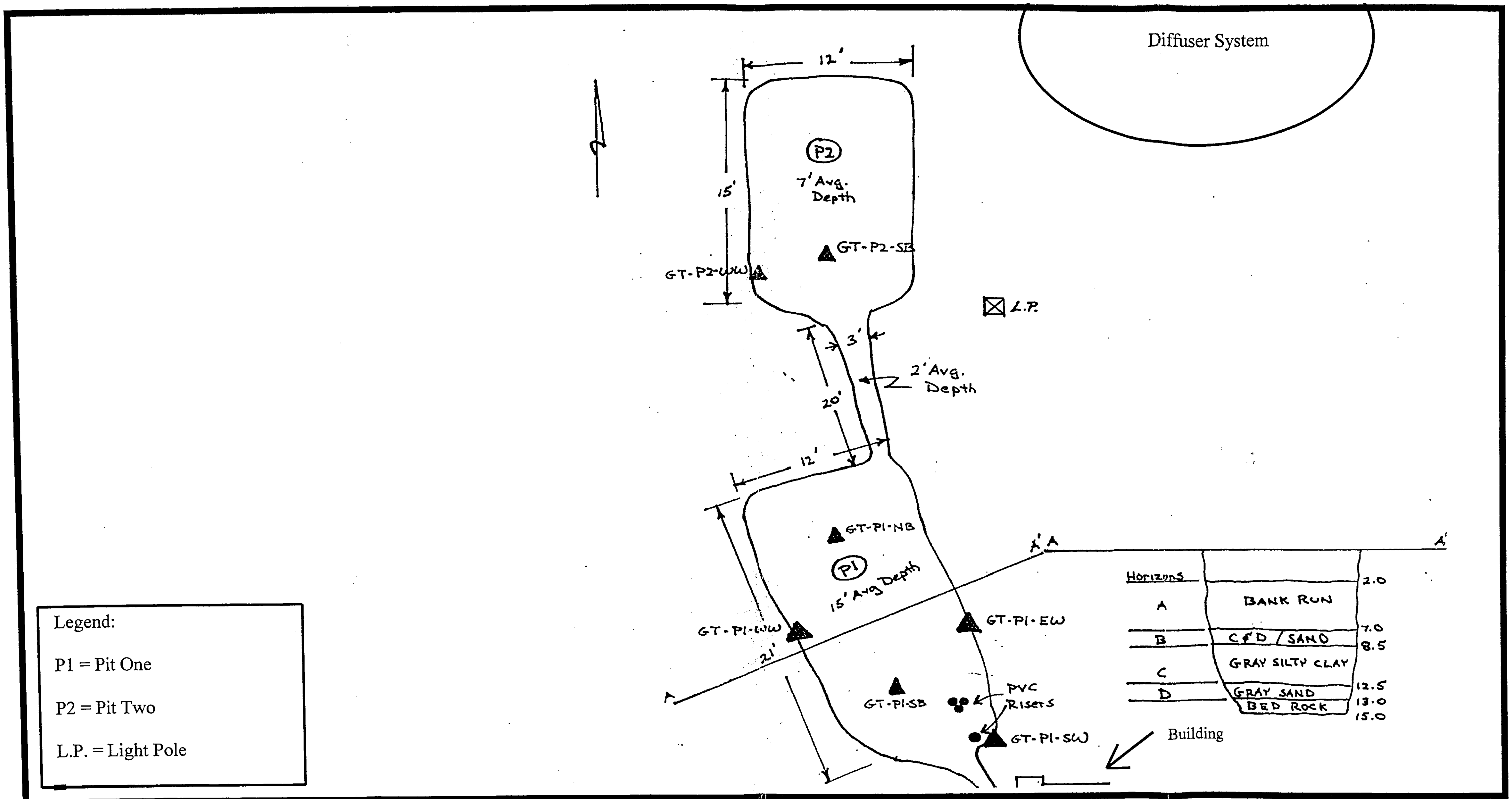
Source
Experian WinData Tax Map 19-6157-04

**Greer Toyota**
**Route 9**
**Town of Wappinger, New York**

## Figure 3d

## Off Site Well Location Map

Note: Well information is provided on lists of private and public wells within a one (1) mile radius of Greer Toyota. Information was provided by DCDOH.



North

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April, 2001

Scale
Scale not available

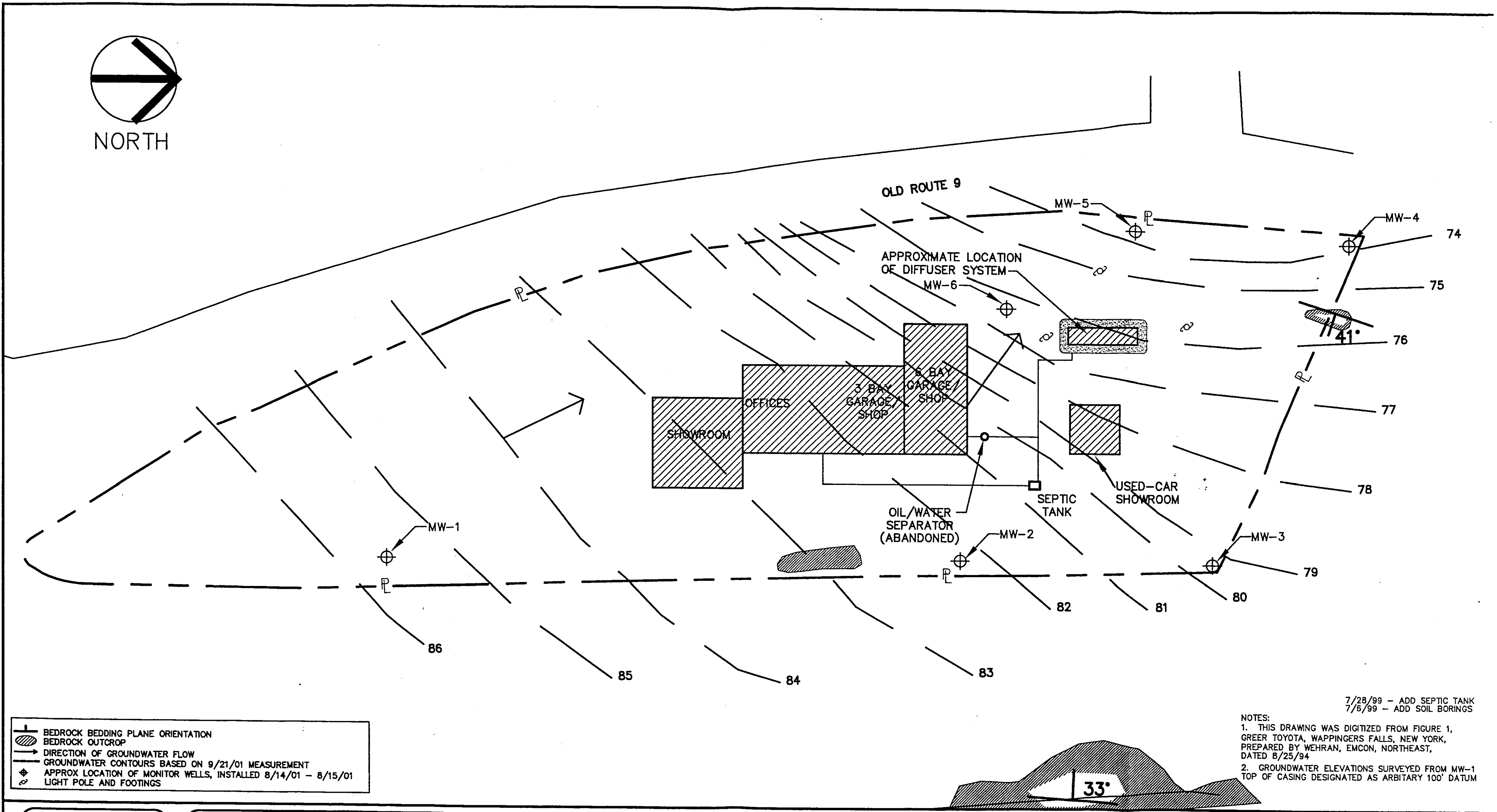
Source
Provided by The Chazen Companies

**Greer Toyota Property**
**Route 9 and Old Hopewell Road**
**Wappingers Falls, New York**

**Figure 4**

**Boundaries of the Tank Excavations and Sample Locations**

PLOT SCALE: 1"=60' – SAVED UCS: PLOT



- BEDROCK BEDDING PLANE ORIENTATION
- ▨ BEDROCK OUTCROP
- → DIRECTION OF GROUNDWATER FLOW
- — GROUNDWATER CONTOURS BASED ON 9/21/01 MEASUREMENT
- ⊕ APPROX LOCATION OF MONITOR WELLS, INSTALLED 8/14/01 – 8/15/01
- LIGHT POLE AND FOOTINGS

7/28/99 – ADD SEPTIC TANK
7/6/99 – ADD SOIL BORINGS

NOTES:
1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY WEHRAN, EMCON, NORTHEAST, DATED 8/25/94
2. GROUNDWATER ELEVATIONS SURVEYED FROM MW-1 TOP OF CASING DESIGNATED AS ARBITARY 100' DATUM

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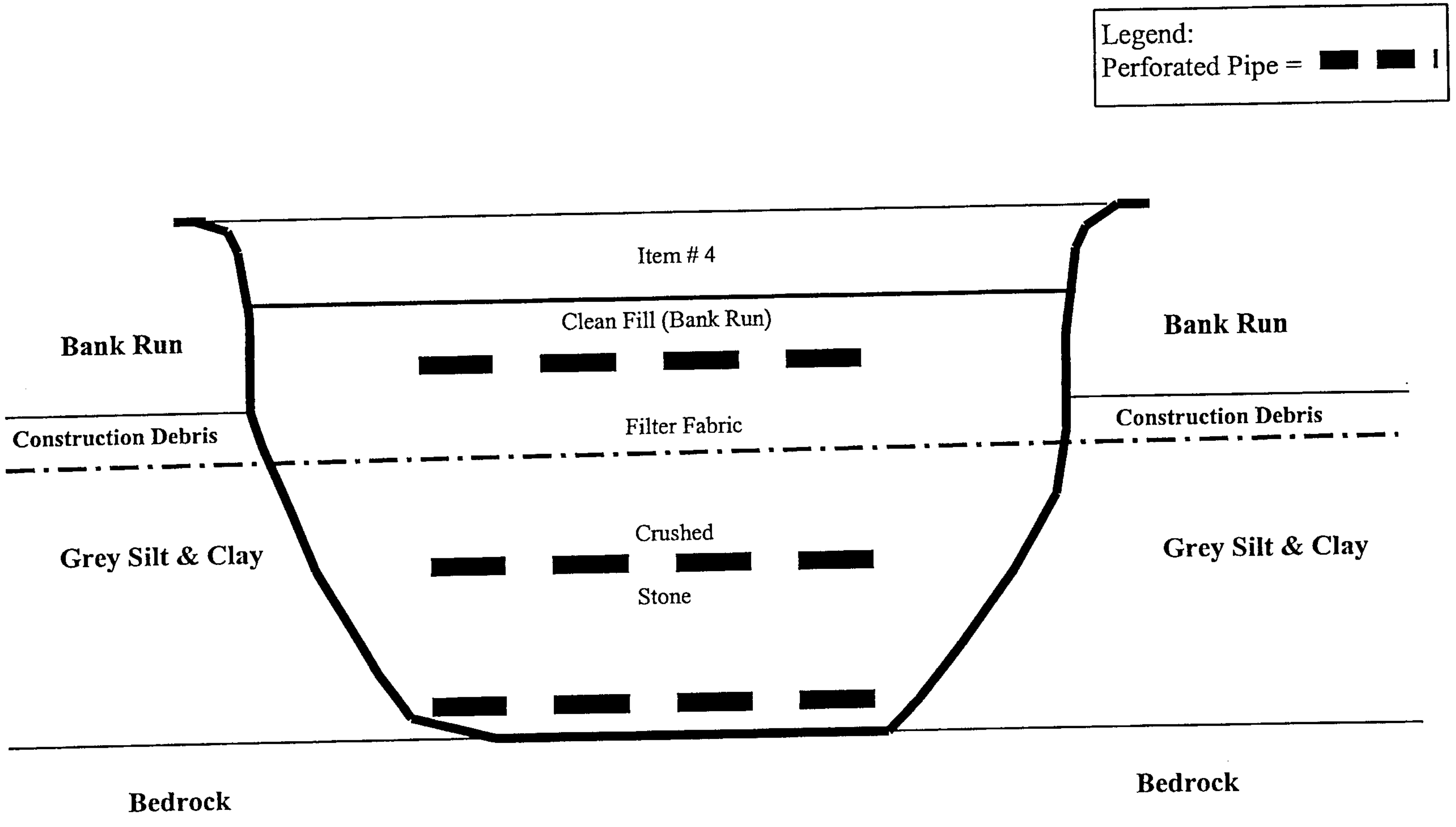
GREER SITE

## GROUNDWATER
## CONTOUR MAP

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

| | |
|---|---|
| drawn: SLG | check: |
| date: 11/14/01 | scale: 1"=60' |
| project no. 49799.24 | |
| sheet no. **Figure 5** | |



North

THE Chazen COMPANIES
April, 2001

Scale
Scale not available

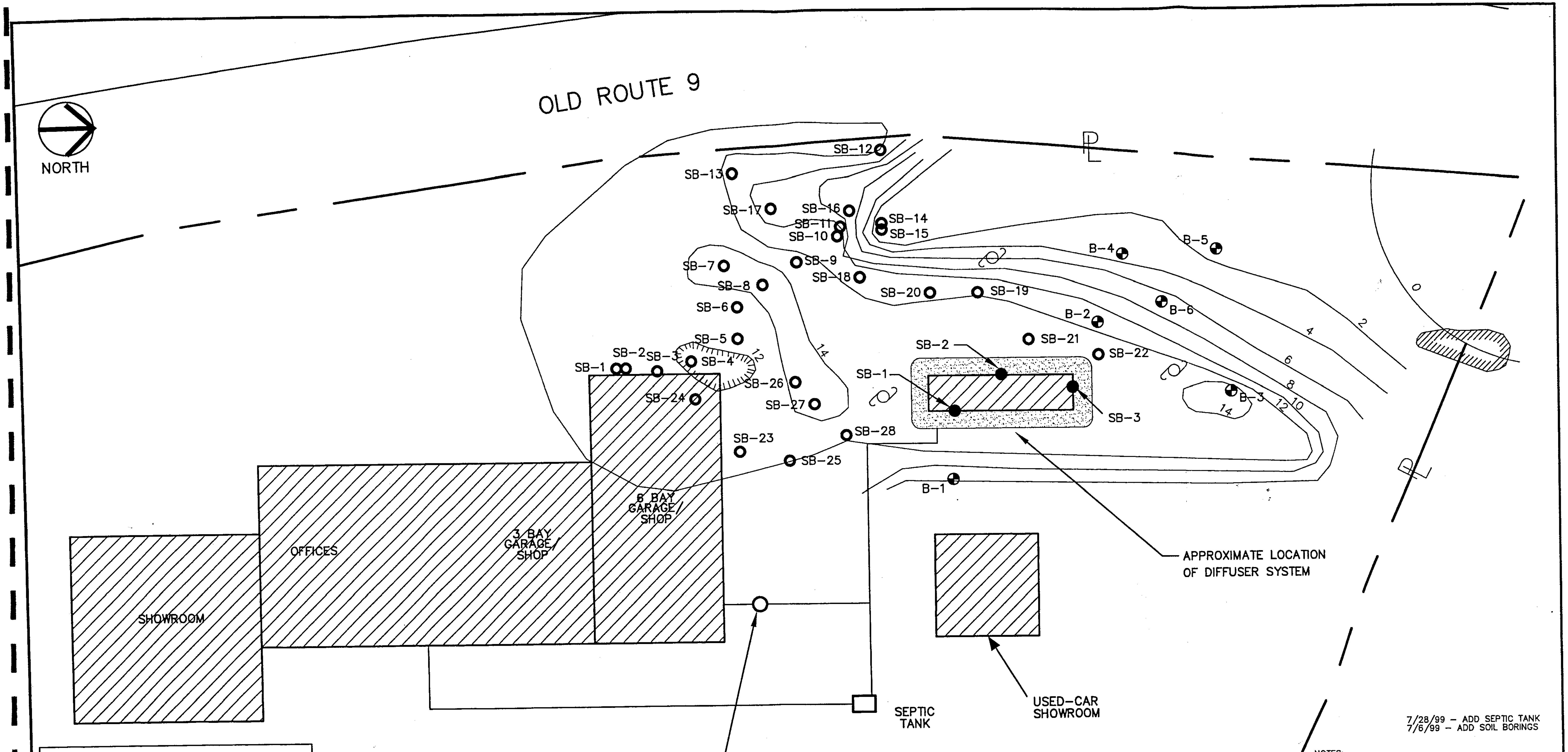
Source
Provided by Chazen Companies

**Greer Toyota Property**
**Route 9 and Old Hopewell Road**
**Wappingers Falls, New York**

**Figure 6**

**Interim Remedial Measures**
**SVE Systems**

x:\ 24\ \GV M/
X-BASE.dwg
PLOT SCALE: 1"=30' – SAVED UCS: PLOT



- ----- DEPTH TO BEDROCK
- ▨ BEDROCK OUTCROP
- ○ SOIL BORING LOCATIONS 08/01/01 & 08/02/01
- ● SOIL BORING LOCATIONS – 6/25/99
- ⊕ BORING LOCATIONS – 4/1/98 & 4/2/98
- LIGHT POLE AND FOOTINGS

