FINAL
FEASIBILITY STUDY REPORT

Former Grant Hardware Facility
West Nyack, New York
NYSDEC Registry Site No. 344031
NYSDEC Spill No. 93-08931

July 2009

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EXECUTIVE SUMMARY

This *Feasibility Study Report (FS)* has been prepared to address the proposed remediation of soil and ground water at the Former Grant Hardware site in West Nyack, NY. At this site, soil and ground water have been impacted primarily by the chlorinated organic compound trichloroethene (TCE) and its breakdown products, cis-1,2-dichloroethene (1,2-DCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC). The FS evaluates potential remedial alternatives, discusses the application of these alternatives to the site and selects among the alternatives, the method most protective of public health and the environment.

The recommended remedial alternative for the soil is a three-phase approach consisting of limited excavation of the most highly contaminated soils followed by phased installation of a soil vapor extraction (SVE) system. SVE technology has a documented history of the removal of volatile organic compounds from unsaturated media and this alternative is also likely to remove contaminants from beneath the building slab and so contribute to improving soil-gas quality below the building. The vapor from the SVE system will be treated by a granular activated carbon system prior to discharge to the atmosphere.

Impacted ground water at this property is present within two connected areas; a plateau area and a flood plain area. The recommended ground water remedial alternative in the plateau area and in the flood plain area is anaerobic bioremediation, which is an *in-situ* remedial technology that promotes degradation of chlorinated contaminants in both the aqueous phase and those adsorbed onto the aquifer media. Geovation completed a detailed 12-month pilot study of this bioremediation technology for both source area treatment and as a biobarrier. The cumulative data from the pilot study, and continued ground water monitoring, conclusively demonstrated the ability of this technology to drive the desorption and accelerated dechlorination of the chloroethenes present in site ground water and adsorbed onto the aquifer matrix. In the pilot areas, the primary contaminant TCE was reduced by more than 94% in all target wells, and a reduction of more than 93% of the daughter compound cDCE was achieved in the barrier area.

Detailed plans for the application of these technologies are provided in the FS document.

Feasibility Study Report

Former Grant Hardware Facility, West Nyack, New York
NYSDEC Spill No. 344031

PURPOSE

Geovation Engineering, P.C. (Geovation) has been retained by Gussack Realty to conduct a Feasibility Study at the former Grant Hardware site located in West Nyack, Rockland County, New York. This *Feasibility Study Report (FS)* has been prepared in accordance with the guidance of the New York State Department of Environmental Conservation's (NYSDEC) Division of Environmental Remediation *Draft DER-10 Technical Guidance for Site Investigation and Remediation* (December 2002) to address the proposed remediation of impacted soil and ground water. This plan discusses the results of the remedial investigation (RI), summarizes the remedial goals and remedial action objectives, identifies and screens technologies, analyzes the feasible alternatives for the treatment of soil and ground water, and provides a description of the recommended remedial actions.

SITE DESCRIPTION AND HISTORY

The subject property is identified as the Former Grant Hardware Facility (NYSDEC Registry Site No. 344031 and Spill Number 93-08913). It is located in West Nyack, Rockland County, New York, immediately south of State Route 59 (Figure 1). A plan-view diagram of the site is presented in Figure 2. The site is approximately 17 acres in size and is bounded by State Route 59 to the north, the Hackensack River to the east and southeast and an Orange & Rockland (O&R) Substation and CONRAIL right-of-way to the west. The surface elevation of the site has been broadly divided into two areas. The former Grant Hardware building and its associated parking lots are situated on the higher elevation or "plateau" area. A topographically lower "flood plain" area near and along the Hackensack River is located east of and adjacent to the "plateau" area.

The subject site was formerly occupied by the Grant Hardware Company (Grant Hardware) which operated at the site from approximately 1957 to 1990. Grant Hardware manufactured metal drawer slides for commercial office furniture. Former Grant Hardware manufacturing operations of a potential environmental concern included vapor degreasing of metal, metal plating, and the generation of waste-oil from metal cutting and stamping operations. Grant Hardware ceased operations at the site in 1990 and the site remained unoccupied until the use of the building by the General Bearing Corporation beginning in 1993. General Bearing's operations include offices and repackaging of bearings manufactured at other locations. General Bearing does not conduct vapor degreasing or metal plating operations such as those conducted by Grant Hardware and General Bearing does not use, handle or store products which contain either trichloroethene (TCE) or tetrachloroethene (PCE).

Previous investigations conducted at this site indicated the presence of petroleum hydrocarbons and chlorinated compounds in site soil and chlorinated compounds in site ground water. The presence of these compounds in the environment is believed to be the result of two documented releases of waste-oil from an outdoor above-ground storage tank (AST) utilized by Grant Hardware. Interviews with NYSDEC personnel and persons familiar with the historical operations at the site indicate that waste-oil generated from on-site operations during the 1970's was stored in an AST at the approximate location shown on Figure 2. It was reported that on two occasions in the late 1970s, a fork-lift collided with the support structure of this waste-oil tank which resulted in collapse of the tank and discharges of waste oil to the ground surface. The first surface spill was reported to have occurred in approximately 1976, and the second release was reported to have occurred about 1978. These descriptions of the historical waste-oil releases are based on interviews with former Grant Hardware employees conducted by an attorney for the Gussack Realty Company (Gussack Realty), the property owner, as well as statements from NYSDEC officials involved with Department's responses to these spills.

SUMMARY OF REMEDIAL INVESTIGATION AND EXPOSURE/RISK ASSESSMENT

Beginning in 1994, numerous ground water and soil investigations were conducted where hydrocarbons and chlorinated compounds were documented in site soils and ground water. These observations were assigned NYSDEC Spill No. 93-08913 and Registry Site No. 344031. Following is a summary of reports submitted to the NYSDEC by Gussack Realty which investigated and evaluated the extent of soil and ground water contaminants at the site:

June 1994 *Subsurface Investigation Report*
January 1995 *Expanded Subsurface Investigation Report*
January 1996 *Health and Safety Plan*
September 1999 *Remedial Investigation Report*
July 2000 *Ground Water Monitoring Report*
February 2002 *Results of Soil Vapor Extraction Pilot Test*
January 2003 *Additional Bedrock Ground Water Investigation Report*
July 2004 *Revised Remedial Investigation Report*
July 2006 *Remedial Investigation Report Addendum*
June 2007 *Sub-Slab Vapor Mitigation Report - 217 Route 59, West Nyack, NY*
March 2008 *Ground Water Investigation Report Addendum*
May 2008 *Co-Metabolic Bioremediation Demonstration Project Final Report*
July 2008 *Follow-up Indoor Air Sampling Report - 217 Route 59, West Nyack, NY*
July 2008 *Vapor Intrusion Sampling Report - Yaboo Fence, West Nyack, NY*
August 2008 *Vapor Intrusion Sampling Report - Former Grant Hardware Site, West Nyack, NY*

A summary of the findings of remedial investigation activities and conclusions thereof, is provided below.

Nature and Extent of Impacts to Soil

As shown on Table 1, soil at this site exceeded NYSDEC recommended clean up objectives for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganic compounds (metals).

The soils which exceed NYSDEC recommended clean up objectives for volatile organic compounds and semi-volatile organic compounds are located in the "Plateau Area" on the western side of the facility in the area near where the above ground tank was formerly located (Figure 3). As part of the remedial investigation activities, numerous soil samples were collected in this area. The results of this sampling (summarized in Appendix A) have been compared to NYSDEC's Part 375 Soil Cleanup Objectives (SCOs) and two figures were prepared to depict the extent of soils above the SCOs. The soil samples were broadly divided into shallow soil collected from a depth of less than ten feet below the ground surface and deep soil collected from a depth greater than ten feet. Bedrock was generally encountered in this area at approximately fifteen feet below grade. Figure 3A depicts the extent of impacts to shallow soil and Figure 3B shows the extent of impacts to deep soil. On these figures the locations where contaminants were reported (or calculated) above the SCO are identified and listed in the data provided on the figure. Review of these figures shows that the extent of the shallow impacted soil is greater than the extent of the deeper impacted soil. The primary contaminant for which the soil clean up objectives were exceeded is TCE. In the shallow soil, (Figure 3A) ten of the twenty eight samples collected exceed the SCO for TCE and three of the twenty eight exceed the SCO for PCE. In addition, one of the shallow soil samples exceeded the SCO for benzene and one soil sample exceeded the SCO for several semi-volatile compounds. In the deeper soil, only one sample collected exceeded the SCO for TCE and the cleanup objectives were not exceeded for PCE or semi-volatile compounds.

In the shallow soil sample which exceeded the SCOs for semi-volatile compounds, the specific compounds included: Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno [1,2,3-cd] pyrene and Pentachlorophenol.

Two soil samples in this area, as well as four soil samples from the other side of the building and a background soil sample, were submitted for analysis of priority pollutant metals. Three priority pollutant metals (arsenic, cadmium and selenium) were reported at elevated concentrations above the SCOs (Appendix A). Two of these compounds, arsenic and selenium, were found at concentrations above the SCOs in all of the samples collected including the background sample. Based on this sampling, the area of soil in the “Plateau Area” with concentrations of metals in soil above the SCOs is depicted on Figure 4.

Elevated concentrations of these metals is not consistent with either products or wastes which were used or produced by Grant Hardware. The consistent observation of these metals in each of the soil samples collected, including the background sample, is interpreted to be representative of background soil conditions and are not related to activities at the former Grant Hardware facility. A summary data table of the priority pollutant metal sampling results is provided in Appendix A.

To further evaluate the presence of metals in soil and determine if soil remediation or management was required, Geovation collected ground water samples in the “Plateau Area” at locations representative of areas where elevated metals in soil were observed, in areas where elevated VOCs were observed, and where neither elevated metal nor VOCs were observed. A detailed description of the ground water sampling activities and results is provided in Appendix B.

Although the plateau area soils exhibited concentrations of arsenic, cadmium and selenium above the SCOs, the result of ground water sampling for metals in the “plateau area” showed that these compounds were not observed in ground water above the ground water quality standards. These results were consistent with the historical interpretation of elevated background concentrations of metals at this site. Based on these results, the remediation or management of metals in soil is not required.

Nature and Extent of Impacts to Ground Water

As previously discussed, the site can be divided into two basic topographic settings: flood plain and plateau. On the plateau, the overburden is unsaturated and ground water is present within the bedrock at depths of approximately 24 to 30 feet below the ground surface. In the flood plain, ground water is present within the overburden at depths of approximately 0 to 9 feet below the ground surface. A total of fourteen overburden wells and fifteen bedrock ground water monitor wells have been installed at the site. Overburden ground water flow beneath the flood plain area of the site is easterly toward the Hackensack River. Ground water is not present within overburden materials in the plateau area of the site. Ground water in the bedrock beneath the plateau and flood plain flows toward the northeast as shown on the ground water contour map provided as Figure 5. This diagram is based on measurements of ground water elevation made in July 2008.

The principal contaminants identified in site ground water are trichloroethene (TCE) and its breakdown products, cis-1,2-dichloroethene (1,2-DCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC). Low concentrations of tetrachloroethene (PCE) have also been identified in ground water. Based on data collected in July 2008, the maximum concentration of total VOCs measured in overburden ground water within the flood plain area was 17,396 Fg/R in MW-23S, while the maximum concentration of total VOCs measured in ground water in the plateau area was 73,083 Fg/R in bedrock monitor well MW-12. Summary tables of the results of the complete July 2008 site -wide ground water sampling event are presented in Appendix C. A copy of the July 2008 original laboratory data is also provided in Appendix C.

Based on the July 2008 analytical data, the distribution of total VOCs in ground water is provided on Figure 6. A diagram depicting the area of the site with contaminant concentrations above ground water cleanup objectives is provided as Figure 7. Comparison of Figure 6 with ground water elevation measurements and the bedrock fracture-trace results presented in the RI Report (October 1999) indicates that the solvents measured in bedrock ground water are migrating from beneath the source area of soil contamination (Figures 3A and 3B) to the north-northeast through bedrock fractures. Two cross -sectional diagrams have been prepared to further describe ground water impacted by source area soils. The location of the cross-sections is shown on Figure 8. The upper diagram on Figure 9 is cross-section A-A' oriented along the centerline of impacted ground water. The lower diagram on Figure 9 is cross-section B-B' oriented perpendicular to the centerline of impacted ground water near the Hackensack River.

Portions of the Hackensack River are located to the northeast and east of the site. Traditional hydrogeologic ground water models identify rivers as points of ground water discharge for regions of higher elevation on each side of the river. Additional off-site facilities that are also likely to be discharging ground water to the river in this region include the former Dexter Landfill, the former Old Nyack Landfill, Clarkstown Landfill and the Route 59 O&R Substation and Maintenance Facility.

Not withstanding potential additional off-site sources of ground water contamination, based upon the nature and extent of soil and ground water contamination, impacted soils and bedrock to the west of the building near the former location of the AST (Figures 3A and 3B) appear to be the source for ground water contamination at the site which is migrating northeast toward the Hackensack River (Figure 6).

In addition, it has been suggested that low levels of VOCs from the Former Grant Hardware facility have migrated to the north beneath Route 59 to the Orange and Rockland maintenance facility. To assist in the evaluation of this possibility, Gussack Realty and Orange & Rockland have recently participated in a combined ground water sampling event, collecting concurrent ground water samples and establishing a common elevation datum for the ground water monitoring wells on each site. The results of this combined sampling event were not available in time to include in this Feasibility Study document.

Nature and Extent of Impacts to Soil-Vapor

The impact to soil-vapor has been evaluated in the areas beneath both on-site and off-site buildings. A summary of reports submitted to the NYSDEC which investigated and evaluated the extent of soil-vapor impacts include:

October 2007 *Soil-Vapor Sampling Report - Former Grant Hardware Site*
June 2007 *Sub-slab Vapor Mitigation Report - 217 Route 59 West Nyack, NY*
July 2008 *Follow-up Indoor Air Sampling Report - 217 Route 59 West Nyack, NY*
July 2008 *Vapor Intrusion Survey Report - Former Grant Hardware Site*
July 2008 *Vapor Intrusion Sampling Report - Yaboo Fence Co. West Nyack, NY*

Each of these studies was conducted pursuant to the New York State Department of Health 2006 *Soil Vapor Intrusion Guidance* document. This document describes a means to evaluate and address current and potential human exposures to contaminated subsurface vapors associated with known or suspected volatile chemical contamination. Based on values published in the NYSDOH document, Geovation prepared Figure 10 which shows the portion of the facility where contaminant concentrations of trichloroethene and/or tetrachloroethene warrant mitigation efforts. A summary of the data used to prepare this figure is provided in Appendix D. While the guidance presented in this document is not regulation, rule or requirement, Gussack Realty has installed a network of sub-slab soil-vapor depressurization systems within the facility to remove and reduce sub-slab contaminant concentrations. Subsequent testing of the effectiveness of these systems indicates that the installed systems do not address the full area where mitigation is recommended.

Exposure/Risk Assessment

The exposure and risk associated with the contaminants present in the plateau area soil are considered to be low. The areas where soil contamination exists are largely covered with solid surfaces (pavement and concrete), thus there is little risk of direct contact with the contaminated soil or of inhalation exposure to the contaminants in the soil. For the same reason, there is minimal risk of impacts to biota from ingestion/direct contact with soil causing toxicity, impacts from bioaccumulation through the terrestrial food chain or natural resource damage.

The exposure and risk associated with the contaminants present in ground water in both the plateau and flood plain area are considered to be moderate. The site and surrounding area are served by a public water supply and there is minimal risk of exposure to ground water; however, impacted ground water discharges to the Hackensack River. Once released to the river, contaminants are greatly diluted and are likely to volatilize; however, the Hackensack River serves as a drinking water source at down gradient locations. Reduction of discharges to the river is a prime objective of site remediation.

There is an additional moderate risk to the indoor air quality of the facility resulting from the accumulation of contaminated soil gas below the building slab based on soil vapor studies which have been conducted at the former Grant Hardware Facility. As a precautionary measure, prior to implementing a pilot biological ground water treatment project, nine sub-slab depressurization systems (SSDSs) were installed at the facility in November 2006 to mitigate potential vapor intrusion of the chlorinated compounds into the structure. A vapor intrusion study was performed at the facility in March 2008 (*Vapor Intrusion*

Sampling Report - Former Grant Hardware Site, West Nyack, NY, July 2008). Indoor air concentrations ranged from1.5 ug/m^3 to 60 ug/m^3 total CVOCs. Geovation and Gussack Realty will continue to implement additional precautions to improve indoor air quality and the potential impacts to indoor air quality were evaluated as part of this FS.

Indoor air sampling was conducted at a nearby residence (217 Route 59) where a SSDS was installed as a precautionary measure in January 2007. Based on the results of the indoor air sampling conducted in March 2008 and summarized in the July 2008 *Follow-up Indoor Air Sampling Report - 217 Route 59, West Nyack, NY*, potential vapor migration of ground water contaminants into the residence is not occurring. Air sampling was also conducted at a nearby business, the Yaboo Fence Company, in March 2008 *(Vapor Intrusion Sampling Report - Yaboo Fence, West Nyack, NY, July 2008)*. Based on the results of this sampling, potential vapor migration of ground water contaminants into this building is not occurring.

REMEDIAL GOALS AND REMEDIAL ACTION OBJECTIVES

Remedial Goals

The primary goal of these remedial actions is to be protective of public health and the environment. One means of assessing the effectiveness of the remedial measures in achieving this goal is to compare the measured concentration of contaminants at the site to the values provided as the remedial action objectives.

Remediation Action Objectives

<u>Soil Standards, Criteria, and Guidelines (SCGs) and Remedial Action Objectives (RAOs)</u>

Table 1 summarizes the contaminants that exceed applicable SCGs in site soils and lists the applicable SCGs which are the recommended soil cleanup objectives from NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives. In general, the soils which exceed the SCGs are found in the plateau area on the western side of the facility (Figures 3A and 3B). The primary contaminant for which the soil SCGs were exceeded is TCE. Other contaminants of concern include PCE, Xylene and a number of semivolatile compounds.

The Remedial Action Objective for site soils is to prevent migration of contaminants that could contribute to ground water contamination.

<u>Ground Water Standards, Criteria, and Guidelines (SCGs) and Remedial Action Objectives (RAOs)</u>

The nature and extent of impacts to ground water at the site are shown on Figures 6, 7 and 9. Impacted ground water is present in both the plateau and flood plain areas. In each of these areas the primary ground water contaminants reported at the site are TCE, PCE and their degradation products 1,2-DCE and vinyl chloride. In addition, in the plateau area, 1,1-dichloroethane and benzene have been reported at concentrations above the SCG, and in the flood plain, trans 1,2-dichloroethene and 1,1,1-trichloroethane have been reported at concentrations above the SCG.

Table 2 summarizes the ground water GA standards which are the current SCGs for the site. The Remedial Action Objective for ground water in both the plateau and flood plain portions of the site is to restore the ground water aquifer to pre-disposal/pre-release conditions.

Soil-Vapor Standards, Criteria, and Guidelines (SCGs) and Remedial Action Objectives (RAOs)

Table 3 summarizes the contaminants that exceed applicable SCGs in site soil vapor and lists the applicable SCGs which are the recommended soil-vapor cleanup objectives from NYSDOH *Soil-Vapor Intrusion Guidance* document. The soil-vapor which exceeds the SCGs is located in the plateau area beneath the Former Grant Hardware facility (Figure 11). The contaminants which exceed the soil-vapor SCGs are TCE and PCE.

The Remedial Action Objective for site soil-vapor is to reduce current and potential human exposure to contaminated subsurface vapors.

FEASIBILITY STUDY and EVALUATION of REMEDIAL ALTERNATIVES for SOIL

General Response Actions for Soil

As previously discussed, soils impacted above the SCGs are located in the plateau area. The estimated volume of contaminated soil is 16,000 CY (estimated at 24,000 tons). The estimated surface area of soil contamination is 38,800 SF.

General response actions which were evaluated included the categories of treatment, containment, removal, and institutional controls as shown in Table 4.

Identification and Screening of Technologies for Soil

Process options appropriate to the site-specific conditions and contamination were identified for each of the general response actions identified above and are shown in Table 5. These included fencing, capping, excavation, solidification, chemical treatment, biological treatment , physical treatment, and thermal treatment. These process options were further evaluated to include the specific technologies of capping, excavation with off-site disposal, *in-situ* geochemical stabilization, *in-situ* and *ex-situ* chemical oxidation, *in-situ* and *ex-situ* chemical reduction, *in-situ* and *ex-situ* anaerobic bioremediation, *in-situ* and *ex-situ* aerobic bioremediation, vapor extraction with treatment, off-site thermal desorption, and on-site thermal desorption.

No Action/Institutional Controls. Evaluation of the no-action alternative is required under DER-10 as it provides a baseline for the subsequent evaluation of the remaining alternatives. Because no remedial actions would be taken under the no-action alternative, the long-term human health and environmental risks associated with the contaminated soils would essentially be the same as those which presently exist at the site. Existing fencing has been considered part of the “no action” alternative.

Containment Technologies. Containment technologies include capping, vertical or horizontal barriers, and other surface controls which serve to contain the contamination within a given area and/or which reduce the risk of exposure to the contamination without further chemical, physical, or biological treatment. As previously discussed, the majority of the impacted soils are already capped by existing asphalt paving. While this capping has reduced the potential for direct contact and ingestion or absorption of the contaminants, it has not proven to be effective at preventing the migration of contaminants in the soil to ground water and thus does not meet the remedial action objectives. This alternative has been eliminated from further consideration.

Removal. Removal technologies would involve either the removal of the contaminated soils from the site or the physical or chemical removal of the contaminants from the soils. The most commonly used removal technology for contaminated soils is excavation, which is typically followed by either off-site treatment or disposal in a hazardous-waste landfill. In many if not most cases, the excavated areas would need to be filled with clean soil and re-graded. For the *Removal* category, Geovation evaluated the use of excavation with off-site disposal, and soil vapor extraction. The evaluation of off-site treatment technologies for excavated soils was addressed separately under the Treatment category.

Excavation with Off-Site Disposal. For off-site disposal in a landfill, it is essential that the physical and chemical nature of the contamination be known given that the EPA has set limits on the allowable concentrations for certain contaminants under 40 CFR 268.40, 268.48 and 268.49. A significant portion of the soil to be excavated under this option would likely be classified as hazardous waste based on the results of soil borings and TCLP testing. The primary contaminants present are TCE and PCE. In order for this soil to be land disposed, the concentrations would need to comply with the EPA Universal Treatment Standards (40 CFR 268.49) which would include meeting the Treatment Standards for either a Subtitle C (hazardous waste) or subtitle D (municipal waste) landfill (i.e., either 10 times the Universal Treatment Standards or 90% reduction in concentration). The Universal Treatment Standard (non-wastewater) for TCE and for PCE is 6 mg/kg; thus the maximum concentration of soil containing either contaminant is 60 mg/kg for land disposal. Based on discussions with disposal vendors and the levels of TCE present in the soil, it appears that a large portion of the soil would require off-site treatment prior to disposal. It is possible that the soil could be segregated during the excavation process, with a portion being disposed of off-site without treatment. Excavation and off-site disposal of impacted soils is a feasible alternative for this site and this option is carried forward for additional consideration.

Soil Vapor Extraction with Treatment of Air Stream. Soil vapor extraction (SVE) is an in- situ unsaturated (vadose) zone soil remediation technology in which a vacuum is applied to the soil to induce the controlled flow of air and remove volatile and some semivolatile contaminants from the soil. The gas extracted from the soil may be treated to recover or destroy the contaminants, depending on the local and state air discharge regulations. As the primary contaminants of concern (TCE and PCE) are volatile organic compounds, soil vapor extraction would be a feasible alternative for this site. The most cost effective means for the treatment of the extracted soil vapor would be adsorption using an activated carbon system. This option will be carried through to a more detailed evaluation.

Solidification/Stabilization (S/S). Solidification refers to a process that encapsulates a waste to form a solid material and to restrict contaminant migration by decreasing the surface area exposed to leaching and/or by coating the waste with low permeability materials. Stabilization refers to processes that involve chemical reactions that reduce the leachability of a waste. For solidification/stabilization of specific hazardous organic compounds, organic binders are generally used and include asphalt, epoxide, polyesters and polyethylene[1]. Of the superfund remedial sites at which S/S has been used, only a small number (6 percent) were sites with organic contaminants[1]. In terms of performance, only limited data were

[1]EPA-542-R-00-010. Solidification/Stabilization Use at Superfund Sites (September 2000)

available for sites where organic contaminants were treated[1]. Due to the uncertainty in the ability of this technology to achieve the remedial action objectives, and the relatively small volume of soils to be treated (which would likely render it an ineffective option on the basis of cost), this process option is not included for further consideration.

Chemical Treatment. Chemical treatment of hazardous waste involves one or more chemical changes which destroy the contaminants or transform them into less harmful substances. The purpose of chemical treatment would be to convert contaminants into harmless materials which pose no significant threat to human health or the environment. Examples of different types of chemical treatments include chemical neutralization, reduction, and oxidation. For the contaminants present in the soil at this site, oxidation or reduction would be the most feasible means of chemical treatment.

In-situ or Ex-Situ Chemical Oxidation. *In-situ* and *ex-situ* chemical oxidation processes involve the use of oxidizing agents such as catalyzed hydrogen peroxide, activated sodium persulfate, ozone, potassium or sodium permanganate and other agents to chemically transform and/or destroy organic wastes. In practice, these processes generate highly reactive, short-lived hydroxyl radicals (•OH) which tend to rapidly react with and destroy many types of organic compounds. Alternatively, these processes may be used to help transform organic contaminants into forms which are less toxic, mobile, or biologically available. Complete oxidation of organic contaminants would in theory produce carbon dioxide and water as the ultimate end products. Potassium permanganate *in-situ* chemical oxidation processes have been used to remediate organic contaminants in soil, ground water and industrial wastewater streams. Although chemical oxidation processes have the potential to treat the contaminants present at this site, they are not a good candidate primarily because these treatments require saturated soil conditions to distribute the product. The unsaturated soil conditions present at the site combined with the typical dangers of handling oxidizing chemicals are serious disadvantages; therefore this process option has not been carried forward for further consideration.

Chemical-Reduction Technologies. Chemical-reduction technologies involve the use of a reducing agent to facilitate the chemical reduction of the contaminant of concern. In some cases, e.g., as in the reduction of Cr^{+6} to the less mobile and less toxic Cr^{+3}, chemical reduction of the target contaminant results in both a less toxic and less mobile substance. Reducing agents can also be used to drive the process of reductive dehalogenation whereby the toxicity of halogenated contaminants, such as chlorinated solvents and pesticides, is reduced incrementally as halogens (e.g., chlorine atoms) are reduced and removed from the larger organic molecule. Based on Geovation's research, zero-valent iron (ZVI) has been the most commonly used reducing agent in the studies reported in the literature concerning chemical-reduction based remediation processes and/or technologies. As with oxidizing technologies, chemical reduction technologies require saturated soil conditions to distribute the product and create the desired geochemical conditions. The unsaturated condition of impacted soils negate the need for further consideration of this process option. In addition, most of the commonly used processes for injection of a slurry of zero-valent iron powder or shavings are patented (e.g., Ferox℠ from ARS Technologies), and have resulting complications in terms of intellectual property issues, and additional fees associated with their use.

More recent developments in the area of *in-situ* chemical reduction have focused on the injection of nano-scale iron or metallic / bi-metallic nano particles into the saturated subsurface media. This area of technology is the subject of intense interest and research but several technological hurdles remain including the development of means of achieving the sufficient dispersal of the nano-particles into the subsurface. In addition, as with ZVI, significant disputes concerning intellectual property rights limit the widespread utility of this technology at present. Accordingly, *in-situ* chemical reduction using either ZVI or nano-scale metals is removed from further consideration at the subject site due to the unsaturated nature of impacted soils. Geovation's review of this technology however, indicates that it may have application as a ground water treatment option.

Biological Treatment. Biological treatment of hazardous materials involves the biodegradation and/or biotransformation of contaminants under aerobic or anaerobic conditions. The purpose of biological treatment would be to degrade or transform the contaminants into non-toxic substances. Examples of biological treatment include the introduction of engineered microorganisms, phytoremediation, and the *ex-situ* or *in-situ* stimulation of naturally-occurring aerobic and anaerobic biodegradation processes. Biological treatment options also require saturated conditions to foster large populations of microorganisms. Thus, *in-situ* application of these technologies is removed from further consideration. *Ex-situ* treatment of impacted soils requires excavation and construction of equipment to maintain saturated soil conditions. Open space on site is limited and inadequate for the construction and operation of such equipment. Additional considerations for the application of *ex-situ* technologies include the control of run-off from saturation water and precipitation events and potential exposure of the public to impacted soil. Due to the limited availability of space on site and additional considerations, biological treatment of soil has been eliminated from further consideration.

Thermal Treatment. Thermal treatment involves the addition of heat to decompose the contaminants into less toxic constituents. Examples of thermal treatment technologies include incineration and thermal desorption. Thermal treatment may be applied on-site or off-site. The quantity of soils needing treatment are below the amount that would be required for on-site incineration or on-site thermal desorption to be cost effective. Therefore on-site thermal treatment has been screened out at this point in the process.

Off-Site Incineration/Thermal-Desorption. Off-site incineration / thermal desorption involves excavation of the contaminated soil, transportation, and treatment of the soil at an approved hazardous-waste thermal-desorption or incineration facility. Subsequently it is also necessary to backfill and regrade the excavated area using clean material brought in from an off-site source. While commonly referred to as "incineration," most thermal facilities now in use do not burn but rather heat the waste to a moderately high temperature to thermally desorb the contaminants from the soil to gaseous phase. The gasses released are then incinerated or otherwise treated to destroy the contaminants.

Off-site thermal treatment is known to be a technically feasible remedial alternative and would prevent migration of contaminants that could contribute to ground water contamination. Minimal risk to human health and the environment is expected following disposal of the treated soil in an appropriate disposal facility since thermal treatment could destroy an estimated 99.8 percent of the hazardous contaminants. The major drawback of off-site incineration is cost, incurred primarily as a result of the excavation, transportation and treatment of approximately 24,000 tons of contaminated soils at a RCRA-certified incinerator as well as the costs associated with the filling and grading of the excavated areas. As this is a feasible alternative for the site, it will be carried forward for a more detailed evaluation of feasibility including an estimate of the cost of implementation.

Development and Analysis of Alternatives for Soil

The three alternatives for which a detailed analysis is to be conducted are:

1) The "no-action" alternative, as required by DER-10,

2) Excavation and off-site thermal treatment followed by disposal, and
3) Soil vapor extraction.

1) "No-Action" Alternative. The No-action alternative would simply mean leaving the contaminated soil in place with no further action. Therefore, there would be no dollar cost associated with this alternative. The evaluation of this alternative with the first seven (7) evaluation criteria presented in section 4.1 of DER-10 is presented below.

Overall Protection of Public Health and the Environment. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing pathway of exposure are eliminated, reduced or controlled, and assessing the ability of the remedy to achieve each of the Remedial Action Objectives (RAO)s. This remedy would not provide any additional protection of public health beyond that already present due to most of the affected area already being covered with pavement and access to impacted areas being limited by fencing. This remedy does not protect the environment nor meet the remedial action objectives as it does not prevent migration of contaminants in the soil to ground water.

Compliance with Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. The SCGs for the soil at the site are the Part 375 Unrestricted Use Soil Cleanup Objectives shown in Table 1. This alternative will not result in the soil cleanup objectives being met as there would be no removal of the contaminants or active treatment thereof. Currently there is no indication that the contaminants in the soil are degrading by natural attenuation at a significant rate.

Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedy after implementation. There would be no long-term effectiveness or permanence with the no-action alternative as the soil contamination would remain in place.

Reduction of Toxicity, Mobility or Volume with Treatment. There would be no reduction in the toxicity, mobility or volume of site contamination under the no-action alternative.

Short-term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are evaluated under this criterion. Short-term effectiveness as defined above (from DER 10 and the National Contingency Plan), is high for the no-action alternative as there would be no short-term adverse impacts or risks to the community, workers or the environment due to construction or implementation.

Implementability. The technical and administrative feasibility of implementing the remedy is evaluated under this criterion. The no-action alternative is highly implementable as no action is required.

Cost. There would be no capital cost associated with implementation of the no-action alternative. However, there would likely be a cost associated with continuing long-term monitoring of the ground water, as well as the cost of a longer duration of ground water treatment program as there would be a continuing source of contamination. These costs cannot be accurately quantified as it is not known at what rate the contaminants present in the soil in the vadose zone are entering the aquifer.

2) Excavation and off-site thermal treatment followed by disposal. This alternative would entail the excavation of approximately 16,000 CY of contaminated soil and transportation to an offsite facility for

thermal treatment and subsequent landfill disposal. The depth of excavation would be 10 feet in most locations and up to 15 feet in some areas where borings have indicated that the extent of the contamination is deeper. Impacted soils are adjacent to the building and are likely to exist to an unknown extent beneath the building. At a minimum, special precautions would be required to excavate deep soils near the building. The likely destination for the excavated soil would be Canada based on discussions with treatment/hauling vendors. A decontamination pad would be set up on site and equipment would be decontaminated with a steam cleaner. Decon water would be drummed and properly disposed of off-site. Site workers would be health and safety trained per OSHA requirements.

Post-excavation soil sampling would be conducted to confirm that to the extent practical, soil remaining in the contaminated areas was in compliance with the soil cleanup objectives. It would be necessary to backfill and regrade the excavated area using clean material brought in from an off-site source. Clean material that is brought in from an off-site source would not exceed 6 NYCRR Part 375 Unrestricted Use Standards. Impacted soil which remained underneath the building would be managed accordingly by a site management plan and required re-testing of the soils under the building should the building be demolished in the future. The time for remediation with this alternative is estimated at four to six weeks depending on the number of trucks that are available from the soil disposal contractor and engineering considerations of deep excavation adjacent to the building. This alternative would likely result in the removal of a large percentage of impacted soils; however, it is likely that impacted soil would remain beneath the building.

Overall Protection of Public Health and the Environment. This remedy would provide protection of both public health and the environment by largely removing a large percentage of the source of contamination which would in turn minimize impacts to ground water. This remedy is highly likely to result in the soil remedial action objective being met in the areas in which soils would be excavated and would minimize further migration of contaminants from the soil into the aquifer.

Compliance with Standards, Criteria, and Guidance (SCGs). For the soil which is excavated, this alternative will meet the soil cleanup objectives, as most of the soil that contains contaminants at concentrations in excess of the SCGs would be removed.

Long-term Effectiveness and Permanence. Soil excavation and off-site disposal is likely to provide long term effectiveness of soil remediation. The possibility would remain however of the re-contamination of replaced soil by the impacted soil left in place beneath the building.

Reduction of Toxicity, Mobility or Volume with Treatment. This alternative would permanently and significantly reduce the toxicity, mobility, and volume of wastes at the site.

Short-term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during implementation of this option is moderate as there would be health and safety risks to the workers at the site due to the use of heavy equipment and potential exposure to the contaminants during the excavation work. There is also some risk to the surrounding community as there would be multiple truckloads of contaminated soil leaving the site and traveling on local roadways to transport the contaminated soil to the treatment location. Engineering controls that would be implemented in order to mitigate some of these short term impacts include the use of dust control measures, and the covering of the soil contained within each truck prior to it leaving the site. Health and safety risks to site workers would be mitigated through the implementation of the existing health and safety plan and the use of properly trained workers.

Implementability. Technical feasibility includes difficulties associated with the presence of impacted soils adjacent to and beneath the building. It is likely that it would be impossible to remove impacted soils from beneath the building without significant engineering solutions to excavation from within the interior of the building. Evaluation of the administrative feasibility includes the availability of the necessary personnel and material along with potential difficulties in obtaining specific operating approvals, access for construction and other related measures. This alternative is moderately implementable. It would temporarily prevent the use for several months of a significant section of the building and block access to a ground level loading area used by the current tenants. This option would also result in temporary stockpiling of large amounts of soil prior to it being trucked for treatment and subsequent disposal. Administrative items that would be required include engineering solutions to excavation beneath the building slab and supporting footing wall, and confirming proper soil disposal by the disposal contractor.

Cost. The capital cost of this alternative is estimated at $7,500,000. There would be no long term operation and maintenance costs associated with this alternative, thus the present worth of this alternative is the same.

3) Soil Vapor Extraction is the final process option carried forward for a more detailed evaluation of feasibility. Soil vapor extraction (SVE) has previously been identified as an interim remedial measure (IRM) to be implemented at the site. Plans are currently in progress for the installation of an IRM SVE system and a copy of the workplan for the soil IRM is provided as Appendix E. As described in Appendix E, the IRM SVE system includes provisions for a more detailed evaluation of component design for more efficient system expansion and also construction of the system to allow for future expansion. In addition, SVE technology has the ability to treat soils below the building slab and is likely to positively impact indoor air quality.

Overall Protection of Public Health and the Environment. This remedy would provide protection of both public health and the environment by removing the contaminants from the soil. Reduction of contaminants in soil will in turn minimize impacts to ground water. Contaminants removed from soil will be captured on granular activated carbon and properly disposed off-site. It is anticipated that this remedy will result in meeting the soil remedial action objectives. A few semi-volatile organic compounds are included in the remedial action objectives. While SVE may not be applicable to all semi-volatile compounds, SVE technology also supports aerobic bioremediation by drawing oxygenated air through soils, and it is anticipated that the combination of SVE and aerobic bioremediation will be capable of meeting remediation goals. In addition, SVE technology may provide additional protection to public health by reducing the concentration of contaminants in the building's sub-slab soil vapor.

Compliance with Standards, Criteria, and Guidance (SCGs). It is anticipated that this alternative will result in meeting the soil cleanup objectives. Monitoring of the quality of the air between the 1^{st} and 2^{nd} activated carbon units and exiting the exhaust stack of the SVE system will be conducted to maximize the cost efficiency of the granulated activated carbon and to ensure that contaminants are not being discharged to the atmosphere.

Long-term Effectiveness and Permanence. SVE technology removes contaminants from the soil and captures contaminants onto granulated activated carbon. The removal of contaminants from the subsurface provides a basis for long term effectiveness as contaminant concentrations decrease.

Reduction of Toxicity, Mobility or Volume with Treatment. This alternative will permanently and significantly reduce the toxicity, mobility, and volume of wastes at the site.

Short-term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, workers, and the environment during the construction and/or implementation of this process option is low. As noted above, the extracted vapor would be treated through two activated carbon unit in series prior to discharge through the stack. The air quality would be monitored between the first and second carbon drums such that breakthrough of the contaminants would be detected in the first carbon drum. Health and safety risks to site workers would be mitigated through the use of the site-specific health and safety plan and properly trained workers.

Implementability. SVE is highly implementable at this site. Administrative items which will need to be addressed include monitoring of the discharge of the SVE system. Although the treated vapor discharge from the SVE system will not require an air permit, the monitoring plan and discharge limits will be the same as the requirements that would be imposed if a permit were required.

Cost. The capital cost of this alternative is estimated at $118,000. The annual operation and maintenance cost including power, labor for system monitoring, and carbon changeouts is estimated at $30,000 per year. It is expected that system efficiency will decrease over time and at that point the system will be operated in a cyclical manner to restore cost efficiency. For purpose of estimating costs, it has been estimated that the system would operate full time (24 hours per day/7 days per week) for one year and subsequent operation will be reduced over a three year period. The present worth cost of this alternative assuming a 4% interest rate is $201,000. The actual system operating requirements will be determined once the system is in operation and monitoring data is accumulated.

Recommended Remedy for Soil

The relative rankings of the soil-remediation alternatives evaluated in detail are summarized in Table 6. As shown in Table 6, the No Action Alternative ranks lowest as it does not provide any additional protection of human health and the environment, would not result in compliance with the SCGs, would not provide long-term effectiveness and permanence, and would not reduce the toxicity, mobility or volume of the contaminated soil.

Both the second alternative, full excavation with off-site thermal treatment and disposal, and the third alternative, soil vapor extraction, would provide overall protection of human health and the environment as they would remove the source of contamination which would in turn minimize impacts to ground water. SVE technology is more applicable to remediation of soils located below the building and is also applicable to reducing contaminants in sub-slab soil vapor. Neither of these alternatives would be expected to have a significant impact on fish and wildlife resources. Both of these alternatives should result in compliance with the remedial action objectives; however, it would take a longer time period for the SVE alternative to do so. Both of these alternatives rank high in terms of long-term effectiveness and permanent reduction of contaminant toxicity and mobility.

In terms of short-term effectiveness, full excavation with off-site thermal treatment and disposal ranks lower than the SVE alternative primarily because of the large number of truckloads of contaminated soil that would leave the site on local roadways and the higher risk to personnel involved in the excavation and removal operation. Both the full excavation/off-site treatment/disposal alternative and the SVE alternative are moderate to highly implementable at the site. The present worth cost of the full excavation/off-site treatment/disposal alternative is estimated at $7,500,000, while that of the SVE alternative is estimated at $201,000.

These two technologies are not mutually exclusive and a combination of the two is expected to provide the best alternative for soil remediation at this site.

Description of Selected Remedy

The majority of impacted soil is located at depths less than ten feet below grade (Figure 3A). A very limited area of additional impacted soils exists at greater depths from ten feet below grade down to bedrock, at approximately fifteen feet below grade (Figure 3B). This area of impacted soil is considered the source area contributing to ground water contamination.