7/28/99 – ADD SEPTIC TANK
7/6/99 – ADD SOIL BORINGS

NOTES:
1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY WEHRAN, EMCON, NORTHEAST, DATED 8/25/94
2. GROUNDWATER ELEVATIONS SURVEYED FROM MW-1 TOP OF CASING DESIGNATED AS ARBITARY 100' DATUM

THE
Chazen
COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists

**CHAZEN ENVIRONMENTAL SERVICES, INC.**

*Dutchess County Office:*
Manchester Rd PO Box 3479
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20 Gurley Avenue
Troy, NY 12182
Phone: (518) 235-8050

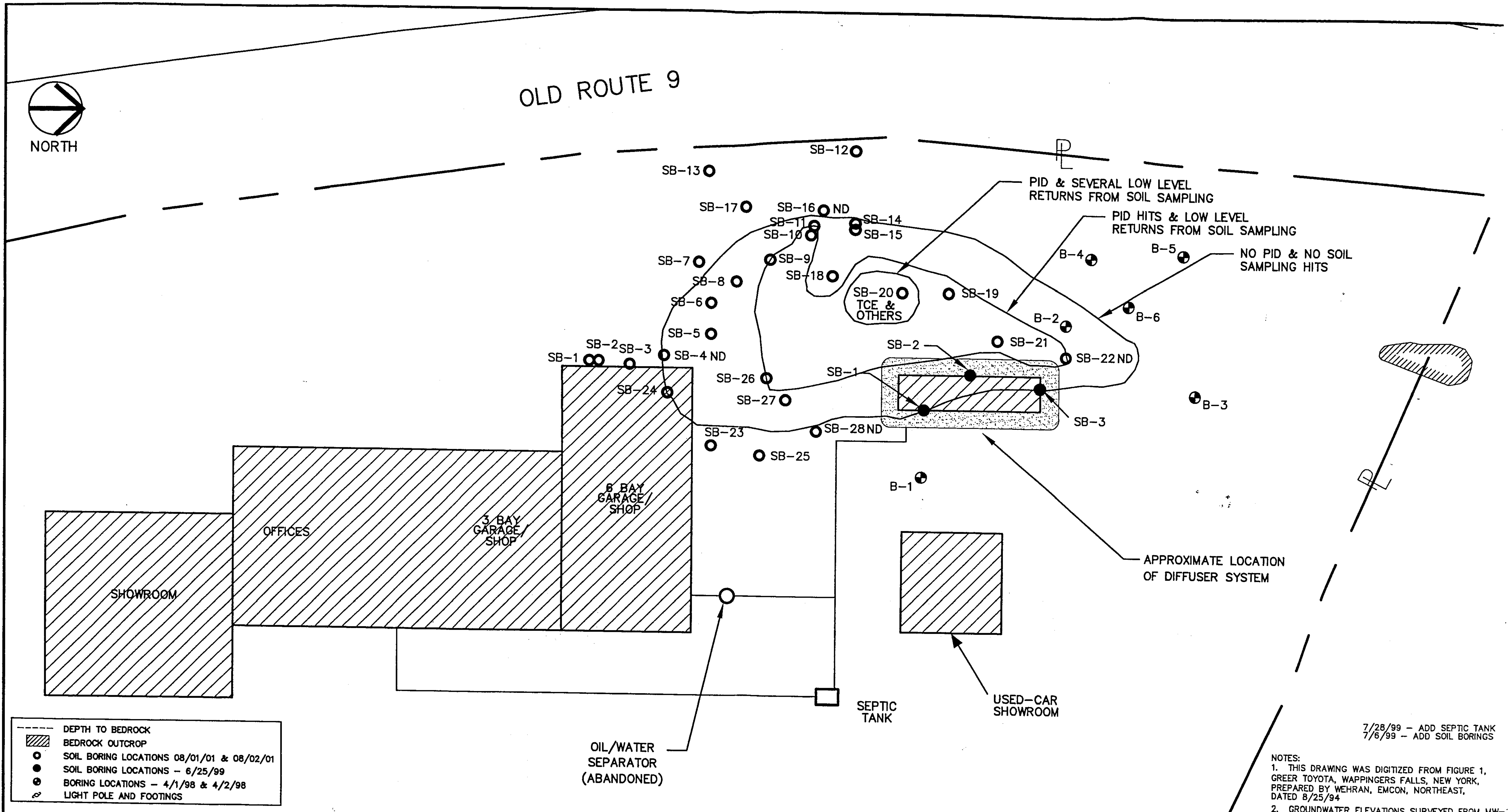
*North Country Office:*
110 Glen Street
Glens Falls, NY 12801
Phone: (518) 235-8050

GREER AITE

## SOIL BORING
## LOCATION MAP

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

| | |
|---|---|
| drawn: SLG | check: |
| date: 11/14/01 | scale: 1"=30' |
| project no. 49799.24 | |
| sheet no. Figure 7 | |



7/28/99 - ADD SEPTIC TANK
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NOTES:
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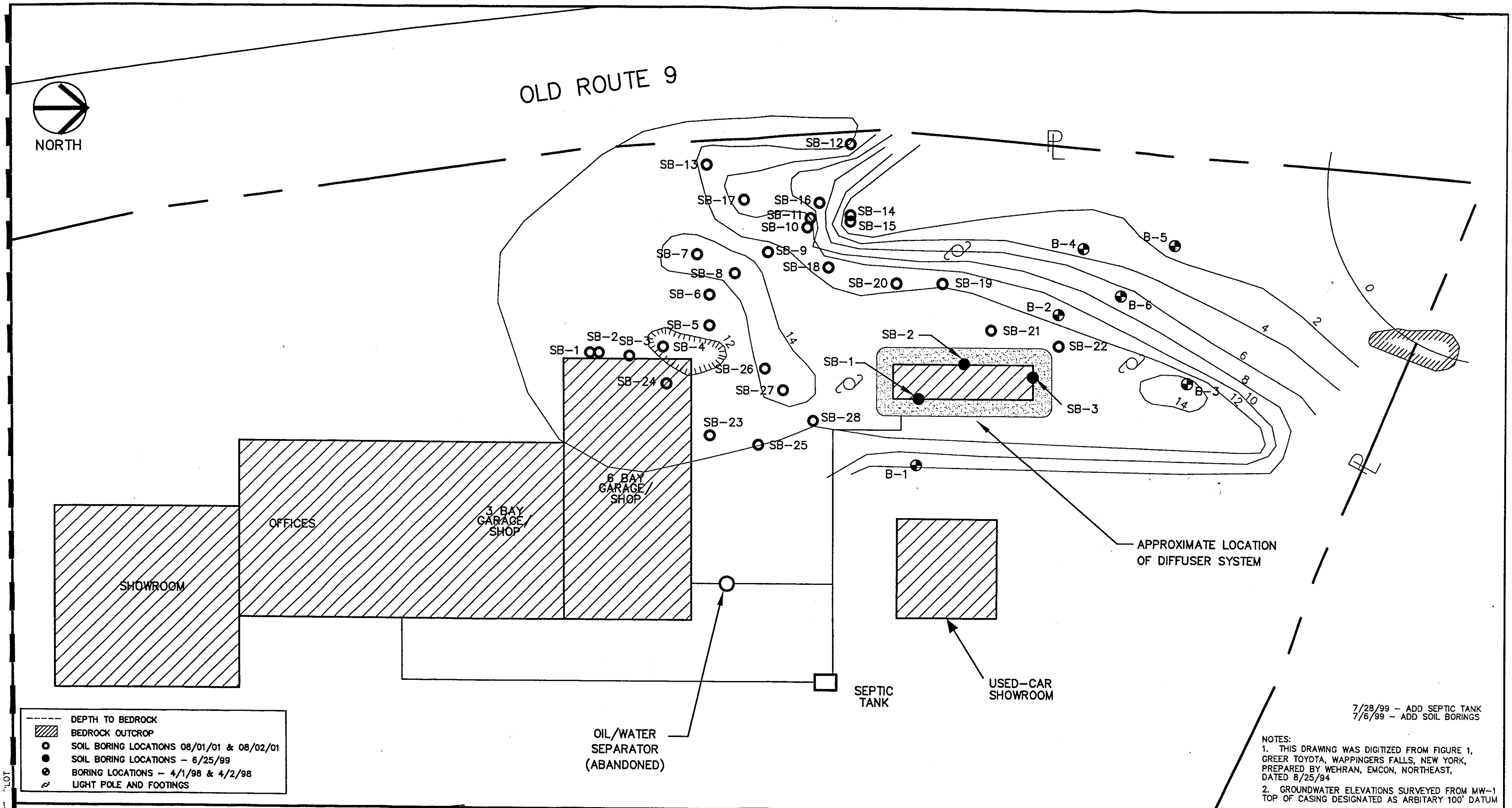
GREER SITE

# EXTENT OF SOIL CONTAMINATION

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

| drawn: | check: |
|---|---|
| SLG | |
| date: | scale: |
| 11/14/01 | 1"=30' |
| project no. | |
| 49799.24 | |
| sheet no. | |
| Figure 8 | |



7/28/99 – ADD SEPTIC TANK
7/6/99 – ADD SOIL BORINGS

NOTES:
1. THIS DRAWING WAS DIGITIZED FROM FIGURE 1, GREER TOYOTA, WAPPINGERS FALLS, NEW YORK, PREPARED BY WEHRAN, EMCON, NORTHEAST, DATED 8/25/94
2. GROUNDWATER ELEVATIONS SURVEYED FROM MW-1 TOP OF CASING DESIGNATED AS ARBITARY 100' DATUM

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GREER AITE

# ESTIMATED BEDROCK DEPTH
## CONTOUR MAP

TOWN OF WAPPINGER, DUTCHESS COUNTY, N.Y.

| | |
|---|---|
| drawn: SLG | check: |
| date: 11/14/01 | scale: 1"=30' |
| project no. 49799.24 | |
| sheet no. Figure 9 | |

# TABLES

# Table 1
## Greer Toyota
## Gas Chromatography Headspace Analysis of Petroleum Compounds

| Sample ID | Sample Matrix | Date Collected | Date Analyzed | MTBE ppb | Benzene ppb | Toluene ppb | Ethylbenzene ppb | m+p-Xylene ppb | o-Xylene ppb | 1,3,5-TMB ppb | 1,2,4-TMB ppb | Naphthalene ppb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| B-1 6-8' | Soil | 4/1/98 | 4/8/98 | --- | 214.42 | --- | --- | --- | --- | --- | --- | --- |
| B-2 8-10' | Soil | 4/1/98 | 4/3/98 | --- | 739.56 | 11475.4 | --- | 11711475.0 | 41509.49 | 55847.04 | 51602.78 | 3496.77 |
| B-3 8-10' | Soil | 4/1/98 | 4/3/98 | --- | --- | --- | --- | --- | 361.0 | --- | --- | --- |
| B-2 Water | GW | 4/1/98 | 4/10/98 | --- | --- | --- | --- | --- | 0 70 | --- | --- | --- |
| | | | | | | | | | | | | |
| SB-1 6' | Soil | 6/25/99 | 6/25/99 | --- | --- | 23.81 | --- | 19.84 | 13.74 | NA | NA | NA |
| SB-2 3-5' | Soil | 6/25/99 | 6/25/99 | --- | --- | --- | --- | 34.14 | 17.66 | NA | NA | NA |
| SB-3 4' | Soil | 6/25/99 | 6/25/99 | --- | 29.33 | 28.64 | --- | 81.02 | 43.64 | NA | NA | NA |
| SB-1 3-5' | GW | 6/25/99 | 6/25/99 | 23.05 | --- | --- | --- | 15.31 | 27.19 | NA | NA | NA |
| SB-2 4' | GW | 6/25/99 | 6/25/99 | --- | --- | 268.25 | --- | 17.48 | 5.76 | NA | NA | NA |
| SB-3 4' | GW | 6/25/99 | 6/25/99 | --- | --- | --- | 5.32 | 16.22 | --- | NA | NA | NA |

Note: "---" indicates that the chemical component was not detected in the sample at a concentration above the method detection limit.

NA: Not analyzed

# Table 1
# Greer Toyota
# Gas Chromatography Headspace Analysis of Chlorinated Compounds

| Sample ID | Sample Matrix | Date Collected | Date Analyzed | 1,1-DCA ppb | cis-1,2-DCE ppb | 1,1,1-TCA ppb | TCE ppb | PCE ppb |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| B-1 6-8' * | Soil | 4/1/98 | 4/8/98 | --- | --- | --- | --- | --- |
| B-2 8-10' | Soil | 4/1/98 | 4/3/98 | 12.26 | 69.32 | --- | 28.51 | 17.2 |
| B-3 8-10' | Soil | 4/1/98 | 4/3/98 | --- | --- | --- | --- | --- |
| B-2 Water | GW | 4/1/98 | 4/10/98 | --- | --- | --- | --- | --- |
| | | | | | | | | |
| SB-1 6' * | Soil | 6/25/99 | 6/25/99 | --- | --- | --- | --- | --- |
| SB-2 3-5' | Soil | 6/25/99 | 6/25/99 | --- | --- | --- | --- | --- |
| SB-3 4' | Soil | 6/25/99 | 6/25/99 | --- | --- | --- | --- | --- |
| SB-1 3-5' * | GW | 6/25/99 | 6/25/99 | --- | --- | --- | --- | --- |
| SB-2 4' | GW | 6/25/99 | 6/25/99 | --- | --- | --- | --- | --- |
| SB-3 4' * | GW | 6/25/99 | 6/25/99 | --- | --- | --- | 24.49 | 3.37 |

Note: "---" indicates that the chemical component was not detected in the sample at a concentration above the method detection limit.

* Unidentified chlorinated solvent peak detected.

# Table 2
# Greer Toyota
# Analytical Results

| Sample ID<br>Sample Date | | Recommended Soil Cleanup Objectives* | B-1 6-8'<br>4/1/98 | | B-2 8-10'<br>4/1/98 | | B-3 8-10'<br>4/1/98 | | SB-1 6'<br>6/25/99 | | SB-2 3-5'<br>6/25/99 | | SB-3 3-5'<br>6/25/99 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | Unit | | | | | | | | | | | | | |
| Acetone | ug/kg | 200 | 29 | U | 120 | U | 15 | J | 130 | U | 88 | | 62 | |
| Benzene | ug/kg | 60 | 7.2 | U | 19 | J | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Bromodichloromethane | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Bromoform | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Bromomethane | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 2-Butanone (MEK) | ug/kg | 300 | 14 | U | 60 | U | 12 | U | 63 | U | 17 | | 12 | |
| Carbon Disulfide | ug/kg | 2700 | 14 | U | 60 | U | 12 | U | 63 | U | 11 | U | 12 | U |
| Carbon Tetrachloride | ug/kg | 600 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Chlorobenzene | ug/kg | 1700 | 7.2 | U | 30 | U | 5.9 | U | 280 | | 5.7 | U | 6.0 | U |
| Chloroethane | ug/kg | 1900 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Chloroform | ug/kg | 300 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Chloromethane | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Dibromochloromethane | ug/kg | N/A | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,1-Dichloroethane | ug/kg | 200 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,2-Dichloroethane | ug/kg | 100 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,1-Dichloroethene | ug/kg | 400 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| cis-1,2-Dichloroethene | ug/kg | 300 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| trans-1,2-Dichloroethene | ug/kg | 300 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,2-Dichloropropane | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| cis-1,3-Dichloropropene | ug/kg | 300 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| trans-1,3-Dichloropropene | ug/kg | 300 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Ethylbenzene | ug/kg | 5500 | 7.2 | U | 180 | | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 2-Hexanone | ug/kg | not listed | 14 | U | 60 | U | 12 | U | 63 | U | 11 | U | 12 | U |
| Methylene Chloride | ug/kg | 100 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 4-Methyl-2-Pentanone (MIBK) | ug/kg | 1000 | 14 | U | 60 | U | 12 | U | 63 | U | 11 | U | 12 | U |
| Styrene | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Tetrachloroethene | ug/kg | 1400 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Toluene | ug/kg | 1500 | 7.2 | U | 57 | | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,1,1-Trichloroethane | ug/kg | 800 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| 1,1,2-Trichloroethane | ug/kg | not listed | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Trichloroethene | ug/kg | 700 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| Vinyl Chloride | ug/kg | 200 | 7.2 | U | 30 | U | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| o-Xylene | ug/kg | 1200 | 7.2 | U | 290 | | 5.9 | U | 31 | U | 5.7 | U | 6.0 | U |
| m&p-Xylene | ug/kg | 1200 | 7.2 | U | 690 | | 5.9 | U | 50 | | 5.7 | U | 8.5 | |

* as listed in NYSDEC TAGM 4046

# Table 2
# Greer Toyota
# Analytical Results

| Sample ID<br>Sample Date | | Recommended Soil Cleanup Objectives* | B-1 6-8'<br>4/1/98 | | B-2 8-10'<br>4/1/98 | | B-3 8-10'<br>4/1/98 | |
|---|---|---|---|---|---|---|---|---|
| PARAMETER | Unit | | | | | | | |
| Aluminum | mg/kg | SB | 18,700 | | 12,900 | | 13,200 | |
| Antimony | mg/kg | SB | 8.65 | U | 7.16 | U | 7.11 | U |
| Arsenic | mg/kg | 7.5 or SB | 54.5 | | 13.5 | | 14.1 | |
| Barium | mg/kg | 300 or SB | 112 | | 48.9 | | 58.1 | |
| Beryllium | mg/kg | 0.16 (HEAST) or SB | 3.82 | | 3.76 | | 3.89 | |
| Cadmium | mg/kg | 1 or SB | 1.54 | | 1.34 | | 1.52 | |
| Calcium | mg/kg | SB | 2670 | | 690 | | 865 | |
| Chromium | mg/kg | 10 or SB | 17.3 | | 15 | | 14.2 | |
| Cobalt | mg/kg | 30 or SB | 11.6 | | 12.8 | | 15.2 | |
| Copper | mg/kg | 25 or SB | 44.4 | | 37.6 | | 28 | |
| Iron | mg/kg | 2,000 or SB | 22,500 | | 24,200 | | 24,900 | |
| Lead | mg/kg | SB | 357 | | 9.52 | | 12.7 | |
| Magnesium | mg/kg | SB | 3950 | | 4,300 | | 4,740 | |
| Manganese | mg/kg | SB | 833 | | 776 | | 813 | |
| Mercury | mg/kg | 0.1 | 0.216 | U | 0.179 | U | 0.178 | U |
| Nickel | mg/kg | 13 or SB | 21 | | 22.4 | | 26.1 | |
| Potassium | mg/kg | SB | 821 | | 770 | | 769 | |
| Selenium | mg/kg | 2 or SB | 0.805 | | 0.597 | U | 0.598 | |
| Silver | mg/kg | SB | 1.44 | U | 1.19 | U | 1.18 | U |
| Sodium | mg/kg | SB | 265 | | 104 | | 130 | |
| Thallium | mg/kg | SB | 7.26 | | 6.92 | | 7.83 | |
| Vanadium | mg/kg | 150 or SB | 23.6 | | 14 | | 14.3 | |
| Zinc | mg/kg | 20 or SB | 102 | | 73.3 | | 76.8 | |

* as listed in NYSDEC TAGM 4046

# Table 3
## Greer Toyota
## Analytical Results

| Sample ID<br>Sample Date | | Groundwater Standards* | B-2 Water 4/1/98 | | SB-1 3-5' 6/25/99 | | SB-2 4' 6/25/99 | | SB-3 5' 6/25/99 | |
|---|---|---|---|---|---|---|---|---|---|---|
| PARAMETER | Unit | | | | | | | | | |
| Acetone | ug/L | 5.0 | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzene | ug/L | 1.0 | 10 | | 5.0 | U | 5.0 | U | 5.0 | U |
| Bromodichloromethane | ug/L | N/A | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Bromoform | ug/L | N/A | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Bromomethane | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 2-Butanone (MEK) | ug/L | N/A | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbon Disulfide | ug/L | N/A | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbon Tetrachloride | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Chlorobenzene | ug/L | 5.0 | 3.4 | J | 6.2 | | 5.0 | U | 5.0 | U |
| Chloroethane | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Chloroform | ug/L | 7.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Chloromethane | ug/L | N/A | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Dibromochloromethane | ug/L | N/A | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 1,1-Dichloroethane | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 1,2-Dichloroethane | ug/L | 0.6 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 1,1-Dichloroethene | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| cis-1,2-Dichloroethene | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| trans-1,2-Dichloroethene | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 1,2-Dichloropropane | ug/L | 1.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| cis-1,3-Dichloropropene | ug/L | 0.4 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| trans-1,3-Dichloropropene | ug/L | 0.4 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Ethylbenzene | ug/L | 5.0 | 33 | | 5.0 | U | 5.0 | U | 5.0 | U |
| 2-Hexanone | ug/L | N/A | 10 | U | 10 | U | 10 | U | 10 | U |
| Methylene Chloride | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 4-Methyl-2-Pentanone (MIBK) | ug/L | N/A | 10 | U | 10 | U | 10 | U | 10 | U |
| Styrene | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 1,1,2,2-Tetrachloroethane | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Tetrachloroethene | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Toluene | ug/L | 5.0 | 30 | | 19 | | 44 | | 36 | |
| 1,1,1-Trichloroethane | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| 1,1,2-Trichloroethane | ug/L | 1.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Trichloroethene | ug/L | 5.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| Vinyl Chloride | ug/L | 2.0 | 5.0 | U | 5.0 | U | 5.0 | U | 5.0 | U |
| o-Xylene | ug/L | 5.0 | 27 | | 5.0 | U | 5.0 | U | 5.0 | U |
| m&p-Xylene | ug/L | 5.0 | 220 | | 5.0 | U | 5.0 | U | 5.0 | U |

* as listed in Table 1 of TOGS 1.1.1 (6/98)

# Table 4
# Private Well Sampling
# Mrs. Halpin
# 4 Curry Road
# Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 3/2/94 | 3/2/94 | 6/13/94 | 6/13/94 | 3/30/95 | 3/30/95 | 2/15/96 | 2/15/96 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 0.4 | *** | 0.5 | *** | *** | 1.1 | *** | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | 5.7 | *** | *** | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | *** | *** | 5.1 | *** | 5.9 | *** | 6.2 | *** |
| 1,1,1-Trichloroethane | ug/L | 1.7 | *** | 1.3 | *** | 1.0 | *** | *** | *** |
| Trichloroethene | ug/L | 21.0 | *** | 14.0 | *** | 19.0 | *** | 18.0 | *** |
| Tetrachloroethene | ug/L | 9.0 | *** | 6.7 | *** | 8.6 | *** | 6.4 | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Vinyl Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

# Table 4
# Private Well Sampling
Mrs. Halpin
4 Curry Road
Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 6/20/96 | 6/20/96 | 12/3/96 | 12/2/96 | 3/28/97 | 3/28/97 | 7/16/97 | 7/16/97 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | 2.5 | *** | *** | *** | 3.0 | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 0.7 | 0.5 | *** | *** | *** | *** | 1.1 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | 0.64 | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | 7 | *** | 8.6 | *** | 9.7 | *** | 5.2 | *** |
| 1,1,1-Trichloroethane | ug/L | 1.9 | *** | 1.4 | *** | 1.8 | *** | 1.3 | *** |
| Trichloroethene | ug/L | 22.0 | *** | 14.0 | *** | 23.0 | *** | 13.0 | *** |
| Tetrachloroethene | ug/L | 8.9 | *** | 7.2 | *** | 11.0 | *** | 5.0 | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Vinyl Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

# Table 4
## Private Well Sampling
Mrs. Halpin
4 Curry Road
Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 10/2/97 | 10/2/97 | 12/30/97 | 12/30/97 | 3/27/98 | 3/27/98 | 6/25/98 | 6/25/98 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 1.4 | *** | *** | *** | *** | *** | 0.5 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | 1.1 | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | 0.5 | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | 5.0 | *** | 7.1 | *** | 5.5 | *** | 8.0 | *** |
| 1,1,1-Trichloroethane | ug/L | 1.4 | *** | 2.1 | *** | 0.8 | *** | 1.3 | *** |
| Trichloroethene | ug/L | 15.0 | *** | 20.0 | *** | 17.0 | *** | 21.0 | *** |
| Tetrachloroethene | ug/L | 3.7 | *** | 7.0 | *** | 7.1 | *** | 8.7 | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | 1.8 | 1.8 (?) | *** | *** |
| Vinyl Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

# Table 4
## Private Well Sampling
Mrs. Halpin
4 Curry Road
Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 9/29/98 | 9/29/98 | 12/28/98 | 12/28/98 | 4/16/99 | 4/16/99 | 6/30/99 | 6/30/99 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 1.5 | *** | 1.8 | *** | 0.5 | *** | 1.7 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | 6.6 | *** | 6.1 | *** | 6.1 | *** | 7.0 | *** |
| 1,1,1-Trichloroethane | ug/L | 1.6 | *** | 1.3 | *** | 1.0 | *** | 1.6 | *** |
| Trichloroethene | ug/L | 14.0 | *** | 12.0 | *** | 17.0 | *** | 15.0 | *** |
| Tetrachloroethene | ug/L | 4.8 | *** | 3.8 | *** | 6.9 | *** | 4.7 | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Vinyl Chloride | ug/L | 0.7 | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

# Table 4
# Private Well Sampling
# Optimum Window
# 69 Old Route 9
# Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 3/2/94 | 3/2/94 | 6/13/94 | 6/13/94 | 3/30/95 | 3/30/95 | 2/15/96 | 2/15/96 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 2.6 | *** | 3.9 | 0.4 | 2.6 | *** | 3.5 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1,1-Trichloroethane | ug/L | 4.8 | *** | 7.3 | *** | 6.8 | *** | 6.6 | *** |
| Trichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Tetrachloroethene | ug/L | *** | *** | 0.3 | *** | *** | *** | *** | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

# Table 4
# Private Well Sampling
Optimum Window
69 Old Route 9
Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 6/20/96 | 6/20/96 | 12/3/96 | 12/2/96 | 3/28/97 | 3/28/97 | 7/15/97 | 7/15/97 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | 0.5 | 1.6 | *** | *** | 0.87 | 0.98 | *** | *** |
| 1,1-Dichloroethane | ug/L | 3.7 | *** | 3.3 | *** | 5.3 | *** | 4.0 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | 0.5 | *** | | *** | *** | *** | *** | *** |
| 1,1,1-Trichloroethane | ug/L | 6.7 | *** | 3.1 | *** | 8.9 | *** | 2.7 | *** |
| Trichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Tetrachloroethene | ug/L | 0.6 | 2.7 | *** | *** | 11.0 | 1.0 | *** | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

# Table 4
# Private Well Sampling
# Optimum Window
# 69 Old Route 9
# Wappingers Falls, NY 12590

| Parameters | Unit | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen | Raw | Kitchen |
|---|---|---|---|---|---|---|---|---|---|
| | | 10/2/97 | 10/2/97 | 12/30/97 | 12/30/97 | 3/27/98 | 3/27/98 | 6/25/98 | 6/25/98 |
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 5.4 | *** | 4.3 | *** | 4.3 | *** | 3.0 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | 0.7 | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1,1-Trichloroethane | ug/L | 6.5 | *** | 4.6 | *** | 3.1 | *** | 1.7 | *** |
| Trichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Tetrachloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | 2.0 | 1.9 | *** | *** |

*** - indicates parameter was not detected during sampling event

## Table 4
## Private Well Sampling
## Optimum Window
## 69 Old Route 9
## Wappingers Falls, NY 12590

| Parameters | Unit | Raw<br>9/29/98 | Kitchen<br>9/29/98 | Raw<br>12/28/98 | Kitchen<br>12/28/98 | Raw<br>4/16/99 | Kitchen<br>4/16/99 | Raw<br>6/30/99 | Kitchen<br>6/30/99 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 1,2-Dichloropropane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethane | ug/L | 3.8 | *** | 2.8 | *** | 2.7 | *** | 3.4 | *** |
| 1,2-Dichloroethane | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| cis-1,2-Dichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| 1,1,1-Trichloroethane | ug/L | 3.0 | *** | 1.8 | *** | 1.5 | *** | 2.6 | *** |
| Trichloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Tetrachloroethene | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |
| Methylene Chloride | ug/L | *** | *** | *** | *** | *** | *** | *** | *** |

*** - indicates parameter was not detected during sampling event

## Table 5
## Greer Toyota Analytical Data

| **Sample ID** | | NYSDEC Soil | GT-1 | GT-2 | GT-3 | GT-4 | GT-5 |
|---|---|---|---|---|---|---|---|
| **Sample Date** | | Guidance Value | 12/12/00 | 12/12/00 | 12/12/00 | 12/12/00 | 12/12/00 |
| | | | RCRA Metals[1] | | | | |
| **Analytical Dilution** | | | *1* | *1* | *1* | *1* | *1* |
| Arsenic | mg/kg | 7.5 or SB | 1.00 U | 4.97 | 3.9 | 9.05 | 1.00 U |
| Barium | mg/kg | 300 or SB | 191 | 26.5 | 31.9 | 42 | 2.43 |
| Cadmium | mg/kg | 1 or SB | 2.19 | 0.837 | 0.954 | 0.585 | 0.500 U |
| Chromium | mg/kg | 10 or SB | 65.5 | 12 | 12.1 | 8.27 | 1.00 U |
| Lead | mg/kg | SB* | 752 | 58 | 62.3 | 151 | 13.6 |
| Mercury | mg/kg | 0.1 | 0.0500 U | 0.0532 U | 0.0558 U | 0.0500 U | 0.0500 U |
| Selenium | mg/kg | 2 or SB | 3.01 | 2.56 | 2.69 | 1.78 | 0.500 U |
| Silver | mg/kg | SB* | 1.00 U | 1.06 U | 1.12 U | 1.00 U | 1.00 U |
| | | | Volatiles 8260 TCL | | | | |
| **Analytical Dilution** | | | ***125*** | ***125*** | ***125*** | ***125*** | ***2500*** |
| Acentone | ug/kg | 200 | 2500 U | 2700 U | 2800 U | 2500 U | 50000 U |
| Benzene | ug/kg | 60 | 7000 | 670 U | 700 U | 630 U | 240000 |
| Bromodichloromethane | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Bromoform | ug/kg | NP | 630 U | 670 U | 7000 U | 630 U | 13000 U |
| Bromomethane | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 2-Butane (MEK) | ug/kg | NP | 1300 U | 1300 U | 1400 U | 1300 U | 25000 U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 38000 | 670 U | 800 | 630 U | 16000 |
| Carbon Disulfide | ug/kg | 2700 | 1300 U | 1300 U | 1400 U | 1300 U | 25000 U |
| Carbon Tetrachloride | ug/kg | 600 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Chlorobenzene | ug/kg | 1700 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Chloroethane | ug/kg | 1900 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Chloroform | ug/kg | 300 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Chloromethane | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Dibromochloromethane | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 1,1, Dichloroethane | ug/kg | 200 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 1,2-Dichloroethane | ug/kg | 100 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 1,1-Dichloroethene | ug/kg | 400 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Trans-1,3-Dichloropropen | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Ethylbenzene | ug/kg | 5500 | 25000 | 670 U | 700 U | 630 U | 380000 |
| 2-Hexanone | ug/kg | NP | 1300U | 1300 U | 1400 U | 1300 U | 25000 U |
| Methylene Chloride | ug/kg | 100 | 630 U | 2700 U | 2800 U | 630 U | 13000 U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 1300 U | 1300 U | 1400 U | 1300 U | 25000 U |
| Styrene | ug/kg | NP | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 1,1,2,2-Tetrachloroethan | ug/kg | 600 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Tetrachloroethene | ug/kg | 1400 | 1500 | 2100 | 700 U | 630 U | 13000 U |
| Toluene | ug/kg | 1500 | 75000 | 670 U | 2200 | 2300 | 1800000 |
| 1,1,1-Trichloroethane | ug/kg | 800 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 1,1,2-Trichloroethane | ug/kg | 800 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Trichloroethene | ug/kg | 700 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| Vinyl Chloride | ug/kg | 200 | 630 U | 670 U | 700 U | 630 U | 13000 U |
| 0-Xylene | ug/kg | 1200 | 49000 | 15000 | 2700 | 3400 | 590000 |
| M&P Xylene | ug/kg | 1200 | 93000 | 2600 | 700 U | 3400 | 1500000 |

## Table 5
## Greer Toyota Analytical Data

| Semi-Volatiles 8270C | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analytical Dilution** | | | ***500*** | ***50*** | ***50*** | ***500*** | ***3000*** |
| Acenaphthene | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000U | 300000000 U |
| Acenaphthylene | ug/kg | 41,000 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Anthracene | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Benzo(g,h,I)perylene | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Benzyl Alcohol | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Carbazole | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Bis(2-Chloroethoxy)meth | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2-Chloronaphthalene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2-Chlorophenol | ug/kg | 800 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Chrysene | ug/kg | 400 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Dibenzofuran | ug/kg | 6,200 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 1,3-Dichlorobenzene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 1,2-Dichlorobenzene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 1,4-Dichlorobenzene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 3,3-Dichlorobenzene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2,4-Dichlorophenol | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Diethylphthalate | ug/kg | 7,100 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2,4-Dimethylphenol | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2,4-Dinitrophenol | ug/kg | NP | 850000 U | 91000 U | 95000 U | 850000 U | 300000000 U |
| 2,4-Dinitrotoluene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 1500000000 U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Bis(2-Ethylhexyl) Phthala | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Fluoranthene | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Fluorene | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Hexachlorobenzene | ug/kg | 410 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Hexachlorobutadiene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Hexachlorocyclopentane | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Hexachloroethane | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Isophorone | ug/kg | 4,440 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 4,6-Dinitro-2-Methylphen | ug/kg | NP | 850000 U | 91000 U | 95000 U | 850000 U | 1500000000 U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2-Methylphenol | ug/kg | 100 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 4-Methylphenol | ug/kg | 900 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Naphthalene | ug/kg | 13,000 | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2- Nitroaniline | ug/kg | 430 or MDL | 850000 U | 91000 U | 95000 U | 170000 U | 1500000000 U |

# Table 5
# Greer Toyota Analytical Data

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3-Nitroaniline | ug/kg | 500 or MDL | 850000 U | 91000 U | 95000 U | 170000 U | 1500000000 U |
| 4-Nitroaniline | ug/kg | 100 or MDL | 850000 U | 91000 U | 95000 U | 170000 U | 1500000000 U |
| Nirtobenzene | ug/kg | 200 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 4-Nitrophenol | ug/kg | 430 or MDL | 170000 U | 91000 U | 95000 U | 850000 U | 1500000000 U |
| N-Nitrosodimethylamine | ug/kg | NP | 850000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| N-Nitrosodiphenylamine | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Di-N-Octyl Phthalate | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Pentachlorophenol | ug/kg | NP | 850000 U | 91000 U | 95000 U | 850000 U | 1500000000 U |
| Phenanthrene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Phenol | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 4-Bromophenyl-Phenylet | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 4-Chlorophenyl-Phenylet | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| N-Nitroso-Di-N-Propylami | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| Pyrene | ug/kg | 50,000* | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |
| 2,4,5-Trichlorophenol | ug/kg | 100 or MDL | 170000 U | 18000 U | 18000 U | 170000 U | 300000000 U |

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"NP" indicates that no standard is published in TAGM 4046