The selected soil remedy consists of a three-phase approach for treating impacted soils located in the source area. Phase I and II provide for limited excavation of the most heavily impacted soils at shallow depths and installation of an SVE system in the area where impacted soil is reported to exist at depths down to bedrock. These first two phases are described in detail in Geovation's soil IRM workplan which is already approved by NYSDEC and for which plans are in progress for implementation.

The soil IRM calls for targeted soil excavation estimated at 20 ft x 25 ft x 1.5 ft deep, with the actual area and depth to be determined based on field observations at the time the work is conducted. Soil sampling has demonstrated that the most heavily impacted soils are shallow and conducting shallow excavation does not necessitate the need for engineering controls to stabilize the building.

An SVE system will then be installed in the area where impacted soils are present down to bedrock and the SVE system construction will allow for future expansion of the system. The extracted vapor will be treated through a granular activated carbon system prior to discharge through a stack. Details for these first two steps are provided in the soil IRM workplan included as Appendix E.

The third phase of the soil remedy is the expansion of the SVE system to include additional areas of shallow impacted soil. Areas of system expansion are shown on Figure 11. As described in Appendix E, additional data will be collected to optimize the design of the system expansion. It is currently estimated that eight (8) more SVE wells will be installed.

After installation of each phase of the SVE system, quarterly sampling and reporting will be provided to verify system performance. A proposed schedule of site activities is provided as Figure 12.

FEASIBILITY STUDY and EVALUATION of REMEDIAL ALTERNATIVES for GROUND WATER

Assessment of Ground Water Contamination

For many years the fundamental problem concerning the fate and behavior of organic contaminants in subsurface media was greatly misunderstood. Organic ground water contaminants such as chlorinated solvents were thought to exist primarily in the dissolved phase, or in rare instances, as non-aqueous phase liquids (NAPLs). Conversely, industry experience–as evidenced by the cumulative data from numerous petroleum-hydrocarbon and chloroethene contamination sites–has shown that the vast majority of the total contaminant load tends to exist in the so-called "sorbed" phase–i.e., non-aqueous mass adhered to and absorbed within the solid particles of the aquifer media. Even when NAPLs are not observed, the empirical data from multi-media sampling at many sites has shown that the sorbed-phase mass typically represents from 95% to more than 99% of the total contaminant mass. Accordingly, the aqueous-phase contaminants measured as a percentage of the ground water mass are a relatively minor portion of the total contaminant mass, and ground water contamination may be more correctly interpreted as a consequence of the sorbed-phase contamination present in the aquifer matrix.

The failure to adequately understand and characterize the presence of sorbed-phase contaminants in aquifer media has led to numerous failures and shortcomings in ground water remediation programs, including the "contaminant rebound" phenomenon observed at numerous sites that have undergone remediation by pump-and-treat, air sparging, chemical oxidation and bioremediation via active-oxygen injection.

It has proven to be important to recognize the significance of the sorbed-phase contaminant mass and failure to has historically proven to be a stumbling block to the successful, long-term remediation of ground water plumes characterized by high levels of dissolved phase contaminants. First, sorbed-phase contaminants tend to be dispersed throughout the total porosity of the aquifer matrix. Whereas the mechanisms of sorbed-phase contaminant migration are still poorly understood, it is presumed that the hydrophobic nature of chlorinated solvents (and most petroleum products) results in hydrophobic interactions with ground water that forces the contaminants to partition to the surfaces of solid particles within the aquifer matrix. Hydrophobic interactions drive the surface-tension-mediated migration of the solvents into and throughout the solid media, displacing water in proportion to the mass and volume of the contaminants. Only when the hydrophobic contaminants fully saturate (supersaturate) the aquifer media are NAPLs observed.

Second, only a small fraction of the porosity of the subsurface media (i.e., the effective porosity and even smaller “mobile” porosity) are directly influenced by advective ground water flow. Hence, the majority of the sorbed-phase contaminant mass is generally inaccessible to remediation methods that depend on physical mass transfer/removal mechanisms and/or remediation methods that depend on the delivery of remediation agents via advective flow. Accordingly, it is important to consider a means of remediation that can directly or indirectly gain contact with the sorbed-phase contaminants via diffusion.

General Response Actions for Ground Water

The estimated extent of the ground water plume based on the most recent round of site-wide ground water monitoring (July 2008) is shown on Figures 6, 7 and 9. General response actions for ground water are shown on Table 7 and include the categories of containment, treatment, and institutional controls. As previously discussed, impacted ground water is present in the plateau area and also in the flood plain (Table 2). Remedial Alternatives have been considered separately for each area and are discussed separately below.

Identification and Screening of Technologies for Ground Water

Process options appropriate to the site-specific conditions and contamination in the plateau area were identified for each of the general response actions identified above as shown in Table 8 and process options identified as appropriate for the flood plain are shown in Table 9. The process options include subsurface barriers, pump and treat with both physical and chemical treatment technologies, and *in-situ* treatment. The specific technology process types and options that correspond with the technology types were then identified and included installation of a slurry wall or pumping system for containment, *ex-situ* treatment of pumped water (via air stripping, activated carbon treatment, or UV/peroxide treatment), air sparging, *in-situ* chemical reduction using a zero valent iron permeable reactive barrier, *in-situ* chemical oxidation, *in-situ* aerobic bioremediation, and *in-situ* anaerobic bioremediation. A review of background information on the various alternatives, processes and/or technologies was then conducted.

<u>No Action/Institutional Controls</u>. Evaluation of the no-action alternative is required under DER-10 as it provides a baseline for the subsequent evaluation of the remaining alternatives. An environmental easement (which would prohibit the installation of wells and or use of ground water in the affected area) could be implemented as an institutional control; however, this would not provide any additional protection to human health or the environment as the site and the surrounding area are served by a public water supply. The "No-Action" alternative is applicable to ground water in both the plateau area and also in the flood plain. The long-term human health and environmental risks associated with the contaminated ground water would essentially be the same as those which presently exist at the site with this alternative, because the rate of natural attenuation at the site (without biostimulation) is low.

<u>Monitored Natural Attenuation.</u> The term "monitored natural attenuation" (MNA) refers to the monitoring of natural processes which act to decrease contaminant levels over time. The natural attenuation processes that are at work in such a remedial approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or ground water. These *in-situ* processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation or destruction of contaminants (USEPA, 1997a). While natural attenuation of ground water contaminants has been documented at the site, MNA is generally not considered an appropriate technology when there is a potential downgradient receptor of the plume. The Hackensack River is located downgradient of both the plateau area and flood plain area rendering MNA unfeasible at current contaminant concentrations. The long-term human health and environmental risks associated with the contaminated ground water in both areas would essentially be the same as those which presently exist at the site with this alternative, because the rate of natural attenuation at the site (without biostimulation) is low.

<u>Containment</u>. Containment of a plume is a strategy for control of ground water contamination that is applicable when there are potential downgradient receptors of the plume. Two practiced technologies for implementing ground water contamination containment are ground water pumping and installation of a slurry wall. Ground water pumping can reverse the local ground water gradient, thus preventing the advance of the contaminant front. The water removed is usually treated or is discharged to a surface-water body. Slurry walls can also be used to isolate areas of contaminated ground water. Slurry walls typically consist of bentonite and/or concrete, and backfill material placed in deep trenches. Rainwater percolating into the area isolated by slurry walls can be removed by pumping to keep the contaminated water from flowing over the top of the walls. Contaminated water so removed would have to be treated and reinjected downgradient or discharged to a surface-water body.

Plateau Area. - Given that impacted ground water is exclusively present in fractured bedrock in the plateau area, the implementation of containment technology would be impractical in the plateau area and further consideration as a potential ground water remedy is not justified. The uncertainties involved with bedrock fractures preclude the use of ground water pumping as a method to capture impacted ground water. Bedrock fractures are often discontinuous and create a heterogeneous aquifer matrix.

It is not likely that a ground water recovery well, or even a series of ground water recovery wells installed into the bedrock will intersect all impacted bedrock fractures and reverse the flow of impacted ground water. Containment walls are not feasible as they would have to be constructed to depth within the bedrock and the bottom of any such container which may be constructed will still be intersected by bedrock fractures allowing impacted ground water to escape. Based on this preliminary evaluation, the containment option is not applicable in the plateau area.

Flood Plain Area. - In the flood plain area, the conceptual model developed at the site indicates that impacted ground water originates in the bedrock and "up-wells" into the overburden near the Hackensack River and subsequently into the River itself. While containment of the impacted ground water in the bedrock is not practical for the reasons discussed above, containment may be possible in the overburden, intercepting the ground water before it discharges to the River. Containment walls are not feasible as they could not be constructed in a manner to prevent the "up-welling" of impacted ground water to the River. The flood plain area adjacent to the river is prone to annual flooding of six feet or more and no infrastructure currently exists in this area (e.g. access roads or electric power) making implementation of this technology difficult. In addition, it is likely that large volumes of captured, impacted ground water will be generated and need to be discharged. The nearest discharge point is the Hackensack River and treatment of this wastewater will therefore be required prior to discharge. Based on this preliminary evaluation, while the containment option by ground water pumping of the overburden in the flood plain area warrants additional consideration, treatment of the large volume of wastewater produced will be required and the containment option is more appropriately evaluated as "pump and treat", which is discussed below.

<u>Pump and Treat Process Options</u>. Ground water removal/recovery via pumping combined with *ex-situ* treatment is commonly referred to as "pump and treat." Prior to the advent of modern *in-situ* treatment technologies, one of the primary means of ground water remediation for chlorinated solvents was pumping to capture impacted ground water followed by a variety of treatment options including air stripping, carbon adsorption and chemical oxidation such as UV/peroxide treatment. However, the overall success record of pump-and-treat is poor, and the literature concerning studies of pump-and-treat programs has acknowledged that pump-and-treat has been relatively ineffective at permanently and effectively reducing ground water contaminant levels in the subsurface (Nyer, 1993; Nyer and Fierro, 1998). In fact, many cases have been cited where contaminant levels "rebound" to at or near pre-treatment levels subsequent to the shut down of a pump-and-treat system (Nyer, 1993; Nyer and Fierro, 1998). As far back as 1989, an EPA paper noted the following:

> Pump-and-treat groundwater remediation, while [it can be] successful in containing contaminated groundwater plumes and reducing the concentration of groundwater contaminants, cannot be relied on to bring contaminant levels down to environmentally accepted standards. *(WTN Special Superfund coverage paper, 1989; Nyer, 1993)*.

A basic problem with pump and treat ground water remediation is that in most cases, only minor amounts of dissolved constituents are recovered, leaving behind larger amounts of soil and non-aqueous phase liquid contamination (Haley *et al.*, 1991). In other words, pump-and-treat only treats the small portion of contamination that is dissolved or is readily dissolved in ground water. It is now recognized that sorbed-phase contamination constitutes the vast majority of the contaminant mass present in the subsurface and that the mass of dissolved-phase contaminants which may be captured by pump and treat systems is only a minor fraction of the total contaminant load.

Plateau Area. Pump and treat technologies are only able to treat the ground water which is captured by recovery wells. As discussed above, fractured bedrock is a heterogeneous aquifer matrix and ground water pumping is not likely to completely contain or capture all the impacted ground water in this source area. Pumping wells installed into fractured bedrock typically preferentially recover ground water from the fractures which a well intersects with the greatest hydraulic conductivity. It is not unusual for little ground water flow to be induced from other secondary or tertiary fractures. The selective ground water recovery from major bedrock fractures (which may or may not be in contact with sorbed phase mass), combined with the uncertainties involved with installing bedrock wells to intersect specific bedrock fractures results in a low likelihood of pump and treat technologies recovering all impacted ground water.

As pump and treatment technologies have a low likelihood to completely capture impacted ground water and also are limited by only treating the dissolved phase of contaminants, pump and treat technologies do not effectively address the sorbed-phase solvent mass that gives rise to ground water contamination, resulting is very long term remediation efforts. Based on this preliminary evaluation, the pump and treat options for ground water treatment in the plateau area have been eliminated from further consideration.

Flood Plain Area. As described above for the containment options in the flood plain area, ground water pump and treat options are also not applicable to the bedrock in the flood plain area. Similarly, containment and therefore pump and treat technologies may be possible in the overburden, intercepting the ground water before it reaches the River. However, as this area is also prone to annual flooding of six feet or more and no infrastructure exists in the flood plain area, implementation of this technology would be difficult. Based on this preliminary evaluation, pump and treat options installed in the overburden in the flood plain area warrants additional consideration.

<u>Air Sparging</u>. Air sparging is also known as “in situ air stripping” and “in situ volatilization”. Air sparging can be broadly divided into two distinct technologies: air injection into the aquifer, and in-well aeration. Air-injection consists of introducing air, under pressure, directly into an aquifer matrix to provide oxygen for bioremediation and/or to strip contaminants out of the aquifer, while in-well aeration is the process of injecting air into a well resulting in an in-well airlift effect (Hinchee, 1994).

Typically with air injection technology air is pumped into the subsurface saturated zone to enable the physical mass-transfer of dissolved-phase solvents from ground water into the vapor-phase. The vapor-phase air with entrained contaminants is then vented through the unsaturated zone or recaptured using vapor-phase recovery wells. The recovered air may or may not be treated to remove the contaminants depending on the specific circumstances. This technology is typically applied to unconsolidated sediments and aside from the difficulties associated with bedrock contamination, this technology also suffers from the same limitations as those described above for pump and treat process options in that it does not directly address sorbed-phase contaminants adhered to the aquifer media.
In-well aeration results in ground water flow from the lower portions of the screened interval of a well to the upper portions of the screened interval and also serves to strip volatile contaminants and provide oxygen for bioremediation. This potential for movement of ground water within the well sets up circulation pattern in the surrounding aquifer to affect an area larger than the well itself.

Plateau Area. Air injected into the bedrock matrix is not likely to disperse an appreciable distance from the injection well and it is likely that large areas of impacted ground water and aquifer matrix will not be treated. Similarly, in-well aeration is not likely to impact a significant area outside each well. Combining the difficulties involved in the application of either air sparging or in-well aeration within a bedrock matrix with this technology's inability to treat the sorbed-phase solvent mass that gives rise to ground water contamination, this technology has been eliminated from further consideration in the plateau area.

Flood Plain Area. As briefly discussed above, application of air sparging in the bedrock aquifer is not feasible. Air injection is not applicable to site conditions in the flood plain area because the ground water table is at or near the ground surface preventing the installation of vapor-phase recovery wells to capture the liberated contaminants. The lack of unsaturated overburden within which to install vapor recovery wells would result in a discharge of contaminants to air at unpredictable locations or the discharge of the contaminants to the River. Treatment of the overburden adjacent to the River with in-well aeration may be feasible. Using this technology, contaminants stripped from the ground water could be captured in the head-space of the wells and vented to an off-gas treatment system. The flood plain area is also prone to annual flooding of six feet or more and no infrastructure exists in this area, making implementation of this technology difficult. Based on this preliminary evaluation, in-well aeration installed in the overburden in the flood plain area warrants additional consideration.

In-situ Chemical Reduction. As a process category, *in-situ* chemical reduction generally involves the subsurface injection of a reductant such as zero-valent iron ("ZVI"), or more recently, nano-scale iron and even newer bi-metallic reductants. ZVI has most commonly been deployed within permeable reactive barriers or so-called "iron walls." In theory, the primary advantage of a ZVI barrier is that it requires little operation and maintenance resulting in low ongoing costs–i.e., after installation, the barrier operates as a passive interceptor of ground water contaminants and requires little or no maintenance beyond routine ground water monitoring. However, similar to the limitations of the physical treatment technologies of ground water pump and treat and air sparging, ZVI barriers are limited to the treatment of the ground water driven flux of aqueous-phase contaminants and have little or no effect on the sorbed-phase mass that constitutes the long-term source of ongoing ground water contamination. Moreover, recent data has shown that ZVI barriers undergo geochemical weathering or "fouling" that can result in reduced effectiveness of treatment over time. In addition, significant intellectual property issues limit the commercial applicability of this technology in view of the availability of other applicable technologies.

Plateau Area. ZVI barriers suffer similar limitations to those previously discussed for containment technologies. In the plateau area contaminated ground water is located in the bedrock. Installation of a ZVI barrier would require deep excavation of bedrock and even if this were accomplished, bedrock fractures would provide alternative pathways for contaminated ground water to flow around the barrier. ZVI barriers are viewed as infeasible in the plateau area given the difficulty of installation and inherent inability of this technology to treat source / sorbed-phase contaminant mass.

More recent developments in the area of *in-situ* chemical reduction have focused on the injection of nano-scale iron or metallic / bi-metallic nano particles into the subsurface. This area of technology is the subject of intense interest and research but several technological hurdles remain including the development of means of achieving the sufficient dispersal of the nano-particles into the subsurface aquifer. In addition, like with ZVI, significant disputes concerning intellectual property rights limit the widespread utility of this technology at present. Accordingly, *in-situ* chemical reduction using either ZVI or nano-scale metals is removed from further consideration at the subject site in view of the availability of other technologies that are more feasible, implementable and cost effective. Based on this preliminary evaluation, *in-situ* chemical reduction has been eliminated from further consideration in the plateau area.

Flood Plain Area. ZVI barriers suffer similar limitations to those previously discussed for containment technologies. In the flood plain area, the conceptual model developed at the site indicates that impacted ground water originates in the bedrock and "up-wells" into the overburden near the Hackensack River and subsequently into the River itself. It is not practical to construct ZVI barriers in a manner to intercept the "up-welling" impacted ground water prior to its migration into the River. Based on this preliminary evaluation, *in-situ* chemical reduction has been eliminated from further consideration in the flood plain area.

<u>*In-situ* Chemical Oxidation ("ISCO").</u> Over the last several years *in-situ* chemical oxidation ("ISCO") has become one of the most commonly utilized categories of *in-situ* ground water remediation. Several ISCO technology variants are either in practice or under development including:

1. Fenton's or modified Fenton's techniques (hydrogen peroxide based)
2. Permanganate (potassium and sodium permanganates)
3. Persulfate, (e.g., FMC's "Klozur" technology)
4. Percarbonate, (e.g., Solvay-Interox's "Envirofirst" and Regenesis' "Regenox" technologies)

Other chemical oxidants are also theoretically applicable, such as per-acetic acid, but have seen relatively little commercial application relative to the aforementioned techniques and hence have an insufficient track record to allow further detailed evaluation.

The primary advantage of most if not all of the above oxidation technologies is that they result in the rapid oxidation and destruction of aqueous-phase contaminants. However, the performance track record concerning the ability of these oxidants to treat sorbed-phase contaminants is limited. The contaminant-rebound phenomenon has commonly been observed with ISCO and is ostensibly attributable to the rapid reactivity of the oxidants in ground water which greatly limits the diffusion of these chemistries into the aquifer matrix required to enable treatment of sorbed-phase residual contaminants. Moreover, ISCO reactions can be quite exothermic, and can generate a potentially dangerous combination of flammable organic vapors and oxygen. Persulfate, and in particular "activated" persulfate, has shown promise as a less exothermic and longer-lived oxidant that in some instances has been shown to be able to treat a measurable portion of the sorbed-phase contaminant load.

Another potentially greater concern with ISCO chemistries is that they can have a deleterious effect on the indigenous microbiota that are responsible for mediating the biological aspects of the "MNA" process. A number of ISCO case studies presented at industry conferences (Battelle, U. Mass, IPEC), most of which addressed persulfate and percarbonate chemistries, have consistently shown up to a two-order of magnitude decrease in microbial cell counts and other quantitative molecular markers of microbial MNA processes, following the use of these technologies. As many current site remediation strategies are based on combining focused source area treatment with MNA, the potential negative impact of ISCO on the biological component of MNA should not be overlooked.

Plateau Area. Based on the potential for the relatively rapid oxidation and destruction of contaminants, there is a potential to treat ground water contaminants in the plateau area using ISCO technologies. Based on this preliminary evaluation, as described above, in-situ chemical oxidation in the plateau area warrants additional consideration.

Flood Plain. ISCO is not commonly applied in the ground water plume extending down gradient from a source area. This is often due to the large area of contamination, relative to the source area, lower oxidative efficiency, and greater cost. In a source zone, oxidants may be applied at high concentrations, focused in specific zones for relatively short time durations. Contaminants migrating to the flood plain area are supplied by a continuing source on the plateau. As such, repeated frequent application of ISCO products would be required over large areas to treat contaminants as they arrive beneath the flood plain. Based on this preliminary evaluation, in-situ chemical oxidation in the flood plain area does not warrant additional consideration.

In-situ Aerobic Bioremediation. TCE biodegradation occurs in both aerobic and anaerobic environments. Aerobic TCE degradation, however, is a cometabolic transformation due to a broad specificity of microbial enzyme systems (McCarty and Semprini 1994). The microorganism requires a primary substrate (electron donor) for growth, but due to the broad enzyme specificity, the microorganism can also degrade the chlorinated solvent. The enzymes responsible for oxidation of TCE are produced by a variety of microorganisms; however, many of these microorganisms experience toxicity due to the contaminant if the TCE they co-oxidize is encountered at concentrations greater than 6,000 ug/l (Broholm et al, 1990). In addition, it is often difficult to maintain sufficient concentrations of oxygen *in-situ* to support aerobic biodegradation due to the relatively low solubility of oxygen and numerous abiotic sinks for oxygen such as reactions with iron and manganese. Due to the presence of TCE concentrations greater than 6,000 ug/, existing anaerobic conditions of the subsurface, and limited ability to transport oxygen in the subsurface, this process option is not provided additional consideration in the plateau area nor in the flood plain area.

In-Situ Anaerobic Bioremediation. In addition to ISCO, anaerobic bioremediation, as a process category, is one of the two most widely utilized *in-situ* remediation techniques. Anaerobic bioremediation of chlorinated solvents seeks to stimulate the enigmatic process of chlororespiration whereby chlorine atoms serve as the terminal electron acceptor in a microbial respiration process. Several different genera of anaerobic bacteria have been shown to partially dechlorinate PCE and/or TCE to cis-1,2-DCE, and vinyl chloride; however, to date only *Dahaloccoides* spp. ("DHC") have been demonstrated to have the ability to completely dechlorinate chloroethenes to ethene. In current industry practice, anaerobic bioremediation of chloroethenes can be broken into two process sub-categories, biostimulation and bioaugmentation.

- Biostimulation may be accomplished via the injection of a variety of organic substrates / electron donors to promote anaerobic and reducing conditions favorable for microorganism-mediated sequential dechlorination of chloroethenes to ethene; and

- Bioaugmentation via the injection of enrichment cultures containing one or more strains of DHC with the demonstrated capacity for the complete reduction of chloroethenes.

Biostimulation is the most commonly utilized technique for chloroethene bioremediation, and many different electron donor chemistries and techniques are commercially available. A pilot-scale demonstration project was completed at this site to assess the application of in-situ anaerobic bioremediation using Geovation's SRC™ product to promote biostimulation. As part of this pilot project DHC was identified to be present in site ground water and bioaugmentation was not necessary as ground water monitoring provided conclusive evidence of the complete reductive dechlorination of TCE to ethene.

<u>Anaerobic Biostimulation for Chloroethene Bioremediation.</u> Many different biostimulation chemistries and methods, i.e., process options, are commercially available and in widespread use at chloroethene contamination sites including:

- Regenesis' HRC (a slow-release form of glycerol tripolylactate)
- Regenesis' HRC-A (a modified edible oil-polylactate hybrid)
- Edible / vegetable oils (e.g., soybean and other vegetable oils and emulsified oils)
- Chitin (a relatively insoluble high C and N content biopolymer)
- Vegetable / plant matter
- Sugar / carbohydrate materials (e.g., cheese whey, molasses, various sugars)
- Organo salts (e.g., lactates, formates, acetates)
- Geovation's substrate-release composition (SRC™)

At the subject site, the cumulative site investigation data indicate the likelihood of significant amounts of sorbed-phase mass trapped within the semi-porous media of the underlying sedimentary bedrock. As such, this sorbed-phase mass is largely inaccessible to advective flow and direct physical contact with low-solubility biostimulation chemistries. In this regard, the relative solubility of a biostimulation chemistry governs the degree to which it may diffuse into the aquifer matrix to enable the microbially mediated desorption and dechlorination of the chloroethenes. Such conditions favor the use of high solubility chemistries such as organo salts, soluble sugars and Geovation's SRC™ (approximately 90% high solubility constituents by weight). Conversely, the need to address the sorbed-phase mass weighs against the use of lower solubility materials such as HRC, HRC-A, edible oils / emulsions and insoluble biopolymers. Accordingly, low solubility electron donors have been removed from further consideration at the subject site.

As briefly mentioned above, Geovation recently completed a detailed 12-month pilot study of the application of SRC™ at the site. Application of SRC™ was conducted in two different applications: in the source area, and mid-plume as a biobarrier application. The cumulative data from the pilot study, as well as more recent continued ground water monitoring data, conclusively demonstrated the ability of SRC™ to drive the desorption and accelerated dechlorination of source area chloroethenes and the general efficacy of the mid-plume biobarrier concept. Confirmation of the biologically mediated destruction of ground water contaminants was demonstrated by several lines of evidence as follows:

Reductions of total chloroethenes were observed in all target wells. The primary contaminant TCE was reduced by more than 94% in all target wells. A reduction of more than 86% of the daughter compound cDCE was achieved in the source area and a reduction of more than 93% of cDCE was achieved in the barrier area. In response to SRC™ treatment, ethene concentrations were observed to increase as much as 72 times their baseline values in the source area and 64 times their baseline values in the biobarrier area. Comparison of the contaminant concentrations in the target wells with the control points showed that the contaminant reductions were not the result of simple ground water dilution and were instead a response to SRC™ additions. Third- party split sampling of these analyses corroborated the results achieved. Direct counts of microorganisms in treatment wells showed large increases in the biological community in response to SRC™ treatment and Biotrap® samples provided additional supporting information that the biological community was responsible for the contaminant reductions. These data include increasing trends in key biomarkers including DHC concentrations and the functional genes coding for key reductase enzymes, including two vinyl chloride reductase genes which mediate the critical and final step in complete dechlorination of chloroethenes.

These results, as briefly described above, for the complete reductive dechlorination of TCE to ethene are more fully discussed in Geovation's report on the Pilot Study (Appendix F).

Plateau Area. The response of the biological community to parent and daughter contaminants was observed to evolve over time. SRC™ additions sequentially removed a chlorine from the parent contaminant, thereby creating daughter contaminants. Subsequently a delay was observed while the biological community evolved which was followed by the removal of a chlorine from the daughter compound creating grand-daughter contaminants and so on until the production of ethene. This pattern of sequential dechlorination was observed in all target wells during the pilot study. As an example, a graph of the total molar chloroethene amounts measured in target well MW-18, located in the plateau area, is provided as Figure 13. As shown on this figure, initial amounts of TCE gradually declined as cDCE was produced. The amount of cDCE increased and subsequently declined. As the amount of cDCE increased, VC increased and then subsequently declined and as VC increased, ethene began to be produced. Continued monitoring indicates that ethene continues to be produced in large amounts. This data indicates that dissolved phase contaminants have been eliminated and that the bioremediation process is now addressing sorbed phase contaminations at a rate that exceeds the dissolution rate of the contaminants.

The production and subsequent degradation of vinyl chloride is of particular interest. As shown on Figure 13 the production and temporary increase in VC is an observed result of this process. It should be emphasized that the increase in VC is temporary as the bio-community evolves and a necessary step of the degradation sequence from PCE and TCE to ethene. At location MW-18, increases in VC were measured after four months of SRC™ treatment. VC concentrations reached their peak after thirteen months of treatment and subsequently fell to below baseline values after seventeen months of treatment. At location MW-12, natural processes had produced high levels of baseline VC. In response to SRC™ treatment VC concentrations were quickly reduced and remained below baseline values until after seventeen months of treatment. Subsequently, VC values were reduced back below baseline values after twenty-one months of treatment. When SRC™ was use in the biobarrier configuration, at MW-25, VC concentration increased after six months of SRC™ treatment and reached its peak after nine months of treatment. Subsequently VC values were reduced to low levels of less than forty-five ppb after nineteen months of treatment. VC concentrations are anticipated to continue to decline as the concentration of source area contaminants decreases.

When combined, the data collected from multiple lines of evidence, including control points and third-party split sampling, indicate that application of SRC™ product is capable of effectively degrading site contaminants in the plateau area. Based on this preliminary evaluation, application of in-situ anaerobic bioremediation in the plateau area warrants additional consideration.

Flood Plain. As described above, the use of *in-situ* anaerobic bioremediation was pilot tested in both the source area on the plateau and in a biobarrier configuration. The biobarrier consisted of the routine application of SRC™ product to the bedrock aquifer through a series of wells arranged in a line perpendicular to the direction of ground water flow. Impacted ground water traveled through the biobarrier and was monitored at a down gradient location over time. As a result of the pilot study, the biobarrier achieved up to 99% removal of total choroethenes from ground water. A more detailed description of the results of the biobarrier pilot test are provided in Appendix F.

When combined, the data collected from multiple lines of evidence, including control points and third-party split sampling, indicate that application of SRC™ product is capable of effectively degrading site contaminants in a biobarrier configuration. Based on this preliminary evaluation, application of in-situ anaerobic bioremediation in the flood plain area warrants additional consideration.

Development and Analysis of Alternatives for Plateau Area Ground Water

The three alternatives for which a detailed analysis is to be conducted are:

1) The "no-action" alternative, as required by DER-10,
2) In-situ Chemical Oxidation (ISCO), and
3) In-situ Anaerobic Bioremediation.

The presence of contaminated ground water in fractured bedrock eliminated process options which required construction of containment and barrier walls as well as options which rely on recovery of ground water to either remove or control the migration of contaminants. Difficulties with the distribution of treatment technologies into the bedrock aquifer matrix to treat sorbed contaminant mass also eliminated process options which are not highly soluble or could not set up a large chemical gradient in the aquifer matrix. Based on our evaluation of possible process options, only no-action, in-situ chemical oxidation (ISCO) and anaerobic bioremediation merited additional consideration.

No Action/Institutional Controls. Evaluation of the no-action alternative is required under DER-10 as it provides a baseline for the subsequent evaluation of the remaining alternatives. This alternative would consist of monitoring impacted ground water quality.

Overall Protection of Public Health and the Environment. The no-action alternative would not provide overall protection of public health and the environment as the long-term human health and environmental risks associated with the contaminated ground water would essentially be the same as those which presently exist at the site.

Compliance with Standards, Criteria, and Guidance (SCGs). The no-action alternative would not result in compliance with ground water standards, criteria and guidance. While natural attenuation of contaminants was documented at the site, no decreases in the concentration of dissolved phase contaminants in ground water were observed prior to the pilot scale biostimulation project. Based on the historical ground water monitoring data collected at the site it is estimated that it would take more than a hundred years to reach the SCGs without active treatment.

Long-term Effectiveness and Permanence. The no-action alternative would not have long-term effectiveness or permanence.

Reduction of Toxicity, Mobility or Volume with Treatment. Based on the low rate of natural attenuation observed at the site, the no-action alternative ranks low in terms of reduction of toxicity, mobility, or volume for contaminated ground water.

Short-Term Effectiveness. The potential for short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment is low for the no-action alternative as there would be no construction or other actions taken in the short-term that would have potential negative impacts.

Implementability. The no-action alternative is highly implementable as it would consist only of continued ground water monitoring.

Cost. There would be no capital cost associated with implementation of the no-action alternative. However, there would be a cost associated with continuing long-term monitoring of the ground water. Assuming continued quarterly ground water monitoring for a period of 100 years, the present worth cost would be $8,300,000.

In-situ Chemical Oxidation (ISCO). This alternative consists of the installation of additional treatment wells and multiple injections of chemical oxidation reagent into the treatment well network. A laboratory study would be conducted to specify the most effective reagent to be used. Necessary infrastructure would be installed and a treatment/monitoring program established. An addendum to the existing Health and Safety would be required for the use, handling and storage of highly oxidative chemicals.

Overall Protection of Public Health and the Environment. In-situ Chemical Oxidation technology would rank high in terms of providing overall protection of public health and the environment as contaminant mass will be reduced/eliminated and the long-term human health and environmental risks associated with the contaminated ground water would be mitigated.

Compliance with Standards, Criteria, and Guidance (SCGs). ISCO technology would be expected to result in compliance with ground water standards, criteria and guidance, although it is expected that a period of monitored natural attenuation would likely be required following the series of chemical oxidation injections in order to do so.

Long-term Effectiveness and Permanence. ISCO technology would have long-term effectiveness and permanence as the sorbed and dissolved phase contaminant mass will be removed.

Reduction of Toxicity, Mobility or Volume with Treatment. ISCO technology will result in a reduction of toxicity, mobility, and volume of the contaminated ground water and would thus rank high in this category.

Short-Term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are high for this alternative. Implementation of this remedy would involve use, handling and storage of highly oxidative chemicals. ISCO technologies have been shown to generate excessive heat during the time of injection to the point that PVC wells are not recommended as they may melt and parking lot pavement may buckle/heave. In addition, vapor extraction wells may be required to capture and treat volatile off-gas. However, implementation of this alternative would not be expected to have a significant impact on fish and wildlife resources.

Implementability. Use of ISCO technology is moderately implementable at this site. Requirement of water, electric power, and space are available; however the close proximity of active building operations would require caution during implementation to control volatile off-gas, and excessive heat. In addition, ISCO is not as well suited for the treatment of fractured bedrock media as compared to unconsolidated porous media. Permits would need to be obtained for the installation of the additional treatment wells and injection of ISCO products.

Cost. The capital cost of this alternative is estimated at $617,000. The operations and maintenance period is estimated at 10 years at an estimated annual O&M cost of $28,000. The total present worth cost of this alternative is $844,000.

Geovation's SRC™ Anaerobic Biostimulation Bioremediation Technology. This alternative consists of the installation of additional treatment wells and the periodic injection of Geovation's SRC™ product into the treatment well network. A monitoring program would be instituted in conjunction with the treatment program, to assist in determining the appropriate doses of the SRC™ liquid into the various treatment wells as well as monitor the progress of the remedy. A successful pilot-scale demonstration of this technology was recently completed at the site.

Overall Protection of Public Health and the Environment. Geovation's SRC™ Bioremediation Technology would rank high in terms of providing overall protection of public health and the environment as contaminant mass will be reduced/eliminated and the long-term human health and environmental risks associated with the contaminated ground water would be mitigated.

Compliance with Standards, Criteria, and Guidance (SCGs). Geovation's SRC™ Bioremediation Technology would be expected to result in compliance with ground water standards, criteria and guidance.

Long-term Effectiveness and Permanence. Geovation's SRC™ Bioremediation Technology would have long-term effectiveness and permanence as the sorbed and dissolved phase contaminant mass will be removed.

Reduction of Toxicity, Mobility or Volume with Treatment. Geovation's SRC™ Bioremediation Technology will result in a reduction of toxicity, mobility, and volume of the contaminated ground water and would thus rank high in this category.

Short-Term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are low for this alternative. Implementation of this remedy would involve installation of additional injection wells and the continued injection of Geovation's SRC™ product into the wells on a periodic basis. The SRC™ product is mostly composed of "food-grade" ingredients and is not highly reactive, corrosive, or toxic. SRC™ does not present any danger to the public in terms of its transport to or use at the site. Implementation of this alternative would not be expected to have a significant impact on fish and wildlife resources.

Implementability. Use of Geovation's SRC™ technology is highly implementable as demonstrated during the 12-month pilot study of this technology which was concluded earlier this year. Permits would need to be obtained for the installation of the additional treatment wells and use of SRC™ product.

Cost. The capital cost of this alternative is estimated at approximately $74,000. The operations and maintenance period is estimated at 4 years and the estimated annual O&M cost is $45,000. The total present worth cost of this alternative is $236,000.

Recommended Remedy for Plateau Area Ground Water

Based on the ranking of remedial alternatives shown on Table 10, Geovation's SRC™ Anaerobic Biostimulation Bioremediation Technology was selected as the recommended ground water remedial alternative for the plateau area of this site. It is the best available technology able to treat the sorbed contaminant mass present within the aquifer along with the contaminant mass that is currently present in the dissolved phase.

Description of the Selected Plateau Area Ground Water Remedy

The pilot study of the application of SRC™ product to ground water was conducted in two areas, the source area on the plateau and as a mid-plume biobarrier. SRC™ delivery wells were installed in each area and SRC™ product was added to the wells on a four to six week schedule over a 12 month period. Ground water was monitored down gradient of the delivery wells for biological parameters and concentration of volatile organic compounds. The location of the pilot study delivery and monitoring wells are provided on Figure 14. The implementation of in-situ anaerobic bioremediation in the plateau area will consist of expanding the pilot study to full-scale implementation of this alternative. All activities conducted at the site will be performed in accordance with the existing site specific Health and Safety Plan. A full description of SRC™ technology and its application to this site during the pilot study is provided in Appendix F (Pilot Study Final Report)

Implementation of the site-wide final remedy will be conducted in phases to manage cost. A proposed schedule of implementation of the ground water remedy is provided as Figure 12. The expansion of the pilot ground water treatment program in the plateau area to treat source area contamination will be conducted during first phase of remedial efforts.

The construction of a biobarrier perpendicular to the primary axis of the ground water plume in a down gradient location on the plateau will be implemented in Phase II of the project. The locations of the additional plateau area treatment well are shown on Figure 15 and the treatment intervals of these wells are provided on Table 11. The proposed depth interval of SRC™ treatment is consistent with treatment of the bedrock aquifer as illustrated on Figure 9.

During the pilot study, in the plateau area (MW-18) a significant reduction (>50%) in the principle ground water contaminant, TCE, was achieved in less than six months and reductions of greater than ninety nine percent of total chloroethenes was achieved within seventeen months. At this location, (MW-18), the rate of dissolved contaminant degradation was enhanced to equal, and/or exceed, the desorption rate of the adsorbed contaminants from the bedrock aquifer, thereafter degrading adsorbed contaminants in-place. Continuing desorption and in-place degradation of adsorbed contaminants is evidenced by the elevated concentration of dissolved ethene which continues to be reported in this well. As a result of the remedial efforts achieved during the pilot study of dissolved and adsorbed phase contaminants, ground water that now originates in this portion of the source area has a very low dissolved contaminant concentration reducing the input of contaminants to down gradient locations. It is anticipated that these results could be duplicated in all source area wells during full-scale implementation of this remedy. As the amount of contaminants leaving the source area is reduced, down gradient points should also experience a reduction in contaminant levels. Data from monitoring well MW-24 located in the flood plain area was reviewed for evidence of this process. A graph of the total chloroethenes measured in MW-24 since the beginning of the pilot study is provided as Figure 16. A linear regression trend-line has been added to this graph.

Although the data shows significant variability, a gradual downward trend is evident. This is consistent with the reduction of contaminants observed in the source area. As shown on this graph, the total chloroethenes reported at this riverside monitoring well have been reduced to approximately one-half of their baseline values.

Once contaminants are being degraded in-place in the source area and inhibited from leaving this area, the time required to complete site remediation should be approximately the time required for ground water to flow from the source area to the river. To empirically evaluate the rate of ground water flow, data from the biobarrier portion of the pilot study was reviewed. During the pilot study, SRC™ was added to treatment wells in the biobarrier and significant impacts (93% reduction of TCE and a 150% increase in cDCE) were observed in monitoring well MW-19 located approximately 35 feet down gradient in less than four months. Based on these observations, the rate of ground water flow through the bedrock aquifer is greater than140 feet per year. The distance from the source area to the river is approximately 1,000 feet and therefore significant reductions in site contaminants should be accomplished in approximately seven years. This clean-up time may be reduced by the installation of a biobarrier to cut-off existing contaminants migrating towards the river. The installation of an additional biobarrier in the plateau area is proposed as part of Phase II of the project.

The second phase of implementation of the ground water remedy is the replacement and expansion of the biobarrier established in the pilot study. The pilot study wells in the biobarrier area were installed to a depth of approximately 40 feet below the ground surface and data from the pilot suggested that contaminants may have migrated under the biobarrier. The number and location of proposed phase II biobarrier wells are shown on Figure 15 and the treatment intervals of these wells are provided on Table 11. After well installation is complete, the treatment wells will be added to the SRC™ program, reducing the time required to remediate the site. It is anticipated that once installation of both phases of the ground water remedy are complete, the time required to complete site remediation to ground water standards will be reduced to approximately 4.5 years.

The existing ground water monitoring well network will be used to evaluate the progress of the proposed remedy. A reduced set of wells will be utilized for quarterly monitoring, and a full round of sampling of all site monitoring wells will be conducted annually. The wells proposed for quarterly sampling are MW-12, MW-18, MW-25, MW,19, MW-14, MW-21, MW-28S, MW-23S, and MW-26S. Ground water samples from each of these wells will be collected using low-flow sampling techniques based on the monitoring of electrical conductivity of the purge water. Ground water samples will be collected directly into laboratory provided clean glassware, labeled and transported under chain of custody documentation to a NYSDOH certified laboratory for analysis of EPA Method 624 volatile organic compounds with a library search. Quarterly progress reports will be prepared. Each progress report will contain a description of work conducted during the reporting quarter, a summary table of the quarterly ground water sampling results, and a description of planned upcoming activities.