## Table 5
## Greer Toyota Analytical Data

| **Sample ID**<br>**Sample Date** |  | NYSDEC Soil Guidance Values | GT-T1-SL<br>10/18/00 |  | GT-T2-SL<br>10/18/00 |  |
|---|---|---|---|---|---|---|
| **RCRA Metals[1]** |  |  |  |  |  |  |
| Arsenic | mg/kg | 7.5 or SB | 2.77 | U | 0.262 |  |
| Barium | mg/kg | 300 or SB | 17.9 |  | 0.575 |  |
| Cadmium | mg/kg | 1 or SB | 1.39 | U | 0.0314 |  |
| Chromium | mg/kg | 10 or SB | 3.63 |  | 0.105 |  |
| Lead | mg/kg | SB* | 460 |  | 0.655 |  |
| Mercury | mg/kg | 0.1 | 0.139 | U | 0.003 | U |
| Selenium | mg/kg | 2 or SB | 1.39 | U | 0.233 | U |
| Silver | mg/kg | SB* | 2.77 | U | 0.05 | U |
| **Volatiles 8260 TCL** |  |  |  |  |  |  |
| Acentone | ug/kg | 200 | 6900 | U | 2500 | U |
| Benzene | ug/kg | 60 | 1700 | U | 1600 |  |
| Bromodichloromethane | ug/kg | NP | 1700 | U | 630 | U |
| Bromoform | ug/kg | NP | 1700 | U | 630 | U |
| Bromomethane | ug/kg | NP | 1700 | U | 250 | U |
| 2-Butane (MEK) | ug/kg | NP | 3500 | U | 1300 | U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 1700 | U | 630 | U |
| Carbon Disulfide | ug/kg | 2700 | 3500 | U | 1300 | U |
| Carbon Tetrachloride | ug/kg | 600 | 1700 | U | 630 | U |
| Chlorobenzene | ug/kg | 1700 | 1700 | U | 630 | U |
| Chloroethane | ug/kg | 1900 | 1700 | U | 630 | U |
| Chloroform | ug/kg | 300 | 1700 | U | 630 | U |
| Chloromethane | ug/kg | NP | 1700 | U | 630 | U |
| Dibromochloromethane | ug/kg | NP | 1700 | U | 630 | U |
| 1,1, Dichloroethane | ug/kg | 200 | 1700 | U | 630 | U |
| 1,2-Dichloroethane | ug/kg | 100 | 1700 | U | 630 | U |
| 1,1-Dichloroethene | ug/kg | 400 | 1700 | U | 130 | U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 1700 | U | 630 | U |
| Trans-1,3-Dichloropropene | ug/kg | NP | 1700 | U | 630 | U |
| Ethylbenzene | ug/kg | 5500 | 1700 | U | 6800 |  |
| 2-Hexanone | ug/kg | NP | 3500 | U | 1300 | U |
| Methylene Chloride | ug/kg | 100 | 6900 | U | 630 | U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 3500 | U | 1300 | U |
| Styrene | ug/kg | NP | 1700 | U | 630 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 1700 | U | 630 | U |
| Tetrachloroethene | ug/kg | 1400 | 1700 | U | 630 | U |
| Toluene | ug/kg | 1500 | 1700 | U | 15000 |  |
| 1,1,1-Trichloroethane | ug/kg | 800 | 1700 | U | 630 | U |
| 1,1,2-Trichloroethane | ug/kg | 800 | 1700 | U | 630 | U |
| Trichloroethene | ug/kg | 700 | 1700 | U | 630 | U |
| Vinyl Chloride | ug/kg | 200 | 1700 | U | 250 | U |
| 0-Xylene | ug/kg | 1200 | 33000 | U | 12000 |  |
| M&P Xylene | ug/kg | 1200 | 2100 | U | 27000 |  |

## Table 5
## Greer Toyota Analytical Data

| Semi-Volatiles 8270C | | | | | | |
|---|---|---|---|---|---|---|
| Acenaphthene | ug/kg | 50,000* | 46000 | U | 22000 | U |
| Acenaphthylene | ug/kg | 41,000 | 46000 | U | 22000 | U |
| Anthracene | ug/kg | 50,000* | 46000 | U | 22000 | U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 46000 | U | 22000 | U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 46000 | U | 22000 | U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 46000 | U | 22000 | U |
| Benzo(g,h,l)perylene | ug/kg | 50,000* | 46000 | U | 22000 | U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 46000 | U | 22000 | U |
| Benzyl Alcohol | ug/kg | NP | 46000 | U | 22000 | U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 46000 | U | 22000 | U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 46000 | U | 22000 | U |
| Carbazole | ug/kg | NP | 46000 | U | 22000 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 46000 | U | 22000 | U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 46000 | U | 22000 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | NP | 46000 | U | 22000 | U |
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 46000 | U | 22000 | U |
| 2-Chloronaphthalene | ug/kg | NP | 46000 | U | 22000 | U |
| 2-Chlorophenol | ug/kg | 800 | 46000 | U | 22000 | U |
| Chrysene | ug/kg | 400 | 46000 | U | 22000 | U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 46000 | U | 22000 | U |
| Dibenzofuran | ug/kg | 6,200 | 46000 | U | 22000 | U |
| 1,3-Dichlorobenzene | ug/kg | NP | 46000 | U | 22000 | U |
| 1,2-Dichlorobenzene | ug/kg | NP | 46000 | U | 22000 | U |
| 1,4-Dichlorobenzene | ug/kg | NP | 46000 | U | 22000 | U |
| 3,3-Dichlorobenzene | ug/kg | NP | 46000 | U | 22000 | U |
| 2,4-Dichlorophenol | ug/kg | NP | 46000 | U | 22000 | U |
| Diethylphthalate | ug/kg | 7,100 | 46000 | U | 22000 | U |
| 2,4-Dimethylphenol | ug/kg | NP | 46000 | U | 22000 | U |
| 2,4-Dinitrophenol | ug/kg | NP | 240000 | U | 110000 | U |
| 2,4-Dinitrotoluene | ug/kg | NP | 46000 | U | 22000 | U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 46000 | U | 22000 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 50,000* | 83000 | | 83000 | |
| Fluoranthene | ug/kg | 50,000* | 46000 | U | 22000 | U |
| Fluorene | ug/kg | 50,000* | 46000 | U | 22000 | U |
| Hexachlorobenzene | ug/kg | 410 | 46000 | U | 22000 | U |
| Hexachlorobutadiene | ug/kg | NP | 46000 | U | 22000 | U |
| Hexachlorocyclopentane | ug/kg | NP | 46000 | U | 22000 | U |
| Hexachloroethane | ug/kg | NP | 46000 | U | 22000 | U |
| Isophorone | ug/kg | 4,440 | 46000 | U | 22000 | U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 46000 | U | 22000 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 240000 | U | 110000 | U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 46000 | U | 22000 | U |
| 2-Methylphenol | ug/kg | 100 or MDL | 46000 | U | 22000 | U |
| 4-Methylphenol | ug/kg | 900 | 46000 | U | 22000 | U |
| Naphthalene | ug/kg | 13,000 | 46000 | U | 22000 | U |
| 2- Nitroaniline | ug/kg | 430 or MDL | 240000 | U | 110000 | U |
| 3-Nitroaniline | ug/kg | 500 or MDL | 240000 | U | 110000 | U |
| 4-Nitroaniline | ug/kg | 100 or MDL | 240000 | U | 110000 | U |
| Nirtobenzene | ug/kg | 200 or MDL | 46000 | U | 22000 | U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 46000 | U | 22000 | U |

## Table 5
## Greer Toyota Analytical Data

| | | | | | | |
|---|---|---|---|---|---|---|
| 4-Nitrophenol | ug/kg | 430 or MDL | 240000 | U | 22000 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 46000 | U | 22000 | U |
| N-Nitrosodiphenylamine | ug/kg | NP | 46000 | U | 22000 | U |
| Di-N-Octyl Phthalate | ug/kg | NP | 46000 | U | 22000 | U |
| Pentachlorophenol | ug/kg | NP | 240000 | U | 110000 | U |
| Phenanthrene | ug/kg | NP | 46000 | U | 22000 | U |
| Phenol | ug/kg | NP | 46000 | U | 22000 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 46000 | U | 22000 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 46000 | U | 22000 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 46000 | U | 22000 | U |
| Pyrene | ug/kg | 50,000* | 46000 | U | 22000 | U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 46000 | U | 22000 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 46000 | U | 22000 | U |
| 2,4,5-Trichlorophenol | ug/kg | 100 or MDL | 46000 | U | 22000 | U |
| **PCB's** | | | | | | |
| PCB 1016 | ug/kg | ** | 910 | U | 220 | U |
| PCB1221 | ug/kg | ** | 910 | U | 220 | U |
| PCB 1232 | ug/kg | ** | 910 | U | 220 | U |
| PCB 1242 | ug/kg | ** | 910 | U | 220 | U |
| PCB 1248 | ug/kg | ** | 910 | U | 220 | U |
| PCB 1254 | ug/kg | ** | 910 | U | 220 | U |
| PCB 1260 | ug/kg | ** | 910 | U | 220 | U |

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"**"As per TAGM 4046, PCBs 1 ppm (surface), 10 ppm (sub-surface)
"NP" indicates that no standard is published in TAGM 4046

## Table 5
## Greer Toyota Analytical Data

| **Sample ID**<br>**Sample Date** | | NYSDEC Soil Guidance Values | GT-P1-EW-<br>10/18/00 | | GT-P1-EW-<br>10/18/00 | GT-P1-EW-D<br>10/18/00 | GT-P1-WW-A<br>10/18/00 |
|---|---|---|---|---|---|---|---|
| **RCRA Metals** | | | | | | | |
| Arsenic | mg/kg | 7.5 or SB | 5.2 | | 4 | 3.58 | 4.57 |
| Barium | mg/kg | 300 or SB | 41.5 | | 36.3 | 21.5 | 50 |
| Cadmium | mg/kg | 1 or SB | 0.581 | U | 0.605 U | 0.552 U | 0.567 U |
| Chromium | mg/kg | 10 or SB | 16.3 | | 15.8 | 11.7 | 13.5 |
| Lead | mg/kg | SB* | 18.1 | | 16.8 | 28.2 | 16.4 |
| Mercury | mg/kg | 0.1 | 0.0581 | U | 0.0605 U | 0.0552 U | 0.0567 U |
| Selenium | mg/kg | 2 or SB | 1.63 | | 1.58 | 1.12 | 1.44 |
| Silver | mg/kg | SB* | 1.16 | U | 1.21 U | 1.10 U | 1.13 U |
| **Volatiles 8260 TCL** | | | | | | | |
| Acentone | ug/kg | 200 | 2900 | U | 3000 U | 22 U | 23 U |
| Benzene | ug/kg | 60 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Bromodichloromethane | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| Bromoform | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| Bromomethane | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| 2-Butane (MEK) | ug/kg | NP | 1500 | U | 1500 U | 11 U | 11 U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Carbon Disulfide | ug/kg | 2700 | 1500 | U | 1500 U | 11 U | 11 U |
| Carbon Tetrachloride | ug/kg | 600 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Chlorobenzene | ug/kg | 1700 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Chloroethane | ug/kg | 1900 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Chloroform | ug/kg | 300 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Chloromethane | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| Dibromochloromethane | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| 1,1, Dichloroethane | ug/kg | 200 | 730 | U | 760 U | 5.5 U | 5.7 U |
| 1,2-Dichloroethane | ug/kg | 100 | 730 | U | 760 U | 5.5 U | 5.7 U |
| 1,1-Dichloroethene | ug/kg | 400 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| Trans-1,3-Dichloropropene | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| Ethylbenzene | ug/kg | 5500 | 730 | U | 1900 | 5.5 U | 5.7 U |
| 2-Hexanone | ug/kg | NP | 1500 | U | 1500 U | 11 U | 11 U |
| Methylene Chloride | ug/kg | 100 | 2900 | U | 3000 U | 22 U | 23 U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 1500 | U | 1500 U | 11 U | 11 U |
| Styrene | ug/kg | NP | 730 | U | 760 U | 5.5 U | 5.7 U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Tetrachloroethene | ug/kg | 1400 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Toluene | ug/kg | 1500 | 730 | U | 1300 | 5.5 U | 5.7 U |
| 1,1,1-Trichloroethane | ug/kg | 800 | 730 | U | 760 U | 5.5 U | 5.7 U |
| 1,1,2-Trichloroethane | ug/kg | 800 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Trichloroethene | ug/kg | 700 | 730 | U | 760 U | 5.5 U | 5.7 U |
| Vinyl Chloride | ug/kg | 200 | 730 | U | 760 U | 5.5 U | 5.7 U |
| 0-Xylene | ug/kg | 1200 | 1900 | U | 5800 | 5.5 U | 84 |
| M&P Xylene | ug/kg | 1200 | 1400 | U | 10000 | 5.5 U | 5.7 U |

## Table 5
## Greer Toyota Analytical Data

| Semi-Volatiles 8270C | | | | | | | |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| Acenaphthylene | ug/kg | 41,000 | 1200 | U | 400 U | 360 U | 370 U |
| Anthracene | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 1200 | U | 400 U | 360 U | 370 U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 1200 | U | 400 U | 360 U | 370 U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 1200 | U | 400 U | 360 U | 370 U |
| Benzo(g,h,I)perylene | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 1200 | U | 400 U | 360 U | 370 U |
| Benzyl Alcohol | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 1200 | U | 400 U | 360 U | 370 U |
| Carbazole | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 1200 | U | 400 U | 360 U | 370 U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 1200 | U | 400 U | 360 U | 370 U |
| Bis(2-Chloroethoxy)metha | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2-Chloronaphthalene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2-Chlorophenol | ug/kg | 800 | 1200 | U | 400 U | 360 U | 370 U |
| Chrysene | ug/kg | 400 | 1200 | U | 400 U | 360 U | 370 U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 1200 | U | 400 U | 360 U | 370 U |
| Dibenzofuran | ug/kg | 6,200 | 1200 | U | 400 U | 360 U | 370 U |
| 1,3-Dichlorobenzene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 1,2-Dichlorobenzene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 1,4-Dichlorobenzene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 3,3-Dichlorobenzene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2,4-Dichlorophenol | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Diethylphthalate | ug/kg | 7,100 | 1200 | U | 400 U | 360 U | 370 U |
| 2,4-Dimethylphenol | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2,4-Dinitrophenol | ug/kg | NP | 5900 | U | 2100 U | 1900 U | 1900 U |
| 2,4-Dinitrotoluene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 9500 | | 400 U | 360 U | 370 U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 50,000* | 1200 | U | 3800 | 360 U | 4200 |
| Fluoranthene | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| Fluorene | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| Hexachlorobenzene | ug/kg | 410 | 1200 | U | 400 U | 360 U | 370 U |
| Hexachlorobutadiene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Hexachlorocyclopentane | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Hexachloroethane | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Isophorone | ug/kg | 4,440 | 1200 | U | 400 U | 360 U | 370 U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 2400 | | 4000 | 360 U | 370 U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 5900 | U | 2100 U | 1900 U | 370 U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 1200 | U | 400 U | 360 U | 1900 U |
| 2-Methylphenol | ug/kg | 100 or MDL | 1200 | U | 400 U | 360 U | 370 U |
| 4-Methylphenol | ug/kg | 900 | 1200 | U | 400 U | 360 U | 370 U |
| Naphthalene | ug/kg | 13,000 | 1800 | | 2700 | 360 U | 370 U |
| 2- Nitroaniline | ug/kg | 430 or MDL | 5900 | U | 2100 U | 1900 U | 1900 U |
| 3-Nitroaniline | ug/kg | 500 or MDL | 5900 | U | 2100 U | 1900 U | 1900 U |
| 4-Nitroaniline | ug/kg | 100 or MDL | 5900 | U | 2100 U | 1900 U | 1900 U |
| Nirtobenzene | ug/kg | 200 or MDL | 1200 | U | 400 U | 360 U | 370 U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 1200 | U | 400 U | 360 U | 370 U |

## Table 5
## Greer Toyota Analytical Data

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4-Nitrophenol | ug/kg | 430 or MDL | 5900 | U | 2100 U | 1900 U | 1900 U |
| n-Nitrosodimethylamine | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| n-Nitrosodiphenylamine | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Di-n-octyl phthalate | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Pentachlorophenol | ug/kg | NP | 5900 | U | 2100 U | 1900 U | 1900 U |
| Phenanthrene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Phenol | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 4-Bromophenyl-Phenylethe | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 4-Chlorophenyl-Phenylethe | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| N-Nitroso-Di-N-Propylamin | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| Pyrene | ug/kg | 50,000* | 1200 | U | 400 U | 360 U | 370 U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 1200 | U | 400 U | 360 U | 370 U |
| 2,4,5-Trichlorophenol | ug/kg | 100 or MDL | 1200 | U | 400 U | 360 U | 370 U |

## Table 5
## Greer Toyota Analytical Data

| GT-P1-WW-B 10/18/00 | GT-P1-WW-C 10/18/00 | GT-P1-WW-D 10/18/00 | GT-P1-NB 10/18/00 | GT-P1-SB 10/18/00 | GT-P1-GW 10/18/00 | GT-P1-SW-A 10/18/00 |
|---|---|---|---|---|---|---|
| | | | | | | |
| 5.91 | 21.6 | 6.1 | 7.72 | 5.05 | | 7.7 |
| 48.6 | 55.3 | 57.8 | 45.8 | 36.7 | | 68.7 |
| 0.596 U | 0.608 U | 0.572 U | 0.6 U | 0.564 U | | 0.563 U |
| 15.3 | 17.4 | 17.7 | 18.6 | 14.7 | | 10.1 |
| 14.3 | 80.1 | 34.8 | 30.2 | 34.2 | | 15 |
| 0.0596 U | 0.0608 U | 0.0572 U | 0.06 U | 0.0564 U | | 0.0563 U |
| 1.87 | 1.86 | 1.7 | 1.99 | 1.15 | | 3.2 |
| 1.19 U | 1.22 U | 1.14 U | 1.2 U | 1.13 U | | 1.13 U |
| **Volatiles 8260 TCL** | | | | | | |
| 24 U | 24 U | 23 U | 24 U | 2800 U | 2000 U | 23 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 100 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 200 U | 5.6 U |
| 12 U | 12 U | 11 U | 12 U | 1400 U | 1000 U | 11 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 12 U | 12 U | 11 U | 12 U | 1400 U | 1000 U | 11 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 100 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 12 U | 12 U | 11 U | 12 U | 1400 U | 1000 U | 11 U |
| 24 U | 24 U | 23 U | 24 U | 2800 U | 500 U | 23 U |
| 12 U | 12 U | 11 U | 12 U | 1400 U | 1000 U | 11 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 710 U | 200 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 9.1 | 8900 | 500 U | 5.6 U |
| 6.0 U | 6.1 U | 5.7 U | 6 U | 5300 | 500 U | 5.6 U |

# Table 5
## Greer Toyota Analytical Data

| Semi-Volatiles 8270C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 2000 U | 2100 U | 1900 U | 2000 | U | 1100 | U | 50 | U | 1900 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 2100 | 2100 | 3000 | 2400 | | 6900 | | 24 | | 1700 | |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 480 | | 4900 | | 10 | U | 370 | U |
| 2000 U | 2100 U | 1900 U | 400 | U | 1100 | U | 50 | U | 1900 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 3300 | | 10 | U | 370 | U |
| 2000 U | 2100 U | 1900 U | 2000 | U | 5800 | U | 50 | U | 1900 | U |
| 2000 U | 2100 U | 1920 U | 2000 | U | 5800 | U | 50 | U | 1900 | U |
| 2000 U | 2100 U | 1900 U | 2000 | U | 5800 | U | 10 | U | 1900 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 50 | U | 370 | U |

# Table 5
## Greer Toyota Analytical Data

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2000 U | 2100 U | 1900 U | 2000 | U | 5800 | U | 10 | U | 1900 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 50 | U | 370 | U |
| 2000 U | 2100 U | 1900 U | 2000 | U | 5800 | U | 10 | U | 1900 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |
| 390 U | 400 U | 380 U | 400 | U | 1100 | U | 10 | U | 370 | U |

# Table 5
## Greer Toyota Analytical Data

| GT-P1-SW-B 10/18/00 | | GT-P1-SW-C 10/18/00 | | GT-P1-SW-D 10/18/00 | | GT-P1-EW-B 10/18/00 | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 7.12 | | 3.07 | | 6.2 | | 4.86 | |
| 38.5 | | 58.3 | | 34.5 | | 45.9 | |
| 0.605 | U | 0.645 | U | 0.858 | | 1.07 | |
| 17.6 | | 13.9 | | 12.5 | | 8.55 | |
| 39 | | 21.3 | | 118 | | 106 | |
| 0.0605 | U | 0.0645 | U | 0.0805 | U | 0.0654 | U |
| 2 | | 1.43 | | 2.19 | | 2.44 | |
| 1.21 | U | 1.29 | U | 1.61 | U | 1.31 | U |
| **Volatiles 8260 TCL** | | | | | | | |
| 3000 | U | 130 | U | 32 | U | 26 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 1500 | U | 65 | U | 16 | U | 13 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 1500 | U | 65 | U | 16 | U | 13 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 1200 | | 89 | | 8.1 | U | 6.5 | U |
| 1500 | U | 65 | U | 16 | U | 13 | U |
| 3000 | U | 130 | U | 32 | U | 26 | U |
| 1500 | U | 65 | U | 16 | U | 13 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 29 | |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 760 | U | 32 | U | 8.1 | U | 6.5 | U |
| 3500 | | 110 | | 8.1 | U | 6.5 | U |
| 2900 | | 230 | | 8.1 | U | 6.5 | U |

# Table 5
## Greer Toyota Analytical Data

| Semi-Volatiles 8270C | | | | | | | |
|---|---|---|---|---|---|---|---|
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 700 | |
| 800 | U | 430 | U | 2700 | U | 2800 | |
| 800 | U | 430 | U | 2700 | U | 2600 | |
| 800 | U | 430 | U | 2700 | U | 2200 | |
| 800 | U | 430 | U | 2700 | U | 1900 | |
| 800 | U | 430 | U | 2700 | U | 2400 | |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 530 | |
| 800 | U | 430 | U | 2700 | U | 1900 | |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 2700 | |
| 800 | U | 430 | U | 2700 | U | 720 | |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 2200 | U |
| 4100 | U | 2200 | U | 14000 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 6400 | U | 430 | U | 2700 | U | 3200 | |
| 800 | U | 430 | U | 2700 | U | 4400 | |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 5300 | | 1100 | | 2700 | U | 430 | U |
| 4100 | U | 2200 | U | 14000 | U | 2200 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 3200 | | 430 | U | 2700 | U | 430 | U |
| 4100 | U | 2200 | U | 14000 | U | 2200 | U |
| 4100 | U | 2200 | U | 14000 | U | 2200 | U |
| 4100 | U | 2200 | U | 14000 | U | 2200 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |

# Table 5
## Greer Toyota Analytical Data

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4100 | U | 2200 | U | 14000 | U | 2200 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 4100 | U | 430 | U | 14000 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 4400 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |
| 800 | U | 430 | U | 2700 | U | 430 | U |

# Table 5
# Greer Toyota Analytical Data

| Sample ID<br>Sample Date | | NYSDEC Soil Cleanup Guidelines | GT-P1-SW-A<br>10/18/00 | GT-P2-WW<br>10/18/00 | | GT-P2-SB<br>10/18/00 | |
|---|---|---|---|---|---|---|---|
| **RCRA Metals[1]** | | | | | | | |
| Arsenic | mg/kg | 7.5 or SB | 7.7 | 8.08 | | 5.6 | |
| Barium | mg/kg | 300 or SB | 68.7 | 27.2 | | 37.9 | |
| Cadmium | mg/kg | 1 or SB | 0.563 U | 0.588 | U | 0.586 | U |
| Chromium | mg/kg | 10 or SB | 10.1 | 18.2 | | 15 | |
| Lead | mg/kg | SB* | 15 | 36.9 | | 33.2 | |
| Mercury | mg/kg | 0.1 | 0.0563 U | 0.0588 | U | 0.0586 | U |
| Selenium | mg/kg | 2 or SB | 3.2 | 2.31 | | 1.52 | |
| Silver | mg/kg | SB* | 1.13 U | 1.18 | U | 1.17 | U |
| **Volatiles 8260 TCL** | | | | | | | |
| Acentone | ug/kg | 200 | 23 U | 120 | U | 2900 | U |
| Benzene | ug/kg | 60 | 5.6 U | 29 | U | 730 | U |
| Bromodichloromethane | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| Bromoform | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| Bromomethane | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| 2-Butane (MEK) | ug/kg | NP | 11 U | 59 | U | 1500 | U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 5.6 U | 29 | U | 730 | U |
| Carbon Disulfide | ug/kg | 2700 | 11 U | 59 | U | 1500 | U |
| Carbon Tetrachloride | ug/kg | 600 | 5.6 U | 29 | U | 730 | U |
| Chlorobenzene | ug/kg | 1700 | 5.6 U | 29 | U | 730 | U |
| Chloroethane | ug/kg | 1900 | 5.6 U | 29 | U | 730 | U |
| Chloroform | ug/kg | 300 | 5.6 U | 29 | U | 730 | U |
| Chloromethane | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| Dibromochloromethane | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| 1,1, Dichloroethane | ug/kg | 200 | 5.6 U | 29 | U | 730 | U |
| 1,2-Dichloroethane | ug/kg | 100 | 5.6 U | 29 | U | 730 | U |
| 1,1-Dichloroethene | ug/kg | 400 | 5.6 U | 29 | U | 730 | U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| Trans-1,3-Dichloropropene | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| Ethylbenzene | ug/kg | 5500 | 5.6 U | 29 | U | 1300 | |
| 2-Hexanone | ug/kg | NP | 11 U | 59 | U | 730 | U |
| Methylene Chloride | ug/kg | 100 | 23 U | 120 | U | 730 | U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 11 U | 59 | U | 730 | U |
| Styrene | ug/kg | NP | 5.6 U | 29 | U | 730 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 5.6 U | 29 | U | 730 | U |
| Tetrachloroethene | ug/kg | 1400 | 5.6 U | 29 | U | 730 | U |
| Toluene | ug/kg | 1500 | 5.6 U | 29 | U | 2900 | |
| 1,1,1-Trichloroethane | ug/kg | 800 | 5.6 U | 29 | U | 730 | U |
| 1,1,2-Trichloroethane | ug/kg | 800 | 5.6 U | 29 | U | 730 | U |
| Trichloroethene | ug/kg | 700 | 5.6 U | 29 | U | 730 | U |
| Vinyl Chloride | ug/kg | 200 | 5.6 U | 29 | U | 730 | U |
| 0-Xylene | ug/kg | 1200 | 5.6 U | 29 | U | 10000 | |
| M&P Xylene | ug/kg | 1200 | 5.6 U | 29 | U | 12000 | |

## Table 5
## Greer Toyota Analytical Data

| Semi-Volatiles 8270C | | | | | | | |
|---|---|---|---|---|---|---|---|
| Acenaphthene | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| Acenaphthylene | ug/kg | 41,000 | 330 U | 390 | U | 1900 | U |
| Anthracene | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 330 U | 390 | U | 1900 | U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 330 U | 390 | U | 1900 | U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 330 U | 390 | U | 1900 | U |
| Benzo(g,h,I)perylene | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 330 U | 390 | U | 1900 | U |
| Benzyl Alcohol | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 330 U | 390 | U | 1900 | U |
| Carbazole | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 330 U | 390 | U | 1900 | U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 330 U | 390 | U | 1900 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2-Chloronaphthalene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2-Chlorophenol | ug/kg | 800 | 330 U | 390 | U | 1900 | U |
| Chrysene | ug/kg | 400 | 330 U | 390 | U | 1900 | U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 330 U | 390 | U | 1900 | U |
| Dibenzofuran | ug/kg | 6,200 | 330 U | 390 | U | 1900 | U |
| 1,3-Dichlorobenzene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 1,2-Dichlorobenzene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 1,4-Dichlorobenzene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 3,3-Dichlorobenzene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2,4-Dichlorophenol | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Diethylphthalate | ug/kg | 7,100 | 330 U | 390 | U | 1900 | U |
| 2,4-Dimethylphenol | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2,4-Dinitrophenol | ug/kg | NP | 330 U | 2000 | U | 10000 | U |
| 2,4-Dinitrotoluene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 330 U | 390 | U | 1900 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 50,000* | 330 U | 1600 | | 9400 | |
| Fluoranthene | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| Fluorene | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| Hexachlorobenzene | ug/kg | 410 | 330 U | 390 | U | 1900 | U |
| Hexachlorobutadiene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Hexachlorocyclopentane | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Hexachloroethane | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Isophorone | ug/kg | 4,440 | 330 U | 390 | U | 1900 | U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 330 U | 390 | U | 5100 | |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 330 U | 2000 | U | 10000 | U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2-Methylphenol | ug/kg | 100 or MDL | 330 U | 390 | U | 1900 | U |
| 4-Methylphenol | ug/kg | 900 | 330 U | 390 | U | 1900 | U |
| Naphthalene | ug/kg | 13,000 | 330 U | 390 | U | 3100 | |
| 2- Nitroaniline | ug/kg | 430 or MDL | 1700 U | 2000 | U | 10000 | U |
| 3-Nitroaniline | ug/kg | 500 or MDL | 1700 U | 2000 | U | 10000 | U |
| 4-Nitroaniline | ug/kg | 100 or MDL | 1700 U | 2000 | U | 10000 | U |
| Nitrobenzene | ug/kg | 200 or MDL | 330 U | 390 | U | 1900 | U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 330 U | 390 | U | 1900 | U |
| 4-Nitrophenol | ug/kg | 430 or MDL | 1700 U | 2000 | U | 10000 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 330 U | 390 | U | 1900 | U |

## Table 5
## Greer Toyota Analytical Data

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| N-Nitrosodiphenylamine | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Di-n-octyl phthalate | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Pentachlorophenol | ug/kg | NP | 1700 U | 2000 | U | 10000 | U |
| Phenanthrene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Phenol | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| Pyrene | ug/kg | 50,000* | 330 U | 390 | U | 1900 | U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 330 U | 390 | U | 1900 | U |
| 2,4,5-Trichlorophenol | ug/kg | 100 or MDL | 330 U | 390 | U | 1900 | U |

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"NP" indicates that no standard is published in TAGM 4046

Table 6: Greer Toyota: Analytical Results from Soil Borings GT-SB-4 and GT-SB-16 (August 2001)

| **Sample ID**<br>**Sample Date** | | NYSDEC Soil Guidance Values | GT-SB-4<br>8/1/01 | | GT-SB-16<br>8/2/01 | |
|---|---|---|---|---|---|---|
| | | **Volatiles 8260 TCL** | | | | |
| Acetone | ug/kg | 200 | 24 | U | 23 | U |
| Benzene | ug/kg | 60 | 6 | U | 5.9 | U |
| Bromodichloromethane | ug/kg | NP | 6 | U | 5.9 | U |
| Bromoform | ug/kg | NP | 6 | U | 5.9 | U |
| Bromomethane | ug/kg | NP | 6 | U | 5.9 | U |
| 2-Butane (MEK) | ug/kg | 300 | 12 | U | 12 | U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 6 | U | 5.9 | U |
| Carbon Disulfide | ug/kg | 2700 | 12 | U | 12 | U |
| Carbon Tetrachloride | ug/kg | 600 | 6 | U | 5.9 | U |
| Chlorobenzene | ug/kg | 1700 | 6 | U | 5.9 | U |
| Chloroethane | ug/kg | 1900 | 6 | U | 5.9 | U |
| Chloroform | ug/kg | 300 | 6 | U | 5.9 | U |
| Chloromethane | ug/kg | NP | 6 | U | 5.9 | U |
| Dibromochloromethane | ug/kg | NP | 6 | U | 5.9 | U |
| 1,1-Dichloroethane | ug/kg | 200 | 6 | U | 5.9 | U |
| 1,2-Dichloroethane | ug/kg | 100 | 6 | U | 5.9 | U |
| 1,1-Dichloroethene | ug/kg | 400 | 6 | U | 5.9 | U |
| Cis-1,2-Dichloroethene | ug/kg | NP | 6 | U | 5.9 | U |
| Trans-1,2-Dichloroethene | ug/kg | 300 | 6 | U | 5.9 | U |
| 1,2-Dichloropropane | ug/kg | NP | 6 | U | 5.9 | U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 6 | U | 5.9 | U |
| Trans-1,3-Dichloropropene | ug/kg | NP | 6 | U | 5.9 | U |
| Ethylbenzene | ug/kg | 5500 | 6 | U | 5.9 | U |
| 2-Hexanone | ug/kg | NP | 12 | U | 12 | U |
| Methylene Chloride | ug/kg | 100 | 24 | U | 23 | U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 12 | U | 12 | U |
| Styrene | ug/kg | NP | 6 | U | 5.9 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 6 | U | 5.9 | U |
| Tetrachloroethene | ug/kg | 1400 | 6 | U | 5.9 | U |
| Toluene | ug/kg | 1500 | 6 | U | 5.9 | U |
| 1,1,1-Trichloroethane | ug/kg | 800 | 6 | U | 5.9 | U |
| 1,1,2-Trichloroethane | ug/kg | NP | 6 | U | 5.9 | U |
| Trichloroethene | ug/kg | 700 | 6 | U | 5.9 | U |
| Vinyl Chloride | ug/kg | 200 | 6 | U | 5.9 | U |
| 0-Xylene | ug/kg | 1200 | 6 | U | 5.9 | U |
| M&P Xylene | ug/kg | 1200 | 6 | U | 5.9 | U |
| | | **Semi-Volatiles 8270C** | | | | |
| Acenaphthene | ug/kg | 50,000* | 390 | U | 390 | U |
| Acenaphthylene | ug/kg | 41,000 | 390 | U | 390 | U |
| Anthracene | ug/kg | 50,000* | 390 | U | 390 | U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 390 | U | 390 | U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 390 | U | 390 | U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 390 | U | 390 | U |
| Benzo(g,h,I)perylene | ug/kg | 50,000* | 390 | U | 390 | U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 390 | U | 390 | U |
| Benzyl Alcohol | ug/kg | NP | 390 | U | 390 | U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 390 | U | 390 | U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 390 | U | 390 | U |
| Carbazole | ug/kg | NP | 390 | U | 390 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 390 | U | 390 | U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 390 | U | 390 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | NP | 390 | U | 390 | U |