Development and Analysis of Alternatives for Flood Plain Area Ground Water

The four alternatives for which a detailed analysis is to be conducted are:

1) The “no-action” alternative, as required by DER-10,

2) Pump and Treat Containment,
3) Air Sparging (In-well Aeration, passive barrier), and
4) In-situ Anaerobic Bioremediation (biobarrier).

The presence of contaminated ground water up welling from fractured bedrock in the flood plain near the river and below the river eliminated process options which required construction of physical barriers or short term treatment of ground water. Options which were considered feasible include the capture and/or treatment of ground water as it is released from the bedrock aquifer(pump and treat) and the construction of passive barriers which ground water passes through prior to discharging to the River, via in-situ air stripping or biological treatment.

No Action/Institutional Controls. Evaluation of the no-action alternative is required under DER-10 as it provides a baseline for the subsequent evaluation of the remaining alternatives. This alternative would consist of monitoring impacted ground water quality.

Overall Protection of Public Health and the Environment. The no-action alternative would not provide overall protection of public health and the environment as the long-term human health and environmental risks associated with the contaminated ground water would essentially be the same as those which presently exist at the site.

Compliance with Standards, Criteria, and Guidance (SCGs). The no-action alternative would not result in compliance with ground water standards, criteria and guidance. While natural attenuation of contaminants was documented at the site, no decreases in the concentration of dissolved phase contaminants in ground water were observed prior to the pilot scale biostimulation project. Based on the historical ground water monitoring data collected at the site it is estimated that it would take more than a hundred years to reach the SCGs without active treatment.

Long-term Effectiveness and Permanence. The no-action alternative would not have long-term effectiveness or permanence.

Reduction of Toxicity, Mobility or Volume with Treatment. Based on the low rate of natural attenuation observed at the site, the no-action alternative ranks low in terms of reduction of toxicity, mobility, or volume for contaminated ground water.

Short-Term Effectiveness. The potential for short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment is low for the no-action alternative as there would be no construction or other actions taken in the short-term that would have potential negative impacts.

Implementability. The no-action alternative is highly implementable as it would consist only of continued ground water monitoring.

Cost. There would be no capital cost associated with implementation of the no-action alternative. However, there would be a cost associated with continuing long-term monitoring of the ground water. Assuming continued quarterly ground water monitoring for a period of 100 years, the present worth cost would be $4,200,000.

Ground Water Pump and Treat. This alternative consists of the installation of additional recovery wells parallel to the River and the recovery and treatment of captured ground water prior to its discharge to the

Hackensack River. Deep overburden recovery wells would be installed down to the bedrock interface. The number of wells and pumping rate would be determined by conducting a pump test prior to design of the full system. The existing shallow overburden monitoring well network would be expanded and a monitoring program would be instituted to assess the effectiveness of the remedial system. Based on the volume and contaminant load of captured ground water, a ground water treatment system would be designed and installed to treat and discharge wastewater.

Overall Protection of Public Health and the Environment. Ground Water Pump and Treat technology would rank low in terms of providing overall protection of public health and the environment as capture of impacted ground water as it was released from the bedrock aquifer would be difficult to impossible. As previously discussed, capture wells wouldl need to be located adjacent to the River where the up welling of impacted ground water is occurring. It is a well-established practice in water supply hydrogeology that wells installed in unconfined aquifers adjacent to rivers will receive recharge from the river. The result of capturing river water in the recovery wells will be to greatly limit the radius of influence of individual recovery wells and greatly reduce cost effectiveness of this alternative as large volumes of river water are captured, pumped, treated and returned to the river. This option receives a low ranking as there is an inherent escalation of costs as the need to limit the pumping rate from individual recovery wells necessitates the need for more recovery wells.

Compliance with Standards, Criteria, and Guidance (SCGs). It is assumed that ground water captured by the recovery system would be treated such that it meets the SCGs. This however does not meet the goal of protection of the River. For the reasons discussed above, it is unlikely that this remedial option will result in the compliance with ground water standards, criteria, and/or guidance of the overburden ground water quality adjacent to the river.

Long-term Effectiveness and Permanence. The long-term effectiveness of all technologies being considered for implementation in the flood plain area ultimately rely on the successful reduction of contaminants in the source area on the plateau. To the extent that the installed pump and treat system is effective in capturing the discharge of impacted ground water, it will provide permanence as long as the system is maintained and operated. It should be noted that this remedial option relies heavily on mechanical effort and as such will require significant operation and maintenance costs for both the ground water recovery and treatment components of the system. It should be anticipated that some down-time of the equipment will result from unforseen system failures and planned system maintenance.

Reduction of Toxicity, Mobility or Volume with Treatment. Pump and Treat technology will result in a reduction of toxicity, and mobility, but an increase in the volume of the contaminated ground water and would thus rank low in this category. The volume of impacted ground water will increase as previously uncontaminated ground water is captured by the recovery wells (e.g.. River water) and is mixed with contaminated ground water prior to treatment.

Short-Term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are moderate for this alternative. Contaminants currently in the ground water which are slowly but continuously discharged to the River will be recovered and handled through a recovery and treatment train network of piping and mechanical systems. Such systems create a potential for catastrophic failure which does not currently exist and the potential routine exposure of contaminants to maintenance workers. In addition, a risk will be created for the discharge of untreated or inadequately treated ground water and/or the release of contaminants which have been removed from the ground water to the air or other media. Properly implemented, this alternative is not expected to have a significant impact on fish and wildlife resources; however, a risk is created which does not currently exist.

Implementability. Use of Pump and Treat technology will be difficult to implement at this location. As previously stated, the flood plain area is subject to annual flooding of up to six feet of water as the Hackensack River overflows its banks each spring. There is no infrastructure currently in this area such as electric power and the ground water table is at the ground surface most of the year precluding the normal construction of access roads or building slabs. The majority of the required infrastructure would most likely have to be constructed at a higher topographic elevation and an extensive network of piping would be required to connect to the numerous recovery wells. Permits would need to be obtained for the installation of the additional recovery wells and for the discharge of treated ground water.

Cost. The capital cost of this alternative is estimated at $437,000. The operations and maintenance period for 4 years is estimated at an annual O&M cost of $60,000. The total present worth cost of this alternative is $704,000.

In-well Air Sparging. This alternative consists of the installation of a network of deep overburden treatment wells parallel to the River and the continuous injection of air into the treatment well network. In addition, an off-gas collection and treatment system may be required to prevent the discharge of contaminants to the atmosphere. Deep overburden air sparging wells would be installed down to the bedrock interface. The number of wells and spacing requirement would be determined by conducting a pilot test prior to design of the full-scale system. The vertical ground water circulation patterns induced by in-well aeration are difficult to determine and it is uncertain if the induced ground water circulation patterns would be strong enough to establish themselves in an area where ground water is continuously up welling. If these circulation patterns are not created, the radius of influence of each well is eliminated and it is likely that the passive barrier will not be effective. The existing shallow overburden monitoring well network would be expanded and a monitoring program would be instituted to assess the effectiveness of the remedial system. Based on the volume and contaminant load of captured off-gas, a vapor-phase treatment system would be designed and installed to treat and discharge captured off-gas.

Overall Protection of Public Health and the Environment. In-well Air Sparging technology would have a moderate ranking in terms of providing overall protection of public health and the environment as it is uncertain if the induced ground water circulation cells can be established in this portion of the aquifer where ground water is up welling and ground water discharge is occurring to the river. Stated another way, it is uncertain if local areas of downward ground water flow can be created by an in-well air-lift pump in an aquifer where there is a general upward flow of ground water. If the circulation cells are not established, the radius of influence of each well will be reduced to the well itself and contaminants will be able to pass through the passive barrier.

Compliance with Standards, Criteria, and Guidance (SCGs). It is assumed that ground water within each aeration well will be treated such that it meets the SCGs. Again,however, this does not meet the goal of protection of the River. For the reasons discussed above, there is a great degree of uncertainty as to the radius of effect of each in-well aeration point and whether or not a passive barrier can be established.

Long-term Effectiveness and Permanence. The long-term effectiveness of all technologies being considered for implementation in the flood plain area ultimately relies on the successful reduction of contaminants in the source area on the plateau. To the extent that the installed in-well aeration system is effective in establishing a passive barrier, it will provide permanence as long as the system is maintained and operated. It should be noted that this remedial option also relies on mechanical effort and as such will require significant operation and maintenance costs for both the ground water recovery and off-gas treatment components of the system.

Reduction of Toxicity, Mobility or Volume with Treatment. In-well aeration technology will result in a reduction of toxicity, and mobility, and volume of the contaminated ground water.

Short-Term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are moderate for this alternative. While impacted ground water is being treated in-situ, operation and maintenance of an off-gas system will be required. Periodic testing of the off-gas discharge will be conducted to ensure compliance with discharge standards. Properly implemented, this alternative is not expected to have a significant impact on fish and wildlife resources.

Implementability. In-well air sparging will be difficult to implement at this location. As previously stated, the flood plain area is subject to annual flooding of up to six feet of water as the Hackensack River overflows its banks each spring. There is no infrastructure currently in this area such as electric power and the ground water table is at the ground surface most of the year precluding the normal construction of access roads or building slabs. The majority of the required infrastructure would most likely have to be constructed at a higher topographic elevation and an extensive network of piping and hoses would be required to connect to the numerous aeration wells. Permits would need to be obtained for the installation of the additional recovery wells and for the discharge of treated off-gas.

Cost. The capital cost of this alternative is estimated at $691,000. The operations and maintenance period for 4 years is estimated at an annual O&M cost of $58,000. The total present worth cost of this alternative is $947,000.

Geovation's SRC™ Anaerobic Biostimulation Bioremediation Technology. This alternative consists of the installation of additional deep overburden treatment wells parallel to the river to create a biobarrier and the periodic injection of Geovation's SRC™ product into the treatment well network. A monitoring program would be instituted in conjunction with the treatment program, to assist in determining the appropriate doses of the SRC™ liquid into the treatment well network as well as monitor the progress of the remedy. A successful pilot-scale demonstration of this technology was already been conducted at the site.

Overall Protection of Public Health and the Environment. Geovation's SRC™ Bioremediation Technology would rank high in terms of providing overall protection of public health and the environment as contaminant mass will be reduced/eliminated and the long-term human health and environmental risks associated with the contaminated ground water would be mitigated

Compliance with Standards, Criteria, and Guidance (SCGs). Geovation's SRC™ Bioremediation Technology would be expected to result in compliance with ground water standards, criteria and guidance. The best results from the biobarrier pilot study were achieved in monitor well MW-25. The results of the pilot study from this well, indicate that the amount total chloroethenes passing through the biobarrier was reduced by greater than fifty percent in approximately six months. Subsequently as the microbial community increased and evolved, the efficiency of the biobarrier increased such that by eleven months, greater than ninety percent of the baseline total chloroethenes were being removed by the biobarrier. The efficiency of the biobarrier has continued to improve and currently after twenty five months of operation, ninety nine percent of the total chloroethenes are being removed by the biobarrier. Although ninety nine percent of the total chloroethenes are being destroyed, low concentrations of contaminants above the ground water standard currently pass through the barrier. It is for this reason that the success of any technology implemented in the flood plain ultimately relies on the successful reduction of contaminants in the source area. As source area contaminants are reduced, lower concentrations of contaminants will enter into the biobarrier and lower concentrations will pass through. As this process continues, ground water discharging from the biobarrier will comply with the SCGs.

Long-term Effectiveness and Permanence. As discussed above, the long-term effectiveness of all technologies being considered for implementation in the flood plain area ultimately relies on the successful reduction of contaminants in the source area on the plateau. To the extent that the installed biobarrier system is effective in establishing a passive barrier, it will provide permanence as long as the system is maintained and biological nutrients applied.

Reduction of Toxicity, Mobility or Volume with Treatment. Geovation's SRC™ Bioremediation Te

Short-Term Effectiveness. The potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during the construction and/or implementation are low for this alternative. Implementation of this remedy would involve installation of additional delivery wells and the periodic application of Geovation's SRC™ product. The SRC™ product is mostly composed of "food-grade" ingredients and is not highly reactive, corrosive, or toxic. SRC™ does not present any danger to the public in terms of its transport to or use at the site. Implementation of this alternative would not be expected to have a significant impact on fish and wildlife resources.

Implementability. Construction of a biobarrier is highly implementable at this site. The biobarrier option requires the least infrastructure to be installed in this difficult to access area. No piping or mechanical systems are required and SRC™ product could be applied to the wells through temporary hoses from a delivery vehicle. Permits would need to be obtained for the installation of the additional treatment wells and for the "full-scale" use of SRC™ product in the subsurface.

Cost. The capital cost of this alternative is estimated at $41,000. The operations and maintenance period is estimated at 4 years and the estimated annual O&M cost is $25,000. The total present worth cost of this alternative is $131,000.

Recommended Remedy for Flood Plain Ground Water

Based on ranking of the seven evaluation criteria discussed above and outlined on Table 12, Geovation's SRC™ Anaerobic Biostimulation Bioremediation Technology was selected as the recommended ground water remedial alternative for application in the flood plain area of this site. The pump and treat option ranked poorly in several criteria and while there is a degree of uncertainty with both the barrier options, the creation of a biobarrier is likely to be more successful than the creation of a passive barrier using in-well aeration and the biobarrier has been successfully pilot tested.

It is anticipated that the radius of influence of the biobarrier wells will be much greater than that of the in-well aeration wells. This results in several benefits including greater reach of the treatment barrier beneath the river and the need for less wells and associated costs. The greater anticipated radius of influence of the biobarrier wells is a result of the different way that the radius of influence is created. While in-well aeration relies on the creation of a vertical ground water circulation cell within the aquifer, which may be very difficult in an area of general upward ground water flow, the radius of influence of the biobarrier is created by the horizontal spread of biological nutrients which are pumped down delivery wells into the aquifer. As discussed in the ground water IRM (Appendix G) the horizontal permeability of most sediment deposits, such as those in the flood plain, is two to twenty times greater than that of the vertical permeability, which aids/causes the horizontal distribution of the nutrients. By altering the volume and concentration of the biological nutrients pumped into each well (under pressures up to 25 psi if required), the radius of influence of the delivery wells may be controlled to a much greater degree than alteration of the size of circulation cells established by in-well aeration.

In addition, if in the future gaps are identified in the barrier, it is more cost effective to install additional biobarrier delivery wells compared to in-well aeration wells. This results from the greater radius of influence of the biobarrier wells, and that addition piping, hoses and potential expansion of the treatment system would not be required.

A further minor point, but not to be ignored, in favor of selection of the biobarrier technology is that this technology has also been selected as the most applicable remedy to be implemented in the plateau area portion of this site. Selection of this remedy results in the site-wide application of biobarrier technology rather than the implementation of two distinct technologies at the site. By implementing one site-wide technology, both the plateau area biobarrier and flood plain area biobarrier benefit from information obtained during implementation of the remedy in the other area. There will also be a benefit from a gain in the economy of scale in purchasing supplies and equipment and the ability to coordinate activities.

Description of the Selected Flood Plain Ground Water Remedy

As previously discussed, a pilot-scale study was completed of the application of SRC™ product to ground water in a biobarrier configuration. The location of the pilot study delivery and monitoring wells are provided on Figure 14. The pilot test was successful and will be repeated in the full-scale implementation of this alternative in the flood plain. All activities conducted at the site will be performed in accordance with the existing site specific Health and Safety Plan. A full description of SRC™ technology and its application to this site during the pilot study is provided in Appendix F (copy of the Pilot Study Final Report)

Implementation of the remedy at this site will be conducted in phases to manage cost. A proposed schedule of implementation of the remedy is provided as Figure 12. The principal area of concern is contaminated ground water entering the Hackensack River. The first phase of ground water remediation efforts will include the installation of deep overburden delivery wells and shallow overburden monitoring well couplets in areas adjacent to the river to form the riverside biobarrier. Existing riverside well couplets will also be used and combined with the newly installed wells to create the biobarrier. A similar proposal was previously prepared by Geovation as a ground water

IRM and a copy of this document is provided as Appendix G. The locations for the installation of additional riverside wells are shown on Figure 15. A table listing the treatment (screened) interval for each of the proposed wells is provided as Table 11. Application of biological nutrients was performed on a four to six week schedule during the pilot project and this schedule is also proposed for full-scale implementation. As the project proceeds, application of nutrients may be reduced reflecting the reduction obtained in ground water contaminants.

During the pilot study, significant reductions in the principle ground water contaminants were achieved in less than four months in the biobarrier demonstration and within six months for parent and daughter compounds. It is anticipated that implementation of SRC™ treatment of the bedrock aquifer and deep overburden underlying the river will also result in significant reductions in contaminants reaching the river in a similar time period. Additional protection will also be achieved by the installation of additional SRC™ delivery wells in the source area and the construction of the additional biobarrier across the principle axis of the ground water plume in Phase II of the project.

As described above, the existing ground water monitoring well network will be used to evaluate the progress of the proposed remedy. A reduced set of wells will be utilized for quarterly monitoring, and a full round of sampling of all site monitoring wells will be conducted annually. The wells proposed for quarterly sampling are MW-12, MW-18, MW-25, MW,19, MW-14, MW-21, MW-28S, MW-23S, and MW-26S. Ground water samples from each of these wells will be collected using low-flow sampling techniques based on the monitoring of electrical conductivity of the purge water. Ground water samples will be collected directly into laboratory provided clean glassware, labeled and transported under chain of custody documentation to a NYSDOH certified laboratory for analysis of EPA Method 624 volatile organic compounds with a library search. Quarterly progress reports will be prepared. Each progress report will contain a description of work conducted during the reporting quarter, a summary table of the quarterly ground water sampling results, and a description of planned upcoming activities.

Contingency Plan for Flood Plain Ground Water Remediation

Based on the success of the pilot scale anaerobic bioremediation program, full scale implementation of this technology will be successful at reducing contaminants below the river. As discussed several times in this FS document, one of the biggest hurdles faced by all remediation technologies applicable in the flood plain is collecting or treating contaminants in this area of up welling ground water adjacent the river. Given the importance of success in the riverside biobarrier, a contingency plan has been prepared to address failures or gaps in this line of protection to the river.

Based on the results of the pilot study, within one year of implementation of the riverside biobarrier, enough data will be collected to determine if the concept of the riverside biobarrier is successful. During the biobarrier pilot, significant reductions in total chloroethenes were achieved in six months and a ninety percent reduction in total chloroethenes passing through the biobarrier was achieved in eleven months. As these results were documented in the pilot study, we anticipate similar results in the riverside biobarrier. However, there are reasons to be cautious that such rapid and highly efficient results may not be obtained in the riverside area. The riverside biobarrier will be much greater in size than the pilot study and the riverside hydrogeological environment is much more complex than the pilot area. Given the potential for local areas of high permeability adjacent to the river and uncertain interaction of the ground water with the fluvial surface water system, it would not be unexpected if the initial results of the riverside biobarrier were not as high as that obtained during the pilot. If gaps or failures are identified, the first action to be considered is whether additional delivery wells could satisfy the remedy. The causes of the failure of the selected remedy also need to be assessed as they may preclude the immediate adoption of the selected contingency and necessitate reassessment of feasible alternatives.

Geovation recommends a performance standard of reduction of 50% of the total chloroethenes passing through the biobarrier in less than twelve months. This is a reasonable standard to set as it represents approximately one-half of the efficiency achieved in the pilot study and also represents a significant reduction in contaminant impacting the river. Furthermore, as evidenced by the pilot study, the efficiency of the biobarrier continues to improve over time, thus this arbitrary performance standard is more a milestone to be achieved on the way to full attainment of the SCGs.

If the performance standard described above is not met, the reasons for the lack of success will be discussed with NYSDEC and the application of an alternative remedial action will be considered. Based on this FS, in-well air sparging may be an option, however, new information obtained during the implementation of the biobarrier option should be considered prior to selecting this passive barrier alternative.

Based on currently available information, in-well aeration points would be installed at riverside locations fully screened from the bedrock to within two feet of the ground surface. Since this flood plain area is prone to seasonal flooding of six feet or more, a location of higher elevation will be selected to install the required air compressors and other semi-permanent equipment. A test run of a representative sample of the aeration points will be conducted to evaluate the requirements of off-gas treatment. Additional details of a riverside in-well aeration system will be provided if the implementation of this technology is required.

FEASIBILITY STUDY and EVALUATION of REMEDIAL ALTERNATIVES for SOIL-VAPOR

Based on values published in the New York State Department of Health 2006 *Soil Vapor Intrusion Guidance* document, Geovation prepared Figure 10 which shows the portion of the facility where contaminant concentrations of trichloroethene and/or tetrachloroethene warrant mitigation efforts. A summary of the data used to prepare this figure is provided in Appendix D. While the guidance presented in this document is not regulation, rule or requirement, Gussack Realty, in cooperation with the NYSDEC and NYSDOH has already selected and implemented a soil-vapor remedy. As described
in Appendix D, Gussack Realty has installed a network of nine sub-slab soil-vapor depressurization systems within the facility to remove and reduce sub-slab contaminant concentrations. Subsequent testing of the effectiveness of these systems indicates that the installed systems do not fully address the area where mitigation is recommended (Appendix D). Gussack Realty will continue to evaluate and improve the selected remedy. It is anticipated that the Soil-Vapor extraction system proposed as a component of the selected remedial alternative for site soil will also beneficially impact sub-slab soil vapor. After installation and operation of the soil-vapor extraction system, sub-slab soil vapor will be re-evaluated to assess improvements. In addition, data will be collected and reviewed to assess the need for the expansion of existing sub-slab depressurization systems or the installation of addition sub-slab depressurization systems.

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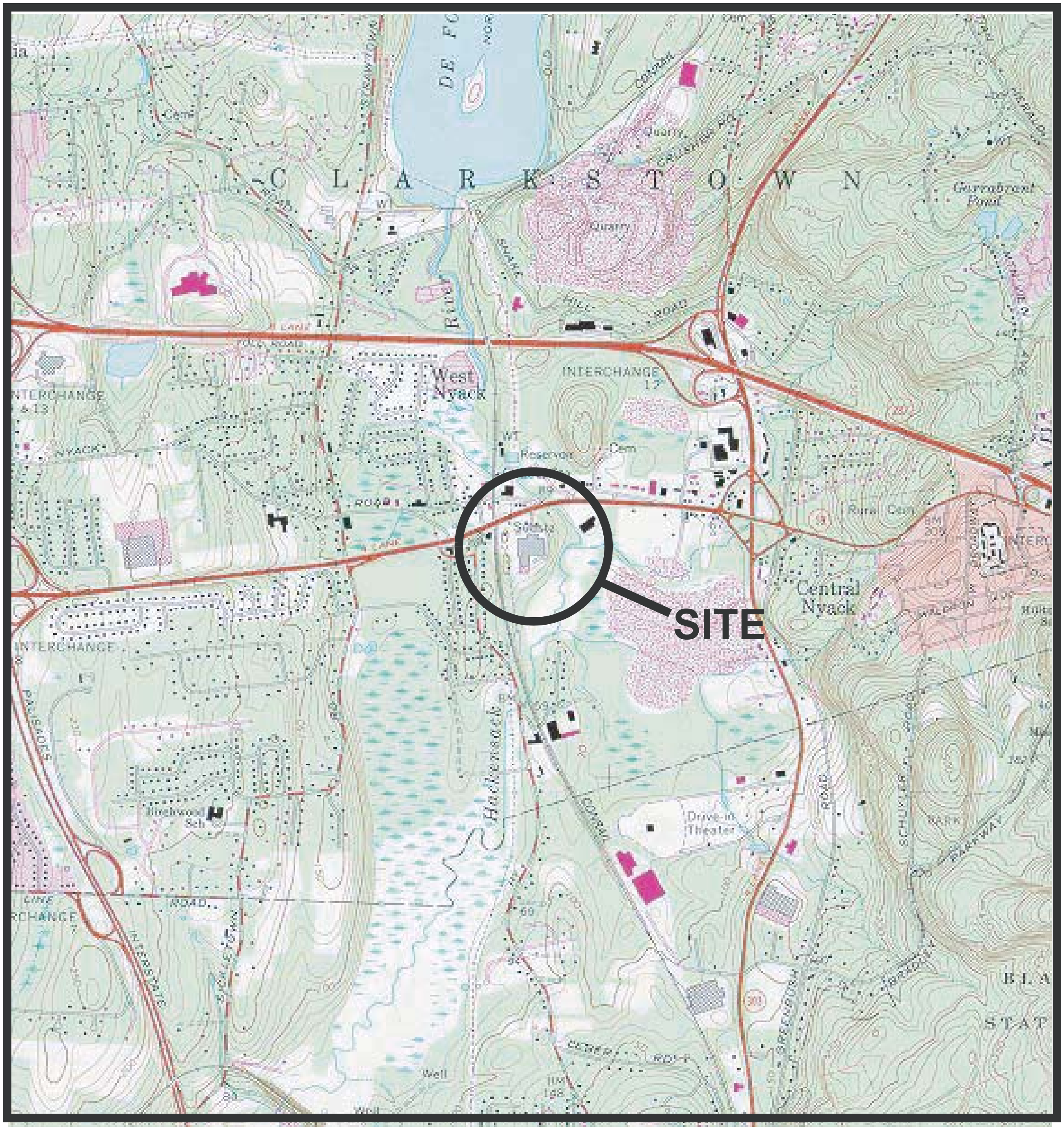

Source: USGS 7.5 Minute
Series Topographic Map
West Nyack, NY 1979

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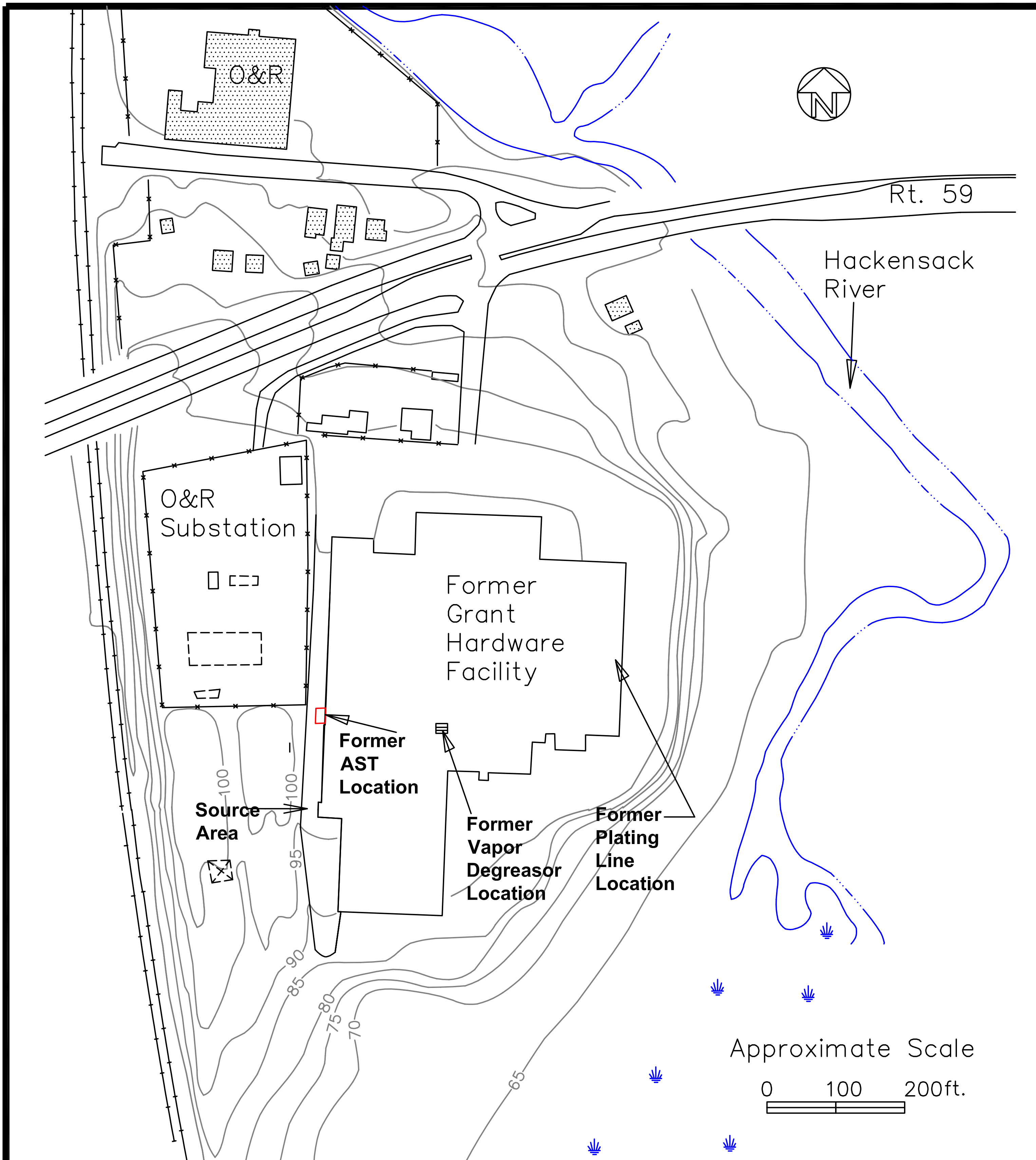
SITE MAP
Remedial Investigation
Former Grant Hardware Facility
West Nyack, New York

Figure
1

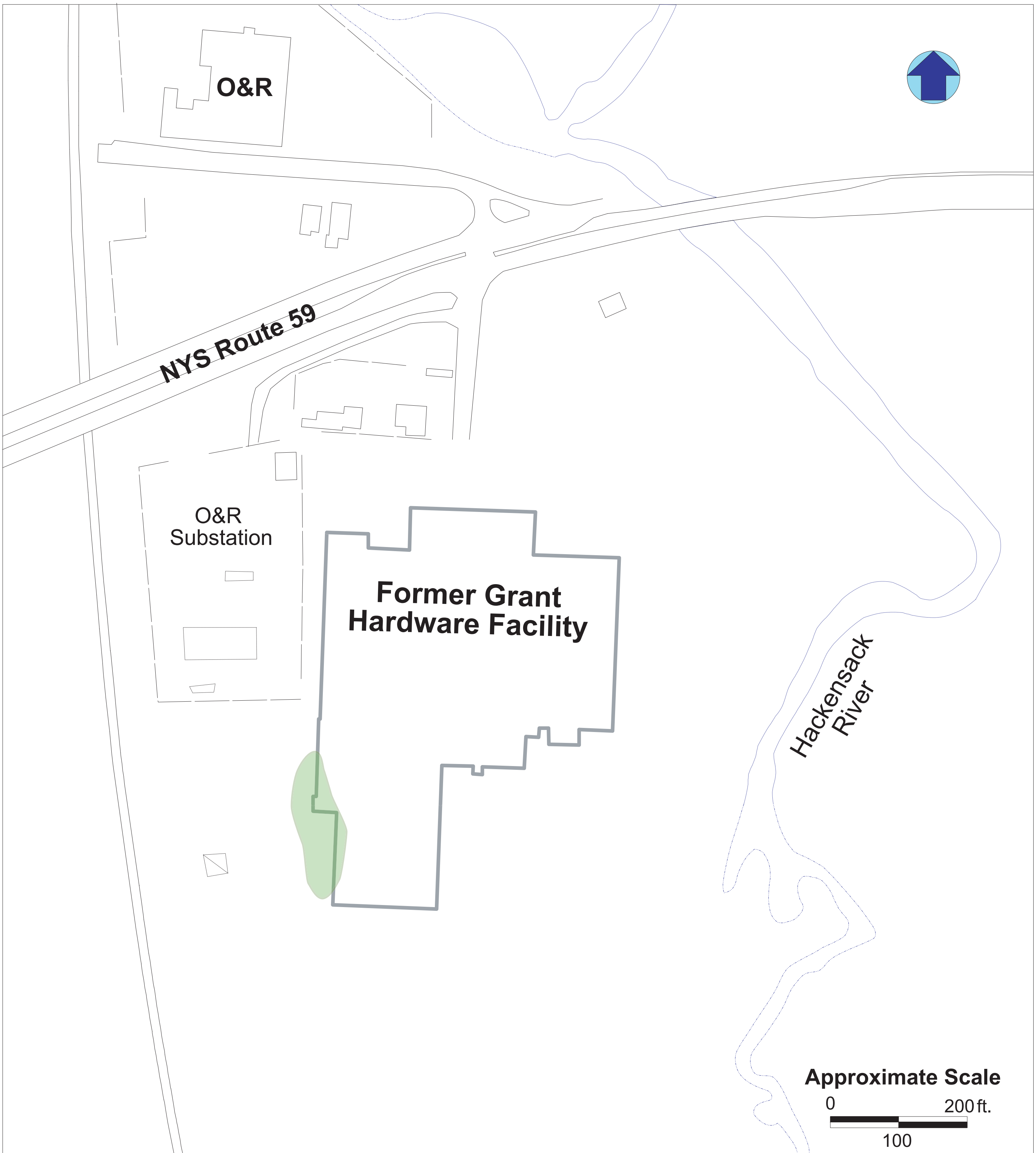


LEGEND

AOC#1
AOC#2
AOC#3

90 Elevation Contour (in feet relative to arbitrary datum)
Building
Swamp

Former Grant Hardware Facility West Nyack, New York	
Site Plot Plan (Area of Concerns and Former AST Location)	
Date: 5–16–99 MGA	Figure
Geovation Engineering, P.C. *468 Route 17A, P.O. Box 293* *Florida, New York 10921*	2

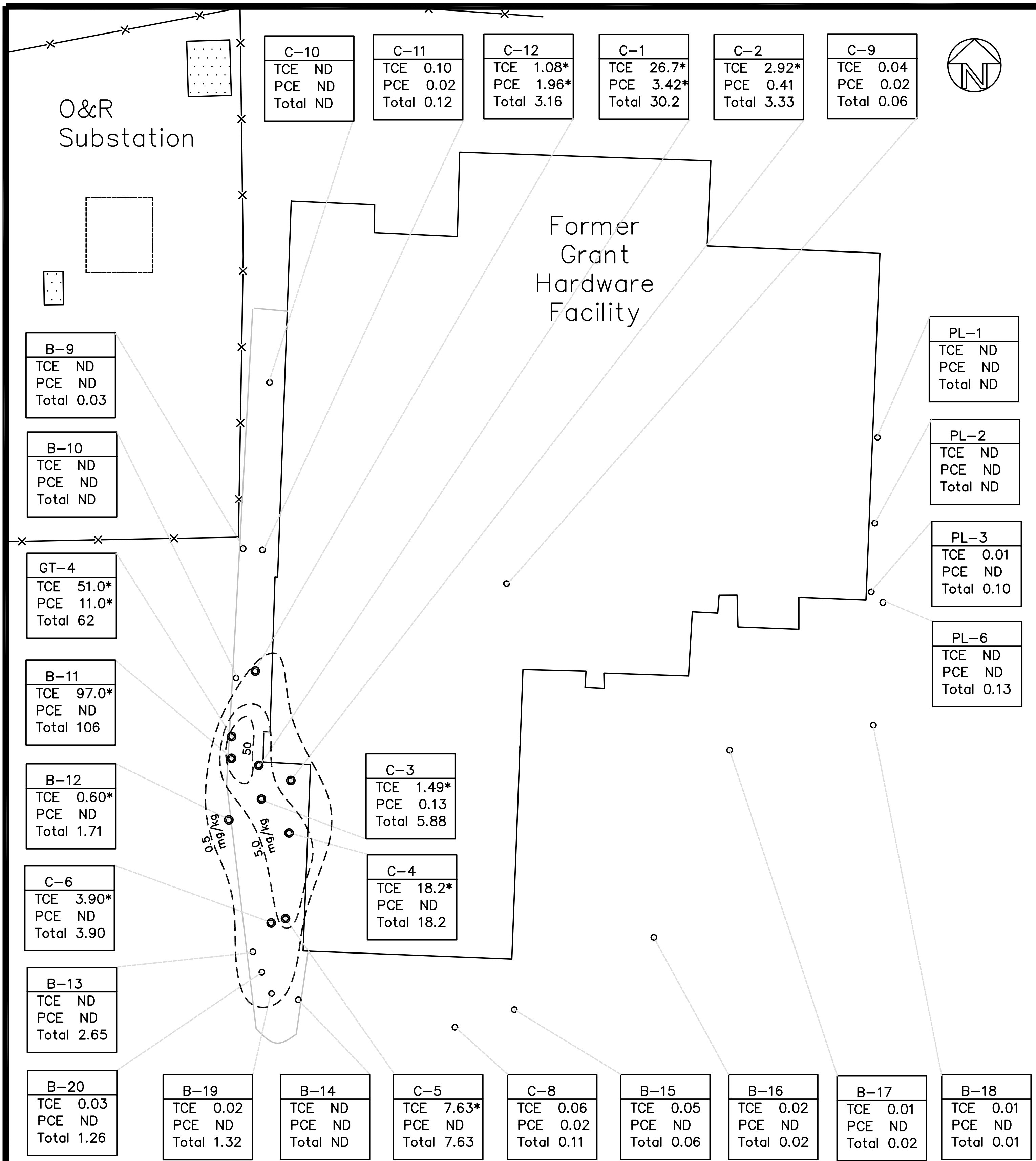


LEGEND

Buildings

Area Soil Above Part 375 Unrestricted Use Soil Cleanup Objectives (see Table 1)

Former Grant Hardware Facility West Nyack, New York		
Area of Site Soil Above Unrestricted Use Soil Cleanup Objectives (see Figures 3A and 3B)		
April 2009	RLZ	**Figure**
GEOVATION Geovation Engineering, P.C. 468 Route 17A - Florida, NY 10921		**3**



LEGEND

Isoconcentration line of Total VOC Values (mg/kg)

Soil Sample Location

Soil Sampling Location where Parameters exceed NYDEC Part 375 SCOs

C-3	
TCE	1.49*
PCE	0.13
Total	5.88

Sample Location Designation; Principle Contaminant Concentration and Total VOC Concentration.
*=exceeds Part 375 SCOs

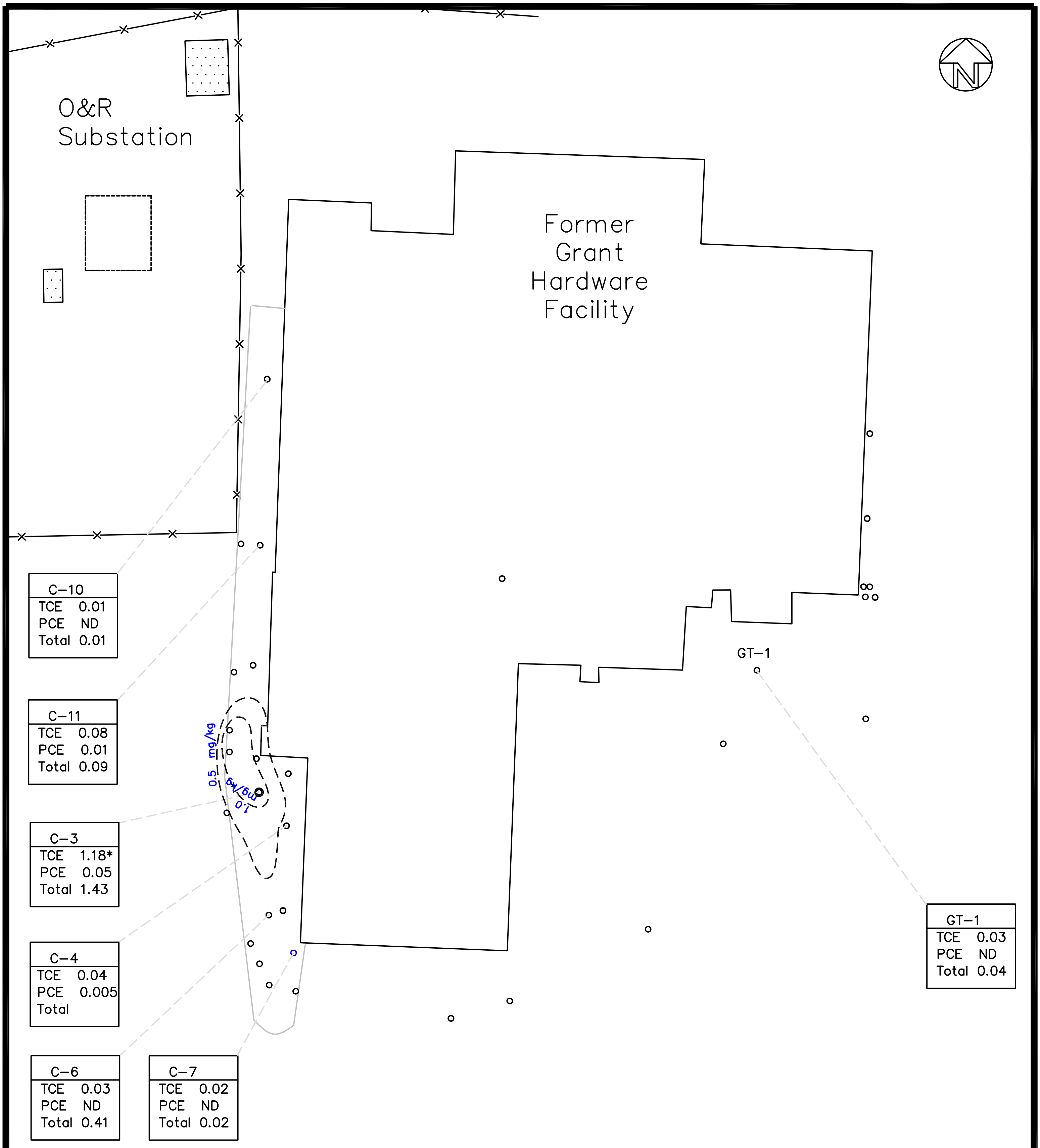
Approximate Scale
0 100 200 ft.