## Table 6: Greer Toyota: Analytical Results from Soil Borings GT-SB-4 and GT-SB-16 (August 2001)

| | | | | | | |
|---|---|---|---|---|---|---|
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 390 | U | 390 | U |
| 2-Chloronaphthalene | ug/kg | NP | 390 | U | 390 | U |
| 2-Chlorophenol | ug/kg | 800 | 390 | U | 390 | U |
| 2,2'-Oxybis (1-Chloropropane) | ug/kg | NP | 390 | U | 390 | U |
| Chrysene | ug/kg | 400 | 390 | U | 390 | U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 390 | U | 390 | U |
| Dibenzofuran | ug/kg | 6,200 | 390 | U | 390 | U |
| 1,3-Dichlorobenzene | ug/kg | 1600 | 390 | U | 390 | U |
| 1,2-Dichlorobenzene | ug/kg | 7900 | 390 | U | 390 | U |
| 1,4-Dichlorobenzene | ug/kg | 8500 | 390 | U | 390 | U |
| 3,3'-Dichlorobenzidine | ug/kg | NP | 390 | U | 390 | U |
| 2,4-Dichlorophenol | ug/kg | 400 | 390 | U | 390 | U |
| Diethylphthalate | ug/kg | 7,100 | 390 | U | 390 | U |
| Dimethyl Phthalate | ug/kg | 2,000 | 390 | U | 390 | U |
| 2,4-Dimethylphenol | ug/kg | NP | 390 | U | 390 | U |
| 2,4-Dinitrophenol | ug/kg | 200 or MDL | 2000 | U | 2000 | U |
| 2,4-Dinitrotoluene | ug/kg | NP | 390 | U | 390 | U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 390 | U | 390 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 50,000* | 390 | U | 890 | |
| Fluoranthene | ug/kg | 50,000* | 390 | U | 390 | U |
| Fluorene | ug/kg | 50,000* | 390 | U | 390 | U |
| Hexachlorobenzene | ug/kg | 410 | 390 | U | 390 | U |
| Hexachlorobutadiene | ug/kg | NP | 390 | U | 390 | U |
| Hexachlorocyclopentadiene | ug/kg | NP | 390 | U | 390 | U |
| Hexachloroethane | ug/kg | NP | 390 | U | 390 | U |
| Isophorone | ug/kg | 4,400 | 390 | U | 390 | U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 390 | U | 390 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 2000 | U | 2000 | U |
| 4-Chloro-3-Methylphenol | ug/kg | 240 or MDL | 390 | U | 390 | U |
| 2-Methylphenol | ug/kg | 100 or MDL | 390 | U | 390 | U |
| 4-Methylphenol | ug/kg | 900 | 390 | U | 390 | U |
| Naphthalene | ug/kg | 13,000 | 390 | U | 390 | U |
| 2- Nitroaniline | ug/kg | 430 or MDL | 2000 | U | 2000 | U |
| 3-Nitroaniline | ug/kg | 500 or MDL | 2000 | U | 2000 | U |
| 4-Nitroaniline | ug/kg | NP | 2000 | U | 2000 | U |
| Nitrobenzene | ug/kg | 200 or MDL | 390 | U | 390 | U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 390 | U | 390 | U |
| 4-Nitrophenol | ug/kg | 100 or MDL | 2000 | U | 2000 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 390 | U | 390 | U |
| N-Nitrosodiphenylamine | ug/kg | NP | 390 | U | 390 | U |
| Di-N-Octyl Phthalate | ug/kg | 50,000* | 390 | U | 390 | U |
| Pentachlorophenol | ug/kg | 1,000 or MDL | 2000 | U | 2000 | U |
| Phenanthrene | ug/kg | 50,000* | 390 | U | 390 | U |
| Phenol | ug/kg | 30 or MDL | 390 | U | 390 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 390 | U | 390 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 390 | U | 390 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 390 | U | 390 | U |
| Pyrene | ug/kg | 50,000* | 390 | U | 390 | U |
| 1,2,4-Trichlorobenzene | ug/kg | 3,400 | 390 | U | 390 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 390 | U | 390 | U |
| 2,4,5-Trichlorophenol | ug/kg | 100 | 390 | U | 390 | U |

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"**"As per TAGM 4046, PCBs 1 ppm (surface), 10 ppm (sub-surface)
"NP" indicates that no standard is published in TAGM 4046

## Table 6: Greer Toyota: Analytical Results from Soil Borings GT-SB-20 and GT-SB-22 (August 2001)

| Sample ID<br>Sample Date | | NYSDEC Soil Guidance Values | GT-SB-20<br>8/2/01 | | GT-SB-22<br>8/2/01 | |
|---|---|---|---|---|---|---|
| **Volatiles 8260 TCL** | | | | | | |
| Acetone | ug/kg | 200 | 110 | U | 21 | U |
| Benzene | ug/kg | 60 | 28 | U | 5.2 | U |
| Bromodichloromethane | ug/kg | NP | 28 | U | 5.2 | U |
| Bromoform | ug/kg | NP | 28 | U | 5.2 | U |
| Bromomethane | ug/kg | NP | 28 | U | 5.2 | U |
| 2-Butane (MEK) | ug/kg | 300 | 57 | U | 10 | U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 28 | U | 5.2 | U |
| Carbon Disulfide | ug/kg | 2700 | 57 | U | 10 | U |
| Carbon Tetrachloride | ug/kg | 600 | 28 | U | 5.2 | U |
| Chlorobenzene | ug/kg | 1700 | 28 | U | 5.2 | U |
| Chloroethane | ug/kg | 1900 | 28 | U | 5.2 | U |
| Chloroform | ug/kg | 300 | 28 | U | 5.2 | U |
| Chloromethane | ug/kg | NP | 28 | U | 5.2 | U |
| Dibromochloromethane | ug/kg | NP | 28 | U | 5.2 | U |
| 1,1-Dichloroethane | ug/kg | 200 | 28 | U | 5.2 | U |
| 1,2-Dichloroethane | ug/kg | 100 | 28 | U | 5.2 | U |
| 1,1-Dichloroethene | ug/kg | 400 | 28 | U | 5.2 | U |
| Cis-1,2-Dichloroethene | ug/kg | NP | 28 | U | 5.2 | U |
| Trans-1,2-Dichloroethene | ug/kg | 300 | 28 | U | 5.2 | U |
| 1,2-Dichloropropane | ug/kg | NP | 28 | U | 5.2 | U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 28 | U | 5.2 | U |
| Trans-1,3-Dichloropropene | ug/kg | NP | 28 | U | 5.2 | U |
| Ethylbenzene | ug/kg | 5500 | 28 | U | 5.2 | U |
| 2-Hexanone | ug/kg | NP | 57 | U | 10 | U |
| Methylene Chloride | ug/kg | 100 | 110 | U | 21 | U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 11 | J | 10 | U |
| Styrene | ug/kg | NP | 28 | U | 5.2 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 28 | U | 5.2 | U |
| Tetrachloroethene | ug/kg | 1400 | 5.9 | J | 5.2 | U |
| Toluene | ug/kg | 1500 | 28 | U | 5.2 | U |
| 1,1,1-Trichloroethane | ug/kg | 800 | 28 | U | 5.2 | U |
| 1,1,2-Trichloroethane | ug/kg | 800 | 28 | U | 5.2 | U |
| Trichloroethene | ug/kg | 700 | 28 | U | 5.2 | U |
| Vinyl Chloride | ug/kg | 200 | 28 | U | 5.2 | U |
| 0-Xylene | ug/kg | 1200 | 28 | U | 5.2 | U |
| M&P Xylene | ug/kg | 1200 | 28 | U | 5.2 | U |
| **Semi-Volatiles 8270C** | | | | | | |
| Acenaphthene | ug/kg | 50,000* | 380 | U | 340 | U |
| Acenaphthylene | ug/kg | 41,000 | 380 | U | 340 | U |
| Anthracene | ug/kg | 50,000* | 66 | J | 340 | U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 120 | J | 340 | U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 380 | U | 340 | U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 380 | U | 340 | U |
| Benzo(g,h,I)perylene | ug/kg | 50,000* | 380 | U | 340 | U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 380 | U | 340 | U |
| Benzyl Alcohol | ug/kg | NP | 380 | U | 340 | U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 380 | U | 340 | U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 120 | J | 340 | U |
| Carbazole | ug/kg | NP | 380 | U | 340 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 380 | U | 340 | U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 380 | U | 340 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | NP | 380 | U | 340 | U |

Table 6: Greer Toyota: Analytical Results from Soil Borings GT-SB-20 and GT-SB-22 (August 2001)

| | | | | | | |
|---|---|---|---|---|---|---|
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 380 | U | 340 | U |
| 2-Chloronaphthalene | ug/kg | NP | 380 | U | 340 | U |
| 2-Chlorophenol | ug/kg | 800 | 380 | U | 340 | U |
| 2,2'-Oxybis (1-Chloropropane) | ug/kg | NP | 380 | U | 340 | U |
| Chrysene | ug/kg | 400 | 100 | J | 340 | U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 380 | U | 340 | U |
| Dibenzofuran | ug/kg | 6,200 | 380 | U | 340 | U |
| 1,3-Dichlorobenzene | ug/kg | 1600 | 380 | U | 340 | U |
| 1,2-Dichlorobenzene | ug/kg | 7900 | 380 | U | 340 | U |
| 1,4-Dichlorobenzene | ug/kg | 8500 | 380 | U | 340 | U |
| 3,3'-Dichlorobenzidine | ug/kg | NP | 380 | U | 340 | U |
| 2,4-Dichlorophenol | ug/kg | 400 | 380 | U | 340 | U |
| Diethylphthalate | ug/kg | 7,100 | 380 | U | 340 | U |
| Dimethyl Phthalate | ug/kg | 2,000 | 380 | U | 340 | U |
| 2,4-Dimethylphenol | ug/kg | NP | 380 | U | 340 | U |
| 2,4-Dinitrophenol | ug/kg | 200 or MDL | 1900 | U | 1800 | U |
| 2,4-Dinitrotoluene | ug/kg | NP | 380 | U | 340 | U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 380 | U | 340 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 50,000* | 4500 | | 220 | J |
| Fluoranthene | ug/kg | 50,000* | 170 | J | 340 | U |
| Fluorene | ug/kg | 50,000* | 89 | J | 340 | U |
| Hexachlorobenzene | ug/kg | 410 | 380 | U | 340 | U |
| Hexachlorobutadiene | ug/kg | NP | 380 | U | 340 | U |
| Hexachlorocyclopentadiene | ug/kg | NP | 380 | U | 340 | U |
| Hexachloroethane | ug/kg | NP | 380 | U | 340 | U |
| Isophorone | ug/kg | 4,400 | 380 | U | 340 | U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 1600 | | 340 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 1900 | U | 1800 | U |
| 4-Chloro-3-Methylphenol | ug/kg | 240 or MDL | 380 | U | 340 | U |
| 2-Methylphenol | ug/kg | 100 or MDL | 380 | U | 340 | U |
| 4-Methylphenol | ug/kg | 900 | 380 | U | 340 | U |
| Naphthalene | ug/kg | 13,000 | 490 | | 340 | U |
| 2- Nitroaniline | ug/kg | 430 or MDL | 1900 | U | 1800 | U |
| 3-Nitroaniline | ug/kg | 500 or MDL | 1900 | U | 1800 | U |
| 4-Nitroaniline | ug/kg | NP | 1900 | U | 1800 | U |
| Nitrobenzene | ug/kg | 200 or MDL | 380 | U | 340 | U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 380 | U | 340 | U |
| 4-Nitrophenol | ug/kg | 100 or MDL | 1900 | U | 1800 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 380 | U | 340 | U |
| N-Nitrosodiphenylamine | ug/kg | NP | 380 | U | 340 | U |
| Di-N-Octyl Phthalate | ug/kg | 50,000* | 380 | U | 340 | U |
| Pentachlorophenol | ug/kg | 1,000 or MDL | 1900 | U | 1800 | U |
| Phenanthrene | ug/kg | 50,000* | 320 | J | 340 | U |
| Phenol | ug/kg | 30 or MDL | 380 | U | 340 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 380 | U | 340 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 380 | U | 340 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 380 | U | 340 | U |
| Pyrene | ug/kg | 50,000* | 230 | J | 340 | U |
| 1,2,4-Trichlorobenzene | ug/kg | 3,400 | 380 | U | 340 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 380 | U | 340 | U |
| 2,4,5-Trichlorophenol | ug/kg | 100 | 380 | U | 340 | U |

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"**"As per TAGM 4046, PCBs 1 ppm (surface), 10 ppm (sub-surface)
"NP" indicates that no standard is published in TAGM 4046

Table 6: Greer Toyota: Analytical Results from Soil Borings GT-SB-26 and GT-SB-28 (August 2001)

| **Sample ID**<br>**Sample Date** | | NYSDEC Soil Guidance Values | GT-SB-26<br>8/2/01 | | GT-SB-28<br>8/2/01 | |
|---|---|---|---|---|---|---|
| **Volatiles 8260 TCL** | | | | | | |
| Acetone | ug/kg | 200 | 22 | U | 22 | U |
| Benzene | ug/kg | 60 | 5.5 | U | 5.5 | U |
| Bromodichloromethane | ug/kg | NP | 5.5 | U | 5.5 | U |
| Bromoform | ug/kg | NP | 5.5 | U | 5.5 | U |
| Bromomethane | ug/kg | NP | 5.5 | U | 5.5 | U |
| 2-Butane (MEK) | ug/kg | 300 | 11 | U | 11 | U |
| Methyl-tert-butyl-ether | ug/kg | 120 | 3.3 | J | 5.5 | U |
| Carbon Disulfide | ug/kg | 2700 | 11 | U | 11 | U |
| Carbon Tetrachloride | ug/kg | 600 | 5.5 | U | 5.5 | U |
| Chlorobenzene | ug/kg | 1700 | 5.5 | U | 5.5 | U |
| Chloroethane | ug/kg | 1900 | 5.5 | U | 5.5 | U |
| Chloroform | ug/kg | 300 | 5.5 | U | 5.5 | U |
| Chloromethane | ug/kg | NP | 5.5 | U | 5.5 | U |
| Dibromochloromethane | ug/kg | NP | 5.5 | U | 5.5 | U |
| 1,1-Dichloroethane | ug/kg | 200 | 5.5 | U | 5.5 | U |
| 1,2-Dichloroethane | ug/kg | 100 | 5.5 | U | 5.5 | U |
| 1,1-Dichloroethene | ug/kg | 400 | 5.5 | U | 5.5 | U |
| Cis-1,2-Dichloroethene | ug/kg | NP | 5.5 | U | 5.5 | U |
| Trans-1,2-Dichloroethene | ug/kg | 300 | 5.5 | U | 5.5 | U |
| 1,2-Dichloropropane | ug/kg | NP | 5.5 | U | 5.5 | U |
| Cis-1,3-Dichloropropene | ug/kg | NP | 5.5 | U | 5.5 | U |
| Trans-1,3-Dichloropropene | ug/kg | NP | 5.5 | U | 5.5 | U |
| Ethylbenzene | ug/kg | 5500 | 5.5 | U | 5.5 | U |
| 2-Hexanone | ug/kg | NP | 11 | U | 11 | U |
| Methylene Chloride | ug/kg | 100 | 22 | U | 22 | U |
| 4-Methyl-2-Pentanone | ug/kg | 1000 | 11 | U | 11 | U |
| Styrene | ug/kg | NP | 5.5 | U | 5.5 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 600 | 5.5 | U | 5.5 | U |
| Tetrachloroethene | ug/kg | 1400 | 5.5 | U | 5.5 | U |
| Toluene | ug/kg | 1500 | 5.5 | U | 5.5 | U |
| 1,1,1-Trichloroethane | ug/kg | 800 | 5.5 | U | 5.5 | U |
| 1,1,2-Trichloroethane | ug/kg | 800 | 5.5 | U | 5.5 | U |
| Trichloroethene | ug/kg | 700 | 5.5 | U | 5.5 | U |
| Vinyl Chloride | ug/kg | 200 | 5.5 | U | 5.5 | U |
| 0-Xylene | ug/kg | 1200 | 1.1 | J | 5.5 | U |
| M&P Xylene | ug/kg | 1200 | 5.5 | U | 5.5 | U |
| **Semi-Volatiles 8270C** | | | | | | |
| Acenaphthene | ug/kg | 50,000* | 3600 | U | 370 | U |
| Acenaphthylene | ug/kg | 41,000 | 3600 | U | 370 | U |
| Anthracene | ug/kg | 50,000* | 3600 | U | 370 | U |
| Benzo(a)anthracene | ug/kg | 224 or MDL | 3600 | U | 370 | U |
| Benzo(a)pryene | ug/kg | 61 or MDL | 3600 | U | 370 | U |
| Benzo(b)fluoranthene | ug/kg | 1,100 | 3600 | U | 370 | U |
| Benzo(g,h,I)perylene | ug/kg | 50,000* | 3600 | U | 370 | U |
| Benzo(k)fluoranthene | ug/kg | 1,100 | 3600 | U | 370 | U |
| Benzyl Alcohol | ug/kg | NP | 3600 | U | 370 | U |
| Butyl Benzl Phthalate | ug/kg | 50,000* | 3600 | U | 370 | U |
| Di-n-Butylphthtalate | ug/kg | 8,100 | 3600 | U | 370 | U |
| Carbazole | ug/kg | NP | 3600 | U | 370 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 3,200 | 3600 | U | 370 | U |
| 4-Cloroaniline | ug/kg | 220 or MDL | 3600 | U | 370 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | NP | 3600 | U | 370 | U |