Former Grant Hardware Facility
West Nyack, New York

Distribution of Total VOCs (in mg/Kg) reported in Soil at Sample Depths Less than 10 feet BGS.

Date: 3-27-09 | RLZ | Figure 3A

Geovation Engineering, P.C.
468 Route 17A, P.O. Box 293
Florida, New York 10921



LEGEND

1.0 mg/kg — Isocon of Total VOC Concentration (mg/kg)

○ Soil Sample Location

● Soil Sampling Location where Parameters exceed NYDEC Part 375 SCOs

C-7	
TCE	0.02
PCE	ND
Total	0.02

Sample Location Designation; Principle Contaminant Concentration and Total VOC Concentration.
*=exceeds Part 375 SCOs

Approximate Scale
0 100 200 ft.

Former Grant Hardware Facility
West Nyack, New York

Distribution of Total VOCs (mg/Kg) reported in Soil at Sample Depths More than 10 feet BGS.

Date: 3-27-09 | RLZ | Figure

Geovation Engineering, P.C.
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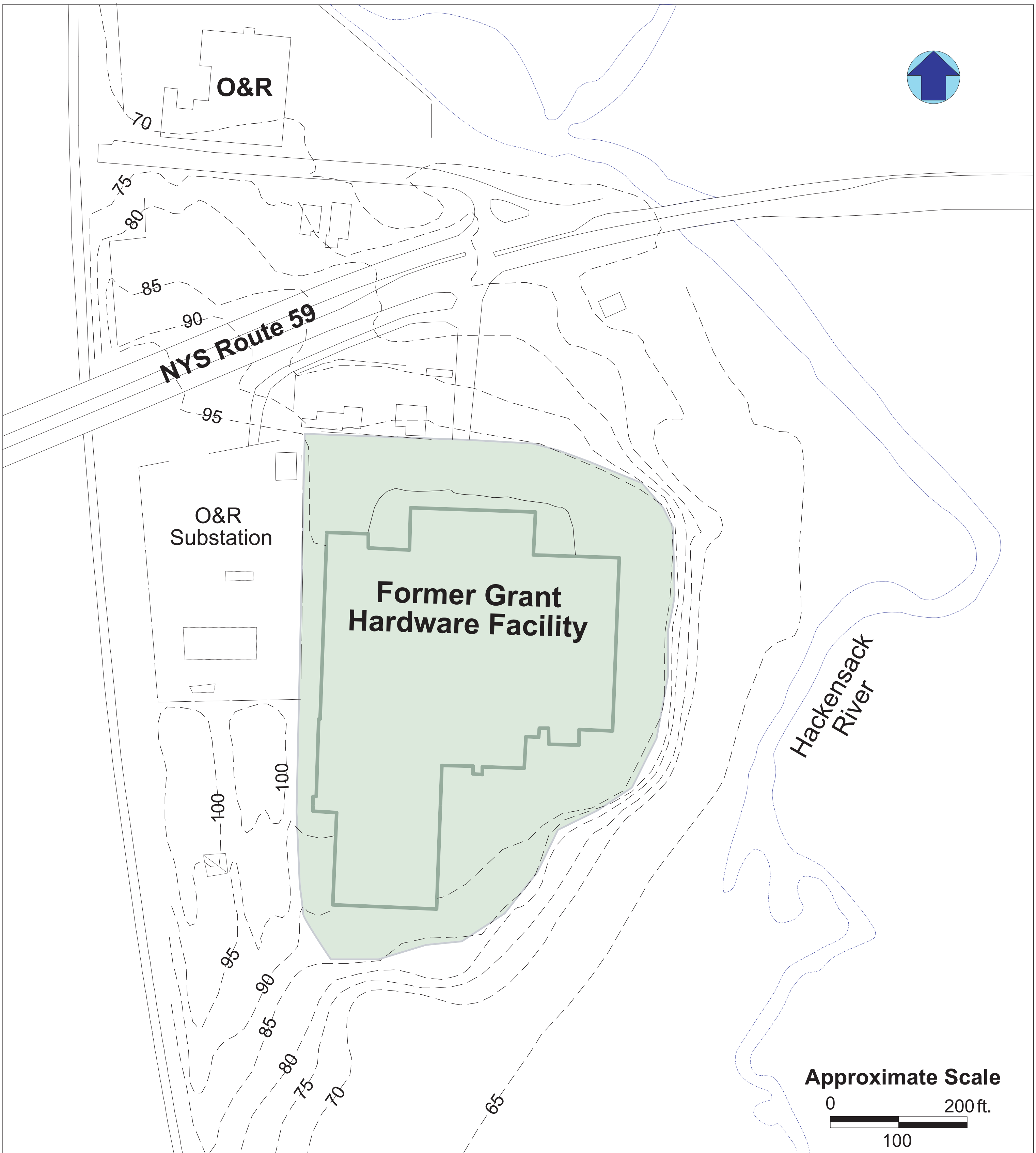
Florida, New York 10921

3B



LEGEND

Buildings

Area of Site Soils with Inorganic Parameters (Metals) Measured Above Unrestricted Use Soil Cleanup Objectives Which do not Warrant Clean-up Actions

Former Grant Hardware Facility
West Nyack, New York

Areas of Site Soils with Measured Inorganic Contaminants Above Soil Cleanup Objectives (Remediation not Required)

July 2009	RLZ	Figure 4

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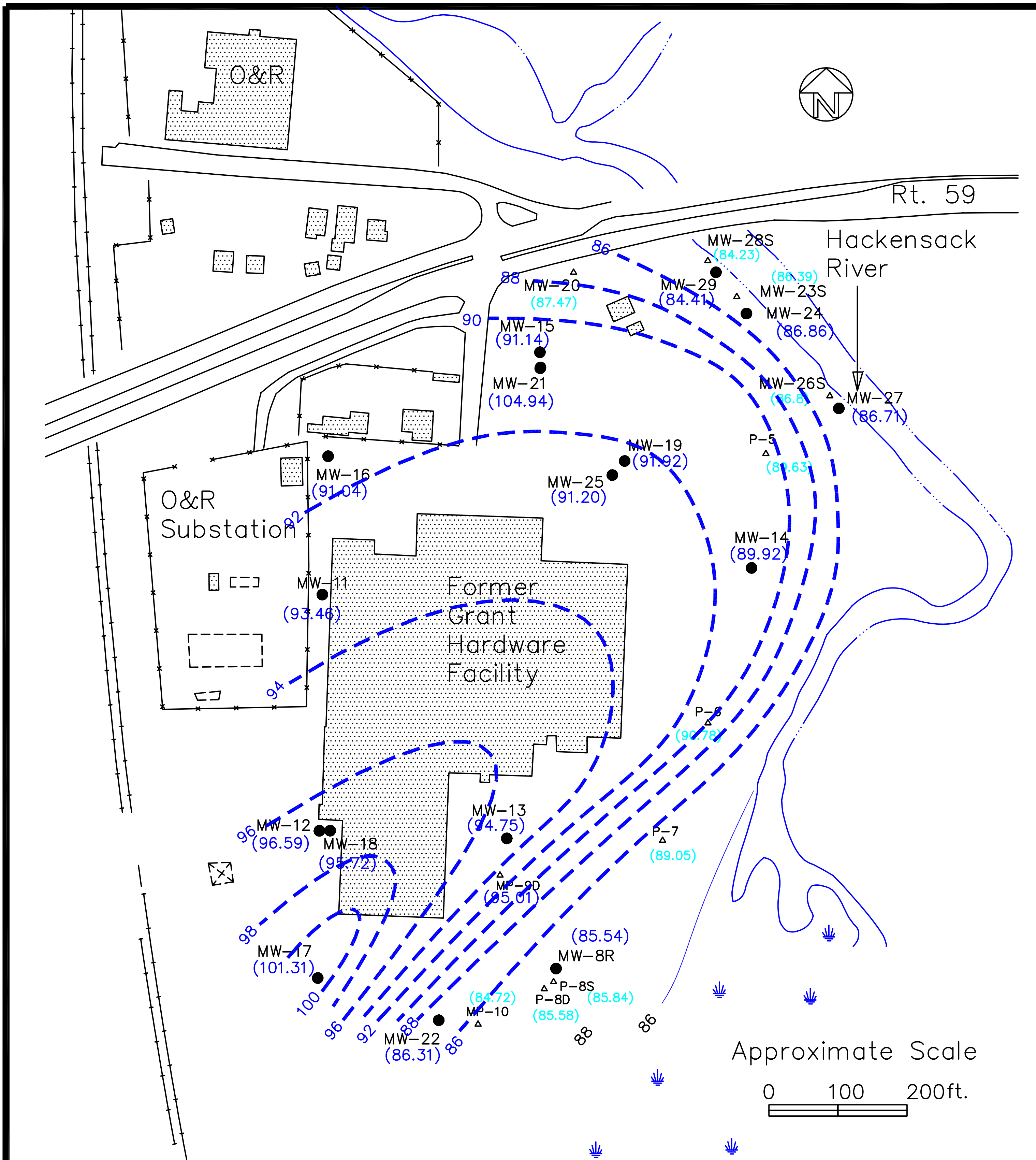
Geovation Engineering, P.C.
468 Route 17A - Florida, NY 10921



LEGEND

MW-8R ● Bedrock Well locations

Building

Swamp

P-5 △ Overburden Monitoring Well Designation and location

MW-8R ● Bedrock Monitoring Well Designation and location

Former Grant Hardware Facility
West Nyack, New York

Ground Water Contour Diagram
7-28-08

Date: 9-16-08 | RLZ | Figure 5

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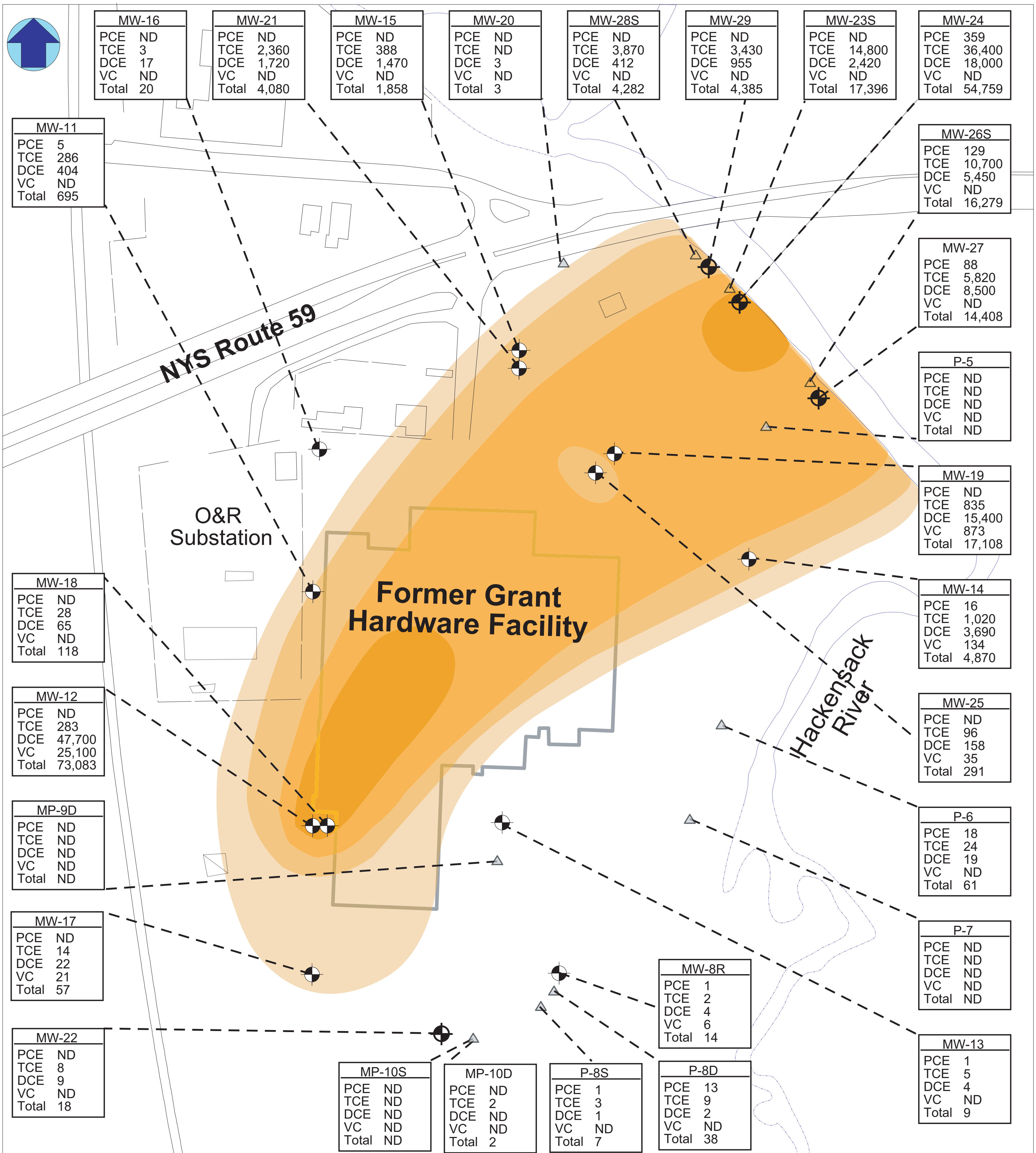
Innovative Solutions to Environmental Problems
FLORIDA, NEW YORK



LEGEND

MW-8R Bedrock monitor well locations

P-5 Overburden piezometer / monitor well locations

Buildings

Total VOCs in GW (ug/L)

50 5,000

500 50,000+

Approximate Scale

0 100 200 ft.

Former Grant Hardware Facility

West Nyack, New York

Total CVOCs in Bedrock Ground Water
July 2008 Data

Sept. 2008 RLZ **Figure**

6

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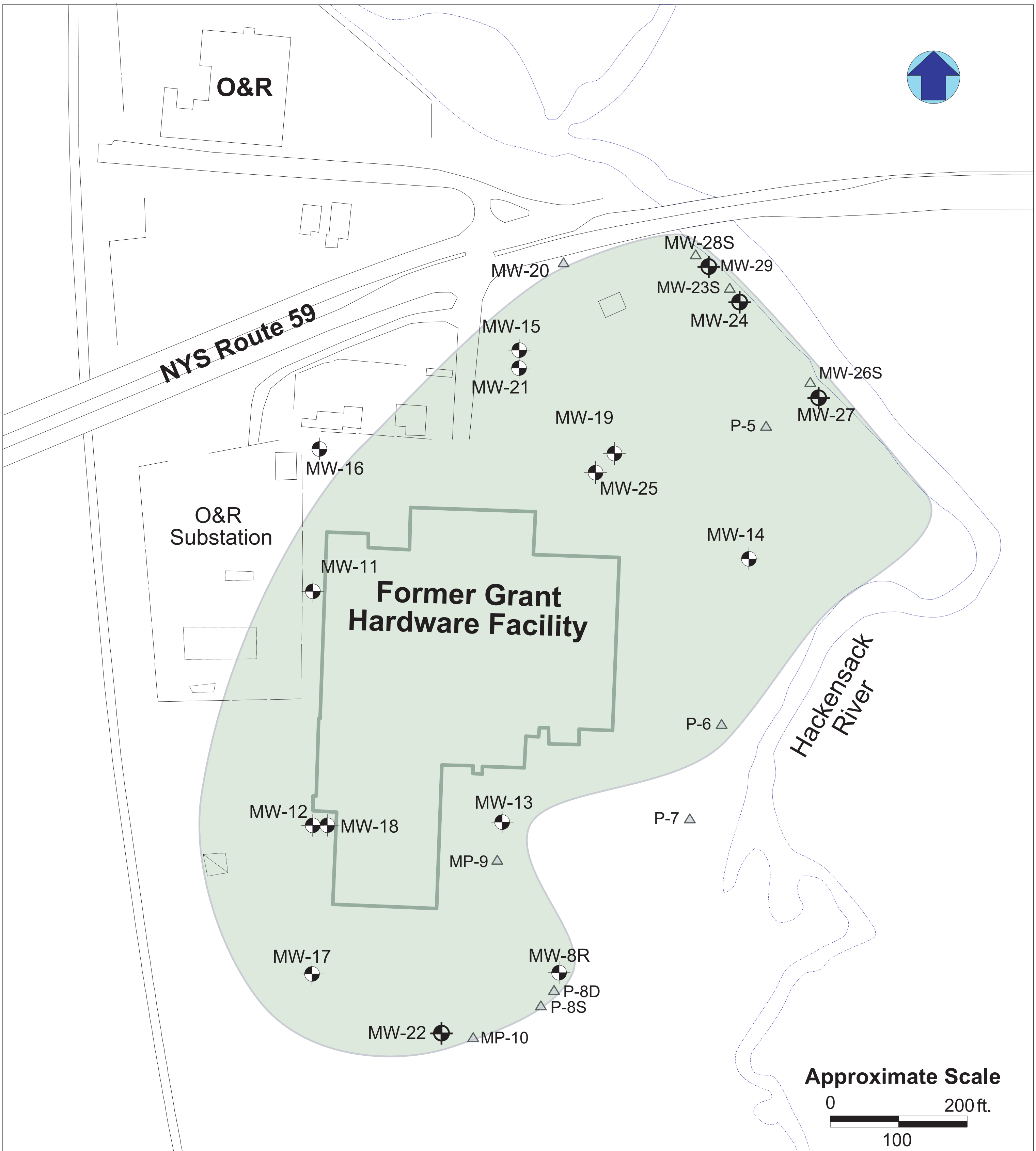
Geovation Engineering, P.C.
468 Route 17A - Florida, NY 10921



LEGEND

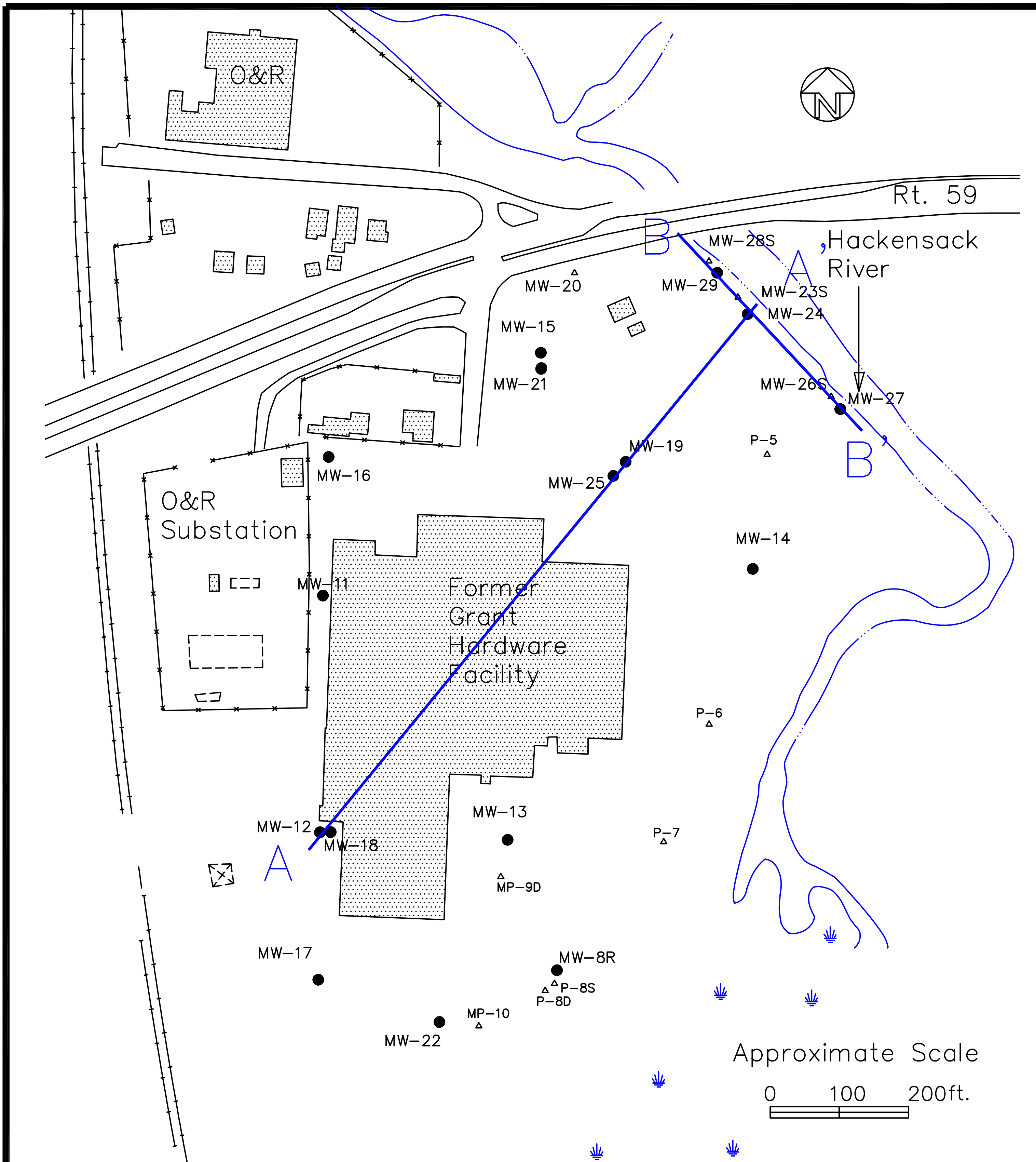
MW-8R Bedrock monitor well locations

P-5 Overburden piezometer / monitor well locations

Buildings

Area Ground Water Above Ground Water Cleanup Objectives (see Table 1)

Former Grant Hardware Facility West Nyack, New York		
Site Area Above Ground Water Cleanup Objectives based on July 2008 Data		
April 2009	RLZ	**Figure**
GEOVATION Geovation Engineering, P.C. 468 Route 17A - Florida, NY 10921		**7**



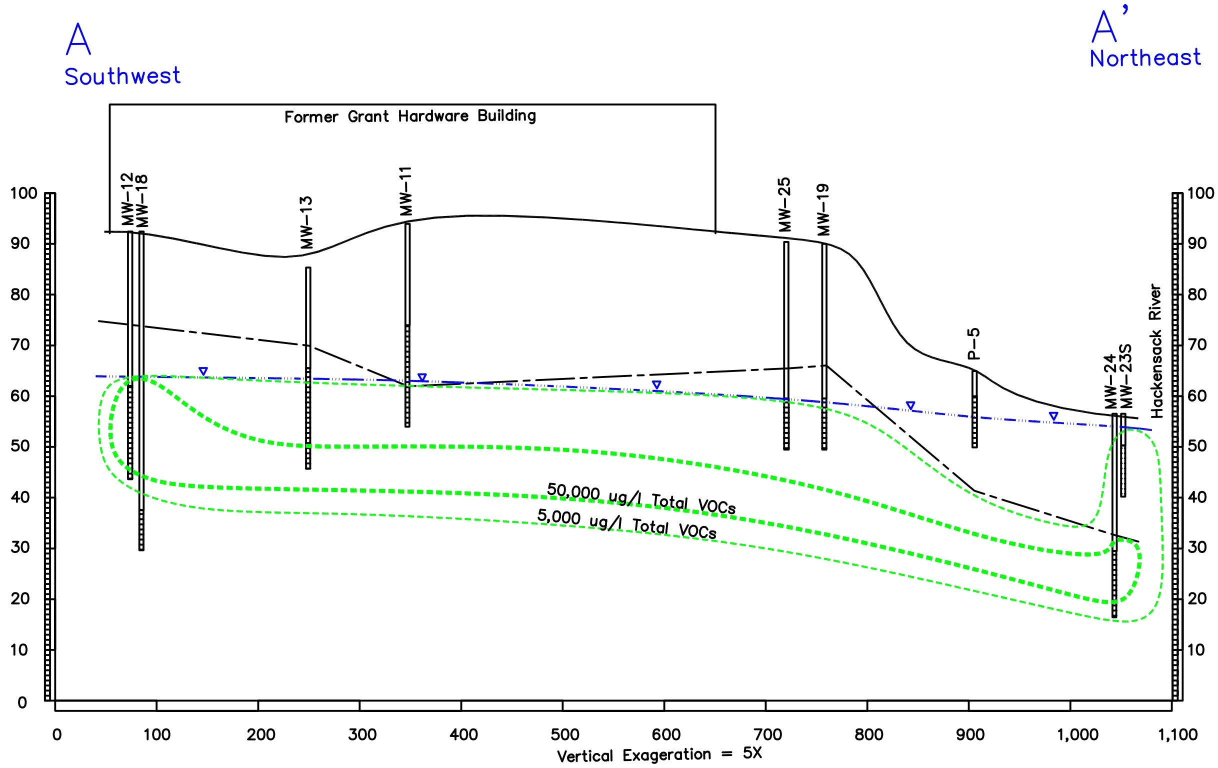
LEGEND

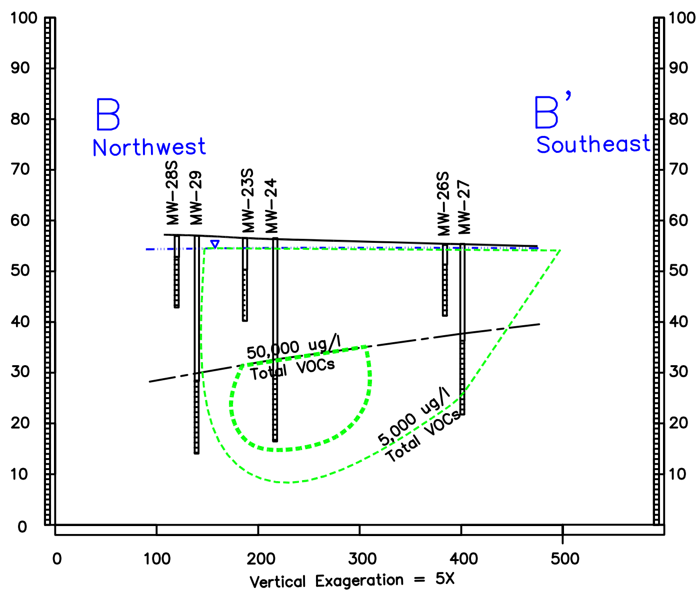
MW-8R	Bedrock Well locations	P-5	Overburden Monitoring Well Designation and location
	Building	MW-8R	Bedrock Monitoring Well Designation and location
	Swamp		

Former Grant Hardware Facility
West Nyack, New York

Locations of Impacted Ground Water Cross Sections

Date: 4-9-09	RLZ	Figure
GEOVATION Geovation Engineering, P.C. Innovative Solutions to Environmental Problems FLORIDA, NEW YORK		8





Monitoring Well Location Provided on Figure 8

Figure Based on Ground Water Quality Data Collected 7-31-08

LEGEND

Total VOC Isoconcentration Line

Inferred Locaiton of Overburden/Bedrock Interface

Inferred Location of Ground Water Piezometric Surface

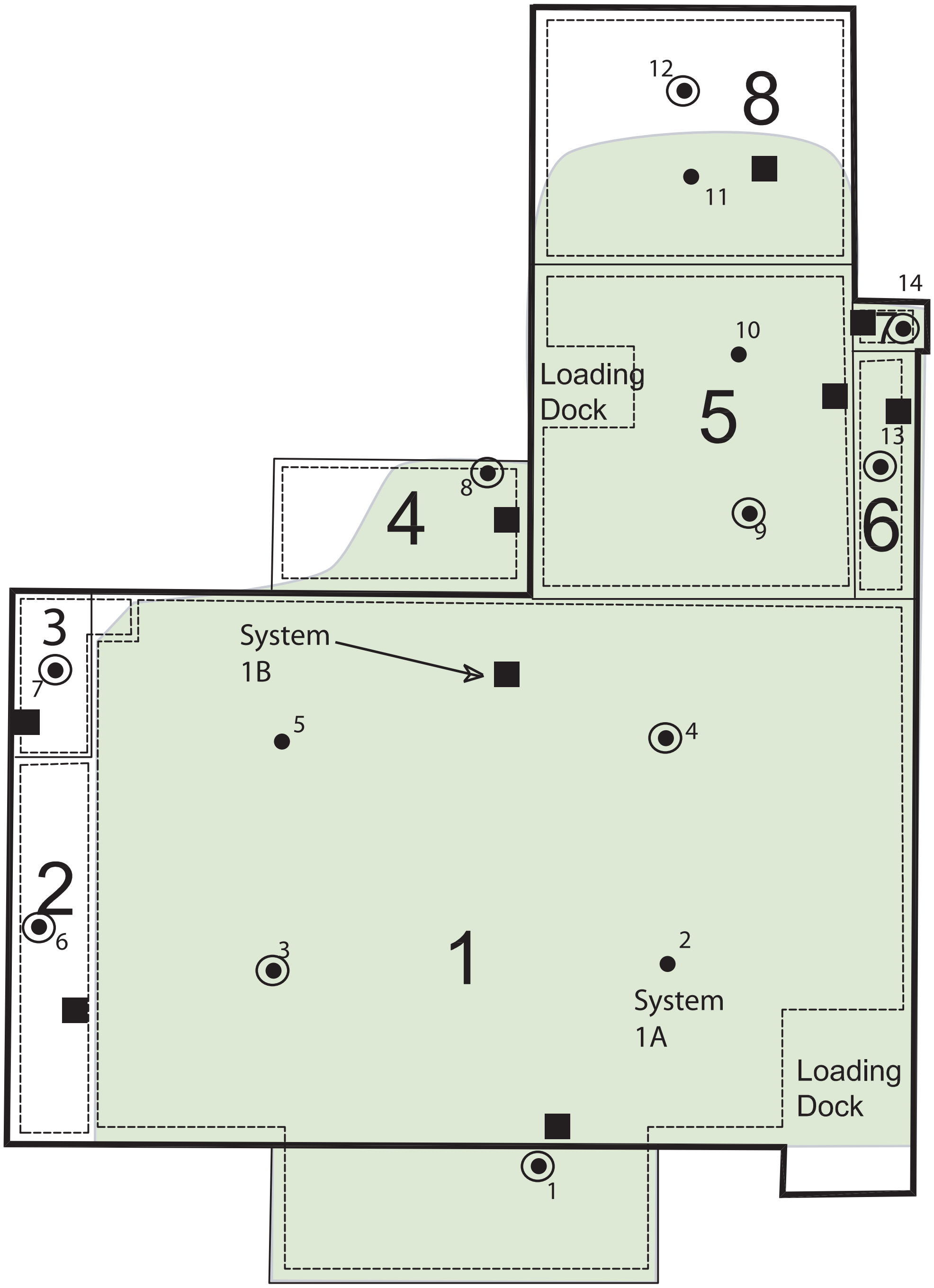
MW-26S Monitoring Well Location and Designation

Open or Screened Interval of Well

Former Grant Hardware Facility
West Nyack, New York

Cross-Section of VOC impacted Ground Water (July 2008)

DATE: 4/10/09	RLZ	Figure
GEOVATION Geovation Engineering, P.C. Innovative Solutions to Environmental Problems FLORIDA, NEW YORK		9



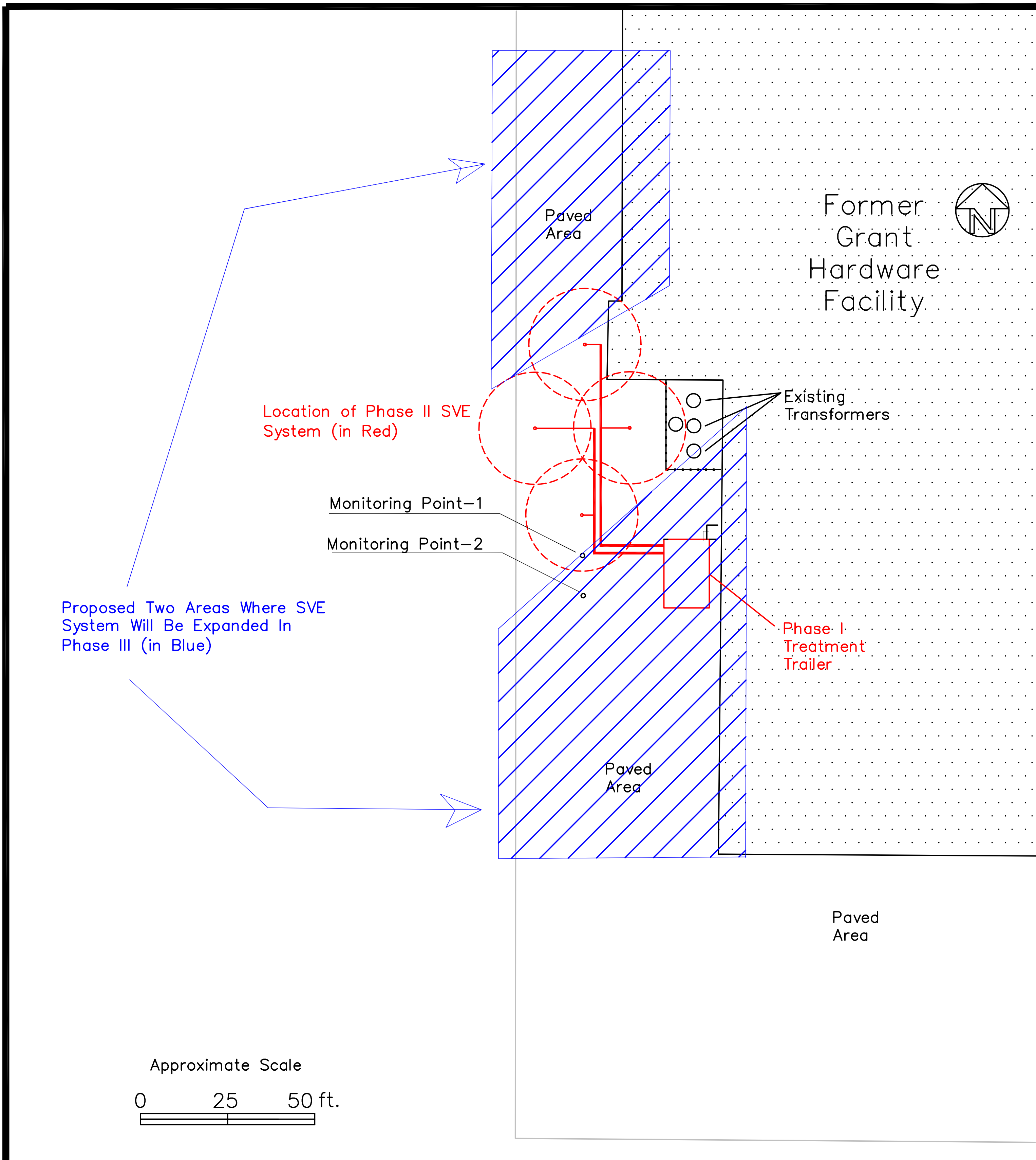
LEGEND

1	Area Defined by Footing Walls Designation and Approximate Size		Area Above Soil-Gas Cleanup Objective Guidlines
■	Location of Suction Pit for Sub-Slab Depressurization System and area of Vacuum greater than 0.02"	⊙6	Soil-Gas Sampling Location and Designation

Former Grant Hardware Facility
West Nyack, New York

Area of Site Sol-Vapor Above
NYSDOH Guidance Values

Date:4-9-09	RLZ	Figure
GEOVATION CONSULTANTS, Inc. Innovative Solutions to Environmental Problems FLORIDA, NEW YORK		10



LEGEND

Building

Former Grant Hardware Facility
West Nyack, New York

Area of Soil Vapor Extraction System Expansion

Date: 4–19–09	RLZ	Figure
GEOVATION Geovation Engineering, P.C. 468 Route 17A - Florida, NY 10921		11

Figure 12

Schedule of Implementation - Selected Remedy
Former Grant Hardware Facility - West Nyack, NY
Site No. 344031

Task	Description	Estimated Install	Estimated Operate	Present-Dec 2009	Jan-Mar 2010	Apr-June 2010	July-Sept 2010	Oct-Dec. 2010	Jan-Mar 2011	Apr-June 2011	July-Sept 2011	Oct-Dec. 2011	Jan-Mar 2012	Apr-June 2012	July-Sept 2012	Oct-Dec. 2012	Jan-Mar 2013	Apr-June 2013	July-Sept 2013	Oct-Dec. 2013
Task 1	Phase I & II - Soils- (Soil IRM) Install and Operate	Installtion Currently in Progress Complete by 12/09	Jan 10 Through Completion of Soil Treatment																	
Task 2	Phase III Soil- SVE Expansion Install and Operate	Gather Required Data 1st Quarter; Install 2nd Quarter	Operate Through Completion of Soil Treatment																	
Task 3	Phase I Groundwater- Additional Riverside & Source Area Treatment Wells	Top Priority After FS is Approved. Installed and Begin Treatment Within Six Months	Operate Through Completion of Groundwater Treatment																	
Task 4	Phase II Groundwater- Replace and Expand Pilot Biobarrier	Within Twelve Months of Completion of Phase I, Complete Phase II	Operate Through Completion of Groundwater Treatment																	
Task 5	Reporting	---	Quarterly																	

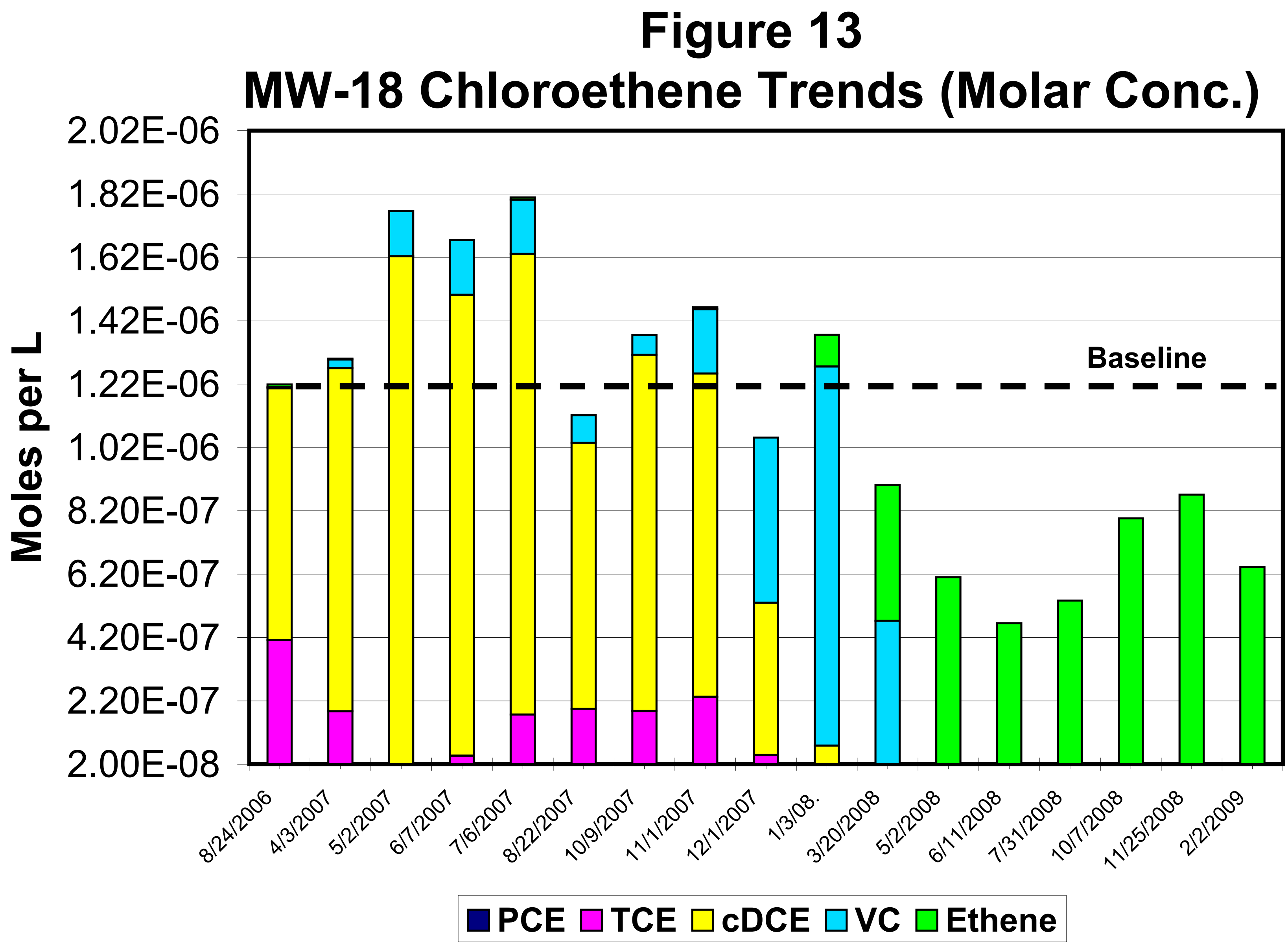


Figure 13
MW-18 Chloroethene Trends (Molar Conc.)
Moles per L
2.02E-06
1.82E-06
1.62E-06
1.42E-06
1.22E-06
1.02E-06
8.20E-07
6.20E-07
4.20E-07
2.20E-07
2.00E-08
Baseline
8/24/2006
4/3/2007
5/2/2007
6/7/2007
7/6/2007
8/22/2007
10/9/2007
11/1/2007
12/1/2007
1/3/08.
3/20/2008
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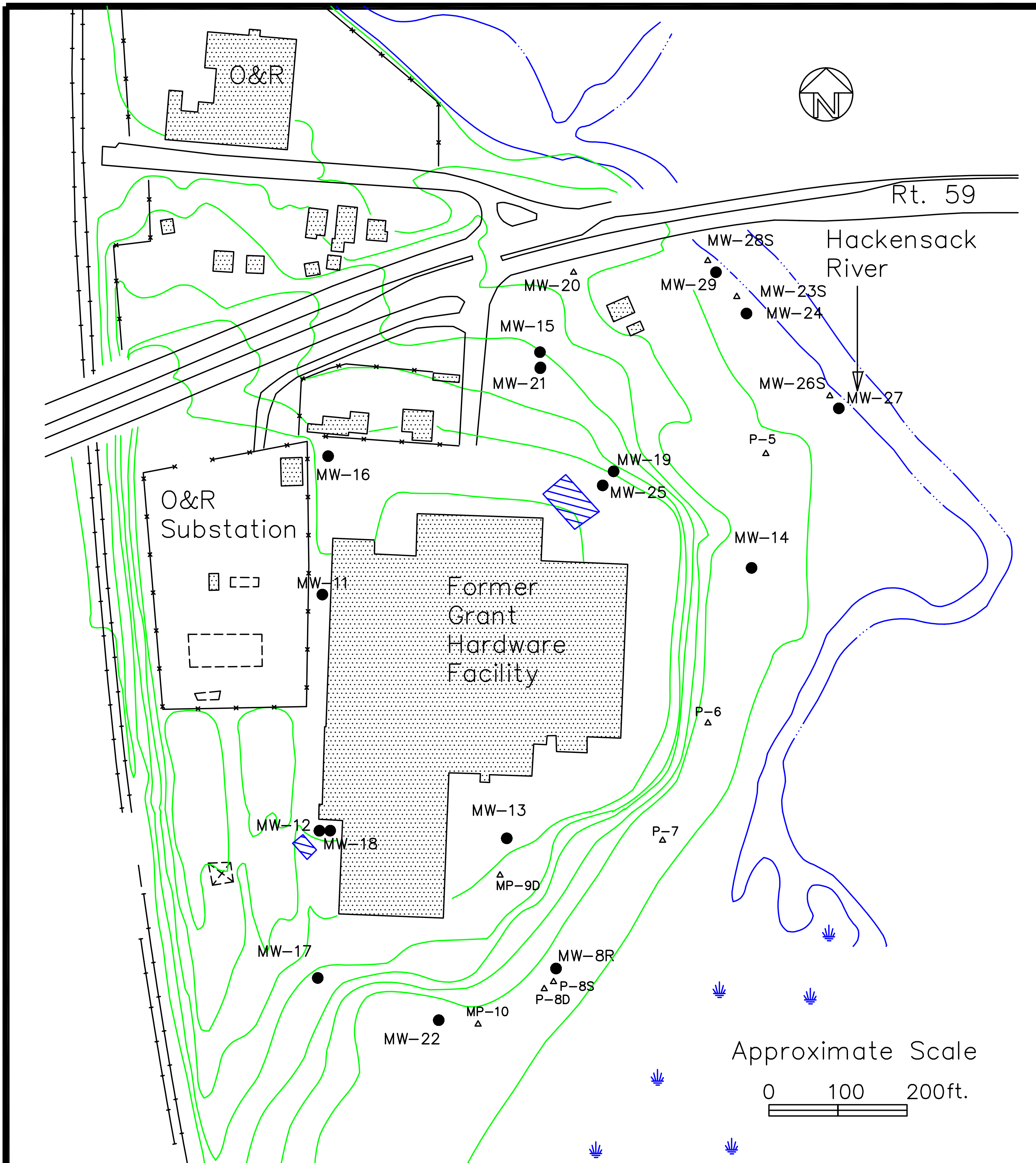
PCE
TCE
cDCE
VC
Ethene



LEGEND

MW-8R ●	Bedrock Well locations	P-5 △	Overburden Well locations
	Building		Topographic Lines
	Swamp		Location of SRC Pilot Study Treatment Wells

Former Grant Hardware Facility
West Nyack, New York

Locations of Pilot Study Treatment and Monitoring Wells

Date: 9-16-08 | RLZ | Figure 14

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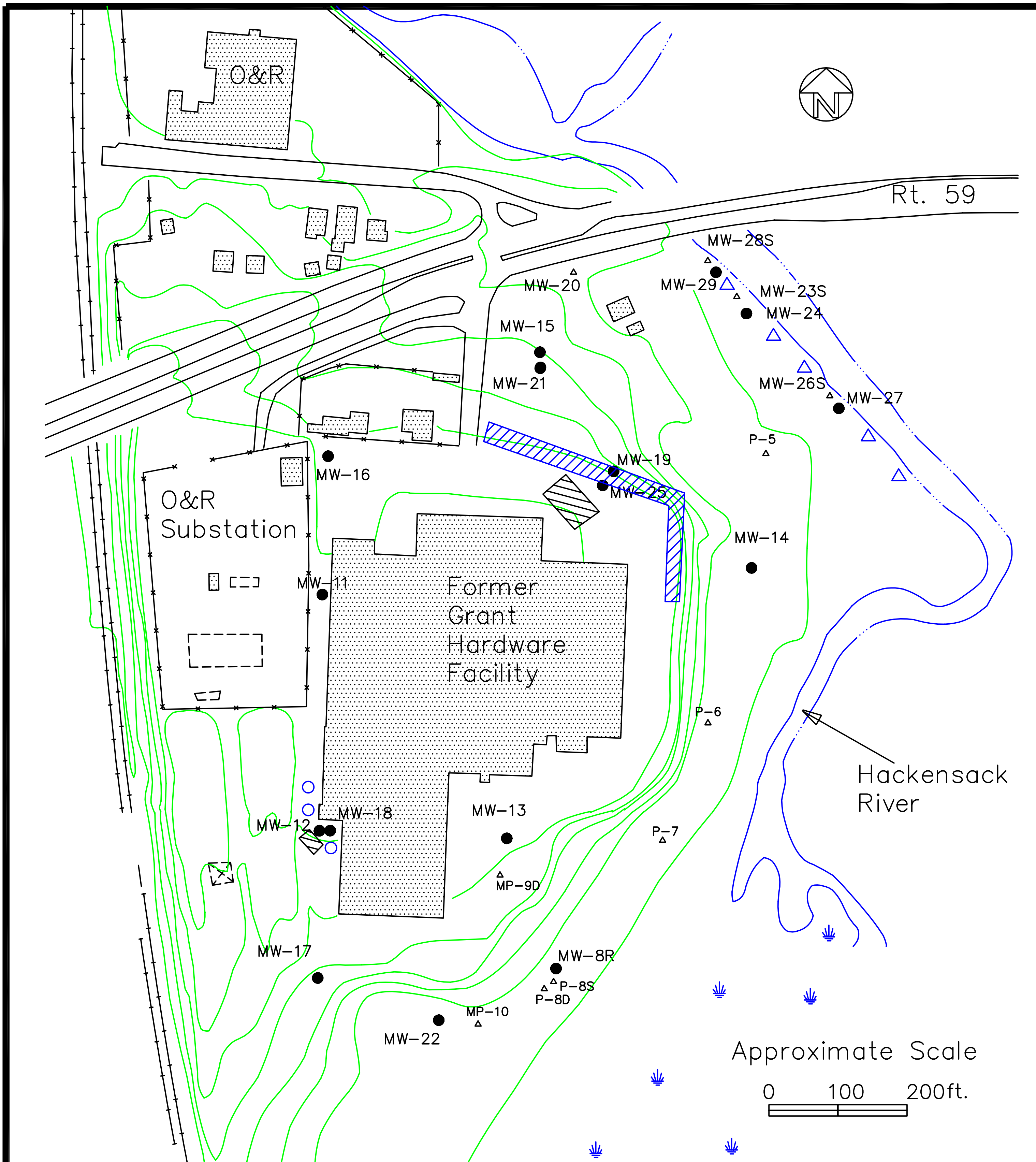


LEGEND

MW-8R ●	Bedrock Well locations
△	Proposed Location of Additional Riverside Well/Treatment Cluster
P-5 △	Overburden Well locations
	Location of SRC Pilot Study Treatment Wells
○	Proposed Location of Additional Source Area Treatment Wells
	Proposed Location of Phase II Biobarrier

Former Grant Hardware Facility
West Nyack, New York

Locations of Proposed Additional Treatment Wells

Date: 4-13-08	RLZ	Figure
GEOVATION Geovation Engineering, P.C. Innovative Solutions to Environmental Problems FLORIDA, NEW YORK		15

Figure 16
MW-24 Chloroethene Trends (ug/L)

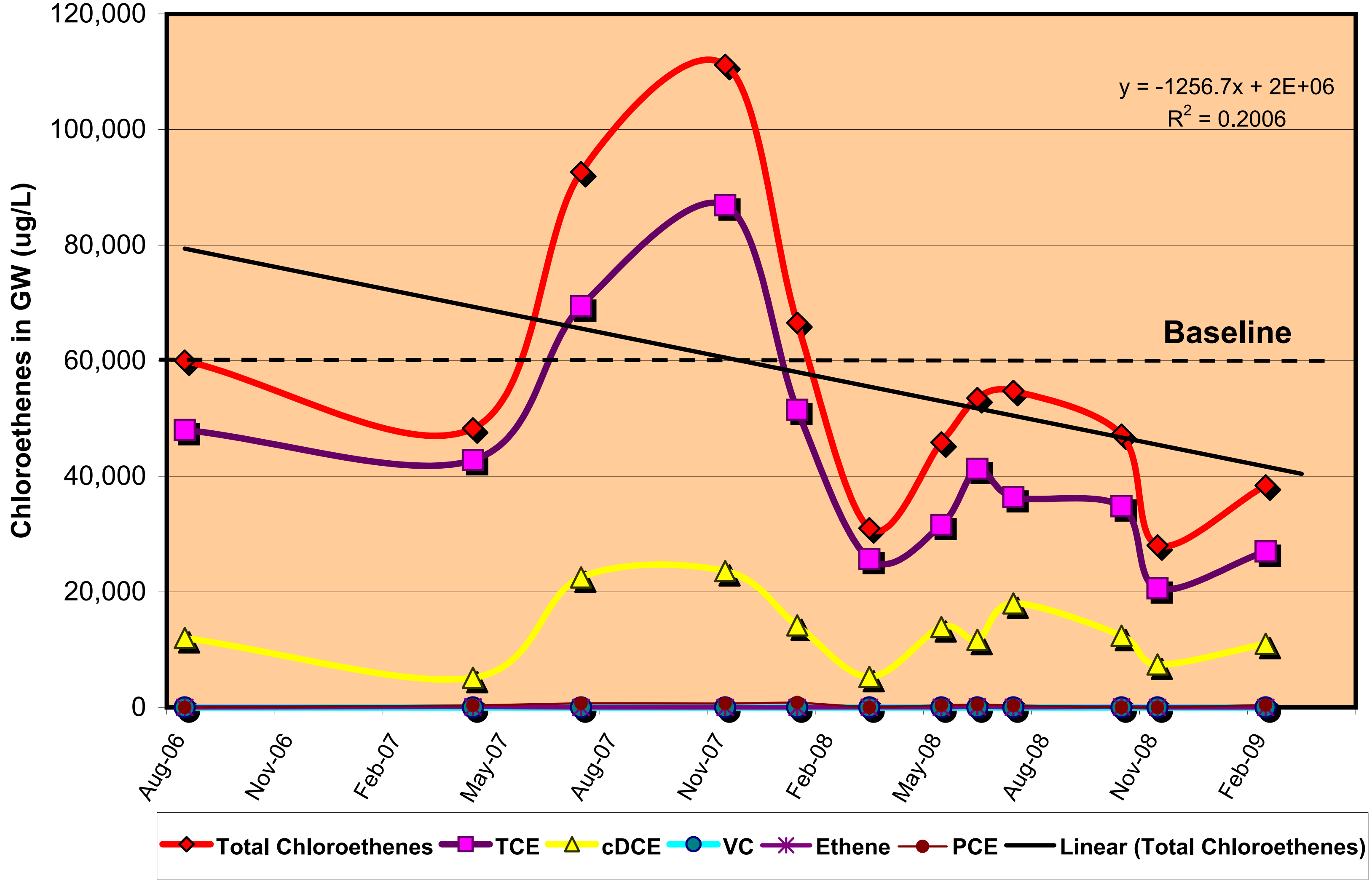


TABLE 1
Nature and Extent of Contamination
Range of Soil Sampling Dates; September 1993 - May 1996

Plateau Area SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	ND-97.0	0.470	10 of 43
	Tetrachloroethene	ND-11.0	1.30	3 of 43
	Xylenes	ND-0.775	0.26	1 of 43
Semivolatile Organic Compounds (SVOCs)	Benzo [a] anthracene	ND-2.73	1	1 of 17
	Chrysene	ND-2.92	1	1 of 17
	Benzo [b] fluoranthene	ND-1.15	1	1 of 17
	Benzo [k] fluoranthene	ND-1.6	0.8	1 of 17
	Benzo [a] pyrene	ND-1.6	1	1 of 17
	Indeno [1,2,3-cd] pyrene	ND-0.781	0.5	1 of 17
	Pentachlorophenol	ND-2.8	0.8	1 of 17
Inorganic Compounds	Arsenic	21 – 64	13	9 of 9
	Cadmium	ND - 3	2.5	1 of 9
	Selenium	4.4 – 15.1	3.9	9 of 9

TABLE 2
Nature and Extent of Contamination
Range of Ground Water Sampling Dates; July 2008

Plateau Area GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	ND-2,360	5	9 of 11
	Tetrachloroethene	ND-5	5	1 of 11
	cis 1,2-dichloroethene	ND-47,700	5	9 of 11
	Vinyl Chloride	ND-25,100	2	4 of 11
	1,1-dichloroethane	ND-12	5	1 of 11
	Benzene	ND-2	1	1 of 11

Flood Plain GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	ND-36,400	5	9 of 17
	Tetrachloroethene	ND-359	5	6 of 17
	cis 1,2-dichloroethene	ND-18,000	5	8 of 17
	trans 1,2-dichloroethene	ND-8.2	5	1 of 17
	Vinyl Chloride	ND-134	2	3 of 17
	1,1,1-trichloroethene	ND-7.97	5	1 of 17

TABLE 3
Nature and Extent of Contamination
Range of Soil Vapor Sampling Dates; March 2008

Plateau Area SOIL VAPOR	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Volatile Organic	Tetrachloroethene	83-300,000	Guidance Value 1,000	7 of 14
Compounds (VOCs)	Trichloroethene	18-8,000,000	Guidance Value 250	11 of 14

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values as follows; Table 1 – Subsurface Soil, values pursuant to 6 NYCRR Part 375 Soil Cleanup Objectives for Unrestrictive Use; Table 2 – Groundwater, values pursuant to NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) No. 1.1.1; and Table 3 – Soil Vapor, values pursuant to NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York – Soil Vapor/Indoor Matrix 1 and Soil Vapor/Indoor Air Matrix 2.

[c] LEL = Lowest Effects Level and SEL = Severe Effects Level. A sediment is considered to be contaminated if either of these criteria is exceeded. If both criteria are exceeded, the sediment is severely impacted. If only the LEL is exceeded, the impact is considered to be moderate.

ND = Contaminant Not detected at the Laboratory Minimum Detection Level

TABLE 4: SUMMARY OF GENERAL SOIL REMEDIATION ALTERNATIVES
Former Grant Hardware Facility, West Nyack, New York
Prepared by: Geovation Engineering, P.C.

Remedial Action Objectives	General Response Actions	Remedial Technology Types	Process Options
Prevent migration of contaminants	*No action/institutional actions:*	*No action/institutional actions:*	
to ground water.	No action	Fencing	Fencing
	Access restrictions		
	On-Site containment actions:	*Containment technologies:*	
	Containment	Capping	RCRA Capping
	Removal actions:	*Removal technologies:*	
	Excavation with disposal	Excavation	Excavation with off-site disposal
		Extraction	Vapor extraction with vapor treatment
	Treatment actions:	*Treatment technologies:*	
	In-situ or ex-situ treatment	Solidification	Geochemical stabilization
		Chemical treatment	Chemical oxidation
			Chemical-reduction technologies
		Biological treatment	Aerobic bioremediation
			Anaerobic bioremediation
		Thermal treatment	Off-site thermal desorption
			On-site thermal desorption

TABLE 5: SCREENING OF TECHNOLOGIES AND PROCESS OPTIONS FOR CONTAMINATED SOIL
Former Grant Hardware Site, West Nyack, New York
Prepared by: Geovation Engineering, P.C.

General Response Action	Remedial Technology	Process Options	Description	Screening Comments
No Action	None	Not applicable	Fence in contaminated area	Already in place
Institutional Actions	Access restrictions	Fencing	Fence in contaminated area	Already in place
Containment Actions	Containment	Capping	Installation of multilayer cap over areas of contamination	Will not meet Remedial Action Objectives
Removal/Treatment Actions	Excavation / Disposal	Excavation with off-site disposal	Excavation with disposal of soil in hazardous waste landfill	A significant portion of the soil does not meet treatment standards for land disposal
	Solidification	In-situ geochemical stabilization	Stabilize subsurface contaminants within a solid matrix	Does not result in destruction of the hazardous constituents. Minimal data available for organic contaminants. Would require pilot testing.
	Chemical treatment	In-situ or Ex-situ chemical oxidation	Apply hydrogen peroxide to degrade contaminants	Dangers in handling an oxidizing chemical. Soil contamination is discontinous and characteristics are variable. Would require on site pilot testing.
		In-Situ or Ex-situ chemical reduction	Apply reducing agent (i.e., zero-valent iron) to degrade contaminants.	Most processes are patented. Soil contamination is discontinuous and characteristics are variable. Would require onsite pilot testing.
	Biological treatment	In-Situ or Ex-situ Anaerobic bioremediation	Co-substrate addition	Soil contamination is discontinous and characteristics are variable. Would require onsite pilot testing.
		In-Situ or Ex-Situ Aerobic bioremediation	Air sparging	Not effective for soil systems (difficult to maintain aerobic conditions in the sub-surface). Ex-situ aerobic bioremediation would require onsite pilot testing and would require off gas treatment since contaminants are volatile.
	Physical treatment	Extraction	Soil vapor extraction	Applicable. On-site pilot testing has been conducted.
	Thermal treatment	Thermal treatment followed by landfilling	Excavate soil; treat off-site via thermal desorption.	Applicable.
		On-site low temp. thermal desorption	Excavate soil; treat on-site	Not cost effective based on soil quantity

Process option carried through to next level for further evaluation

TABLE 6: RANKING OF SOIL REMEDIAL ALTERNATIVES
Former Grant Hardware Facility, West Nyack, NY
Prepared by: Geovation Engineering, P.C.

	Overall Protection of Human Health and Environment	**Compliance with SCGs**	**Long-term Effectiveness and Permanence**	**Reduction of Toxicity, Mobility or Volume**	**Short-term Effectiveness**	**Implement-ability**	**Present Worth Cost[a]**	**Rank**
1. No Action	None	None	None	None	High	High	-	3
2. Excavation with Off-Site Thermal Treatment and Disposal	High	High	High	High	Low	Moderate	$7,500,000	2
3. Soil Vapor Extraction	High	High	High	High	Moderate	High	$201,000	1

[a] There is no long-term O&M cost for Alternative No. 2 therefore, the present-worth cost for this alternative consists solely of the capital and short-term operating costs. For Alternative 3, a 3-year O&M period was assumed, with a 4% interest rate for calculation of the present-worth cost.

TABLE 7: SUMMARY OF GENERAL GROUND WATER REMEDIAL ALTERNATIVES
Former Grant Hardware Facility, West Nyack, NY
Prepared by: Geovation Engineering, P.C.

Remedial Action Objectives	General Response Actions	Remedial Technology Types	Process Options
Restore the ground water aquifer to pre-disposal/pre-release conditions to the extent practicable	*No action/institutional actions*	*No action/institutional actions:*	
		No action	Environmental Easement
	Monitored Natural Attenuation	*Continuation of naturally-occurring in-situ degradation*	In-situ degradation of contamination with continued ground water monitoring
	Containment actions	*Containment technologies:*	
		Pumping	Ground water pumping and discharge to POTW (publicly owned treatment works) or treatment and discharge on site
		Subsurface Barriers	Slurry wall with pumping wells or completed with above-grade relief
	Treatment Actions	*Ex-situ (pump and treat):*	
		Physical Adsorption	Pump and treat with liquid GAC system
			Pump and air strip and treat off-gas
		Biological Treatment	Pump and treat in ex-situ bioreactor
		Chemical Oxidation	Pump and treat with UV/peroxide system
		In-situ:	
		Physical Treatment	Air Sparging
		In-situ chemical reduction	Zero-valent iron
		In-situ chemical oxidation (ISCO)	Peroxide, Permanganate, Persulfate or Percarbonate
		In-situ aerobic bioremediation	In-situ aerobic bioremediation
		In-situ anaerobic bioremediation	Biostimulation via injection of an organic substrate/electron donor
			Bioaugmentation

TABLE 8: SCREENING OF PLATEAU AREA GROUND WATER REMEDIAL ALTERNATIVES
Former Grant Hardware Facility, West Nyack, NY
Prepared by: Geovation Engineering, P.C.

Remedial Technology	**Process Options**	**Description**	**Screening Comments**
No Action/Institutional Controls	Long-term ground water monitoring	Quarterly monitoring of impacted ground water quality for a duration of 100 years.	Evaluation of the no-action alternative is required by DER-10; thus, this alternative will be carried forward to the detailed evaluation of alternatives.
Monitored Natural Attenuation	Monitoring of natural processes which act to decrease contaminant levels over time.	Ground water quality in the impacted area would be monitored on a quarterly basis.	Although natural attenuation was documented at the site, no decreases in the dissolved phase contaminants in ground water were observed prior to initiation of the ground water pilot study.
Containment Actions	Ground water pumping	Ground water would be pumped from existing or new wells to reverse the local ground water gradient. The water removed would have to be treated prior to discharge.	Impacted ground water is largely present in fractured bedrock which renders both of these technologies impractical.
	Slurry wall	Slurry walls consisting of bentonite and/or concrete, water and backfill material would be placed in deep trenches. Overflow would be prevented by pumping (requiring treatment) or by completing the walls with above-grade relief.	
Pump and Treat	Ex-situ (pump and treat): Physical adsorption Biological treatment Chemical oxidation	 Pump and treat w/GAC system Pump and treat in ex-situ bioreactor Pump and treat with UV/H2O2 system	Impacted ground water is largely present in fractured bedrock which renders pump and treat technologies impractical.
In-situ Air Stripping or Volatilization	Air sparging	Addition of oxygen into the subsurface saturated zone to enable the physical mass-transfer of dissolved-phase solvents from ground water into the vapor phase.	Unable to treat the bulk of the contaminant mass present in the subsurface (i.e., sorbed phase contaminants adhered to the aquifer media and located in fractured bedrock).
In-situ Chemical Reduction	Zero-valent iron (ZVI)	ZVI Barrier	Limited to the treatment of the ground-water driven flux of contaminants. Not practical due to the impacted ground water being largely present in fractured bedrock.
		Injection of nano-scale iron	Technology is still in the development phase
In-Situ Chemical Oxidation	Injection of a chemical oxidant into the aquifer to react with and destroy the aqueous phase contaminants	Fenton's or modified Fenton's techniques (hydrogen peroxide based) Permanganate (potassium or sodium) Persulfate Percarbonate	*For all four processes listed to the left:* - Hazards exist re: chemical handling. - Potential negative impact on existing biological communities. Based on the potential for the relatively rapid oxidation and destruction of contaminants, there is a potential to treat ground water contaminants at the site using ISCO technologies. - Uncertain Application in Bedrock
In-situ Aerobic Bioremediation	In-situ Aerobic Bioremediation	Addition of oxygen and a primary substrate into the subsurface to create conditions conducive to aerobic TCE degradation	Concentrations of TCE present would in most cases be toxic to the microorganisms that produce the enzymes responsible for oxidation of TCE. Difficult to maintain sufficient concentration of oxygen in-situ.
In-situ Anaerobic Bioremediation	Anaerobic Biostimulation using Geovation's substrate-release composition (SRC™)	Injection of Geovation's SRC™ liquid into treatment wells to promote the anaerobic and reducing conditions required for dehalogenation of the target compounds.	Technically implementable and proven effective by 12-month pilot study conducted recently at the site.

Process option carried through to next level for further evaluation.

TABLE 9: SCREENING OF FLOOD PLAIN AREA GROUND WATER REMEDIAL ALTERNATIVES
Former Grant Hardware Facility, West Nyack, NY
Prepared by: Geovation Engineering, P.C.

Remedial Technology	Process Options	Description	Screening Comments
No Action	Long-term ground water monitoring	Quarterly monitoring of impacted ground water quality for a duration of 100 years.	Evaluation of the no-action alternative is required by DER-10; thus, this alternative will be carried forward to the detailed evaluation of alternatives.
Monitored Natural Attenuation	Monitoring of natural processes which act to decrease contaminant levels over time.	Ground water quality in the impacted area would be monitored on a quarterly basis.	Although natural attenuation was documented at the site, no decreases in the dissolved phase contaminants in ground water were observed prior to initiation of the ground water pilot study.
Containment Actions	Ground water pumping	Ground water would be pumped from existing or new wells to reverse the local ground water gradient. The water removed would have to be treated prior to discharge.	Impacted ground water "upwelling" from fractured bedrock. "Upwelling prevents use of slurry walls. Containment may be possible in the deep overburden; however, captured ground water would requirement treatment prior to discharge and this option is discussed under Pump and Treat. In addition, area that requires protection is very large and a large volume of wastewater will be created.
	Slurry wall	Slurry walls consisting of bentonite and/or concrete, water and backfill material would be placed in deep trenches. Overflow would be prevented by pumping (requiring treatment) or by completing the walls with above-grade relief.	
Pump and Treat	Ex-situ (pump and treat): Air Stripping / Physical adsorption	Pump and treat w/air stripper and vapor-phase GAC System	This alternative may be feasible with recovery wells installed in the overburden. As this area is prone to annual flooding of six feet or more and no infrastructure exists in this area, implementation would be difficult. In addition, the area which requires protection is very large and it is likely that large volumes of ground water and river water will be intermixed, collected, and require treatment prior to discharge to the river.
	Biological treatment	Pump and treat in ex-situ bioreactor	
		Pump and treat with UV/H2O2 system	
	Chemical oxidation		
In-situ Air Sparging/Volatilization	In-well Air Stripping	Addition of air into wells to enable the physical mass-transfer of dissolved-phase solvents from ground water into the vapor phase. Movement of air within well sets up potential for the creation of vertical circulation cells within aquifer to treat area beyond well.	Treatment of the overburden adjacent to the River with in-well aeration may be feasible. Contaminants removed could be captured in the head-space of the wells and vented to an off-gas treatment system. Area prone to annual flooding making implementation difficult. Untested if vertical circulation cells could be induced by in-well air-lift pumps in an area of upward ground water flow.
	Air Injection	Absence of unsaturated overburden prevents collecting contaminants. Contaminants likely to continue to impact river.	
In-situ Chemical Reduction	Zero-valent iron (ZVI)	ZVI Barrier	Large area which requires treatment and upward flow of ground water from bedrock aquifer prevents construction of physical barrier in this area. Barrier not likely to prevent continued discharge to the river.
		Injection of nano-scale iron	Technology is still in the development phase
In-Situ Chemical Oxidation	Injection of a chemical oxidant into the aquifer to react with and destroy the aqueous phase contaminants	Fenton's or modified Fenton's techniques (hydrogen peroxide based)	Primarily a source area technology, not typically employed in downgradient areas. Oxidants are relatively short lived, thus relatively frequent reapplication of oxidants are required.
		Permanganate (potassium or sodium)	Hazards exist re: chemical handling.
		Persulfate	Negative impact on existing biological communities.
		Percarbonate	
In-situ Aerobic Bioremediation	In-situ Aerobic Bioremediation	Addition of oxygen and a primary substrate into the subsurface to create conditions conducive to aerobic TCE degradation	Concentrations of TCE present would in most cases be toxic to the microorganisms that produce the enzymes responsible for oxidation of TCE. Difficult to maintain sufficient concentration of oxygen in-situ.
In-situ Anaerobic Bioremediation	Anaerobic Biostimulation by supplying electron donor compositions	Delivery of Geovation's liquid SRC™ into treatment wells to promote the anaerobic and reducing conditions required for dehalogenation in a "biobarrier" configuration.	Concept of "biobarrier" pilot tested and shown effective during 12-month study. Efficiency continued to increase after conclusion of pilot study. Mechanical infrastructure not required. Application in area of "upwelling" ground water not tested.
	Bioaugmentation	Existing biological populations adequate	

Process option carried through to next level for further evaluation.

TABLE 10: RANKING OF PLATEAU AREA GROUND WATER REMEDIAL ALTERNATIVES
Former Grant Hardware Facility, West Nyack, NY
Prepared by: Geovation Engineering, P.C.

	Overall Protection of Human Health and Environment	Compliance with SCGs	Long-term Effectiveness and Permanence	Reduction of Toxicity, Mobility or Volume	Short-term Effectiveness	Implement-ability	Present Worth Cost[a]	Rank
1. No Action/ Institutional Controls	None	None	None	None	High	High	$8,300,000	3
2. In-Situ Chemical Oxidation	High	High	High	High	Low	Moderate	$844,000	2
3. In-Situ Anaerobic Bioremediation using Geovation's SRC™ Technology	High	High	High	High	High	High	$236,000	1

[a] An interest rate of 4% was used in calculating the present worth of operating costs for these alternatives. For Alternative No. 2 the O&M consists of 10 years of MNA monitoring and reporting (estimated at $28,000 per year) following the series of ISCO injection events. For Alternative 3 the O&M period is estimated at 4 years at an annual cost of $45,000.

TABLE 11
Specifications of Proposed Additional Wells
NYSDEC Site ID Number 344031
Former Grant Hardware Facility
West Nyack, NY

Treatment Area	Phase of Construction	Number of Wells	Overburden or Bedrock	Screen or Open Hole	Interval (Feet Below) Grade)	Well Diameter (inches)
Source Area	GW-Phase I	3	Bedrock	Open Hole	33-55	3
Riverside (Overburden)	GW-Phase I	4	Overburden	Screen	3-13	2
Riverside (Deep Overburden)	GW-Phase I	5	Deep Overbuden	Screen	15-30	2
Pilot Biobarrier Replacement (Barrier Length Apprx. 400ft)	GW-Phase II	14	Bedrock	Open Hole	33-60	3

Note: Biobarrier Well Spacing Assumes Fifteen Foot Radius of Effect for Each Well)

TABLE 12: RANKING OF FLOOD PLAIN AREA GROUND WATER REMEDIAL ALTERNATIVES
Former Grant Hardware Facility, West Nyack, NY
Prepared by: Geovation Engineering, P.C.

	Overall Protection of Human Health and Environment	Compliance with SCGs	Long-term Effectiveness and Permanence	Reduction of Toxicity, Mobility or Volume	Short-term Effectiveness	Implement-ability	Present Worth Cost[a]	Rank
1. No Action	None	None	None	None	High	High	$4,200,000	4
2. Pump and Treat Containment	Low	Low	Moderate	Low	Moderate	Low	$704,000	3
3. Air Sparging (In-well Aeration, passive barrier)	Moderate	Low	Moderate	Moderate	Moderate	Low	$947,000	2
4. In-situ Anaerobic Bioremediation (biobarrier) using Geovation's SRC™ Technology	High	High	High	High	Moderate	Moderate	$131,000	1

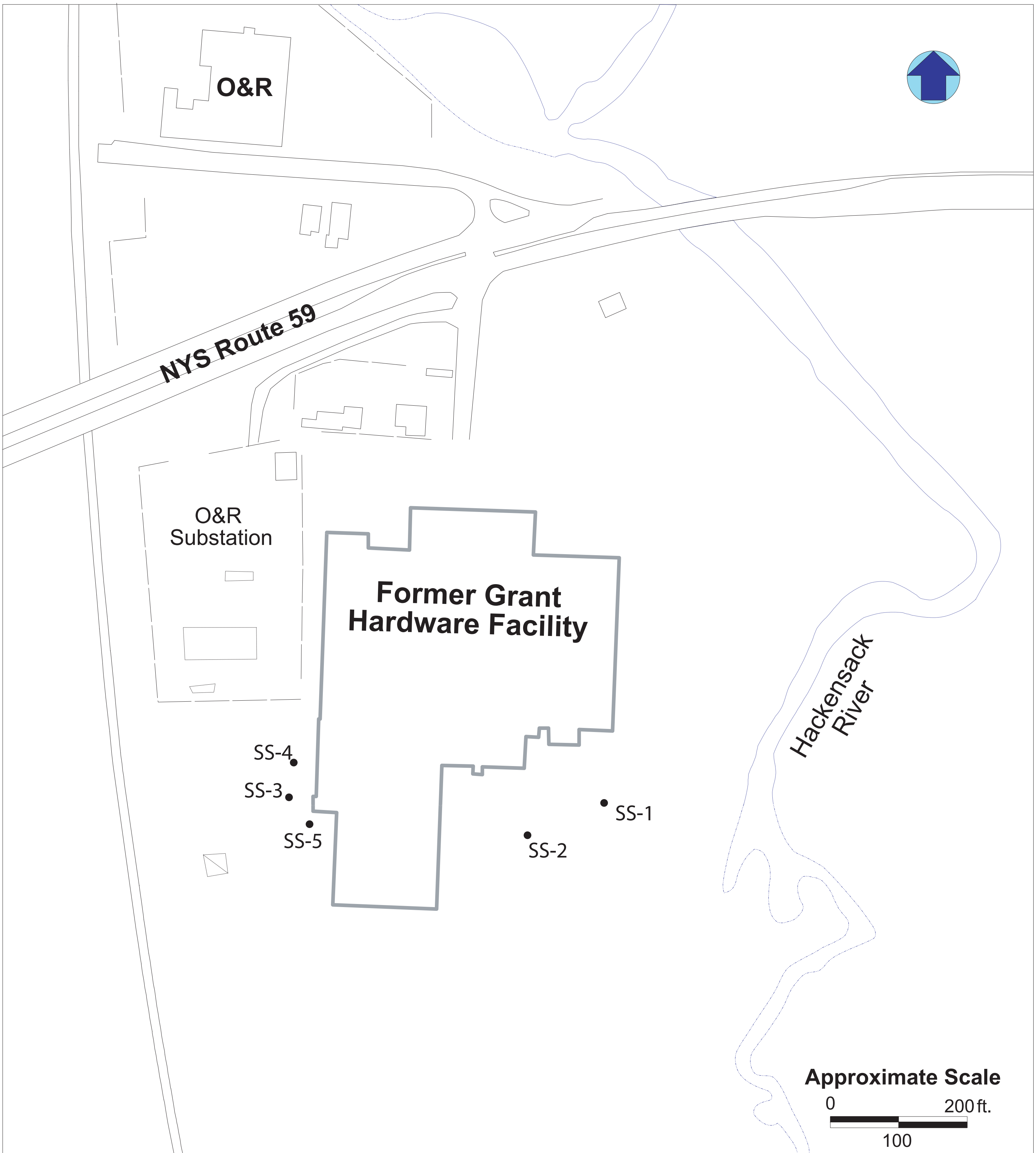
[a] An interest rate of 4% was used in calculating the present worth of operating costs for these alternatives. For Alternative No. 2 and 3, the O&M period is estimated at 5 years, with annual O&M costs of $60,000 and $57,500, respectively. For Alternative No. 4 the O&M period is estimated at 4 years at an annual cost of $25,000.

TABLE 1
June 1994 Subsurface Investigation Report
SUMMARY OF SOIL DATA
44 High Street, West Nyack, New York
Gussack Realty Inc.