## Table 6: Greer Toyota: Analytical Results from Soil Borings GT-SB-26 and GT-SB-28 (August 2001)

| | | | | | | |
|---|---|---|---|---|---|---|
| Bis(2-Chloroethoxy) ether | ug/kg | NP | 3600 | U | 370 | U |
| 2-Chloronaphthalene | ug/kg | NP | 3600 | U | 370 | U |
| 2-Chlorophenol | ug/kg | 800 | 3600 | U | 370 | U |
| 2,2'-Oxybis (1-Chloropropane) | ug/kg | NP | 3600 | U | 370 | U |
| Chrysene | ug/kg | 400 | 3600 | U | 370 | U |
| Dibenzo(a,h) Anthracene | ug/kg | 14 or MDL | 3600 | U | 370 | U |
| Dibenzofuran | ug/kg | 6,200 | 3600 | U | 370 | U |
| 1,3-Dichlorobenzene | ug/kg | 1600 | 3600 | U | 370 | U |
| 1,2-Dichlorobenzene | ug/kg | 7900 | 3600 | U | 370 | U |
| 1,4-Dichlorobenzene | ug/kg | 8500 | 3600 | U | 370 | U |
| 3,3'-Dichlorobenzidine | ug/kg | NP | 3600 | U | 370 | U |
| 2,4-Dichlorophenol | ug/kg | 400 | 3600 | U | 370 | U |
| Diethylphthalate | ug/kg | 7,100 | 3600 | U | 370 | U |
| Dimethyl Phthalate | ug/kg | 2,000 | 3600 | U | 370 | U |
| 2,4-Dimethylphenol | ug/kg | NP | 3600 | U | 370 | U |
| 2,4-Dinitrophenol | ug/kg | 200 or MDL | 19000 | U | 1900 | U |
| 2,4-Dinitrotoluene | ug/kg | NP | 3600 | U | 370 | U |
| 2,6-Dinitrotoluene | ug/kg | 1,000 | 3600 | U | 370 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 50,000* | 8300 | | 690 | |
| Fluoranthene | ug/kg | 50,000* | 540 | J | 370 | U |
| Fluorene | ug/kg | 50,000* | 3600 | U | 370 | U |
| Hexachlorobenzene | ug/kg | 410 | 3600 | U | 370 | U |
| Hexachlorobutadiene | ug/kg | NP | 3600 | U | 370 | U |
| Hexachlorocyclopentadiene | ug/kg | NP | 3600 | U | 370 | U |
| Hexachloroethane | ug/kg | NP | 3600 | U | 370 | U |
| Isophorone | ug/kg | 4,400 | 3600 | U | 370 | U |
| 2-Methylnaphthalene | ug/kg | 36,400 | 3600 | U | 370 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 19000 | U | 1900 | U |
| 4-Chloro-3-Methylphenol | ug/kg | 240 or MDL | 3600 | U | 370 | U |
| 2-Methylphenol | ug/kg | 100 or MDL | 3600 | U | 370 | U |
| 4-Methylphenol | ug/kg | 900 | 3600 | U | 370 | U |
| Naphthalene | ug/kg | 13,000 | 3600 | U | 370 | U |
| 2- Nitroaniline | ug/kg | 430 or MDL | 19000 | U | 1900 | U |
| 3-Nitroaniline | ug/kg | 500 or MDL | 19000 | U | 1900 | U |
| 4-Nitroaniline | ug/kg | NP | 19000 | U | 1900 | U |
| Nitrobenzene | ug/kg | 200 or MDL | 3600 | U | 370 | U |
| 2-Nitrophenol | ug/kg | 330 or MDL | 3600 | U | 370 | U |
| 4-Nitrophenol | ug/kg | 100 or MDL | 19000 | U | 1900 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 3600 | U | 370 | U |
| N-Nitrosodiphenylamine | ug/kg | NP | 3600 | U | 370 | U |
| Di-N-Octyl Phthalate | ug/kg | 50,000* | 3600 | U | 370 | U |
| Pentachlorophenol | ug/kg | 1,000 or MDL | 19000 | U | 1900 | U |
| Phenanthrene | ug/kg | 50,000* | 780 | J | 370 | U |
| Phenol | ug/kg | 30 or MDL | 3600 | U | 370 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 3600 | U | 370 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 3600 | U | 370 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 3600 | U | 370 | U |
| Pyrene | ug/kg | 50,000* | 800 | J | 370 | U |
| 1,2,4-Trichlorobenzene | ug/kg | 3,400 | 3600 | U | 370 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 3600 | U | 370 | U |
| 2,4,5-Trichlorophenol | ug/kg | 100 | 3600 | U | 370 | U |

Concentrations which exceed NYSDEC TAGM 4046 Guidance Values are presented in bold
"*" As per TAGM 4046, Total VOCs <10 ppm, Total Semi-VOCs < 500 ppm and Ind. Semi-VOCs < 50 ppm
"**"As per TAGM 4046, PCBs 1 ppm (surface), 10 ppm (sub-surface)
"NP" indicates that no standard is published in TAGM 4046

## Table 7: Concentrations of Volatile Organic Compounds Detected in Soil Samples by Heated Headspace GC Analysis
## Greer Toyota Site

| Sample ID | Collection Date | Analysis Date | 1,1-DCA (ppb) | cis,1,2-DCE (ppb) | 1,1,1-TCA (ppb) | TCE (ppb) | PCE (ppb) |
|---|---|---|---|---|---|---|---|
| GT-SB-3 0-4' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- |
| GT-SB-5 12-12.5' | 8/1/01 | 8/7/01 | -- | -- | 168.67 | 935.03 | 1594.87 |
| GT-SB-6 8-12' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | 173.13 |
| GT-SB-8 12-14.6' | 8/1/01 | 8/9/01 | -- | 66.69 | 50.88 | 38.32 | 50.97 |
| GT-SB-9 12-13' | 8/1/01 | 8/9/01 | -- | 192.28 | 169.98 | 149.36 | 255.26 |
| GT-SB-11 8-10.4' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- |
| GT-SB-12 8-10.4' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- |
| GT-SB-13 8-11' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | 22.10 |
| GT-SB-18 8-10.5' | 8/1/01 | 8/9/01 | -- | 69.70 | -- | 63.81 | -- |
| GT-SB-19 4-8' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- |
| GT-SB-19 8-12' | 8/1/01 | 8/9/01 | -- | 249.87 | -- | 401.64 | 246.96 |
| GT-SB-21 8-10.7' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- |
| GT-SB-23 12-13.6' | 8/1/01 | 8/7/01 | -- | 76.49 | -- | -- | 62818.90 |
| GT-SB-24 12-13.6' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- |
| GT-SB-25 8-12' | 8/1/01 | 8/7/01 | 56.69 | -- | -- | -- | 939.42 |
| GT-SB-27 12-14' | 8/1/01 | 8/9/01 | -- | 48.02 | -- | 317.72 | 64.02 |

"--" indicates that the compound was not detected at a concentration above the method detection limit.

Table 7: Concentrations of Gasoline Range Organic Compounds Detected in Soil Samples by Heated Headspace GC Analysis
Greer Toyota Site

| Sample ID | Collection Date | Analysis Date | MTBE (ppb) | Benzene (ppb) | Toluene (ppb) | E-Benzene (ppb) | m+p Xlyene (ppb) | O-Xylene (ppb) | 135-TMB (ppb) | 124-TMB (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|
| GT-SB-3 0-4' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-5 12-12.5' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-6 8-12' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | 902.94 | -- |
| GT-SB-8 12-14.6' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-9 12-13'[1] | 8/1/01 | 8/9/01 | -- | 1082.32 | -- | -- | -- | 1191.92 | -- | 5462.21 |
| GT-SB-11 8-10.4' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-12 8-10.4' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-13 8-11' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-18 8-10.5' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | 680.70 | -- | 853.57 |
| GT-SB-19 4-8' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-19 8-12' | 8/1/01 | 8/9/01 | -- | 1657.29 | -- | -- | -- | -- | -- | 597.80 |
| GT-SB-21 8-10.7' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- | 781.95 | 950.87 | 760.13 |
| GT-SB-23 12-13.6' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-24 12-13.6' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-25 8-12' | 8/1/01 | 8/7/01 | -- | -- | -- | -- | -- | -- | -- | -- |
| GT-SB-27 12-14' | 8/1/01 | 8/9/01 | -- | -- | -- | -- | -- | 1229.29 | -- | 1453.04 |

[1] Unidentified petroleum compounds detected in sample

"--" indicates that the compound was not detected at a concentration above the method detection limit

Table 8: Greer Toyota: MW-1 and MW-2 Analytical Results (August 2001)

| **Sample ID**<br>**Sample Date** | | NYSDEC Water Guidance Values | MW-1<br>8/30/01 | | MW-2<br>8/30/01 | |
|---|---|---|---|---|---|---|
| **Volatiles 8260 TCL** | | | | | | |
| Acetone | ug/kg | 50 | 20 | U | 20 | U |
| Benzene | ug/kg | 1 | 1 | U | 1 | U |
| Bromodichloromethane | ug/kg | 50 | 5 | U | 5 | U |
| Bromoform | ug/kg | 50 | 5 | U | 5 | U |
| Bromomethane | ug/kg | 5 | 2 | U | 2 | U |
| 2-Butane (MEK) | ug/kg | NP | 10 | U | 10 | U |
| Methyl-tert-butyl-ether | ug/kg | 10 | 3.5 | J | 11 | J |
| Carbon Disulfide | ug/kg | NP | 10 | U | 10 | U |
| Carbon Tetrachloride | ug/kg | 5 | 5 | U | 5 | U |
| Chlorobenzene | ug/kg | 5 | 5 | U | 5 | U |
| Chloroethane | ug/kg | 5 | 5 | U | 5 | U |
| Chloroform | ug/kg | 7 | 5 | U | 5 | U |
| Chloromethane | ug/kg | NP | 5 | U | 5 | U |
| Dibromochloromethane | ug/kg | 50 | 5 | U | 5 | U |
| 1,1, Dichloroethane | ug/kg | 5 | 5 | U | 5 | U |
| 1,2-Dichloroethane | ug/kg | 0.6 | 5 | U | 5 | U |
| 1,1-Dichloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Cis-1,2-Dichloroethene | ug/kg | NP | 5 | U | 5 | U |
| Trans-1,2-Dichloroethene | ug/kg | NP | 5 | U | 5 | U |
| 1,2 -Dichloropropane | ug/kg | NP | 5 | U | 5 | U |
| Cis-1,3-Dichloropropene | ug/kg | 5 | 5 | U | 5 | U |
| Trans-1,3-Dichloropropene | ug/kg | 5 | 5 | U | 5 | U |
| Ethylbenzene | ug/kg | 5 | 5 | U | 5 | U |
| 2-Hexanone | ug/kg | 50 | 10 | U | 10 | U |
| Methylene Chloride | ug/kg | 5 | 5 | U | 5 | U |
| 4-Methyl-2-Pentanone | ug/kg | NP | 10 | U | 10 | U |
| Styrene | ug/kg | 930 | 5 | U | 5 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 5 | 5 | U | 5 | U |
| Tetrachloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Toluene | ug/kg | 5 | 5 | U | 5 | U |
| 1,1,1-Trichloroethane | ug/kg | 5 | 5 | U | 5 | U |
| 1,1,2-Trichloroethane | ug/kg | 1 | 5 | U | 5 | U |
| Trichloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Vinyl Chloride | ug/kg | 2 | 2 | U | 2 | U |
| 0-Xylene | ug/kg | NP | 5 | U | 5 | U |
| M&P Xylene | ug/kg | NP | 5 | U | 5 | U |
| **Semi-Volatiles 8270C** | | | | | | |
| Acenaphthene | ug/kg | 20 | 9.6 | U | 9.7 | U |
| Acenaphthylene | ug/kg | NP | 9.6 | U | 9.7 | U |
| Anthracene | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Benzo(a)anthracene | ug/kg | 0.002 | 9.6 | U | 9.7 | U |
| Benzo(a)pryene | ug/kg | NP | 9.6 | U | 9.7 | U |
| Benzo(b)fluoranthene | ug/kg | 0.002 | 9.6 | U | 9.7 | U |
| Benzo(g,h,I)perylene | ug/kg | NP | 9.6 | U | 9.7 | U |
| Benzo(k)fluoranthene | ug/kg | 0.002 | 9.6 | U | 9.7 | U |
| Benzyl Alcohol | ug/kg | NP | 9.6 | U | 9.7 | U |
| Butyl Benzl Phthalate | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Di-n-Butylphthtalate | ug/kg | 50 | 1.1 | U | 1 | J |
| Carbazole | ug/kg | NP | 9.6 | U | 9.7 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 0.002 | 9.6 | U | 9.7 | U |
| 4-Cloroaniline | ug/kg | 5 | 9.6 | U | 9.7 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | 5 | 9.6 | U | 9.7 | U |

Table 8: Greer Toyota: MW-1 and MW-2 Analytical Results (August 2001)

| | | | | | | |
|---|---|---|---|---|---|---|
| Bis(2-Chloroethoxy) ether | ug/kg | 1 | 9.6 | U | 9.7 | U |
| 2-Chloronaphthalene | ug/kg | 10 | 9.6 | U | 9.7 | U |
| 2-Chlorophenol | ug/kg | NP | 9.6 | U | 9.7 | U |
| 2,2'-Oxybis (1-chloropropane) | ug/kg | NP | 9.6 | U | 9.7 | U |
| Chrysene | ug/kg | 0.002 | 9.6 | U | 9.7 | U |
| Dibenzo(a,h) Anthracene | ug/kg | NP | 9.6 | U | 9.7 | U |
| Dibenzofuran | ug/kg | NP | 9.6 | U | 9.7 | U |
| 1,3-Dichlorobenzene | ug/kg | 3 | 9.6 | U | 9.7 | U |
| 1,2-Dichlorobenzene | ug/kg | 3 | 9.6 | U | 9.7 | U |
| 1,4-Dichlorobenzene | ug/kg | 3 | 9.6 | U | 9.7 | U |
| 3,3'-Dichlorobenzidine | ug/kg | 5 | 9.6 | U | 9.7 | U |
| 2,4-Dichlorophenol | ug/kg | 2* | 9.6 | U | 9.7 | U |
| Diethylphthalate | ug/kg | 50 | 9.6 | U | 9.7 | U |
| 2,4-Dimethylphenol | ug/kg | 2* | 9.6 | U | 9.7 | U |
| 2,4-Dinitrophenol | ug/kg | 2* | 48 | U | 49 | U |
| 2,4-Dinitrotoluene | ug/kg | 5 | 9.6 | U | 9.7 | U |
| 2,6-Dinitrotoluene | ug/kg | 5 | 9.6 | U | 9.7 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 5 | 1.1 | J | 1 | J |
| Fluoranthene | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Fluorene | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Hexachlorobenzene | ug/kg | 0.040 | 9.6 | U | 9.7 | U |
| Hexachlorobutadiene | ug/kg | 0.500 | 9.6 | U | 9.7 | U |
| Hexachlorocyclopentane | ug/kg | NP | 9.6 | U | 9.7 | U |
| Hexachloroethane | ug/kg | 5 | 9.6 | U | 9.7 | U |
| Isophorone | ug/kg | 50 | 9.6 | U | 9.7 | U |
| 2-Methylnaphthalene | ug/kg | NP | 9.6 | U | 9.7 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 48 | U | 49 | U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 9.6 | U | 9.7 | U |
| 2-Methylphenol | ug/kg | NP | 9.6 | U | 9.7 | U |
| 4-Methylphenol | ug/kg | NP | 9.6 | U | 9.7 | U |
| Naphthalene | ug/kg | 10 | 9.6 | U | 9.7 | U |
| 2- Nitroaniline | ug/kg | 5 | 48 | U | 49 | U |
| 3-Nitroaniline | ug/kg | 5 | 48 | U | 49 | U |
| 4-Nitroaniline | ug/kg | 5 | 48 | U | 49 | U |
| Nitrobenzene | ug/kg | 0.400 | 9.6 | U | 9.7 | U |
| 2-Nitrophenol | ug/kg | NP | 9.6 | U | 9.7 | U |
| 4-Nitrophenol | ug/kg | NP | 48 | U | 49 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 9.6 | U | 9.7 | U |
| N-Nitrosodiphenylamine | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Di-N-Octyl Phthalate | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Pentachlorophenol | ug/kg | 2* | 48 | U | 49 | U |
| Phenanthrene | ug/kg | 50 | 9.6 | U | 9.7 | U |
| Phenol | ug/kg | 2* | 9.6 | U | 9.7 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 9.6 | U | 9.7 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 9.6 | U | 9.7 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 9.6 | U | 9.7 | U |
| Pyrene | ug/kg | 50 | 9.6 | U | 9.7 | U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 9.6 | U | 9.7 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 9.6 | U | 9.7 | U |
| 2,4,5-Trichlorophenol | ug/kg | NP | 9.6 | U | 9.7 | U |

Concentrations which exceed NYSDEC TOGS Guidance Values are presented in bold

"*" As per TOGS, Total Phenols not to exceed 2 ppb.