	Analytical Results of Samples Obtained from Borings & Surficial Soils								NYSDEC Part 375 Unrestricted Use Soil CleanUp Obj.
Parameter Detected/Description	**GT-1**	**GT-2**	**GT-3**	**GT-4**	**SS-1**	**SS-2**	**SS-3/SS-4**	**SS-5**	
Sample Interval (feet BGS)	13-15	2-4	14-16	2-4	1.5-2	1.5-2	1.5-2	1.5-2	
Total Petroleum Hydrocarbons by GC in mg/Kg									
Motor/Hydraulic Oil	ND	11	1900	11000	NA	NA	ND	ND	**No SCO**
Fuel Oil/Diesel Fuel	ND	ND	ND	1800	NA	NA	ND	ND	**No SCO**
Unknown Hydrocarbons	ND	ND	ND	ND	NA	NA	4500	16000	**No SCO**
Method 8240 volatile organic compounds detected in mg/Kg									
Trichloroethene	0.026	ND	0.022	***51***	ND	ND	ND	NA	**0.470**
Tetrachloroethene	ND	ND	ND	***11***	ND	ND	ND	NA	**1.3**
1,2-Dichloroethene	0.015	0.011	0.010	ND	ND	ND	ND	NA	**0.25**
Method 8270 semi-volatile organic compounds detected in mg/Kg									
Anthracene	ND	ND	0.24	ND	NA	NA	NA	NA	**1**
Naphthalene	ND	ND	ND	1.9	NA	NA	NA	NA	**12**
2-Methylnaphthalene	ND	ND	ND	4.5	NA	NA	NA	NA	**No SCO**
Pentachlorophenol	ND	ND	ND	*2.8*	NA	NA	NA	NA	**0.8**
Method 8080 PCBs and Pesticides									
No Compounds Detected (NCD)	NA	NA	NA	NA	NA	NA	NA	NCD	
Priority pollutant metals (total) and cyanide in mg/kg									
Arsenic	2.5	2.9	5.3	10	NA	NA	***25***	NA	**13**
Beryllium	0.87	0.64	0.85	ND	NA	NA	ND	NA	**7.2**
Cadmium	ND	ND	0.86	***11***	NA	NA	***19***	NA	**2.5**
Chromium	16	19	***39***	***73***	NA	NA	***140***	NA	**30**
Copper	6.2	13	48	***150***	NA	NA	***2500***	NA	**50**
Lead	14	ND	14	***360***	NA	NA	***1100***	NA	**63**
Mercury	ND	ND	ND	ND	NA	NA	***0.68***	NA	**0.18**
Nickel	13	18	25	***59***	NA	NA	***170***	NA	**30**
Selenium	0.55	ND	ND	0.58	NA	NA	1.6	NA	**3.9**
Silver	ND	ND	***2.5***	ND	NA	NA	***11***	NA	**2**
Zinc	48	50	61	***220***	NA	NA	***2300***	NA	**109**
Cyanide	ND	ND	ND	ND	3.6	ND	ND	ND	**27**

Notes:

GT- Soil boring sample obtained by Groundwater Technology
SS- Surficial soil sample
1.9 Data shown in italic font and bold outline exceed the NYSDEC soil clean up objectives shown in the far right column.
ND Not detected. See laboratory data reports from GTEL for method detection limits for each analyte.
NA Not analyzed.
NCD No compounds detected.
BGS Below ground surface



LEGEND

Buildings

SS-2 Surficial Soil Sampling Location and Designation

Former Grant Hardware Facility
West Nyack, New York

Suraficial Soil Sampling Locations

Date: 11-3-08	RLZ	**Figure**

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Geovation Engineering, P.C.
468 Route 17A - Florida, NY 10921

TABLE 2 (1 OF 2)
SUMMARY OF SOIL SAMPLE DATA
Grant Hardware
West Nyack, NY

Parameter Detected/Descripti	Analytical Results From the Following Soil Samples					NYSDEC Part 375 Unrestricted Use Soil Clean Up Objectives
Geovation Sample ID	B-9	B-10	B-11	B-12	B-13	
Sample Interval (ft.)	2-4'	2-4'	2-4'	2-4'	2-4'	
Max. PID Reading (ppmv	146	0	1616	0	560	
Method 8240 Volatile Organic Compounds (mg/Kg)						
Methylene Chloride	ND	ND	***9.34 JB***	***0.211JB***	***2.65 JB***	0.05
1,1,1-Trichloroethane	0.029	ND	ND	ND	ND	0.68
Trichloroethene	ND	ND	***97***	***0.596***	ND	0.47
Toluene	ND	ND	ND	0.125	ND	0.7
Total Xylenes	0.001 J	ND	ND	***0.775***	ND	0.26
Total VOCs	0.03	ND	106.34 JB	1.707 JB	2.65 JB	
TCLP Volatiles (mg/L)						
Trichloroethene	0.0079	~	*1.1*	~	~	
TCLP Metals [1]	ND	~	ND	~	~	
Semivolatiles (BNs) in mg/Kg						
Naphthalene	ND	ND	*0.691 J*	ND	*0.741 J*	12
2-Methylnaphthalene	ND	ND	ND	ND	0.857 J	NGV
Acenaphthylene	0.346 J	ND	ND	ND	ND	100
Acenaphthene	0.347 J	ND	ND	ND	ND	20
Fluorene	0.342 J	ND	ND	ND	ND	30
Phenanthrene	*3.05*	ND	0.986	ND	0.758 J	100
Anthracene	0.947	ND	ND	ND	ND	100
Di-n-butyl phthalate	ND	0.029 J	ND	ND	ND	NGV
Fluoranthene	*6.19*	ND	0.509 J	ND	ND	100
Pyrene	*6.4*	ND	ND	ND	0.954 J	100
Benzo [a] anthracene	***2.73***	ND	0.619 J	ND	ND	1
Chrysene	***2.92***	ND	0.622 J	ND	ND	1
Bis (2-ethylhexyl) phthalate	1.24 J	0.105 J	1.020 J	ND	0.862 J	NGV
Benzo [b] fluoranthene	***1.15***	ND	ND	ND	ND	1
Benzo [k] fluoranthene	***1.6***	ND	ND	ND	ND	0.8
Benzo [a] pyrene	***1.61***	ND	ND	ND	ND	1
Indeno [1,2,3-cd] pyrene	***0.781***	ND	ND	ND	ND	0.5
Dibenz [a,h] anthracene	ND	ND	ND	ND	ND	0.33
Benzo [g,h,i] perylene	*0.955*	ND	ND	ND	ND	100
Total BNs	30.608 J	0.134 J	4.447 J	ND	4.172 J	

Notes:

1 *TCLP Extracts were analyzed for the following metals: As, Ba, Cd, Cr. Pb, Hg, Se, Ag.*
781 *Data shown in italic front and bold outline exceed the NYSDEC soils clean Up Objectives shown in the two far right columns.*
ND *Not detected. See laboratory data reports from Integrated Analytical Laboratories, Inc. for method detection limits.*
NGV *No guidance values provided in the NYSDEC Stars Memo #1.*
B *Indicates this analyte was found in the blank and in the sample.*
J *Estimated concentration: parameter detected below the method detection limit (MDL).*
~ *Indicates this sample was not analyzed for the parameter listed in the far left column.*

TABLE 2 (2 of 2)
SUMMARY OF SOIL-SAMPLE DATA
Grant Hardware
West Nyack, NY

	Parameter Detected/Descripti	Analytical Results From the Following Soil Samples					NYSDEC Part 375 Unrestricted Use Soil Clean Up Objectives
	Geovation Sample ID	B-14	B-15	B-16	B-17	B-18	
	Sample Interval (ft)	4-6'	1-3'	1-3'	3-5'	3-5'	
	Max. PID Reading (ppmv	0	0	0	0	0	
	Method 8240 Volatile Organic Compounds (ug/Kg)						
	Methylene Chloride	ND	0.005 JB	ND	0.001 JB	ND	0.05
	trans-1,2-Dichloroethene	ND	0.001 J	ND	ND	ND	0.68
	Trichloroethene	ND	0.053	0.019	0.014	0.012	0.47
	Toluene	ND	0.002	ND	ND	ND	0.7
	Total Xylenes	ND	0.0016	ND	ND	ND	0.26
	Total VOCs	ND	0.063 JB	0.019	0.015 JB	0.012	NGV
	TCLP Volatiles	ND	~	ND	~	~	NGV
1	**TCLP Metals**	ND	~	ND	~	~	NGV
	Semivolatiles (BNs) (ug/Kg)						
	Naphthalene	ND	ND	0.623	ND	ND	12
	2-Methylnaphthalene	ND	ND	0.573	ND	ND	NGV
	Acenaphthylene	ND	ND	0.295	ND	ND	100
	Acenaphthene	ND	ND	1.19	ND	ND	20
	Dibenzofuran	ND	ND	1.32	ND	ND	30
	Fluorene	ND	ND	1.73	ND	ND	100
	Phenanthrene	ND	0.037 J	6.5	ND	0.323 J	100
	Anthracene	ND	ND	1.46	ND	ND	NGV
	Carbazole	ND	ND	0.587	ND	ND	100
	Di-n-butyl phthalate	0.023 J	0.045 J	ND	ND	ND	100
	Fluoranthene	ND	0.054	*3.55*	ND	0.51	1
	Pyrene	ND	0.055	*2.26*	ND	0.523	1
	Benzo [a] anthracene	ND	0.032 J	*0.999*	ND	0.235 J	NGV
	Chrysene	ND	0.039	0.828	ND	0.272 J	1
	Bis (2-ethylhexyl) phthala	0.063 J	0.102 J	ND	0.224 J	ND	0.8
	Benzo [b] fluoranthene	ND	ND	0.311	ND	ND	1
	Benzo [k] fluoranthene	ND	0.026 J	*0.512*	ND	0.282 J	0.5
	Benzo [a] pyrene	ND	ND	*0.376*	ND	ND	0.33
	Indeno [1,2,3-cd] pyrene	ND	ND	0.132 J	ND	ND	100
	Total BNs	86.6 J	390.1 J	23246 J	224 J	2145 J	

Notes:

1	*TCLP Extracts were analyzed for the following metals: As, Ba, Cd, Cr. Pb, Hg, Se, Ag.*
999	*Data shown in italic front and bold outline exceed the NYSDEC soils standards and/or guidance values shown in the two far right co*
ND	*Not detected. See laboratory data reports from Integrated Analytical Laboratories, Inc. for method detection limits.*
NGV	*No guidance values provided in the NYSDEC Stars Memo #1.*
B	*Indicates this analyte was found in the blank and in the sample.*
J	*Estimated concentration: parameter detected below the method detection limit (MDL).*
~	*Indicates this sample was not analyzed for the parameter listed in the far left column.*

TABLE 2E
SUMMARY OF ADDITIONAL SOIL-SAMPLE DATA
JANUARY 1995 EXPANDED SUBSURFACE INVESTIGATION REPORT
Grant Hardware
West Nyack, NY

Parameter Detected/Description	Results From the Following Soil Samples			NYSDEC Part 375 Unrestricted Use Soil Clean Up Objectives
Geovation Sample ID	B-19	B-20	B-21	
Sample Interval (ft)	0-2'	0-2'	15-17'	
Max. PID Reading (ppmv)	888	571	1600	
Method 8240 Volatile Organic Compounds (mg/Kg)				
Ethylbenzene	ND	0.035 J	ND	1
Total Xylenes	0.112	0.181	ND	0.26
Isopropylbenzene	0.016 J	0.055 J	ND	No SCO
n-Propylbenzene	0.049 J	0.031 J	ND	3.9
1,3,5-Trimethylbenzene	0.264	ND	ND	8.4
tert-Butylbenzene	0.128	0.127	ND	No SCO
1,2,4-Trimethylbenzene	0.554	0.6	ND	3.6
sec-Butylbenzene	ND	0.087	ND	No SCO
4-Isopropyltoluene	0.018 J	0.030 J	ND	No SCO
Methylene chloride	0.018 J	0.030 J	0.001 JB	0.05
Trichloroethene	0.018 J	0.030 J	0.004 J	0.47
Naphthalene	0.176	0.075	ND	12
Total VOCs	1.317 J	1.245 J	0.005 JB	
Total TICs	NR	NR	ND	
Total VOCs & TICs	NR	NR	0.005 JB	
Semivolatiles (BNs) (mg/Kg)				
Phenanthrene	ND	1.62	NA	100
Fluoranthene	ND	2.6	NA	100
Pyrene	ND	2.7	NA	100
Benzo [a] anthracene	ND	*1.32*	NA	1
Chrysene	ND	*1.3 J*	NA	1
Total BNs	ND	9.54 J	NA	

Notes:

1620	*Data shown in italic front and bold outline exceed the NYSDEC soil guidance values shown in the far right column.*
ND	*Not detected. See laboratory data reports from Integrated Analytical Laboratories, Inc. for method detection limits.*
NGV	*No guidance values provided in the NYSDEC Stars Memo #1.*
NR	*Tentatively identified compounds (TICs) not reported.*
J	*Concentration detected below the MDL.*
B	*Concentration detected in the blank and in the sample.*

TABLE 3 (1 of 3)
SUMMARY OF SOIL-SAMPLE DATA - TCLP VOLATILE ORGANIC COMPOUNDS
Former Grant Hardware Facility - West Nyack, NY

Sample Location	**C-1**	**C-2**	**C-3**	**C-4**	**C-4**	**C-5**	**C-6**	**C-6**		**Hazardous Waste Criteria[1] (mg/L)**
Area of Concern	**AOC#1**	**AOC#1**	**AOC#1**	**AOC#1**	**AOC#1**	**AOC#1**	**AOC#1**	**AOC#1**		
Date Sampled	23-May-96	7-Jun-96	7-Jun-96	23-May-96	23-May-96	7-Jun-96	24-May-96	24-May-96		
PID Reading (ppmv)	674	182	437	684	146	362	339	97		
Sample Depth (feet BGS)	5-7	2-4	12-14	3-5	14-16	5-7	5-7	11-13		
Total Petroleum Hydrocarbons via EPA Method 8015 (mg/Kg)										
	2,805.7	446.5	769.3	2,172.3	ND	1,430.7	160.0	ND		---
Total Organic Carbon via EPA Method 415.1 (%)										
	1.24	0.76	0.44	1.19	NA	0.49	0.13	NA		---
TCLP Volatile Organic Compounds via EPA Method 8260 (mg/L)										
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND		---
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND		---
Methyl ethyl ketone	ND	ND	ND	ND	ND	ND	ND	ND		---
Trichloroethene	***21.2272***	***2.3205***	***1.1823***	***14.4238***	0.0435	***6.0562***	***3.092***	0.0338		0.5
Tetracholoroethene	***1.2332***	0.147	0.0454	ND	0.0047	ND	ND	ND		0.7
1,3,5-Trimethylbenzene	ND	ND	0.0404	ND	ND	ND	ND	ND		---
1,2,4-Trimethylbenzene	ND	ND	0.1175	ND	ND	ND	ND	ND		---
Naphthalene	ND	ND	0.0412	ND	ND	ND	ND	0.0072		---
Total VOCs	22.4604	2.4675	1.4268	14.4238	0.0482	6.0562	3.092	0.041		---

Converted TCLP Concentration (mg/l) to Soil Concentration (mg/kg) 2									Koc	Part 375 SCOs
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND		0.05
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND		0.25
Methyl ethyl ketone	ND	ND	ND	ND	ND	ND	ND	ND		0.12
Trichloroethene	***26.7463***	***2.9238***	***1.4897***	***18.1740***	0.0548	***7.6308***	***3.8959***	0.0426	126	0.47
Tetracholoroethene	***3.4160***	0.4072	0.1258	ND	0.0130	ND	ND	ND	277	1.30
1,3,5-Trimethylbenzene	ND	ND	0.2670	ND	ND	ND	ND	ND	661	8.4
1,2,4-Trimethylbenzene	ND	ND	3.4663	ND	ND	ND	ND	ND	2950	3.6
Naphthalene	ND	ND	0.5356	ND	ND	ND	ND	*0.9360*	1300	12.0
Total VOCs	30.1622	3.3310	5.8844	18.1740	0.0678	7.6308	3.896	0.979		---

Notes:

1 NYSDEC STARS Memo #1 Hazardous Waste criteria.

2 Conversion Formula used was Cs=f x Cw x Koc. Cs=Soil Concentration, f = percent organics in soil (assumed at 0.01) Cw=Concentration in Water and Koc as listed to right

6.0562 Values with italic font and bold outline exceed NYSDECPart 375 Unrestricted Use Soil Cleanup Objectives (SCOs) listed in the far right column.

ND Parameter not detected above laboratory method detection limit.

NA Not Analyzed

SUMMARY OF SOIL SAMPLE DATA - TCLP VOLATILE ORGANIC COMPOUNDS

Former Grant Hardware Facility - West Nyack, NY

Sample Location	C-7	C-8	C-9	C-9	C-10	C-10	C-11	C-12	Trip Blank		Hazardous Waste Criteria[1] (mg/L)
Area of Concern	AOC#1	AOC#1	AOC#2	AOC#2	AOC#1	AOC#1	AOC#1	AOC#1			
Date Sampled	23-May-96	23-May-96	28-Jun-96	28-Jun-96	22-May-96	22-May-96	22-May-96	22-May-96	12-Jun-96		
PID Reading (ppmv)	141	0	0	0	0	0	0	382	~		
Sample Depth (feet BGS)	10-12	7-9	0.5-2	7-8	4-6	10-12	9-11	3-5	~		
Total Petroleum Hydrocarbons via EPA Method 8015 (mg/Kg)											
	ND	2,496.60	NA	NA	ND	ND	ND	2,212.70	NA		---
Total Organic Carbon via EPA Method 415.1 (%)											
	NA	NA	0.23	<0.1	NA	<0.1	NA	NA	NA		---
TCLP Volatile Organic Compounds via EPA Method 8260 (mg/L)											
Methylene Chloride	ND	0.0644	ND	ND	ND	ND	ND	ND	ND		---
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	0.0521	ND		---
Methyl ethyl ketone	ND	0.0583	ND	ND	ND	ND	ND	ND	ND		---
Trichloroethene	0.0211	0.0477	0.0300	ND	ND	0.009	0.0785	*0.8535*	ND		0.5
Tetracholoroethene	ND	0.0073	0.0079	ND	ND	ND	0.0075	*0.7067*	ND		0.7
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND		---
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND		---
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND		---
Total VOCs	0.0211	0.1777	0.0379	ND	ND	0.009	0.0860	1.6123	ND		---
Converted TCLP Concentration (mg/l) to Soil Concentration (mg/kg) 2										Koc	Part 375 SCOs
Methylene Chloride	ND	0.0161	ND	ND	ND	ND	ND	ND	ND	25	0.05
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	0.1303	ND	250	0.25
Methyl ethyl ketone	ND	0.0146	ND	ND	ND	ND	ND	ND	ND	25	0.12
Trichloroethene	0.0266	0.0601	0.0378	ND	ND	0.0113	0.0989	***1.0754***	ND	126	0.47
Tetracholoroethene	ND	0.0202	0.0219	ND	ND	ND	0.0208	***1.9576***	ND	277	1.30
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	661	8.4
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	2950	3.6
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	1300	12.0
Total VOCs		0.1110	0.0597	ND	ND	0.0113	0.120	3.163	0.000		---

Notes:

1 NYSDEC STARS Memo #1 Hazardous Waste criteria.

2 Conversion Formula used was Cs=f x Cw x Koc. Cs=Soil Concentration, f = percent organics in soil (assumed at 0.01) Cw=Concentration in Water and Koc as listed to right

6.0562 Values with italic font and bold outline exceed NYSDECPart 375 Unrestricted Use Soil Cleanup Objectives (SCOs) listed in the far right column.

ND Parameter not detected above laboratory method detection limit.

NA Not Analyzed

TABLE 3 (3 of 3)
SUMMARY OF SOIL SAMPLE DATA - TCLP VOLATILE ORGANIC COMPOUNDS
Former Grant Hardware Facility - West Nyack, NY

Sample Location	PL-1	PL-2	PL-2	PL-3	PL-6	PL-6		Hazardous Waste Criteria[1] (mg/L)
Area of Concern	AOC#3	AOC#3	AOC#3	AOC#3	AOC#3	AOC#3		
Date Sampled	24-May-96	24-May-96	24-May-96	24-May-96	24-May-96	24-May-96		
PID Reading (ppmv)	0	0	0	0	0	0		
Sample Depth (feet BGS)	1-3	1-3	5-7	3-5	1-3	5-7		
TCLP Volatile Organic Compounds via EPA Method 8260 (mg/L)								
Methylene Chloride	ND	ND	ND	ND	ND	0.0337		---
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.0521	ND		---
Methyl ethyl ketone	ND	ND	ND	ND	ND	ND		---
Trichloroethene	ND	ND	ND	0.0095	ND	0.0261		0.5
Tetracholoroethene	ND	ND	ND	ND	ND	0.0471		0.7
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND		---
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND		---
Naphthalene	ND	ND	ND	0.0065	ND	ND		---
Total VOCs	ND	ND	ND	0.016	0.052	0.107		---
Converted TCLP Concentration (mg/l) to Soil Concentration (mg/kg) 2							Koc	Part 375 SCOs
Methylene Chloride	ND	ND	ND	ND	ND	0.0084	25	0.05
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.1303	ND	250	0.25
Methyl ethyl ketone	ND	ND	ND	ND	ND	ND	25	0.12
Trichloroethene	ND	ND	ND	0.0120	ND	0.0329	126	0.47
Tetracholoroethene	ND	ND	ND	ND	ND	0.1305	277	1.30
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	661	8.4
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	2950	3.6
Naphthalene	ND	ND	ND	0.0845	ND	ND	1300	12.0
Total VOCs	ND	ND	ND	0.0965	0.1303	0.1718		

Notes:

1 NYSDEC STARS Memo #1 Hazardous Waste criteria.

2 Conversion Formula used was Cs=f x Cw x Koc. Cs=Soil Concentration, f = percent organics in soil (assumed at 0.01) Cw=Concentration in Water and Koc as listed to right

6.0562 Values with italic font and bold outline exceed NYSDECPart 375 Unrestricted Use Soil Cleanup Objectives (SCOs) listed in the far right column.

ND Parameter not detected above laboratory method detection limit.

NA Not Analyzed

ND Parameter not detected above laboratory method detection limit.

TABLE 4
SUMMARY OF SOIL SAMPLE DATA - METALS
Former Grant Hardware Facility - West Nyack, NY

Sample Location	PL-1	PL-2	PL-2	PL-3	PL-6	PL-6	C-4	C-9	C-10	Part 375 Unrestricted Use SCOs (mg/kg)
Area of Concern	AOC#3	AOC#3	AOC#3	AOC#3	AOC#3	AOC#3	AOC#1	AOC#2	Bkg.	
Date Sampled	5/24/1996	5/24/1996	5/24/1996	5/24/1996	5/24/1996	5/24/1996	5/23/1996	5/23/1996	5/24/1996	
Sample Depth (ft.)	1-3	1-3	5-7	3-5	1-3	5-7	3-5	7-8	10-12	
Priority Pollutant Metals via EPA Method 6010 (mg/Kg)										
Aluminum	14,810	14,340	9,370	1,034	9,080	12,410	13,060	NA	2,591	NS
Antimony	13.9	13.2	11.45	7.55	10.25	12.65	11.95	9.35	4.9	NS
Arsenic	*64.2*	*61.2*	*49.5*	*34.25*	*48.6*	*62.3*	*55.05*	*49.70*	*20.95*	13
Barium	55.7	51.9	45.4	27.3	37.6	52.85	46.7	45.5	23.95	350
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2
Cadmium	ND	ND	ND	ND	ND	ND	ND	*3.08*	ND	2.5
Calcium	858	8,400	1,042	594	957	995	882	882	936	NS
Chromium	21.4	16.3	14.75	8.90	12.35	18.95	14.55	26.05	6.4	30.0
Cromium (Hex.)	ND	ND	ND	ND	ND	ND	ND	NA	ND	1.0
Cobalt	8.9	6.9	5.85	3.6	5.75	7.3	6.75	NA	3.95	NS
Copper	22.05	15.55	13.3	7.9	14.1	34.85	21.2	23.1	8	50
Cyanide	ND	ND	ND	ND	ND	ND	ND	NA	ND	27.0
Iron	20,570	10,090	8,260	3,853	9,050	10,360	9,940	NA	3,882	NS
Lead	15.6	18.8	13.55	7.70	11.20	16.35	13.50	13.68	6.5	63
Magnesium	5,880	5,490	4,300	2,476	3,542	6,435	5,270	NA	1,732	NS
Manganese	353.5	640.5	164.5	156	210.5	301.5	267	NA	216.5	1,600
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.18
Nickel	15.2	12.6	11.9	7	10.05	14.2	12.8	NA	7.65	30
Potassium	1,459	1,994	1,482	937	1,080	2,171	1,796	NA	984	NS
Selenium	*13.85*	*14.25*	*12.1*	*7.95*	*11.4*	*15.05*	*13.65*	*12.16*	*4.35*	3.9
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Sodium	191	131	711	35.65	1,208	71	226.5	NA	61.5	NS
Thallium	18.55	17.25	13.95	8	12.7	14.7	14.55	10.20	5.45	NS
Vanadium	28.4	24.25	20.8	12.9	21.85	25.4	24.75	NA	11.45	NS
Zinc	36.65	49.45	37.95	20.9	31.4	39.9	32.45	42.05	14.65	109.0

Notes:

7.7 Values with italic font and bold outline exceed NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives listed in the far right column.

ND Parameter not detected above loboratory method detection limit.

NA Parameter not analyzed for.

NS No Part 375 Soil Cleanup Objective established.

TABLE 5
SUMMARY OF SOIL-SAMPLE DATA - PCBs
Former Grant Hardware Facility - West Nyack, NY

Sample Location	C-2
Date Sampled	7-Jun-96
PID Reading (ppmv)	182
Sample Depth (feet BGS)	2-4
PCBs via EPA Method 8080 (ug/Kg)	
Aroclor 1016	ND
Aroclor 1221	ND
Aroclor 1232	ND
Aroclor 1242	ND
Aroclor 1248	ND
Aroclor 1254	ND
Aroclor 1260	ND

Notes:

ND Parameter not detected above laboratory method detection limit.

March 2009
Metals in Ground Water Investigation Report

Former Grant Hardware Facility – W. Nyack, NY

NYSDEC Site ID Number 344031

March 19, 2009

Prepared for:

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44 High Street
West Nyack, New York 10994

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Innovative Solutions to Environmental Problems®

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March 2009 Metals in Ground Water Investigation Report
Former Grant Hardware Facility, W. Nyack, NY
NYSDEC Site ID Number 344031

1.0 INTRODUCTION

The Former Grant Hardware Facility (NYSDEC Registry Site No. 344031 and Spill Number 93-08913) is located in West Nyack, Rockland County, New York, immediately south of State Route 59 (Figure 1). The surface elevation of the site has been broadly divided into two areas. The former Grant Hardware building and its associated parking lots are situated on the higher elevation or "plateau" area. A topographically lower "flood plain" area near and along the Hackensack River is located east of and adjacent to the "plateau" area.

Previous investigations conducted at this site indicated the presence of petroleum hydrocarbons and chlorinated compounds in site soil and chlorinated compounds in site groundwater. The presence of these compounds in the environment is believed to be the result of two documented releases of waste-oil from an outdoor above-ground storage tank (AST) utilized by Grant Hardware. It was reported that on two occasions in the late 1970s, a fork-lift collided with the support structure of a waste-oil tank which resulted in discharges of waste oil to the ground surface. The first surface spill was reported to have occurred in approximately 1976, and the second release was reported to have occurred about 1978.

In addition to the hydrocarbons and chlorinated compounds, historical soil sampling in the plateau area also indicated the presence of elevated concentrations of several heavy metal contaminants at concentrations above the soil clean-up standard. Elevated concentrations of arsenic and selenium were found to have a site-wide distribution in the plateau area and an elevated concentration of cadmium was identified only slightly above cleanup objectives at a single location. The distribution of these heavy metal contaminants did not match the distribution of the petroleum hydrocarbon contaminants and the chlorinated compounds; nor were these metal contaminants associated with a site feature such as a loading dock or material storage area. The heavy metals identified were not a component of a product or waste that was utilized or produced at this location. Based on this information the elevated concentrations of heavy metals observed in the plateau area were considered the result of background concentrations of these metals in soil.

To further investigate the classification of these metal contaminants as background, and evaluate the potential requirements for remediation, the NYSDEC required that ground water sampling be conducted to evaluate their occurrence in ground water.

2.0 SOIL SAMPLING

As previously discussed, the NYSDEC's requirement for ground water sampling was based on the results of historical soil sampling conducted in the plateau area. Soil sampling was conducted in May 1996 and reported in the 1999 Remedial Investigation Report, and the 2004 Revised Remedial Investigation Report. These results are summarized on Table 1. As shown on Table 1, the heavy metals, arsenic, cadmium, and selenium were identified at concentrations above the NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives.

Also as stated above, the site-wide distribution of arsenic and selenium suggested these values were indicative of background concentrations of these compounds and the elevated concentration of cadmium was identified only at a single location at a very low concentration. Figure 2 shows the soil sampling locations and sampling results.

2.0 GROUND WATER SAMPLING

Soil samples which showed elevated concentrations of metals were collected fro the plateau portion of the site (Figure 2), therefore ground water samples for metal analysis were also collected from the plateau portion of the site. On 24 February 2009, split ground water samples were collected from monitoring wells MW-11, MW-12, MW-13, MW-16 and MW-18. Prior to sampling, at each well the depth to water was recorded and the well was purged by low-flow low volume techniques with a Wattera® inertial pump. Purge water that was removed from the well was contained on-site for subsequent treatment and disposal. Ground water samples were collected directly from the Wattera® pump tubing into laboratory provided glassware. Samples were then labeled, placed into a cooler with ice and shipped to Aqua Pro-Tech Laboratories of Fairfield, NJ (NYSDOH Certification No. 11634) for analysis of Priority Pollutant Metals analysis via EPA Method 6020.

Ground water samples were collected from five existing monitoring wells representing areas where elevated concentrations of petroleum hydrocarbons and chlorinated compounds have historically been detected and areas where elevated concentrations of these compounds have not been detected. The selected locations for ground water sampling and the results of the sampling are provided on Figure 3. Split samples were collected from each well and analyzed via EPA Method 6020 for Priority Pollutant Metals by a NYSDOH certified laboratory. Split samples were collected form each well. One sample of the split pair was directly submitted to the lab, to represents total metals concentration, and the second sample of the split pair was field filtered prior to being submitted to the lab to represents the concentrations of dissolved metals. Split sampling in this way was required as previous sampling of several of these wells indicated that persistent amounts of suspended solids were present in the monitoring wells, indicated by consistent turbidity values of greater than 50 NTUs.

3.0 GROUND WATER SAMPLING RESULTS

A summary of the laboratory analytical results of the 24 February 2009 groundwater sampling event are provided on Table 2. A copy of the original laboratory report is provided in Appendix A. Table 2 also includes the NYSDEC TOGS 1.1.1 ground water standards for comparison. Comparison of the water quality results obtained to the ground water standards indicates that the only priority pollutant metal reported at a concentration above the standards is mercury at one location (MW-13) at a very low concentration.

4.0 DISCUSSION

Historical soil sampling indicated that three metals; arsenic, cadmium and selenium were present in site soil at concentrations above the unrestricted use soil cleanup objectives. Follow-up ground water sampling conducted in February 2009 shows that the concentration of these metals in site ground water is below the ground water quality standards. The finding of these metals at concentrations below ground water standards supports the historic interpretation that the elevated amounts of these metals observed in site soils is related to the background conditions at the property.

Mercury was identified in site ground water above the ground water standard at one location MW-13. Mercury was not previously identified in site soils and the concentration of dissolved mercury in ground water was very low, only 0.5 ppb above the ground water standard. Based on discussions with the property owner, products or wastes which could result in a discharge of mercury were never utilized or stored at this property. Based on this information, it is Geovation's opinion that additional investigation or remediation activities for mercury are not warranted.

Geovation is in the process of preparing a Feasibility Study (FS) for the remediation of impacted soils and ground water. Based on the results of this testing, soil remediation for heavy metals is not required at this site and will not be address in the FS.

5.0 CONCLUSIONS

- Split ground water samples were obtained from five existing wells in the plateau portion of the site. The concentration of arsenic, cadmium, and selenium in ground water from these wells were all reported below the ground water standards, supporting the historic interpretation that the elevated amounts of these metals observed in site soils is related to the background conditions at the property.

- The combined results of the historical soil sampling and February 2009 ground water sampling indicate that soil remediation for heavy metals is not required at this site and will not be address in the FS.

TABLE 1
SUMMARY OF SOIL SAMPLE DATA - METALS
Former Grant Hardware Facility - West Nyack, NY

Sample Location	**PL-1**	**PL-2**	**PL-2**	**PL-3**	**PL-6**	**PL-6**	**C-4**	**C-9**	**C-10**	**Part 375 Unrestricted Use SCOs (mg/kg)**
Area of Concern	**AOC#3**	**AOC#3**	**AOC#3**	**AOC#3**	**AOC#3**	**AOC#3**	**AOC#1**	**AOC#2**	**Bkg.**	
Date Sampled	5/24/1996	5/24/1996	5/24/1996	5/24/1996	5/24/1996	5/24/1996	5/23/1996	5/23/1996	5/24/1996	
Sample Depth (ft.)	1-3	1-3	5-7	3-5	1-3	5-7	3-5	7-8	10-12	
Priority Pollutant Metals via EPA Method 6010 (mg/Kg)										
Aluminum	14,810	14,340	9,370	1,034	9,080	12,410	13,060	NA	2,591	NS
Antimony	13.9	13.2	11.45	7.55	10.25	12.65	11.95	9.35	4.9	NS
Arsenic	*64.2*	*61.2*	*49.5*	*34.25*	*48.6*	*62.3*	*55.05*	*49.70*	*20.95*	13
Barium	55.7	51.9	45.4	27.3	37.6	52.85	46.7	45.5	23.95	350
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2
Cadmium	ND	ND	ND	ND	ND	ND	ND	*3.08*	ND	2.5
Calcium	858	8,400	1,042	594	957	995	882	882	936	NS
Chromium	21.4	16.3	14.75	8.90	12.35	18.95	14.55	26.05	6.4	30.0
Cromium (Hex.)	ND	ND	ND	ND	ND	ND	ND	NA	ND	1.0
Cobalt	8.9	6.9	5.85	3.6	5.75	7.3	6.75	NA	3.95	NS
Copper	22.05	15.55	13.3	7.9	14.1	34.85	21.2	23.1	8	50
Cyanide	ND	ND	ND	ND	ND	ND	ND	NA	ND	27.0
Iron	20,570	10,090	8,260	3,853	9,050	10,360	9,940	NA	3,882	NS
Lead	15.6	18.8	13.55	7.70	11.20	16.35	13.50	13.68	6.5	63
Magnesium	5,880	5,490	4,300	2,476	3,542	6,435	5,270	NA	1,732	NS
Manganese	353.5	640.5	164.5	156	210.5	301.5	267	NA	216.5	1,600
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.18
Nickel	15.2	12.6	11.9	7	10.05	14.2	12.8	NA	7.65	30
Potassium	1,459	1,994	1,482	937	1,080	2,171	1,796	NA	984	NS
Selenium	*13.85*	*14.25*	*12.1*	*7.95*	*11.4*	*15.05*	*13.65*	*12.16*	*4.35*	3.9
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Sodium	191	131	711	35.65	1,208	71	226.5	NA	61.5	NS
Thallium	18.55	17.25	13.95	8	12.7	14.7	14.55	10.20	5.45	NS
Vanadium	28.4	24.25	20.8	12.9	21.85	25.4	24.75	NA	11.45	NS
Zinc	36.65	49.45	37.95	20.9	31.4	39.9	32.45	42.05	14.65	109.0

Notes:

7.7	Values with italic font and bold outline exceed NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives listed in the far right column.
ND	Parameter not detected above loboratory method detection limit.
NA	Parameter not analyzed for.
NS	No Part 375 Soil Cleanup Objective established.

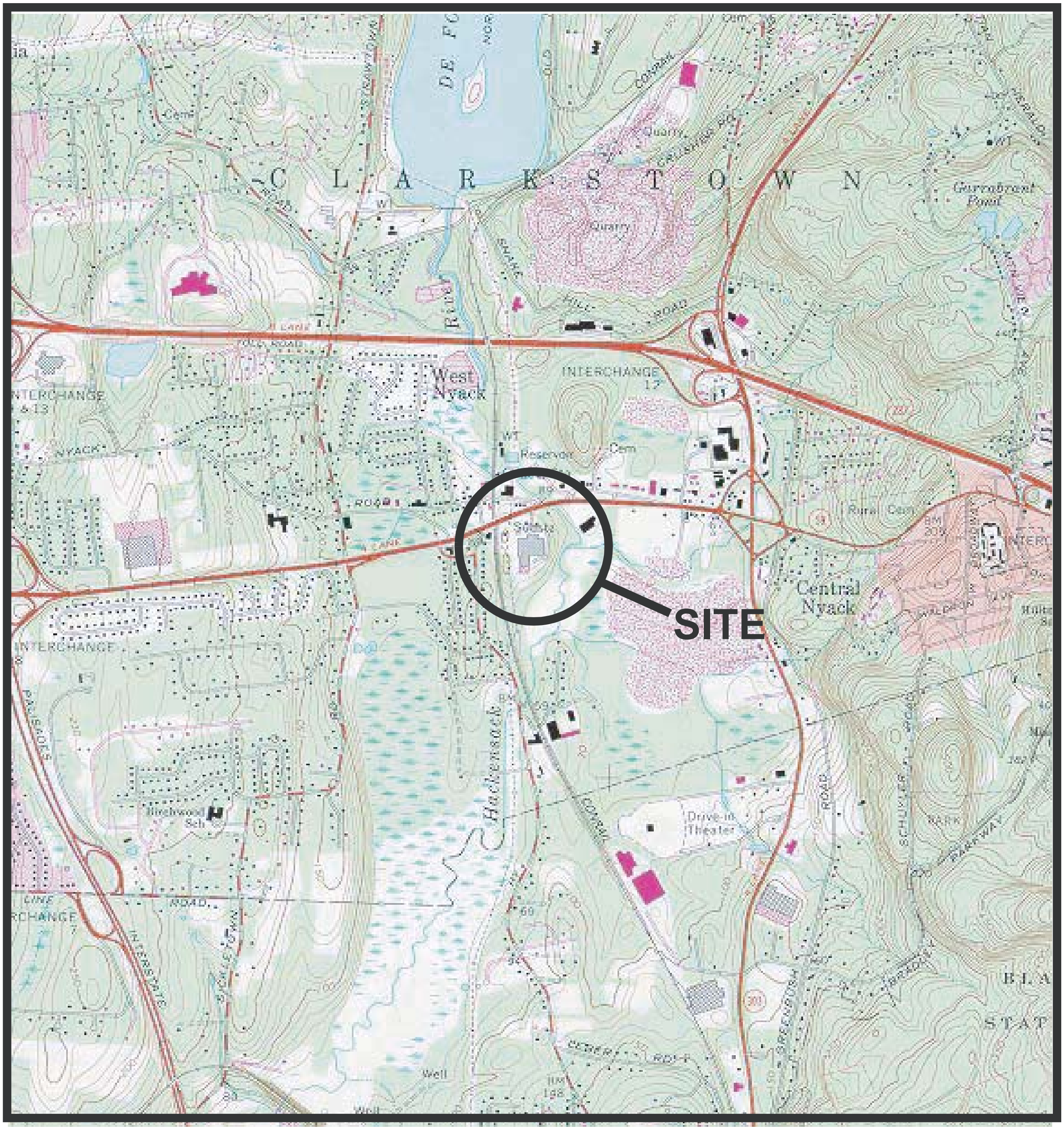
TABLE 2
SUMMARY OF GROUND WATER SAMPLING DATA: Priority Pollutant Metals

Former Grant Hardware Facility, West Nyack, New York

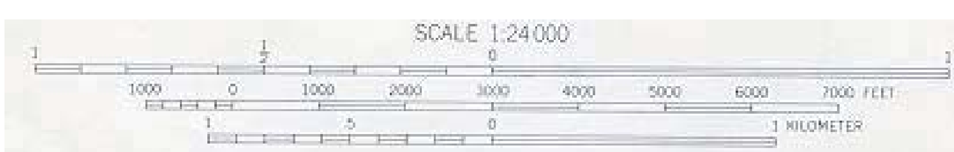
Sample Location	MW11	MW11	MW-12	MW-12	MW-13	MW-13	MW-16	MW-16	MW-18	MW-18		NYSDEC TOGS
	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved		1.1.1
Parameter via 6020 (ug/L)	02/25/09	02/25/09	02/25/09	02/25/09	02/25/09	02/25/09	02/25/09	02/25/09	02/25/09	02/25/09	MDL	Standards*
Mercury	ND	ND	ND	ND	***2.4***	***1.2***	ND	ND	ND	ND	0.5	0.7
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	3
Copper	ND	ND	39	10	18	4	64	2	11	2	2	200
Lead	9	ND	2	ND	4	ND	10	ND	2	ND	2	25
Nickel	27	2	18	13	31	24	16	5	20	12	1	100
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	50
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	(0.5)G
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	3
Arsenic	4	ND	9	5	2	ND	2	ND	2	ND	2	25
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	5
Chromium	19	ND	8	5	6	ND	7	ND	8	ND	2	50
Selenium	2	ND	4	4	4	4	4	2	ND	ND	2	10
Zinc	74	ND	134	56	49	ND	72	ND	ND	ND	40	2000(G)

Notes:

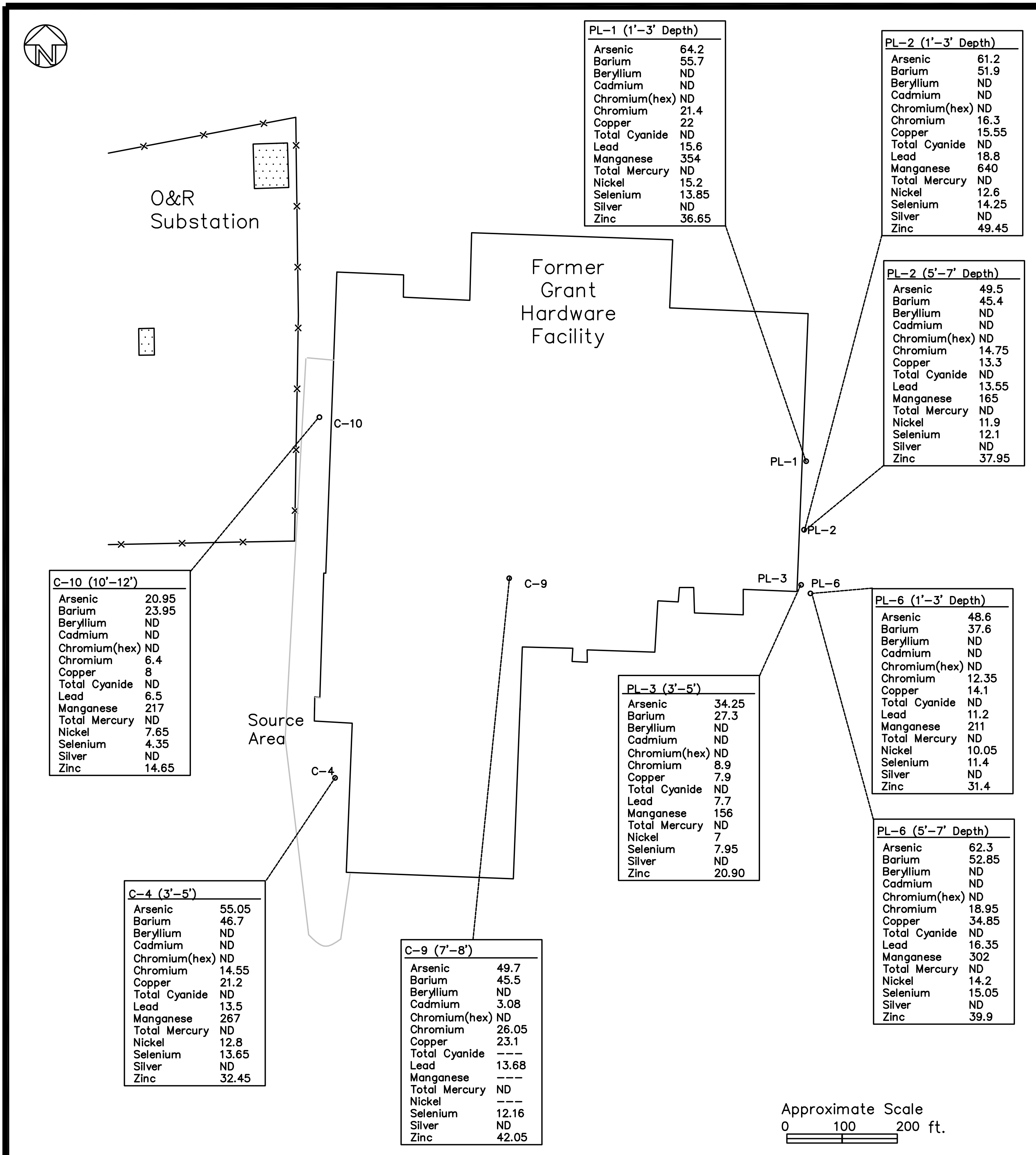
ND	Parameter not detected above minimum detection level (MDL)
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standard
(#)G	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Guidance Value



Source: USGS 7.5 Minute Series Topographic Map West Nyack, NY 1979



GEOVATION Geovation Engineering, P.C. 468 Route 17A - Florida, NY 10921	SITE MAP Remedial Investigation Former Grant Hardware Facility West Nyack, New York	Figure 1



PL-1 (1'-3' Depth)	
Arsenic	64.2
Barium	55.7
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	21.4
Copper	22
Total Cyanide	ND
Lead	15.6
Manganese	354
Total Mercury	ND
Nickel	15.2
Selenium	13.85
Silver	ND
Zinc	36.65

PL-2 (1'-3' Depth)	
Arsenic	61.2
Barium	51.9
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	16.3
Copper	15.55
Total Cyanide	ND
Lead	18.8
Manganese	640
Total Mercury	ND
Nickel	12.6
Selenium	14.25
Silver	ND
Zinc	49.45

PL-2 (5'-7' Depth)	
Arsenic	49.5
Barium	45.4
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	14.75
Copper	13.3
Total Cyanide	ND
Lead	13.55
Manganese	165
Total Mercury	ND
Nickel	11.9
Selenium	12.1
Silver	ND
Zinc	37.95

C-10 (10'-12')	
Arsenic	20.95
Barium	23.95
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	6.4
Copper	8
Total Cyanide	ND
Lead	6.5
Manganese	217
Total Mercury	ND
Nickel	7.65
Selenium	4.35
Silver	ND
Zinc	14.65

PL-6 (1'-3' Depth)	
Arsenic	48.6
Barium	37.6
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	12.35
Copper	14.1
Total Cyanide	ND
Lead	11.2
Manganese	211
Total Mercury	ND
Nickel	10.05
Selenium	11.4
Silver	ND
Zinc	31.4

PL-3 (3'-5')	
Arsenic	34.25
Barium	27.3
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	8.9
Copper	7.9
Total Cyanide	ND
Lead	7.7
Manganese	156
Total Mercury	ND
Nickel	7
Selenium	7.95
Silver	ND
Zinc	20.90

PL-6 (5'-7' Depth)	
Arsenic	62.3
Barium	52.85
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	18.95
Copper	34.85
Total Cyanide	ND
Lead	16.35
Manganese	302
Total Mercury	ND
Nickel	14.2
Selenium	15.05
Silver	ND
Zinc	39.9

C-4 (3'-5')	
Arsenic	55.05
Barium	46.7
Beryllium	ND
Cadmium	ND
Chromium(hex)	ND
Chromium	14.55
Copper	21.2
Total Cyanide	ND
Lead	13.5
Manganese	267
Total Mercury	ND
Nickel	12.8
Selenium	13.65
Silver	ND
Zinc	32.45

C-9 (7'-8')	
Arsenic	49.7
Barium	45.5
Beryllium	ND
Cadmium	3.08
Chromium(hex)	ND
Chromium	26.05
Copper	23.1
Total Cyanide	---
Lead	13.68
Manganese	---
Total Mercury	ND
Nickel	---
Selenium	12.16
Silver	ND
Zinc	42.05

LEGEND

Building

C-9 Soil Sampling Location

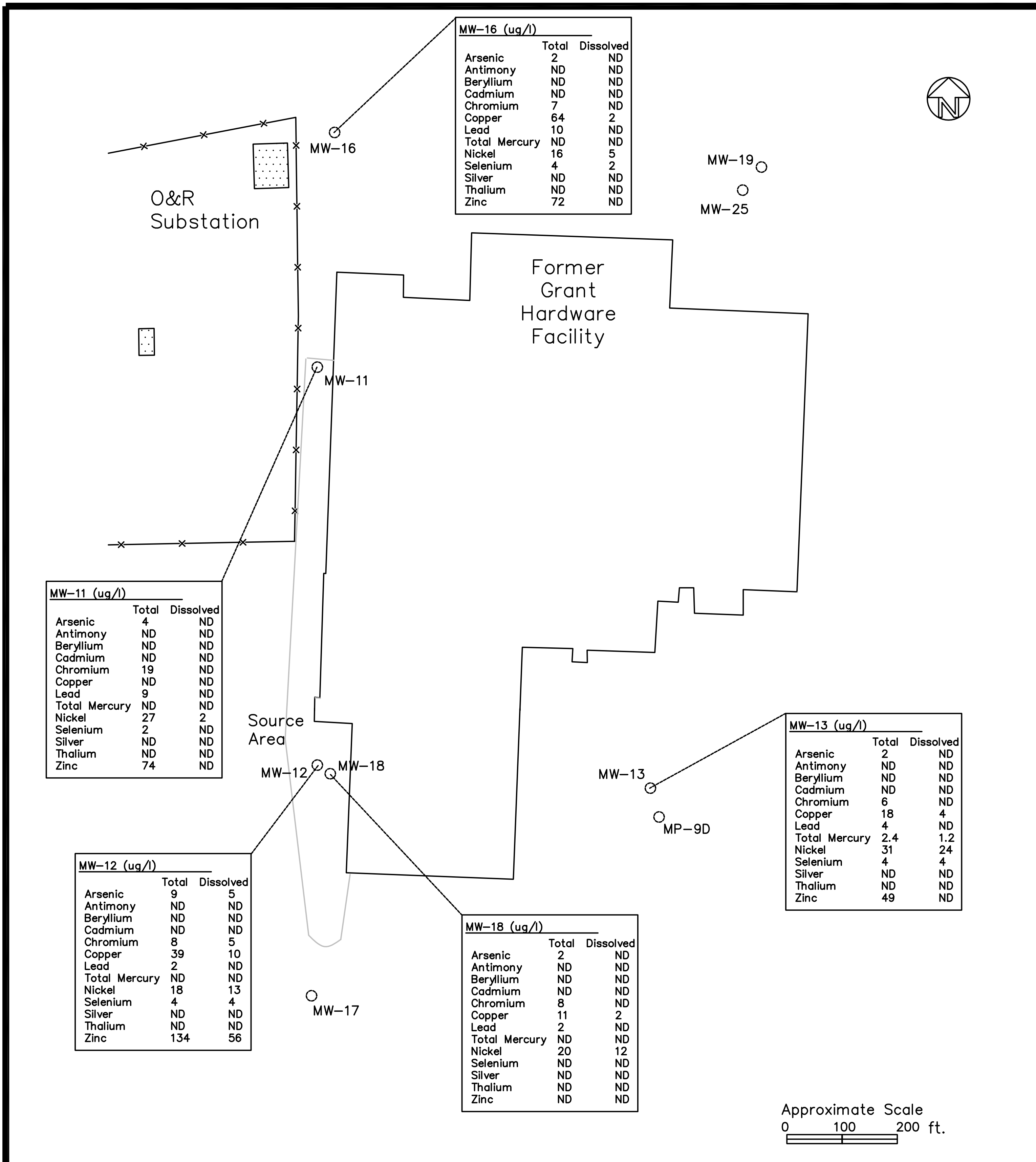
Sample Designation, Sampling Depth and Results of Metals Analysis (mg/kg)

Former Grant Hardware Facility
West Nyack, New York

Metals Analysis in Soil

Date: 3-17-09 | RLZ | Figure 2

Geovation Engineering, P.C.
468 Route 17A, P.O. Box 293
Florida, New York 10921



MW-16 (ug/l)

	Total	Dissolved
Arsenic	2	ND
Antimony	ND	ND
Beryllium	ND	ND
Cadmium	ND	ND
Chromium	7	ND
Copper	64	2
Lead	10	ND
Total Mercury	ND	ND
Nickel	16	5
Selenium	4	2
Silver	ND	ND
Thalium	ND	ND
Zinc	72	ND

MW-11 (ug/l)

	Total	Dissolved
Arsenic	4	ND
Antimony	ND	ND
Beryllium	ND	ND
Cadmium	ND	ND
Chromium	19	ND
Copper	ND	ND
Lead	9	ND
Total Mercury	ND	ND
Nickel	27	2
Selenium	2	ND
Silver	ND	ND
Thalium	ND	ND
Zinc	74	ND

MW-13 (ug/l)

	Total	Dissolved
Arsenic	2	ND
Antimony	ND	ND
Beryllium	ND	ND
Cadmium	ND	ND
Chromium	6	ND
Copper	18	4
Lead	4	ND
Total Mercury	2.4	1.2
Nickel	31	24
Selenium	4	4
Silver	ND	ND
Thalium	ND	ND
Zinc	49	ND

MW-12 (ug/l)

	Total	Dissolved
Arsenic	9	5
Antimony	ND	ND
Beryllium	ND	ND
Cadmium	ND	ND
Chromium	8	5
Copper	39	10
Lead	2	ND
Total Mercury	ND	ND
Nickel	18	13
Selenium	4	4
Silver	ND	ND
Thalium	ND	ND
Zinc	134	56

MW-18 (ug/l)

	Total	Dissolved
Arsenic	2	ND
Antimony	ND	ND
Beryllium	ND	ND
Cadmium	ND	ND
Chromium	8	ND
Copper	11	2
Lead	2	ND
Total Mercury	ND	ND
Nickel	20	12
Selenium	ND	ND
Silver	ND	ND
Thalium	ND	ND
Zinc	ND	ND

LEGEND

Building

Ground Water Monitoring Well Location

Sample Designation, and Results of Metals Analysis (ug/l)

Former Grant Hardware Facility
West Nyack, New York

Metals Analysis in Ground Water

Date: 3-18-09 | RLZ | Figure 3

Geovation Engineering, P.C.
468 Route 17A, P.O. Box 293
Florida, New York 10921

APL

AQUA PRO-TECH LABORATORIES

CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233
US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**29020828**
		Date Sampled	02/24/2009 12:55
		Date Received	02/25/2009 15:45
Contact	Bob Zimmer	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	03/13/2009 9:46	**Customer Service Rep.**	

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
29020828-001 MW-11						
Antimony	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Antimony, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Arsenic	EPA 200.8	03/12/2009 12:00	MARKA	0.004	mg/L	0.002
Arsenic, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Beryllium	EPA 200.8	03/12/2009 12:00	MARKA	<0.001	mg/L	0.001
Beryllium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.001	mg/L	0.001
Cadmium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Cadmium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Chromium	EPA 200.8	03/12/2009 12:00	MARKA	0.019	mg/L	0.002
Chromium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Copper	EPA 200.8	03/12/2009 12:00	MARKA	<0.019	mg/L	0.002
Copper, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Lead	EPA 200.8	03/12/2009 12:00	MARKA	0.009	mg/L	0.002
Lead, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Mercury	EPA 245.1	03/04/2009 11:00	ASTOICA	<0.0005	mg/L	0.0005
Mercury, Dissolved	EPA 245.1	03/04/2009 13:35	ASTOICA	<0.0005	mg/L	0.0005
Nickel	EPA 200.8	03/12/2009 12:00	MARKA	0.027	mg/L	0.002
Nickel, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.002	mg/L	0.002
Selenium	EPA 200.8	03/12/2009 12:00	MARKA	0.002	mg/L	0.002
Selenium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Silver	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Silver, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Thallium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Thallium, Dissolved	EPA 200.7	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Zinc	EPA 200.8	03/12/2009 12:00	MARKA	0.074	mg/L	0.04
Zinc, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.04	mg/L	0.04

SA: See attached report

Brian Wood
Laboratory Director

QA

APL

AQUA PRO-TECH LABORATORIES

CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233
US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**29020828**
		Date Sampled	02/24/2009 15:55
		Date Received	02/25/2009 15:45
Contact	Bob Zimmer	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	03/13/2009 9:44	**Customer Service Rep.**	

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
29020828-002 MW-12						
Antimony	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Antimony, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Arsenic	EPA 200.8	03/12/2009 12:00	MARKA	0.009	mg/L	0.002
Arsenic, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.005	mg/L	0.002
Beryllium	EPA 200.8	03/12/2009 12:00	MARKA	<0.001	mg/L	0.001
Beryllium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.001	mg/L	0.001
Cadmium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Cadmium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Chromium	EPA 200.8	03/12/2009 12:00	MARKA	0.008	mg/L	0.002
Chromium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.005	mg/L	0.002
Copper	EPA 200.8	03/12/2009 12:00	MARKA	0.039	mg/L	0.002
Copper, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.010	mg/L	0.002
Lead	EPA 200.8	03/12/2009 12:00	MARKA	0.002	mg/L	0.002
Lead, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Mercury	EPA 245.1	03/04/2009 11:00	ASTOICA	<0.0005	mg/L	0.0005
Mercury, Dissolved	EPA 245.1	03/04/2009 13:35	ASTOICA	<0.0005	mg/L	0.0005
Nickel	EPA 200.8	03/12/2009 12:00	MARKA	0.018	mg/L	0.002
Nickel, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.013	mg/L	0.002
Selenium	EPA 200.8	03/12/2009 12:00	MARKA	0.004	mg/L	0.002
Selenium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.004	mg/L	0.002
Silver	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Silver, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Thallium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Thallium, Dissolved	EPA 200.7	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Zinc	EPA 200.8	03/12/2009 12:00	MARKA	0.134	mg/L	0.04
Zinc, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.056	mg/L	0.04

SA: See attached report

Brian Wood
Laboratory Director

QA

1275 BLOOMFIELD AVENUE, BLDG. 6, FAIRFIELD, NJ 07004 TEL 973 227 0422 FAX 973 227 2813

APL

AQUA PRO-TECH LABORATORIES

CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233
US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**29020828**
		Date Sampled	02/24/2009 13:45
		Date Received	02/25/2009 15:45
Contact	Bob Zimmer	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	03/13/2009 9:44	**Customer Service Rep.**	

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
29020828-003 MW-13						
Antimony	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Antimony, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Arsenic	EPA 200.8	03/12/2009 12:00	MARKA	0.002	mg/L	0.002
Arsenic, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Beryllium	EPA 200.8	03/12/2009 12:00	MARKA	<0.001	mg/L	0.001
Beryllium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.001	mg/L	0.001
Cadmium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Cadmium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Chromium	EPA 200.8	03/12/2009 12:00	MARKA	0.006	mg/L	0.002
Chromium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Copper	EPA 200.8	03/12/2009 12:00	MARKA	0.018	mg/L	0.002
Copper, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.004	mg/L	0.002
Lead	EPA 200.8	03/12/2009 12:00	MARKA	0.004	mg/L	0.002
Lead, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Mercury	EPA 245.1	03/04/2009 11:00	ASTOICA	0.0024	mg/L	0.0005
Mercury, Dissolved	EPA 245.1	03/04/2009 13:35	ASTOICA	0.0012	mg/L	0.0005
Nickel	EPA 200.8	03/12/2009 12:00	MARKA	0.031	mg/L	0.002
Nickel, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.024	mg/L	0.002
Selenium	EPA 200.8	03/12/2009 12:00	MARKA	0.004	mg/L	0.002
Selenium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.004	mg/L	0.002
Silver	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Silver, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Thallium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Thallium, Dissolved	EPA 200.7	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Zinc	EPA 200.8	03/12/2009 12:00	MARKA	0.049	mg/L	0.04
Zinc, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.04	mg/L	0.04

SA: See attached report

Brian Wood

Brian Wood
Laboratory Director

QA

APL
AQUA PRO-TECH LABORATORIES

CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233
US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**29020828**
		Date Sampled	02/24/2009 14:30
		Date Received	02/25/2009 15:45
Contact	Bob Zimmer	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	03/13/2009 9:44	**Customer Service Rep.**	

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
29020828-004 MW-16						
Antimony	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Antimony, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Arsenic	EPA 200.8	03/12/2009 12:00	MARKA	0.002	mg/L	0.002
Arsenic, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Beryllium	EPA 200.8	03/12/2009 12:00	MARKA	<0.001	mg/L	0.001
Beryllium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.001	mg/L	0.001
Cadmium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Cadmium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Chromium	EPA 200.8	03/12/2009 12:00	MARKA	0.007	mg/L	0.002
Chromium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Copper	EPA 200.8	03/12/2009 12:00	MARKA	0.064	mg/L	0.002
Copper, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.002	mg/L	0.002
Lead	EPA 200.8	03/12/2009 12:00	MARKA	0.010	mg/L	0.002
Lead, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Mercury	EPA 245.1	03/04/2009 11:00	ASTOICA	<0.0005	mg/L	0.0005
Mercury, Dissolved	EPA 245.1	03/04/2009 13:35	ASTOICA	<0.0005	mg/L	0.0005
Nickel	EPA 200.8	03/12/2009 12:00	MARKA	0.016	mg/L	0.002
Nickel, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.005	mg/L	0.002
Selenium	EPA 200.8	03/12/2009 12:00	MARKA	0.004	mg/L	0.002
Selenium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.002	mg/L	0.002
Silver	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Silver, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Thallium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Thallium, Dissolved	EPA 200.7	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Zinc	EPA 200.8	03/12/2009 12:00	MARKA	0.072	mg/L	0.04
Zinc, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.04	mg/L	0.04

SA: See attached report

Brian Wood

Brian Wood
Laboratory Director

QA

APL

AQUA PRO-TECH LABORATORIES

CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233

US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**29020828**
		Date Sampled	02/24/2009 15:40
		Date Received	02/25/2009 15:45
Contact	Bob Zimmer	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	03/13/2009 9:45	**Customer Service Rep.**	

Sample Number/ Parameter	Method	Analysis Time	Analyst	Result	Units	MDL
29020828-005 MW-18						
Antimony	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Antimony, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Arsenic	EPA 200.8	03/12/2009 12:00	MARKA	0.002	mg/L	0.002
Arsenic, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Beryllium	EPA 200.8	03/12/2009 12:00	MARKA	<0.001	mg/L	0.001
Beryllium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.001	mg/L	0.001
Cadmium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Cadmium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Chromium	EPA 200.8	03/12/2009 12:00	MARKA	0.008	mg/L	0.002
Chromium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Copper	EPA 200.8	03/12/2009 12:00	MARKA	0.011	mg/L	0.002
Copper, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.002	mg/L	0.002
Lead	EPA 200.8	03/12/2009 12:00	MARKA	0.002	mg/L	0.002
Lead, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Mercury	EPA 245.1	03/04/2009 11:00	ASTOICA	<0.0005	mg/L	0.0005
Mercury, Dissolved	EPA 245.1	03/04/2009 13:35	ASTOICA	<0.0005	mg/L	0.0005
Nickel	EPA 200.8	03/12/2009 12:00	MARKA	0.020	mg/L	0.002
Nickel, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	0.012	mg/L	0.002
Selenium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Selenium, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Silver	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Silver, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Thallium	EPA 200.8	03/12/2009 12:00	MARKA	<0.002	mg/L	0.002
Thallium, Dissolved	EPA 200.7	03/12/2009 12:00	RSWAMY	<0.002	mg/L	0.002
Zinc	EPA 200.8	03/12/2009 12:00	MARKA	<0.04	mg/L	0.04
Zinc, Dissolved	EPA 200.8	03/12/2009 12:00	RSWAMY	<0.04	mg/L	0.04

SA: See attached report

Brian Wood

Laboratory Director

QA

1275 BLOOMFIELD AVENUE, BLDG. 6, FAIRFIELD, NJ 07004 TEL 973 227 0422 FAX 973 227 2813

APL
AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

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FAX: 973.227.2813
www.aquaprotechlabs.com

CONTAMINATION LEVEL

☐ HIGH ☐ MEDIUM ☐ LOW

CUSTOMER: Geovation Engineering, P.C.	SEND REPORT TO: SAME
ADDRESS: P.O. Box 293 468 Rt. 17A	ADDRESS:
Florida, N.Y. 10921	
PHONE: 845-651-4141	PHONE:
FAX: 651-0040	FAX:
PROJECT NAME: Grant Hardware	SEND INVOICE TO:
PROJECT MGR: Bob Zimmer	ADDRESS:
P.O. NUMBER	SAMPLED BY: Matt Mordes

CHAIN OF CUSTODY

PAGE ____ OF ____

TURNAROUND TIME

☑ APL STANDARD in 2 weeks
☒ RUSH turnaround available upon request and lab approval 5 day

REPORT FORMAT

☐ RESULTS ONLY
☑ NJ DEP REDUCED DELIVERABLES
☐ NJ DEP FULL DELIVERABLES
☑ ELECTRONIC DATA DELIVERY
SRP#
☐ STATE FORMS NEEDED

MATRIX ABBREVIATIONS: D - DRINKING WATER G - GROUNDWATER W - WASTEWATER S - SOIL SL - SLUDGE P - POOL L - LAKE

APL LAB ID#	SAMPLE SOURCE: FIELD ID	DATE	TIME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ANALYSIS REQUESTED
29020828-001	Grant MW-11	2/24/09	12:55	X		G	2	HNO_3	PP Metals, PP metals dissolved
-002	MW-12		15:55						
-003	MW-13		13:45						
-004	MW-16		14:30						
-005	MW-18		15:40						

RELINQUISHED BY (Print) Matthew Mordes	DATE 2/25/09	RECEIVED BY (Print) Tom Adams	DATE 2/25/09
Signature/Agent of: GEPC	Time 9:15 AM PM	Signature/Agent of:	Time 9:15 AM PM
RELINQUISHED BY (Print) Tom Adams	DATE 2.25.07	RECEIVED BY (Print)	DATE : :
Signature/Agent of:	Time 3:45 AM PM	Signature/Agent of:	Time : AM PM
RELINQUISHED BY (Print)	DATE : :	RECEIVED BY (Print) Drew McMahon APL	DATE 2.25.09
Signature/Agent of:	Time : AM PM	Signature/Agent of:	Time 3:45 AM PM

COMMENTS/SPECIAL INSTRUCTIONS 2 Metals bottles for each sampling point.. 1 Preserved, one unpreserved.. the unpreserved bottle (sample) was filtered in the field,

3.7°

Cooler Temp. upon receipt at lab ____________

CERTIFICATIONS: NELAP (National Environmental Laboratory Accredation Program) NJDEP #07010 NYDOH #11634 CTPH #0233 US ARMY

By signing this Chain of Custody Agreement, customer expressly agrees to pay APL for all charges, reasonably incurred in connection with analysis and reporting for your sample

AQUA PRO-TECH LABORATORIES
CONFORMANCE/NON-CONFORMANCE SUMMARY

APL Sample ID Number: **29020828**
Parameter: **Inorganics**

1. Was the BLANK CONTAMINATED? **NO**
If YES, list the samples and concentrations in each blank.

2. Were all QC CRITERIA regarding spikes and duplicates met? **YES**
If NO, describe the nonconformances.

3. Was the EXTRACTION/DIGESTION HOLDING TIME MET? ***YES***
If NO, list the number of days exceeded for each sample.

4. Was the ANALYSIS HOLDING TIME MET? **YES**
If NO, list the number of days exceeded for each sample.

Additional Comments:

Ravi Swamy
Department Supervisor

3/12/09
~~3/8/2009~~ Ar.
Date

AQUA PRO-TECH LABORATORIES
METALS QC SUMMARY

AQUEOUS

TEST	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Nickel	Selenium	Silver	Thallium	Zinc	
MDL	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.04	mg/l
Method Number	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	EPA 200.8	
Analyst	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	R.Swamy	
BLANK SPIKE													
Blank Conc.	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.04	mg/l
Blank Spike, True Value	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	mg/l
Blank Spike, Obtained Value	0.090	0.088	0.087	0.088	0.087	0.087	0.088	0.110	0.092	0.101	0.089	0.094	mg/l
% Recovery	**90**	**88**	**87**	**88**	**87**	**87**	**88**	**110**	**92**	**101**	**89**	**94**	
QC Limits	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	*85-115*	
SAMPLE DUPLICATE													
Sample ID	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	
Sample Conc.	<0.002	<0.002	<0.001	<0.002	<0.002	0.023	<0.002	0.003	<0.002	<0.002	<0.002	0.057	mg/l
Sample Duplicate Conc.	<0.002	<0.002	<0.001	<0.002	<0.002	0.023	<0.002	0.003	<0.002	<0.002	<0.002	0.057	mg/l
% RPD	**NC**	**NC**	**NC**	**NC**	**NC**	**1**	**NC**	**3**	**NC**	**NC**	**NC**	**0**	
QC Limit	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	
MATRIX SPIKE													
Sample ID	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	
Sample Conc.	<0.002	<0.002	<0.001	<0.002	<0.002	0.023	<0.002	0.003	<0.002	<0.002	<0.002	0.057	mg/l
Matrix Spike, True Value	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	mg/l
Matrix Spike, Obtained Value	0.108	0.110	0.109	0.105	0.101	0.124	0.105	0.103	0.113	0.087	0.105	0.166	mg/l
% Recovery	**108**	**110**	**109**	**105**	**101**	**101**	**105**	**100**	**113**	**87**	**105**	**109**	
QC Limits	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	
MATRIX SPIKE DUPLICATE													
Sample ID	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	29020853-001	
Sample Conc.	<0.002	<0.002	<0.001	<0.002	<0.002	0.023	<0.002	0.003	<0.002	<0.002	<0.002	0.057	mg/l
Matrix Spike Duplicate, True Value	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	mg/l
Matrix Spike Duplicate, Obtained Value	0.110	0.112	0.109	0.106	0.102	0.125	0.105	0.103	0.115	0.090	0.105	0.167	mg/l
% Recovery	**110**	**112**	**109**	**106**	**102**	**102**	**105**	**100**	**115**	**90**	**105**	**110**	
QC Limits	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	*70-130*	
Matrix Spike Conc.	0.108	0.110	0.109	0.105	0.101	0.124	0.105	0.103	0.113	0.087	0.105	0.166	mg/l
Matrix Spike Duplicate Conc.	0.110	0.112	0.109	0.106	0.102	0.125	0.105	0.103	0.115	0.090	0.105	0.167	mg/l
% RPD	**1**	**1**	**0**	**1**	**1**	**1**	**1**	**0**	**1**	**3**	**0**	**1**	
QC Limit	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	
SERIAL DILUTION													
Sample ID	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	29020836-001	
Sample Conc.(1x)	<0.002	<0.002	<0.001	<0.002	<0.002	0.044	<0.002	0.003	<0.002	<0.002	<0.002	<0.04	mg/l
Sample Conc.(5x)	<0.01	<0.01	<0.005	<0.01	<0.01	0.042	<0.01	0.002	<0.01	<0.01	<0.01	<0.2	mg/l
% RPD	**NC**	**NC**	**NC**	**NC**	**NC**	**5**	**NC**	**40** *	**NC**	**NC**	**NC**	**NC**	
QC Limit	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	*10*	

Batch ID 150

NC - Not Calculable
NA - Not Applicable
* - QC exceeded. See conformance.

AQUA PRO-TECH LABORATORIES
METALS QC SUMMARY

(MERCURY - AQUEOUS)

TEST	**Mercury**	
MDL	**0.0005**	*mg/l*
Method Number	SW-846-7471	
Analyst	Angela S.	
BLANK SPIKE		
Blank Conc.	<0.0005	*mg/l*
Blank Spike, True Value	0.0100	*mg/l*
Blank Spike, Obtained Value	0.0103	*mg/l*
% Recovery	**103**	
QC Limits	*85-115*	
SAMPLE DUPLICATE		
Sample ID	29030005-001	
Sample Conc.	<0.005	*mg/l*
Sample Duplicate Conc.	<0.005	*mg/l*
% RPD	**NC**	
QC Limit	*20*	
MATRIX SPIKE		
Sample ID	29030005-001	
Sample Conc.	<0.005	*mg/l*
Matrix Spike, True Value	0.0100	*mg/l*
Matrix Spike, Obtained Value	0.0100	*mg/l*
% Recovery	**100**	
QC Limits	*75-125*	
MATRIX SPIKE DUPLICATE		
Sample ID	29030005-001	
Sample Conc.	<0.005	*mg/l*
Matrix Spike Duplicate, True Value	0.0100	*mg/l*
Matrix Spike Duplicate, Obtained Value	0.0109	*mg/l*
% Recovery	**109**	
QC Limits	*75-125*	
Matrix Spike Conc.	0.0100	*mg/l*
Matrix Spike Duplicate Conc.	0.0109	*mg/l*
% RPD	**8**	
QC Limit	*20*	

NOTES: **Batch 933**

NC - Not Calculable, since at least one component is less than the MDL.

NA - Not Applicable, since the sample concentration is 4 or more times the spike concentration.

* - QC limit has been exceeded. See conformance sheet for details.