"NP" indicates that no standard is published in TOGS

Table 8: Greer Toyota: MW-3 and MW-4 Analytical Results (August 2001)

| **Sample ID**<br>**Sample Date** | | NYSDEC Water Guidance Values | MW-3<br>8/30/01 | | MW-4<br>8/30/01 | |
|---|---|---|---|---|---|---|
| **Volatiles 8260 TCL** | | | | | | |
| Acetone | ug/kg | 50 | 20 | U | 20 | U |
| Benzene | ug/kg | 1 | 1 | U | 1 | U |
| Bromodichloromethane | ug/kg | 50 | 5 | U | 5 | U |
| Bromoform | ug/kg | 50 | 5 | U | 5 | U |
| Bromomethane | ug/kg | 5 | 2 | U | 2 | U |
| 2-Butane (MEK) | ug/kg | NP | 10 | U | 10 | U |
| Methyl-tert-butyl-ether | ug/kg | 10 | 5 | J | 4.6 | J |
| Carbon Disulfide | ug/kg | NP | 10 | U | 10 | U |
| Carbon Tetrachloride | ug/kg | 5 | 5 | U | 5 | U |
| Chlorobenzene | ug/kg | 5 | 5 | U | 5 | U |
| Chloroethane | ug/kg | 5 | 5 | U | 5 | U |
| Chloroform | ug/kg | 7 | 5 | U | 5 | U |
| Chloromethane | ug/kg | NP | 5 | U | 5 | U |
| Dibromochloromethane | ug/kg | 50 | 5 | U | 5 | U |
| 1,1, Dichloroethane | ug/kg | 5 | 5 | U | 3.6 | J |
| 1,2-Dichloroethane | ug/kg | 0.6 | 5 | U | 5 | U |
| 1,1-Dichloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Cis-1,2-Dichloroethene | ug/kg | NP | 5 | U | 5 | U |
| Trans-1,2-Dichloroethene | ug/kg | NP | 5 | U | 5 | U |
| 1,2 -Dichloropropane | ug/kg | NP | 5 | U | 5 | U |
| Cis-1,3-Dichloropropene | ug/kg | 5 | 5 | U | 5 | U |
| Trans-1,3-Dichloropropene | ug/kg | 5 | 5 | U | 5 | U |
| Ethylbenzene | ug/kg | 5 | 5 | U | 5 | U |
| 2-Hexanone | ug/kg | 50 | 10 | U | 10 | U |
| Methylene Chloride | ug/kg | 5 | 5 | U | 5 | U |
| 4-Methyl-2-Pentanone | ug/kg | NP | 10 | U | 10 | U |
| Styrene | ug/kg | 930 | 5 | U | 5 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 5 | 5 | U | 5 | U |
| Tetrachloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Toluene | ug/kg | 5 | 5 | U | 5 | U |
| 1,1,1-Trichloroethane | ug/kg | 5 | 5 | U | 2 | J |
| 1,1,2-Trichloroethane | ug/kg | 1 | 5 | U | 5 | U |
| Trichloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Vinyl Chloride | ug/kg | 2 | 2 | U | 2 | U |
| 0-Xylene | ug/kg | NP | 5 | U | 5 | U |
| M&P Xylene | ug/kg | NP | 5 | U | 5 | U |
| **Semi-Volatiles 8270C** | | | | | | |
| Acenaphthene | ug/kg | 20 | 9.7 | U | 9.5 | U |
| Acenaphthylene | ug/kg | NP | 9.7 | U | 9.5 | U |
| Anthracene | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Benzo(a)anthracene | ug/kg | 0.002 | 9.7 | U | 9.5 | U |
| Benzo(a)pryene | ug/kg | NP | 9.7 | U | 9.5 | U |
| Benzo(b)fluoranthene | ug/kg | 0.002 | 9.7 | U | 9.5 | U |
| Benzo(g,h,i)perylene | ug/kg | NP | 9.7 | U | 9.5 | U |
| Benzo(k)fluoranthene | ug/kg | 0.002 | 9.7 | U | 9.5 | U |
| Benzyl Alcohol | ug/kg | NP | 9.7 | U | 9.5 | U |
| Butyl Benzl Phthalate | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Di-n-Butylphthtalate | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Carbazole | ug/kg | NP | 9.7 | U | 9.5 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 0.002 | 9.7 | U | 9.5 | U |
| 4-Cloroaniline | ug/kg | 5 | 9.7 | U | 9.5 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | 5 | 9.7 | U | 9.5 | U |

Table 8: Greer Toyota: MW-3 and MW-4 Analytical Results (August 2001)

| | | | | | | |
|---|---|---|---|---|---|---|
| Bis(2-Chloroethoxy) ether | ug/kg | 1 | 9.7 | U | 9.5 | U |
| 2-Chloronaphthalene | ug/kg | 10 | 9.7 | U | 9.5 | U |
| 2-Chlorophenol | ug/kg | NP | 9.7 | U | 9.5 | U |
| 2,2'-Oxybis (1-chloropropan | ug/kg | NP | 9.7 | U | 9.5 | U |
| Chrysene | ug/kg | 0.002 | 9.7 | U | 9.5 | U |
| Dibenzo(a,h) Anthracene | ug/kg | NP | 9.7 | U | 9.5 | U |
| Dibenzofuran | ug/kg | NP | 9.7 | U | 9.5 | U |
| 1,3-Dichlorobenzene | ug/kg | 3 | 9.7 | U | 9.5 | U |
| 1,2-Dichlorobenzene | ug/kg | 3 | 9.7 | U | 9.5 | U |
| 1,4-Dichlorobenzene | ug/kg | 3 | 9.7 | U | 9.5 | U |
| 3,3'-Dichlorobenzidine | ug/kg | 5 | 9.7 | U | 9.5 | U |
| 2,4-Dichlorophenol | ug/kg | 2* | 9.7 | U | 9.5 | U |
| Diethylphthalate | ug/kg | 50 | 9.7 | U | 9.5 | U |
| 2,4-Dimethylphenol | ug/kg | 2* | 9.7 | U | 9.5 | U |
| 2,4-Dinitrophenol | ug/kg | 2* | 49 | U | 48 | U |
| 2,4-Dinitrotoluene | ug/kg | 5 | 9.7 | U | 9.5 | U |
| 2,6-Dinitrotoluene | ug/kg | 5 | 9.7 | U | 9.5 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 5 | 2.1 | J | 7 | J |
| Fluoranthene | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Fluorene | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Hexachlorobenzene | ug/kg | 0.040 | 9.7 | U | 9.5 | U |
| Hexachlorobutadiene | ug/kg | 0.500 | 9.7 | U | 9.5 | U |
| Hexachlorocyclopentane | ug/kg | NP | 9.7 | U | 9.5 | U |
| Hexachloroethane | ug/kg | 5 | 9.7 | U | 9.5 | U |
| Isophorone | ug/kg | 50 | 9.7 | U | 9.5 | U |
| 2-Methylnaphthalene | ug/kg | NP | 9.7 | U | 9.5 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 49 | U | 48 | U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 9.7 | U | 9.5 | U |
| 2-Methylphenol | ug/kg | NP | 9.7 | U | 9.5 | U |
| 4-Methylphenol | ug/kg | NP | 9.7 | U | 9.5 | U |
| Naphthalene | ug/kg | 10 | 9.7 | U | 9.5 | U |
| 2- Nitroaniline | ug/kg | 5 | 49 | U | 48 | U |
| 3-Nitroaniline | ug/kg | 5 | 49 | U | 48 | U |
| 4-Nitroaniline | ug/kg | 5 | 49 | U | 48 | U |
| Nitrobenzene | ug/kg | 0.400 | 9.7 | U | 9.5 | U |
| 2-Nitrophenol | ug/kg | NP | 9.7 | U | 9.5 | U |
| 4-Nitrophenol | ug/kg | NP | 49 | U | 48 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 9.7 | U | 9.5 | U |
| N-Nitrosodiphenylamine | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Di-N-Octyl Phthalate | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Pentachlorophenol | ug/kg | 2* | 49 | U | 48 | U |
| Phenanthrene | ug/kg | 50 | 9.7 | U | 9.5 | U |
| Phenol | ug/kg | 2* | 9.7 | U | 9.5 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 9.7 | U | 9.5 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 9.7 | U | 9.5 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 9.7 | U | 9.5 | U |
| Pyrene | ug/kg | 50 | 9.7 | U | 9.5 | U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 9.7 | U | 9.5 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 9.7 | U | 9.5 | U |
| 2,4,5-Trichlorophenol | ug/kg | NP | 9.7 | U | 9.5 | U |

Concentrations which exceed NYSDEC TOGS Guidance Values are presented in bold
"*" As per TOGS, Total Phenols not to exceed 2 ppb.
"NP" indicates that no standard is published in TOGS
"NP" indicates that no standard is published in TAGM 4046

## Table 8: Greer Toyota: MW-5 and MW-6 Analytical Results (August 2001)

| Sample ID<br>Sample Date | | NYSDEC Water Guidance Values | MW-5<br>8/30/01 | | MW-6<br>8/30/01 | |
|---|---|---|---|---|---|---|
| **Volatiles 8260 TCL** | | | | | | |
| Acetone | ug/kg | 50 | 20 | U | 20 | U |
| Benzene | ug/kg | 1 | 3.7 | J | 1 | U |
| Bromodichloromethane | ug/kg | 50 | 5 | U | 5 | U |
| Bromoform | ug/kg | 50 | 5 | U | 5 | U |
| Bromomethane | ug/kg | 5 | 2 | U | 2 | U |
| 2-Butane (MEK) | ug/kg | NP | 10 | U | 10 | U |
| Methyl-tert-butyl-ether | ug/kg | 10 | 44 | | 86 | |
| Carbon Disulfide | ug/kg | NP | 10 | U | 10 | U |
| Carbon Tetrachloride | ug/kg | 5 | 5 | U | 5 | U |
| Chlorobenzene | ug/kg | 5 | 5 | U | 5 | U |
| Chloroethane | ug/kg | 5 | 5 | U | 5 | U |
| Chloroform | ug/kg | 7 | 5 | U | 5 | U |
| Chloromethane | ug/kg | NP | 5 | U | 5 | U |
| Dibromochloromethane | ug/kg | 50 | 5 | U | 5 | U |
| 1,1, Dichloroethane | ug/kg | 5 | 33 | | 7.7 | |
| 1,2-Dichloroethane | ug/kg | 0.6 | 5 | U | 5 | U |
| 1,1-Dichloroethene | ug/kg | 5 | 5 | U | 5 | U |
| Cis-1,2-Dichloroethene | ug/kg | NP | 4.4 | J | 1.8 | J |
| Trans-1,2-Dichloroethene | ug/kg | NP | 5 | U | 5 | U |
| 1,2 -Dichloropropane | ug/kg | NP | 5 | U | 5 | U |
| Cis-1,3-Dichloropropene | ug/kg | 5 | 5 | U | 5 | U |
| Trans-1,3-Dichloropropene | ug/kg | 5 | 5 | U | 5 | U |
| Ethylbenzene | ug/kg | 5 | 5 | U | 5 | U |
| 2-Hexanone | ug/kg | 50 | 10 | U | 10 | U |
| Methylene Chloride | ug/kg | 5 | 5 | U | 5 | U |
| 4-Methyl-2-Pentanone | ug/kg | NP | 10 | U | 10 | U |
| Styrene | ug/kg | 930 | 5 | U | 5 | U |
| 1,1,2,2-Tetrachloroethane | ug/kg | 5 | 5 | U | 5 | U |
| Tetrachloroethene | ug/kg | 5 | 2.8 | J | 5 | U |
| Toluene | ug/kg | 5 | 5 | U | 5 | U |
| 1,1,1-Trichloroethane | ug/kg | 5 | 5.6 | | 5.2 | |
| 1,1,2-Trichloroethane | ug/kg | 1 | 5 | U | 5 | U |
| Trichloroethene | ug/kg | 5 | 1.9 | J | 1.1 | J |
| Vinyl Chloride | ug/kg | 2 | 2.3 | | 2 | U |
| 0-Xylene | ug/kg | NP | 5 | U | 5 | U |
| M&P Xylene | ug/kg | NP | 5 | U | 5 | U |
| **Semi-Volatiles 8270C** | | | | | | |
| Acenaphthene | ug/kg | 20 | 9.7 | U | 9.6 | U |
| Acenaphthylene | ug/kg | NP | 9.7 | U | 9.6 | U |
| Anthracene | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Benzo(a)anthracene | ug/kg | 0.002 | 9.7 | U | 9.6 | U |
| Benzo(a)pryene | ug/kg | NP | 9.7 | U | 9.6 | U |
| Benzo(b)fluoranthene | ug/kg | 0.002 | 9.7 | U | 9.6 | U |
| Benzo(g,h,I)perylene | ug/kg | NP | 9.7 | U | 9.6 | U |
| Benzo(k)fluoranthene | ug/kg | 0.002 | 9.7 | U | 9.6 | U |
| Benzyl Alcohol | ug/kg | NP | 9.7 | U | 9.6 | U |
| Butyl Benzl Phthalate | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Di-n-Butylphthtalate | ug/kg | 50 | 1.1 | J | 9.6 | J |
| Carbazole | ug/kg | NP | 9.7 | U | 9.6 | U |
| Indeno(1,2,3-cd)pyrene | ug/kg | 0.002 | 9.7 | U | 9.6 | U |
| 4-Cloroaniline | ug/kg | 5 | 9.7 | U | 9.6 | U |
| Bis(2-Chloroethoxy)methane | ug/kg | 5 | 9.7 | U | 9.6 | U |

Table 8: Greer Toyota: MW-5 and MW-6 Analytical Results (August 2001)

| | | | | | | |
|---|---|---|---|---|---|---|
| Bis(2-Chloroethoxy) ether | ug/kg | 1 | 9.7 | U | 9.6 | U |
| 2-Chloronaphthalene | ug/kg | 10 | 9.7 | U | 9.6 | U |
| 2-Chlorophenol | ug/kg | NP | 9.7 | U | 9.6 | U |
| 2,2'-Oxybis (1-chloropropane) | ug/kg | NP | 9.7 | U | 9.6 | U |
| Chrysene | ug/kg | 0.002 | 9.7 | U | 9.6 | U |
| Dibenzo(a,h) Anthracene | ug/kg | NP | 9.7 | U | 9.6 | U |
| Dibenzofuran | ug/kg | NP | 9.7 | U | 9.6 | U |
| 1,3-Dichlorobenzene | ug/kg | 3 | 9.7 | U | 9.6 | U |
| 1,2-Dichlorobenzene | ug/kg | 3 | 9.7 | U | 9.6 | U |
| 1,4-Dichlorobenzene | ug/kg | 3 | 9.7 | U | 9.6 | U |
| 3,3'-Dichlorobenzidine | ug/kg | 5 | 9.7 | U | 9.6 | U |
| 2,4-Dichlorophenol | ug/kg | 2* | 9.7 | U | 9.6 | U |
| Diethylphthalate | ug/kg | 50 | 9.7 | U | 9.6 | U |
| 2,4-Dimethylphenol | ug/kg | 2* | 9.7 | U | 9.6 | U |
| 2,4-Dinitrophenol | ug/kg | 2* | 49 | U | 9.6 | U |
| 2,4-Dinitrotoluene | ug/kg | 5 | 9.7 | U | 9.6 | U |
| 2,6-Dinitrotoluene | ug/kg | 5 | 9.7 | U | 9.6 | U |
| Bis(2-Ethylhexyl) Phthalate | ug/kg | 5 | 1.3 | J | 1.7 | J |
| Fluoranthene | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Fluorene | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Hexachlorobenzene | ug/kg | 0.040 | 9.7 | U | 9.6 | U |
| Hexachlorobutadiene | ug/kg | 0.500 | 9.7 | U | 9.6 | U |
| Hexachlorocyclopentane | ug/kg | NP | 9.7 | U | 9.6 | U |
| Hexachloroethane | ug/kg | 5 | 9.7 | U | 9.6 | U |
| Isophorone | ug/kg | 50 | 9.7 | U | 9.6 | U |
| 2-Methylnaphthalene | ug/kg | NP | 9.7 | U | 9.6 | U |
| 4,6-Dinitro-2-Methylphenol | ug/kg | NP | 49 | U | 48 | U |
| 4-Chloro-3-Methylphenol | ug/kg | NP | 9.7 | U | 9.6 | U |
| 2-Methylphenol | ug/kg | NP | 9.7 | U | 9.6 | U |
| 4-Methylphenol | ug/kg | NP | 9.7 | U | 9.6 | U |
| Naphthalene | ug/kg | 10 | 9.7 | U | 9.6 | U |
| 2- Nitroaniline | ug/kg | 5 | 49 | U | 48 | U |
| 3-Nitroaniline | ug/kg | 5 | 49 | U | 48 | U |
| 4-Nitroaniline | ug/kg | 5 | 49 | U | 48 | U |
| Nitrobenzene | ug/kg | 0.400 | 9.7 | U | 9.6 | U |
| 2-Nitrophenol | ug/kg | NP | 9.7 | U | 9.6 | U |
| 4-Nitrophenol | ug/kg | NP | 49 | U | 48 | U |
| N-Nitrosodimethylamine | ug/kg | NP | 9.7 | U | 9.6 | U |
| N-Nitrosodiphenylamine | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Di-N-Octyl Phthalate | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Pentachlorophenol | ug/kg | 2* | 49 | U | 48 | U |
| Phenanthrene | ug/kg | 50 | 9.7 | U | 9.6 | U |
| Phenol | ug/kg | 2* | 9.7 | U | 9.6 | U |
| 4-Bromophenyl-Phenylether | ug/kg | NP | 9.7 | U | 9.6 | U |
| 4-Chlorophenyl-Phenylether | ug/kg | NP | 9.7 | U | 9.6 | U |
| N-Nitroso-Di-N-Propylamine | ug/kg | NP | 9.7 | U | 9.6 | U |
| Pyrene | ug/kg | 50 | 9.7 | U | 9.6 | U |
| 1,2,4-Trichlorobenzene | ug/kg | NP | 9.7 | U | 9.6 | U |
| 2,4,6-Trichlorophenol | ug/kg | NP | 9.7 | U | 9.6 | U |
| 2,4,5-Trichlorophenol | ug/kg | NP | 9.7 | U | 9.6 | U |

Concentrations which exceed NYSDEC TOGS Guidance Values are presented in bold

"*" As per TOGS, Total Phenols not to exceed 2 ppb.

"NP" indicates that no standard is published in TOGS

Table 9: Greer Toyota Monitoring Well and Groundwater Elevations

| Monitoring Well I.D. | Casing Elevation (TOC)* | Ground Elevation | Groundwater Elevation | | |
|---|---|---|---|---|---|
| | | | **8/2/01** | **8/21/01** | **9/21/01** |
| 1 | 100 | 98.96 | NA | 85.6 | 85.74 |
| 2 | 95.78 | 94.68 | NA | 80.28 | 82.13 |
| 3 | 90.23 | 89.23 | NA | 77.83 | 79.3 |
| 4 | 89.5 | 86.57 | NA | 69.1 | 74.01 |
| 5 | 92.04 | 89.17 | NA | 73.32 | 73.89 |
| 6 | 92.38 | 92.93 | NA | 75.43 | 76.24 |
| Onsite Production | NA | 97.65 | 62.69 | NA | NA |
| Halpin Well | NA | 71.4 | 53.2 | NA | NA |

* MW-1 used as a benchmark. MW-1 top of casing (TOC) given arbitrary elevation of 100'.
"NA" denotes data not available for the specified day.