TABLE 2: P-5
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/07/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	---	ND	ND	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	ND	ND	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	---	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	1.85	ND	---	0.532	ND	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	ND	ND	---	ND	ND	0.21	5
Total VOCs	1.85	ND	---	0.53	ND		
Total TICs	NDC	ND	---	ND	ND		
Total VOCs + TICs	1.85	ND	---	0.53	ND		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: P-6
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	---	ND	ND	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	2.03	19.3	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	---	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	*21.1*	2.91	---	4.15	23.9	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	*143*	*30.9*	---	*13.7*	*17.7*	0.21	5
Total VOCs	164.10	33.81	---	17.85	41.60		
Total TICs	NDC	4.70	---	ND	ND		
Total VOCs + TICs	164.10	38.51	---	17.85	41.60		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: P-7
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	---	ND	ND	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	ND	ND	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	---	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	2.13	ND	---	ND	ND	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	*19*	ND	---	ND	ND	0.21	5
Total VOCs	21.13	ND	---	ND	ND		
Total TICs	NDC	ND	---	ND	ND		
Total VOCs + TICs	21.13	ND	---	ND	ND		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: P-8
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	*7.48*	ND	---	*5.22*	1.45	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	2.33	0.765	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	*37.9*	*7.14*	---	*10.4*	2.53	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	*11.1*	2.59	---	***8.84***	3.34	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	2.61	ND	---	*9.98*	0.7	0.21	5
Total VOCs	59.09	9.73	---	29.22	6.57		
Total TICs	NDC	ND	---	ND	ND		
Total VOCs + TICs	59.09	9.73	---	29.22	6.57		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: P-8D
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	*18.1*	*10.8*	---	ND	*5.86*	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	ND	2.33	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	*69.8*	*39.8*	---	ND	*7.97*	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	*21.2*	*12.7*	---	ND	*8.84*	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	*24.9*	*12.1*	---	ND	*12.5*	0.21	5
Total VOCs	134.00	75.40	---	ND	37.50		
Total TICs	NDC	ND	---	ND	ND		
Total VOCs + TICs	134.00	75.40	---	ND	37.50		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-8R
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	*6.47*	0.87	2
1,1-Dichloroethene	*5.61*	ND	ND	ND	ND	0.32	5
Methylene Chloride	ND	ND	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	ND	1.11	4.37	0.31	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.26	5
1,1-Dichloroethane	2.55	0.974	ND	ND	ND	0.16	5
Chloroform	ND	ND	ND	ND	ND	0.14	7
1,1,1-Trichloroethane	*10.9*	ND	ND	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.28	0.6
Benzene	ND	ND	ND	ND	ND	0.08	1
Trichloroethene	*8.04*	0.984	2.38	ND	2.48	0.24	5
Bromochloromethane	ND	ND	ND	ND	ND	0.29	5
M & P Xylene	ND	ND	ND	ND	ND	0.24	5
Toluene	ND	ND	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	0.36	1
Tetrachloroethene	*17.5*	*9.02*	*12.9*	4.35	0.763	0.21	5
Total VOCs	44.60	10.98	15.28	5.46	14.08		
Total TICs	NDC	ND	ND	3.13	ND		
Total VOCs + TICs	44.60	10.98	15.28	8.59	14.08		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MP-9D
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/07/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	---	ND	ND	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	ND	ND	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	---	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	ND	ND	---	ND	ND	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	ND	0.848	---	ND	ND	0.21	5
Total VOCs	ND	0.85	---	ND	ND		
Total TICs	NDC	ND	---	ND	ND		
Total VOCs + TICs	ND	0.85	---	ND	ND		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MP-10S
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/07/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	---	ND	ND	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	ND	ND	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	---	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	1.34	ND	---	ND	ND	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	ND	ND	---	ND	ND	0.21	5
Total VOCs	1.34	ND	---	ND	ND		
Total TICs	NDC	ND	---	ND	5.31		
Total VOCs + TICs	1.34	ND	---	ND	ND		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MP-10D
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/07/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	---	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	---	ND	ND	0.32	5
Methylene Chloride	ND	ND	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	---	ND	ND	0.31	5
trans-1,2-Dichloroethene	ND	ND	---	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	---	ND	ND	0.16	5
Chloroform	ND	ND	---	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	---	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	---	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	---	ND	ND	0.28	0.6
Benzene	ND	ND	---	ND	ND	0.08	1
Trichloroethene	3.95	2.27	---	2.31	1.56	0.24	5
Bromochloromethane	ND	ND	---	ND	ND	0.29	5
M & P Xylene	ND	ND	---	ND	ND	0.24	5
Toluene	ND	ND	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	---	ND	ND	0.36	1
Tetrachloroethene	ND	ND	---	ND	ND	0.21	5
Total VOCs	3.95	2.27	---	2.31	1.56		
Total TICs	NDC	ND	---	ND	ND		
Total VOCs + TICs	3.95	2.27	---	2.31	1.56		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-11
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	ND	4.35	2
1,1-Dichloroethene	ND	ND	ND	ND	ND	1.6	5
Methylene Chloride	ND	ND	ND	ND	ND	1.65	5
cis-1,2-Dichloroethene	ND	ND	ND	*493*	*404*	1.55	5
trans-1,2-Dichloroethene	ND	*6.17*	ND	4	ND	1.3	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.8	5
Chloroform	ND	ND	ND	ND	ND	0.7	7
1,1,1-Trichloroethane	ND	4.36	ND	1	ND	1.3	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	1.55	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	1.4	0.6
Benzene	ND	ND	ND	ND	ND	0.4	1
Trichloroethene	*2390*	*1460*	*1890*	*639*	*286*	1.2	5
Bromochloromethane	ND	ND	ND	ND	ND	1.45	5
M & P Xylene	ND	ND	ND	ND	ND	1.2	5
Toluene	ND	ND	ND	ND	ND	0.25	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	1.8	1
Tetrachloroethene	ND	*23.6*	*44*	*10*	*5*	1.05	5
Total VOCs	2,390	1,494	1934	654	695		
Total TICs	NDC	759	118	ND	ND		
Total VOCs + TICs	2,390	2,253	2052	654	695		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-12
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	*4,000*	*3,900*	*27,800*	*25,100*	435	2
1,1-Dichloroethene	ND	*28.6*	ND	*23*	ND	160	5
Methylene Chloride	ND	3.71	ND	ND	ND	165	5
cis-1,2-Dichloroethene	ND	ND	ND	*37,700*	*47,700*	155	5
trans-1,2-Dichloroethene	ND	*126*	ND	*168*	ND	130	5
1,1-Dichloroethane	ND	*18.3*	ND	*26*	ND	80	5
Chloroform	ND	*9.71*	ND	ND	ND	70	7
1,1,1-Trichloroethane	ND	*52.8*	ND	*45*	ND	130	5
Carbon Tetrachloride	ND	ND	ND	3	ND	155	5
1,2-Dichloroethane	ND	*2.31*	ND	ND	ND	140	0.6
Benzene	ND	*1.85*	ND	3	ND	40	1
Trichloroethene	*64,200*	*96,100*	*58,000*	*91,300*	*283*	120	5
Bromochloromethane	ND	ND	ND	ND	ND	145	5
M & P Xylene	ND	ND	ND	ND	ND	120	5
Toluene	ND	1.15	ND	1	ND	25	5
1,1,2-Thrichloroethane	ND	*15.1*	ND	*13*	ND	180	1
Tetrachloroethene	ND	*265*	ND	*318*	ND	105	5
Total VOCs	64,200	100,625	61,900	157,398	73,083		
Total TICs	NDC	30	16,800	30	ND		
Total VOCs + TICs	64,200	100,655	78,700	157,428	73,083		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-13
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/07/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.32	5
Methylene Chloride	ND	ND	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	ND	1.7	3.7	0.31	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.16	5
Chloroform	ND	ND	ND	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.28	0.6
Benzene	ND	ND	ND	ND	ND	0.08	1
Trichloroethene	*5.28*	2.47	1.22	3.8	4.7	0.24	5
Bromochloromethane	ND	ND	ND	ND	ND	0.29	5
M & P Xylene	ND	ND	ND	ND	ND	0.24	5
Toluene	ND	ND	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	0.36	1
Tetrachloroethene	2.77	ND	ND	0.9	0.8	0.21	5
Total VOCs	8.05	2.47	1.22	6.4	9.2		
Total TICs	NDC	ND	ND	ND	ND		
Total VOCs + TICs	8.05	2.47	1.22	6.4	9.2		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-14
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	*134*	0.87	2
1,1-Dichloroethene	ND	ND	ND	ND	1.5	0.32	5
Methylene Chloride	ND	ND	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	ND	*22.6*	*3,690*	0.31	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	*8.2*	0.26	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.16	5
Chloroform	ND	ND	ND	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	31	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.28	0.6
Benzene	ND	ND	ND	ND	ND	0.08	1
Trichloroethene	*146*	*14*	*12*	*18.0*	*1,020*	24	5
Bromochloromethane	ND	ND	ND	ND	ND	0.29	5
M & P Xylene	ND	ND	ND	ND	ND	0.24	5
Toluene	ND	ND	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	0.36	1
Tetrachloroethene	*46.4*	*6.19*	*13.2*	*0.6*	*16.3*	0.21	5
Total VOCs	192.40	19.89	24.8	41.2	4,870.0		
Total TICs	NDC	16.00	56.2	ND	ND		
Total VOCs + TICs	192.40	35.89	81	41.2	4,870.0		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-15
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	ND	43.5	2
1,1-Dichloroethene	ND	ND	ND	1	ND	16	5
Methylene Chloride	ND	ND	ND	ND	ND	16.5	5
cis-1,2-Dichloroethene	ND	ND	ND	*1,000*	***1,470***	15.5	5
trans-1,2-Dichloroethene	ND	ND	ND	*14*	ND	13	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	8	5
Chloroform	ND	ND	ND	ND	ND	7	7
1,1,1-Trichloroethane	ND	ND	ND	3	ND	13	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	15.5	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	14	0.6
Benzene	ND	ND	ND	ND	ND	4	1
Trichloroethene	*3,880*	*2,650*	*2,040*	*1,930*	*388*	12	5
Bromochloromethane	ND	ND	ND	ND	ND	14.5	5
M & P Xylene	ND	ND	ND	ND	ND	12	5
Toluene	ND	ND	ND	ND	ND	2.5	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	18	1
Tetrachloroethene	*48.8*	ND	ND	*24*	ND	10.5	5
Total VOCs	3,928.80	2,650.00	2040	2,972	1,858		
Total TICs	NDC	1,180.00	295	ND	ND		
Total VOCs + TICs	3,928.80	3,830.00	2335	2,972	1,858		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-16
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.32	5
Methylene Chloride	ND	ND	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	*16.5*	0.31	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.16	5
Chloroform	ND	ND	ND	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.28	0.6
Benzene	ND	ND	ND	ND	ND	0.08	1
Trichloroethene	*25.40*	3.04	4.07	1.14	3.03	0.24	5
Bromochloromethane	ND	ND	ND	ND	ND	0.29	5
M & P Xylene	ND	ND	ND	ND	ND	0.24	5
Toluene	ND	ND	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	0.36	1
Tetrachloroethene	ND	ND	ND	ND	ND	0.21	5
Total VOCs	25.40	3.04	4.07	1.14	19.53		
Total TICs	NDC	ND	ND	ND	ND		
Total VOCs + TICs	25.40	3.04	4.07	1.14	19.53		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-17
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	*32*	*18*	*21*	0.87	2
1,1-Dichloroethene	---	---	ND	ND	ND	0.32	5
Methylene Chloride	---	---	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	---	---	*38*	*51*	*22*	0.31	5
trans-1,2-Dichloroethene	---	---	ND	ND	ND	0.26	5
1,1-Dichloroethane	---	---	ND	ND	ND	0.16	5
Chloroform	---	---	ND	ND	ND	0.14	7
1,1,1-Trichloroethane	---	---	ND	ND	ND	0.26	5
Carbon Tetrachloride	---	---	ND	ND	ND	0.31	5
1,2-Dichloroethane	---	---	ND	ND	ND	0.28	0.6
Benzene	---	---	ND	ND	ND	0.08	1
Trichloroethene	---	---	*689*	*25*	*14*	0.24	5
Bromochloromethane	---	---	ND	ND	ND	0.29	5
M & P Xylene	---	---	ND	ND	ND	0.24	5
Toluene	---	---	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	---	---	ND	ND	ND	0.36	1
Tetrachloroethene	---	---	ND	ND	ND	0.21	5
Total VOCs	---	---	759	94	57		
Total TICs	---	---	ND	ND	ND		
Total VOCs + TICs	---	---	759	94	57		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-18
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	ND	*359*	ND	1.74	2
1,1-Dichloroethene	---	---	ND	*65*	ND	0.64	5
Methylene Chloride	---	---	ND	*5*	ND	0.66	5
cis-1,2-Dichloroethene	---	---	*28,800*	*82,400*	*65*	0.62	5
trans-1,2-Dichloroethene	---	---	ND	*195*	ND	0.52	5
1,1-Dichloroethane	---	---	ND	*34*	*12*	0.32	5
Chloroform	---	---	ND	ND	ND	0.28	7
1,1,1-Trichloroethane	---	---	ND	*22*	ND	0.52	5
Carbon Tetrachloride	---	---	ND	ND	ND	0.62	5
1,2-Dichloroethane	---	---	ND	*4*	ND	0.56	0.6
Benzene	---	---	ND	*6*	*2*	0.16	1
Trichloroethene	---	---	*70,000*	*64,000*	*28*	0.48	5
Bromochloromethane	---	---	ND	ND	ND	0.58	5
total Xylenes	---	---	ND	1	4	0.48	5
Ethylbenzene				ND	3	0.22	5
Toluene	---	---	ND	2	5	0.1	5
1,1,2-Trichloroethane	---	---	ND	ND	ND	0.72	1
Tetrachloroethene	---	---	ND	*370*	ND	0.42	5
Total VOCs	---	---	98,800	147,464	118		
Total TICs	---	---	ND	98	30		
Total VOCs + TICs	---	---	98,800	147,562	148		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-19
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	ND	ND	*873*	174	2
1,1-Dichloroethene	---	---	ND	*6*	ND	64	5
Methylene Chloride	---	---	ND	ND	ND	66	5
cis-1,2-Dichloroethene	---	---	*6,300*	*14,100*	*15,400*	62	5
trans-1,2-Dichloroethene	---	---	ND	*36*	ND	52	5
1,1-Dichloroethane	---	---	ND	3	ND	32	5
Chloroform	---	---	ND	3	ND	28	7
1,1,1-Trichloroethane	---	---	ND	ND	ND	52	5
Carbon Tetrachloride	---	---	ND	ND	ND	62	5
1,2-Dichloroethane	---	---	ND	ND	ND	56	0.6
Benzene	---	---	ND	ND	ND	16	1
Trichloroethene	---	---	*32,000*	*37,600*	*835*	48	5
Bromochloromethane	---	---	ND	ND	ND	58	5
M & P Xylene	---	---	ND	ND	ND	48	5
Toluene	---	---	ND	ND	ND	10	5
1,1,2-Trichloroethane	---	---	ND	*8*	ND	72	1
Tetrachloroethene	---	---	ND	*552*	ND	42	5
Total VOCs	---	---	38,300	52,308	17,108		
Total TICs	---	---	ND	ND	ND		
Total VOCs + TICs	---	---	38,300	52,308	17,108		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-20
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	ND	ND	ND	0.87	2
1,1-Dichloroethene	---	---	ND	ND	ND	0.32	5
Methylene Chloride	---	---	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	---	---	ND	0.6	2.8	0.31	5
trans-1,2-Dichloroethene	---	---	ND	ND	ND	0.26	5
1,1-Dichloroethane	---	---	ND	ND	ND	0.16	5
Chloroform	---	---	0.8	ND	ND	0.14	7
1,1,1-Trichloroethane	---	---	ND	ND	ND	0.26	5
Carbon Tetrachloride	---	---	ND	ND	ND	0.31	5
1,2-Dichloroethane	---	---	ND	ND	ND	0.28	0.6
Benzene	---	---	ND	ND	ND	0.08	1
Trichloroethene	---	---	3.3	2.9	ND	0.24	5
Bromochloromethane	---	---	ND	ND	ND	0.29	5
M & P Xylene	---	---	ND	ND	ND	0.24	5
Toluene	---	---	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	---	---	ND	ND	ND	0.36	1
Tetrachloroethene	---	---	ND	ND	ND	0.21	5
Total VOCs	---	---	4.1	3.5	2.8		
Total TICs	---	---	ND	ND	3.1		
Total VOCs + TICs	---	---	4.1	3.5	5.9		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-21
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	ND	ND	ND	43.5	2
1,1-Dichloroethene	---	---	ND	1.6	ND	16	5
Methylene Chloride	---	---	ND	ND	ND	16.5	5
cis-1,2-Dichloroethene	---	---	*335*	*1,120*	*1,720*	15.5	5
trans-1,2-Dichloroethene	---	---	ND	4.6	ND	13	5
1,1-Dichloroethane	---	---	ND	2.6	ND	8	5
Chloroform	---	---	ND	ND	ND	7	7
1,1,1-Trichloroethane	---	---	ND	4.0	ND	13	5
Carbon Tetrachloride	---	---	ND	ND	ND	15.5	5
1,2-Dichloroethane	---	---	ND	ND	ND	14	0.6
Benzene	---	---	ND	ND	ND	4	1
Trichloroethene	---	---	*2,270*	*4,100*	*2,360*	12	5
Bromochloromethane	---	---	ND	ND	ND	14.5	5
M & P Xylene	---	---	ND	ND	ND	12	5
Toluene	---	---	ND	ND	ND	2.5	5
1,1,2-Thrichloroethane	---	---	ND	ND	ND	18	1
Tetrachloroethene	---	---	ND	*35*	ND	10.5	5
Total VOCs	---	---	2,605	5,268	4,080		
Total TICs	---	---	ND	ND	ND		
Total VOCs + TICs	---	---	2,605	5,268	4,080		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-22
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	ND	0.87	2
1,1-Dichloroethene	---	---	---	ND	ND	0.32	5
Methylene Chloride	---	---	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	---	---	---	*9*	*9*	0.31	5
trans-1,2-Dichloroethene	---	---	---	ND	ND	0.26	5
1,1-Dichloroethane	---	---	---	ND	ND	0.16	5
Chloroform	---	---	---	ND	ND	0.14	7
1,1,1-Trichloroethane	---	---	---	0.8	ND	0.26	5
Carbon Tetrachloride	---	---	---	ND	ND	0.31	5
1,2-Dichloroethane	---	---	---	ND	ND	0.28	0.6
Benzene	---	---	---	ND	ND	0.08	1
Trichloroethene	---	---	---	*18*	*8*	0.24	5
Bromochloromethane	---	---	---	ND	ND	0.29	5
M & P Xylene	---	---	---	ND	ND	0.24	5
Toluene	---	---	---	ND	ND	0.05	5
1,1,2-Thrichloroethane	---	---	---	ND	ND	0.36	1
Tetrachloroethene	---	---	---	ND	ND	0.21	5
Total VOCs	---	---	---	27	18		
Total TICs	---	---	---	ND			
Total VOCs + TICs	---	---	---	27	18		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-23
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	ND	87	2
1,1-Dichloroethene	---	---	---	*7.6*	ND	32	5
Methylene Chloride	---	---	---	ND	ND	33	5
cis-1,2-Dichloroethene	---	---	---	*3,120*	*2,420*	31	5
trans-1,2-Dichloroethene	---	---	---	*11*	ND	26	5
1,1-Dichloroethane	---	---	---	ND	ND	16	5
Chloroform	---	---	---	ND	ND	14	7
1,1,1-Trichloroethane	---	---	---	3.8	ND	26	5
Carbon Tetrachloride	---	---	---	ND	ND	31	5
1,2-Dichloroethane	---	---	---	ND	ND	28	0.6
Benzene	---	---	---	ND	ND	8	1
Trichloroethene	---	---	---	*24,900*	*14,800*	24	5
Bromochloromethane	---	---	---	ND	ND	29	5
M & P Xylene	---	---	---	ND	ND	24	5
Toluene	---	---	---	ND	ND	5	5
1,1,2-Thrichloroethane	---	---	---	*2.61*	ND	36	1
Tetrachloroethene	---	---	---	*179*	*176*	21	5
Total VOCs	---	---	---	28,224	17,396		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	28,224	17,396		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-24
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	*14.4*	ND	435	2
1,1-Dichloroethene	---	---	---	*30.8*	ND	160	5
Methylene Chloride	---	---	---	ND	ND	165	5
cis-1,2-Dichloroethene	---	---	---	*22,300*	*18,000*	155	5
trans-1,2-Dichloroethene	---	---	---	*84*	ND	130	5
1,1-Dichloroethane	---	---	---	4.8	ND	80	5
Chloroform	---	---	---	6.3	ND	70	7
1,1,1-Trichloroethane	---	---	---	*18.7*	ND	130	5
Carbon Tetrachloride	---	---	---	ND	ND	155	5
1,2-Dichloroethane	---	---	---	ND	ND	140	0.6
Benzene	---	---	---	ND	ND	40	1
Trichloroethene	---	---	---	*84,700*	*36,400*	120	5
Bromochloromethane	---	---	---	ND	ND	145	5
M & P Xylene	---	---	---	ND	ND	120	5
Toluene	---	---	---	ND	ND	25	5
1,1,2-Trichloroethane	---	---	---	*7.66*	ND	180	1
Tetrachloroethene	---	---	---	*765*	*359*	105	5
Total VOCs	---	---	---	107,932	54,759		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	107,932	54,759		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-25
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	08/23/06	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	35.3	0.87	2
1,1-Dichloroethene	---	---	---	ND	ND	0.32	5
Methylene Chloride	---	---	---	ND	ND	0.33	5
cis-1,2-Dichloroethene	---	---	---	*3,500*	*158*	0.31	5
trans-1,2-Dichloroethene	---	---	---	ND	2.2	0.26	5
1,1-Dichloroethane	---	---	---	ND	ND	0.16	5
Chloroform	---	---	---	*11*	ND	0.14	7
1,1,1-Trichloroethane	---	---	---	ND	ND	0.26	5
Carbon Tetrachloride	---	---	---	ND	ND	0.31	5
1,2-Dichloroethane	---	---	---	ND	ND	0.28	0.6
Benzene	---	---	---	ND	ND	0.08	1
Trichloroethene	---	---	---	*6,100*	*96*	0.24	5
Bromochloromethane	---	---	---	ND	ND	0.29	5
M & P Xylene	---	---	---	ND	ND	0.24	5
Toluene	---	---	---	ND	ND	0.05	5
1,1,2-Trichloroethane	---	---	---	ND	ND	0.36	1
Tetrachloroethene	---	---	---	*64*	ND	0.21	5
Methyl-tert-butyl Ether	---	---	---	ND	ND	0.88	10
Total VOCs	---	---	---	9,675	291		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	9,675	291		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-26S
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	11/26/07	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	ND	87	2
1,1-Dichloroethene	---	---	---	ND	ND	32	5
Methylene Chloride	---	---	---	ND	ND	33	5
cis-1,2-Dichloroethene	---	---	---	*1,460*	*5,450*	31	5
trans-1,2-Dichloroethene	---	---	---	ND	ND	26	5
1,1-Dichloroethane	---	---	---	ND	ND	16	5
Chloroform	---	---	---	ND	ND	14	7
1,1,1-Trichloroethane	---	---	---	ND	ND	26	5
Carbon Tetrachloride	---	---	---	ND	ND	31	5
1,2-Dichloroethane	---	---	---	ND	ND	28	0.6
Benzene	---	---	---	ND	ND	8	1
Trichloroethene	---	---	---	*15,300*	*10,700*	24	5
Bromochloromethane	---	---	---	ND	ND	29	5
M & P Xylene	---	---	---	ND	ND	24	5
Toluene	---	---	---	ND	ND	5	5
1,1,2-Trichloroethane	---	---	---	ND	ND	36	1
Tetrachloroethene	---	---	---	*86*	*129*	21	5
Methyl-tert-butyl Ether	---	---	---	ND	ND	88	10
Total VOCs	---	---	---	16,846	16,279		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	16,846	16,279		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-27
SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	11/26/07	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	ND	87	2
1,1-Dichloroethene	---	---	---	ND	ND	32	5
Methylene Chloride	---	---	---	ND	ND	33	5
cis-1,2-Dichloroethene	---	---	---	*2,110*	*8,500*	31	5
trans-1,2-Dichloroethene	---	---	---	ND	ND	26	5
1,1-Dichloroethane	---	---	---	ND	ND	16	5
Chloroform	---	---	---	ND	ND	14	7
1,1,1-Trichloroethane	---	---	---	ND	ND	26	5
Carbon Tetrachloride	---	---	---	ND	ND	31	5
1,2-Dichloroethane	---	---	---	ND	ND	28	0.6
Benzene	---	---	---	ND	ND	8	1
Trichloroethene	---	---	---	*6,050*	*5,820*	24	5
Bromochloromethane	---	---	---	ND	ND	29	5
M & P Xylene	---	---	---	ND	ND	24	5
Toluene	---	---	---	ND	ND	5	5
1,1,2-Trichloroethane	---	---	---	ND	ND	36	1
Tetrachloroethene	---	---	---	ND	*87.5*	21	5
Methyl-tert-butyl Ether	---	---	---	ND	ND	88	10
Total VOCs	---	---	---	8,160	14,408		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	8,160	14,408		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-28S
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	11/26/07	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	ND	87	2
1,1-Dichloroethene	---	---	---	ND	ND	32	5
Methylene Chloride	---	---	---	ND	ND	33	5
cis-1,2-Dichloroethene	---	---	---	*1,460*	*412*	31	5
trans-1,2-Dichloroethene	---	---	---	ND	ND	26	5
1,1-Dichloroethane	---	---	---	ND	ND	16	5
Chloroform	---	---	---	ND	ND	14	7
1,1,1-Trichloroethane	---	---	---	ND	ND	26	5
Carbon Tetrachloride	---	---	---	ND	ND	31	5
1,2-Dichloroethane	---	---	---	ND	ND	28	0.6
Benzene	---	---	---	ND	ND	8	1
Trichloroethene	---	---	---	*15,300*	*3,870*	24	5
Bromochloromethane	---	---	---	ND	ND	29	5
M & P Xylene	---	---	---	ND	ND	24	5
Toluene	---	---	---	ND	ND	5	5
1,1,2-Trichloroethane	---	---	---	ND	ND	36	1
Tetrachloroethene	---	---	---	*86*	ND	21	5
Methyl-tert-butyl Ether	---	---	---	ND	ND	88	10
Total VOCs	---	---	---	16,846	4,282		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	16,846	4,282		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: MW-29
SUMMARY OF GROUND WATER SAMPLING DATA
Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/08/00	07/11/02	11/26/07	07/31/08	MDL **	Standards*
Vinyl Chloride	---	---	---	ND	ND	87	2
1,1-Dichloroethene	---	---	---	ND	ND	32	5
Methylene Chloride	---	---	---	ND	ND	33	5
cis-1,2-Dichloroethene	---	---	---	*1,400*	*955*	31	5
trans-1,2-Dichloroethene	---	---	---	ND	ND	26	5
1,1-Dichloroethane	---	---	---	ND	ND	16	5
Chloroform	---	---	---	ND	ND	14	7
1,1,1-Trichloroethane	---	---	---	ND	ND	26	5
Carbon Tetrachloride	---	---	---	ND	ND	31	5
1,2-Dichloroethane	---	---	---	ND	ND	28	0.6
Benzene	---	---	---	ND	ND	8	1
Trichloroethene	---	---	---	*13,600*	*3,430*	24	5
Bromochloromethane	---	---	---	ND	ND	29	5
M & P Xylene	---	---	---	ND	ND	24	5
Toluene	---	---	---	ND	ND	5	5
1,1,2-Trichloroethane	---	---	---	ND	ND	36	1
Tetrachloroethene	---	---	---	*89*	ND	21	5
Methyl-tert-butyl Ether	---	---	---	ND	ND	88	10
Total VOCs	---	---	---	15,089	4,385		
Total TICs	---	---	---	ND	ND		
Total VOCs + TICs	---	---	---	15,089	4,385		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report
**	Minimum Detection limit provided from 7/31/08 data reports

TABLE 2: Trip Blank

SUMMARY OF GROUND WATER SAMPLING DATA

Former Grant Hardware Facility, West Nyack, New York

Sample Location							NYSDEC TOGS
Parameter via 624 (ug/L)	09/23/97	03/07/00	07/11/02	04/19/06	07/31/08	MDL **	Standards*
Vinyl Chloride	ND	ND	ND	ND	ND	0.87	2
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.32	5
Methylene Chloride	ND	ND	ND	ND	ND	0.33	5
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.31	5
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.26	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.16	5
Chloroform	ND	ND	ND	ND	ND	0.14	7
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.26	5
Carbon Tetrachloride	ND	ND	ND	ND	ND	0.31	5
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.28	0.6
Benzene	ND	ND	ND	ND	ND	0.08	1
Trichloroethene	ND	ND	ND	ND	ND	0.24	5
Bromochloromethane	ND	ND	ND	ND	ND	0.29	5
M & P Xylene	ND	ND	ND	ND	ND	0.24	5
Toluene	ND	ND	ND	ND	ND	0.05	5
1,1,2-Thrichloroethane	ND	ND	ND	ND	ND	0.36	1
Tetrachloroethene	ND	ND	ND	ND	ND	0.21	5
Methyl-tert-butyl Ether	ND	ND	ND	ND	ND	0.88	10
Total VOCs	ND	ND	ND	ND	ND		
Total TICs	NDC	ND	ND	ND	ND		
Total VOCs + TICs	ND	ND	ND	ND	ND		

Notes:

ND	Parameter not detected above minimum detection level
260	Data shown in italic font and bold outline exceed the applicable NYSDEC standards or guidance values shown
*	NYSDEC/NYSDOH TOGS 1.1.1 Class Ga Ground-Water Standards
	Copies of original laboratory data for the 8/96 & 9/97 events provided in Geovation's 1999 Remedial Investigation Report
	Copies of original laboratory data for the 3/00 & 7/02 events provided in Geovation's 2003 Additional Bedrock Ground Water Investigation Report

.PL

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ANALYTICAL RESULTS
REDUCED DELIVERABLES FORMAT

APL PROJECT NUMBER: 28080087

Geovation

Project: Grant Hardware

75 BLOOMFIELD AVE., BLDG. 6, FAIRFIELD, NEW JERSEY 07004
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ELAC National Environmental Laboratory Accreditation Conference
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CUSTOMER:	Geovation Engineering, P.C.	SEND REPORT TO:	SAME
ADDRESS:	P.O. Box 293 468 Rt. 17A	ADDRESS:	
	Florida, N.Y. 10921		
PHONE:	845-651-4141	PHONE:	
FAX:	651-0040	FAX:	
PROJECT NAME:	Grant Hardware	SEND INVOICE TO:	
PROJECT MGR:	Bob Zimmer	ADDRESS:	
P.O. NUMBER		SAMPLED BY:	Matthew Mordas

CHAIN OF CUSTODY

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TURNAROUND TIME
☑ APL STANDARD in 2 weeks
☐ RUSH turnaround available upon request and lab approval

REPORT FORMAT
☐ RESULTS ONLY
☑ NJ DEP REDUCED DELIVERABLES
☐ NJ DEP FULL DELIVERABLES
☑ ELECTRONIC DATA DELIVERY
SRP#
☐ STATE FORMS NEEDED

MATRIX ABBREVIATIONS: D - DRINKING WATER G - GROUNDWATER W - WASTEWATER S - SOIL SL - SLUDGE P - POOL L - LAKE

APL LAB ID#	SAMPLE SOURCE: FIELD ID	DATE	TIME	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX	NO. OF BOTTLES	PRESERVATIVE	ANALYSIS REQUESTED
28080087-001	Grant P-5	7/29/08	10:50	X		G	2	HCL	VOCs 8260+10 TCL List
002	P-6		11:50						
003	P-7		12:20						
004	P-8S		13:05						
005	P-8D		14:05						
006	MW-8R		14:25						
007	MP-9D		16:40						
008	MP-10S		14:35						
009	MP-10D		15:05						

RELINQUISHED BY (Print) Matthew Mordas	DATE 8/4/08	RECEIVED BY (Print) Tom Adams	DATE 8/4/08
Signature/Agent of: GEPC	Time 12 AM PM	Signature/Agent of:	Time 12 AM PM
RELINQUISHED BY (Print)	DATE 8/4/08	RECEIVED BY (Print)	DATE 8/4/08
Signature/Agent of: Tom Adams	Time 3:10 AM PM	Signature/Agent of:	Time 3:10 AM PM
RELINQUISHED BY (Print)	DATE : :	RECEIVED BY (Print)	DATE : :
Signature/Agent of:	Time : AM PM	Signature/Agent of:	Time : AM PM

COMMENTS/SPECIAL INSTRUCTIONS

Cooler Temp. upon receipt at lab 4°

3

8/15

CERTIFICATIONS: NELAP (National Environmental Laboratory Accredation Program) NJDEP #07010 NYDOH #11634 CTPH #0233 US ARMY

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CONTAMINATION LEVEL
☐ HIGH ☐ MEDIUM ☐ LOW

CUSTOMER: Geovation Engineering, P.C.	SEND REPORT TO: SAME
ADDRESS: P.O. Box 293 468 Rt. 17A Florida, N.Y. 10921	ADDRESS:
PHONE: 845-651-4141	PHONE:
FAX: 651-0040	FAX:
PROJECT NAME: Grant Hardware	SEND INVOICE TO:
PROJECT MGR: Bob Zinner	ADDRESS:
P.O. NUMBER	SAMPLED BY: Matthew Mordas

CHAIN OF CUSTODY
PAGE 2 OF 4

TURNAROUND TIME
☑ APL STANDARD in 2 weeks
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☐ STATE FORMS NEEDED

MATRIX ABBREVIATIONS: D - DRINKING WATER G - GROUNDWATER W - WASTEWATER S - SOIL SL - SLUDGE P - POOL L - LAKE

APL LAB ID#	SAMPLE SOURCE: FIELD ID	DATE	TIME	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX	NO. OF BOTTLES	PRESERVATIVE	ANALYSIS REQUESTED
2808087-010	Grant MW-11	7/30/08	15:05	X		G	2	HCL	VOC's 8260+10 TCL List
011	MW-13	7/30/08	12:25						
012	MW-14	7/29/08	11:20						
013	MW-15	7/30/08	15:50						
014	MW-16	7/30/08	13:00						
015	MW-17	7/30/08	14:30						
016	MW-20	7/30/08	13:45						
017	MW-21	7/30/08	16:20						
018	MW-22	7/29/08	6:15						

RELINQUISHED BY (Print) Matthew Mordas	DATE 8/4/08	RECEIVED BY (Print) Tom Adams	DATE 8/4/08
Signature/Agent of: GEPC	Time 12 AM PM	Signature/Agent of:	Time 12 AM PM
RELINQUISHED BY (Print)	DATE 8/4/08	RECEIVED BY (Print)	DATE 8:4:08
Signature/Agent of: Tom Adams	Time 3:10 AM PM	Signature/Agent of: APL	Time 3:10 AM PM
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Signature/Agent of:	Time : AM PM	Signature/Agent of:	Time : AM PM

COMMENTS/SPECIAL INSTRUCTIONS

Cooler Temp. upon receipt at lab 4 0

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Florida, N.Y. 10921
PHONE: 845-651-4141
FAX: 651-0040
PROJECT NAME: Grant Hardware
PROJECT MGR: Bob Zimmer
P.O. NUMBER

SEND REPORT TO:
ADDRESS:
PHONE:
FAX:
SEND INVOICE TO:
ADDRESS:
SAME
SAMPLED BY: Matthew Mordas

CHAIN OF CUSTODY
PAGE 3 OF 4

TURNAROUND TIME
☑ APL STANDARD in 2 weeks
☐ RUSH turnaround available upon request and lab approval ________

REPORT FORMAT
☐ RESULTS ONLY
☑ NJ DEP REDUCED DELIVERABLES
☐ NJ DEP FULL DELIVERABLES
☑ ELECTRONIC DATA DELIVERY
SRP# ________
☐ STATE FORMS NEEDED

MATRIX ABBREVIATIONS: D - DRINKING WATER G - GROUNDWATER W - WASTEWATER S - SOIL SL - SLUDGE P - POOL L - LAKE

APL LAB ID#	SAMPLE SOURCE: FIELD ID	DATE	TIME	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX	NO. OF BOTTLES	PRESERVATIVE	ANALYSIS REQUESTED
28080087-019	Grant MW-23	7/31/08	14:50	X		G	2	HCL	VOC's 8260+10 TCL List
020	MW-26		14:00						
021	MW-27		13:30						
022	MW-29		15:35						
023	T.B.	7/29-31/08							

RELINQUISHED BY (Print) Matthew Mordas	DATE 8/4/08	RECEIVED BY (Print) Tom Adams	DATE 8/4/08
Signature/Agent of: GEPC	Time 12 AM PM	Signature/Agent of:	Time 12 AM PM
RELINQUISHED BY (Print) Tom Adams	DATE 8/4/08	RECEIVED BY (Print) C Bakalo	DATE 8/4/08
Signature/Agent of:	Time 3:10 AM PM	Signature/Agent of: C Bakalo APL	Time 3:10 AM PM
RELINQUISHED BY (Print)	DATE : :	RECEIVED BY (Print)	DATE : :
Signature/Agent of:	Time : AM PM	Signature/Agent of:	Time : AM PM

COMMENTS/SPECIAL INSTRUCTIONS MW-29 used for Nutrient injection approx. 1 month ago.. may have high sugar content & viscosity. M.P.M.

40
Cooler Temp. upon receipt at lab ________

CERTIFICATIONS: NELAP (National Environmental Laboratory Accredation Program) NJDEP #07010 NYDOH #11634 CTPH #0233 US ARMY

By signing this Chain of Custody Agreement, customer expressly agrees to pay APL for all charges, reasonably incurred in connection with analysis and reporting for your sample

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AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

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FAIRFIELD, NEW JERSEY 07004

TEL: 973.227.0422
FAX: 973.227.2813
www.aquaprotechlabs.com

CONTAMINATION LEVEL
☐ HIGH ☐ MEDIUM ☐ LOW

CUSTOMER:	Geovation Engineering, P.C.	SEND REPORT TO:	SAME
ADDRESS:	P.O. Box 293 468 Rt. 17A	ADDRESS:	
	Florida, N.Y. 10921		
PHONE:	845-651-4141	PHONE:	
FAX:	651-0040	FAX:	
PROJECT NAME:	Grant - Hardware	SEND INVOICE TO:	
PROJECT MGR:	Bob Zimmer	ADDRESS:	
P.O. NUMBER		SAMPLED BY:	Matthew Mordas

CHAIN OF CUSTODY
PAGE 4 OF 4

TURNAROUND TIME
☑ APL STANDARD in 2 weeks
☐ RUSH turnaround available upon request and lab approval

REPORT FORMAT
☐ RESULTS ONLY
☑ NJ DEP REDUCED DELIVERABLES
☐ NJ DEP FULL DELIVERABLES
☑ ELECTRONIC DATA DELIVERY
SRP#
☐ STATE FORMS NEEDED

MATRIX ABBREVIATIONS: D - DRINKING WATER G - GROUNDWATER W - WASTEWATER S - SOIL SL - SLUDGE P - POOL L - LAKE

APL LAB ID#	SAMPLE SOURCE: FIELD ID	DATE	TIME	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX	NO. OF BOTTLES	PRESERVATIVE	ANALYSIS REQUESTED
28080087-024	Grant MW-12	7/31/08	17:50	X		G	3	HCL HNO3	VOCs 8260+10 TCL list & TOC
025	MW-18		17:25						
026	MW-19		12:05						
027	MW-24		15:10						
028	MW-25		11:45						
029	MW-28		16:10						

RELINQUISHED BY (Print) Matthew Mordas	DATE 8/4/08	RECEIVED BY (Print) Tom Adams	DATE 8/4/08
Signature/Agent of: GEPC	Time 1:2 AM PM	Signature/Agent of:	Time 12 AM PM
RELINQUISHED BY (Print)	DATE 8/4/08	RECEIVED BY (Print)	DATE 8/4/08
Signature/Agent of: Tom Adams	Time 3:10 AM PM	Signature/Agent of:	Time 3:10 AM PM
RELINQUISHED BY (Print)	DATE : :	RECEIVED BY (Print)	DATE : :
Signature/Agent of:	Time : AM PM	Signature/Agent of:	Time : AM PM

COMMENTS/SPECIAL INSTRUCTIONS

Cooler Temp. upon receipt at lab 4°

CERTIFICATIONS: NELAP (National Environmental Laboratory Accredation Program) NJDEP #07010 NYDOH #11634 CTPH #0233 US ARMY

By signing this Chain of Custody Agreement, customer expressly agrees to pay APL for all charges, reasonably incurred in connection with analysis and reporting for your sample

Extractable Petroleum Hydrocarbons:
Gas Chromatography/Flame Ionization Detector
USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods
Update III, Method 8015B or
NJDEP Office of Quality Assurance Quantitation of Semi-Volatile Petroleum Products
in Water, Soil and Sediment OQA-QAM-025, Revision 6.

Metals:
Inductively-Coupled Plasma Atomic Emission Spectrometry
Water Samples-USEPA Methods for the Analysis of Water and Wastes, Method 200.7
Soil Samples-USEPA Methods for Evaluating Solid Waste Physical/Chemical Methods
Update III, Method 6010B.

Mercury:
Cold Vapor Atomic Absorption Spectrometry
Water Samples-USEPA Methods for the Analysis of Water and Wastes, Method 245.1
Soil Samples-USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods
Update III, Method 7171A.

Volatile Organic Compounds:
Purge and Trap Gas Chromatography/Mass Spectroscopy
Drinking Water Samples-USEPA Methods for the Determination of Organic Compounds in Drinking
Water, Method 524.2.
Water Samples-USEPA Methods for the Analysis of Water and Wastes, Method 624.
Soil Samples-USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods
Update III, Method 8260B

Semi-Volatile Organic Compounds:
Gas Chromatography/Mass Spectroscopy
Water Samples-USEPA Methods for the Analysis of Water and Wastes, Method 625.
Soil Samples-USEPA SW-846 Test Methods for Evaluating Soil Waste Physical/Chemical Methods
Update III, Method 8270C.

Pesticides:
Gas Chromatography/Electron Capture Detector
Water Samples-USEPA Methods for the Analysis of Water and Wastes, Method 608.
Soil Samples-USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods
Update III, Method 8081A.

Polychlorinated Biphenyls (PCBs):
Gas Chromatography/Electron Capture Detector.
Water Samples-USEPA Methods for the Analysis of Water and Waters, Method 608.
Soil Samples-USEPA SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods
Update III, Method 8082

General Chemistry Methods:
Various general chemistry methods are taken from Standard
Methods for the Examination of Water and Wastewater, 19th Edition. Specific method citations
can be found on the Analytical Results Summary page of this report listed under 'Method'.

MDL:
Method Detection Limit. The minimum reportable concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The value is calculated from the analysis of seven replicates of a spike sample. On analytical reports this value is corrected for percent moisture and any concentration or dilution factors.

PQL:
Practical Quantitation Limit. The Concentration of the lowest calibration standard that was included in the initial calibration of the instrument. On analytical reports this value is corrected for percent moisture and any concentration or dilution factors.

Concentration (Conc) / Result:
If the compound is detected, the measured concentration is reported. If this column is left blank, or contains a 'less than' (<) symbol, the compound was not detected.

TIC:
A TIC is a non-targeted compound, not included in the calibration, identified by a mass spectral library search.

Qualifiers:

U:
Indicates the compound was analyzed for but was not detected.

J:
Indicates an estimated value. All tentatively identified compounds (TICs) and results below the MDL receive this qualifier.

B:
Indicates the analyte was found in the method blank as well as the sample.

E:
Indicates that the concentration of the compound exceeds the calibration range of the instrument. The results of a diluted analysis will also be reported. The results of the dilution should be used for those compounds exceeding the calibration range in the undiluted analysis.

D:
Indicates that the concentration is the result of a diluted sample.

N:
Used when reporting a specific tentatively identified compound.

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CERTIFICATIONS
NJ DEP 07010 / NY DOH 11634 / CT PH-0233
US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**28080087**
		Date Sampled	07/29/2008 10:50
		Date Received	08/04/2008 15:19
Contact	Matt Mordas	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	08/19/2008 13:06	**Customer Service Rep.**	

Sample Number/ Parameter		Method	Analysis Time	Analyst	Result	Units	MDL
28080087-001	Grant P-5						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-002	Grant P-6						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-003	Grant P-7						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-004	Grant P-8S						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-005	Grant P-8D						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-006	Grant MW-8R						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-007	Grant MW-9D						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-008	Grant MW-10S						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-009	Grant MW-10D						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-010	Grant MW-11						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-011	Grant MW-13						
Volatile Organics		SW 846 8260B		SUDIP	SA		

SA: See attached report

Brian Wood

Brian Wood
Laboratory Director

QA

APL
AQUA PRO-TECH LABORATORIES

CERTIFICATIONS
NJ DEP 07010 / NY DOH 11634 / CT PH-0233
US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**28080087**
		Date Sampled	07/29/2008 11:20
		Date Received	08/04/2008 15:19
Contact	Matt Mordas	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	08/19/2008 13:06	**Customer Service Rep.**	

Sample Number/ Parameter		Method	Analysis Time	Analyst	Result	Units	MDL
28080087-012	Grant MW-14						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-013	Grant MW-15						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-014	Grant MW-16						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-015	Grant MW-17						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-016	Grant MW-20						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-017	Grant MW-21						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-018	Grant MW-22						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-019	Grant MW-23						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-020	Grant MW-26						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-021	Grant MW-27						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-022	Grant MW-29						
Volatile Organics		SW 846 8260B		SUDIP	SA		

SA: See attached report

Brian Wood
Laboratory Director

QA

APL

AQUA PRO-TECH LABORATORIES

CERTIFICATIONS

NJ DEP 07010 / NY DOH 11634 / CT PH-0233

US ARMY CORPS (USACE)

ANALYTICAL RESULTS SUMMARY

Client	**Geovation Engineering P.C.** PO Box 293 / 468 Rt.17A Florida, NY 10921	**APL Order ID Number**	**28080087**
		Date Sampled	07/31/2008
		Date Received	08/04/2008 15:19
Contact	Matt Mordas	**Matrix**	Groundwater
Project		**Site**	Grant Hardware
Report Date	08/19/2008 13:06	**Customer Service Rep.**	

Sample Number/ Parameter		Method	Analysis Time	Analyst	Result	Units	MDL
28080087-023	Grant T.B.						
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-024	Grant MW-12						
Total Organic Carbon (TOC)		EPA 415.1	08/08/2008 14:00	RSWAMY	2560	mg/L	0.5
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-025	Grant MW-18						
Total Organic Carbon (TOC)		EPA 415.1	08/08/2008 14:00	RSWAMY	1600	mg/L	0.5
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-026	Grant MW-19						
Total Organic Carbon (TOC)		EPA 415.1	08/08/2008 14:00	RSWAMY	1.4	mg/L	0.5
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-027	Grant MW-24						
Total Organic Carbon (TOC)		EPA 415.1	08/08/2008 14:00	RSWAMY	1	mg/L	0.5
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-028	Grant MW-25						
Total Organic Carbon (TOC)		EPA 415.1	08/08/2008 14:00	RSWAMY	2.2	mg/L	0.5
Volatile Organics		SW 846 8260B		SUDIP	SA		
28080087-029	Grant MW-28						
Total Organic Carbon (TOC)		EPA 415.1	08/14/2008 9:00	RSWAMY	0.9	mg/L	0.5
Volatile Organics		EPA 624		DBA	SA		

SA: See attached report

Brian Wood

Brian Wood
Laboratory Director

QA

AQUA PRO-TECH LABORATORIES
CONFORMANCE/NON-CONFORMANCE SUMMARY

APL Project ID Number: 28080087
Parameter: Inorganics

1. **Was the BLANK CONTAMINATED?** **NO**
   If YES, list the samples and concentrations in each blank.

2. **Were all QC CRITERIA regarding spikes and duplicates met?** **YES**
   If NO, describe the nonconformances.

3. **Was the EXTRACTION/DIGESTION HOLDING TIME MET?** ***not applicable***
   If NO, list the number of days exceeded for each sample.
   No extraction or digestion was required.

4. **Was the ANALYSIS HOLDING TIME MET?** **YES**
   If NO, list the number of days exceeded for each sample.

Additional Comments:

Department Supervisor

8/18/08
Date

AQUA PRO-TECH LABORATORIES
INORGANICS QC

DATE :08/08/2008

TEST	**TOC**	
MDL	**0.5**	*mg/L*
Method Number	EPA 415.1	
Analyst	R.Swamy	
BLANK SPIKE		
Prep Blank Conc.	<0.2	*mg/L*
Blank Spike, True Value	10.0	*mg/L*
Blank Spike, Obtained Value	9.8	*mg/L*
% Recovery	**98**	
QC Limits	*90-110*	
SAMPLE DUPLICATE		
Sample ID	28071183-002	*mg/L*
Sample Conc.	76	*mg/L*
Sample Duplicate Conc.	80	*mg/L*
% RPD	**5**	
QC Limit	*20*	
MATRIX SPIKE		
Sample ID	28071183-002	*mg/L*
Sample Conc.	76	*mg/L*
Matrix Spike, True Value	400	*mg/L*
Matrix Spike, Obtained Value	388	*mg/L*
% Recovery	**78**	
QC Limits	*75-125*	
MATRIX SPIKE DUPLICATE		
Sample ID	28071183-002	*mg/L*
Sample Conc.	76	*mg/L*
Matrix Spike Duplicate, True Value	400	*mg/L*
Matrix Spike Duplicate, Obtained Value	420	*mg/L*
% Recovery	**86**	
QC Limits	*75-125*	
Matrix Spike Conc.	388	*mg/L*
Matrix Spike Duplicate Conc.	420	*mg/L*
% RPD	**8**	
QC Limit	*20*	

NOTES:

NC Not Calculable, since at least one component is less than the MDL.

NA Not Applicable, since the sample conc. is four or more times the spike conc.

* QC limit has been exceeded. See conformance sheet for details.

AQUA PRO-TECH LABORATORIES
INORGANICS QC

DATE :08/14/2008

TEST	**TOC**	
MDL	**0.5**	*mg/L*
Method Number	EPA 415.1	
Analyst	R.Swamy	
BLANK SPIKE		
Prep Blank Conc.	<0.2	*mg/L*
Blank Spike, True Value	10.0	*mg/L*
Blank Spike, Obtained Value	9.9	*mg/L*
% Recovery	**99**	
QC Limits	*90-110*	
SAMPLE DUPLICATE		
Sample ID	28071183-002	*mg/L*
Sample Conc.	76	*mg/L*
Sample Duplicate Conc.	80	*mg/L*
% RPD	**5**	
QC Limit	*20*	
MATRIX SPIKE		
Sample ID	28071183-002	*mg/L*
Sample Conc.	76	*mg/L*
Matrix Spike, True Value	400	*mg/L*
Matrix Spike, Obtained Value	388	*mg/L*
% Recovery	**78**	
QC Limits	*75-125*	
MATRIX SPIKE DUPLICATE		
Sample ID	28071183-002	*mg/L*
Sample Conc.	76	*mg/L*
Matrix Spike Duplicate, True Value	400	*mg/L*
Matrix Spike Duplicate, Obtained Value	420	*mg/L*
% Recovery	**86**	
QC Limits	*75-125*	
Matrix Spike Conc.	388	*mg/L*
Matrix Spike Duplicate Conc.	420	*mg/L*
% RPD	**8**	
QC Limit	*20*	

NOTES:

NC Not Calculable, since at least one component is less than the MDL.

NA Not Applicable, since the sample conc. is four or more times the spike conc.

* QC limit has been exceeded. See conformance sheet for details.

APL

Aqua Pro-Tech Laboratories
Certified Environmental Testing

Analytical Results
GC/MS VOLATILES

Geovation Engineering P.C.
Florida, NY

Project: Grant Hardware

Reviewed By: Brian Wood, Laboratory Director   8/15/08 Date

1275 Bloomfield Ave., Bldg. 6, Fairfield, New Jersey, 07004
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NELAC National Environmental Laboratory Accreditation Conference
NJDEP #07010/NYDOH #11634
CTPHB #0233/US ARMY

Aqua Pro-Tech Laboratories
Sample Location and Identification
GC/MS VOLATILES

Client Sample Number	Aqua Pro-Tech Sample Number	Matrix
Grant P-5	28080087-001	Groundwater
Grant P-6	28080087-002	Groundwater
Grant P-7	28080087-003	Groundwater
Grant P-8S	28080087-004	Groundwater
Grant P-8D	28080087-005	Groundwater
Grant MW-8R	28080087-006	Groundwater
Grant MW-9D	28080087-007	Groundwater
Grant MW-10S	28080087-008	Groundwater
Grant MW-10D	28080087-009	Groundwater
Grant MW-11	28080087-010	Groundwater
Grant MW-13	28080087-011	Groundwater
Grant MW-14	28080087-012	Groundwater
Grant MW-14 (2)	28080087-012 (2)	Groundwater
Grant MW-15	28080087-013	Groundwater
Grant MW-16	28080087-014	Groundwater
Grant MW-17	28080087-015	Groundwater
Grant MW-20	28080087-016	Groundwater
Grant MW-21	28080087-017	Groundwater
Grant MW-22	28080087-018	Groundwater
Grant MW-23	28080087-019	Groundwater
Grant MW-26	28080087-020	Groundwater
Grant MW-27	28080087-021	Groundwater
Grant MW-29	28080087-022	Groundwater
Grant T.B.	28080087-023	Groundwater
Grant MW-12	28080087-024	Groundwater
Grant MW-18	28080087-025	Groundwater
Grant MW-19	28080087-026	Groundwater
Grant MW-24	28080087-027	Groundwater
Grant MW-25	28080087-028	Groundwater
Grant MW-28	28080087-029	Groundwater

Aqua Pro-Tech Laboratories
Laboratory Chronicle
GC/MS VOLATILES

	Date Performed	Performed By
Receipt/Refrigeration:	8/4/08	DHAUSER

Analysis	Date Analyzed	Analyzed By
28080087-001	08/08/2008	SUDIP
28080087-002	08/08/2008	SUDIP
28080087-003	08/08/2008	SUDIP
28080087-004	08/08/2008	SUDIP
28080087-005	08/08/2008	SUDIP
28080087-006	08/08/2008	SUDIP
28080087-007	08/08/2008	SUDIP
28080087-008	08/08/2008	SUDIP
28080087-009	08/08/2008	SUDIP
28080087-010	08/09/2008	SUDIP
28080087-011	08/08/2008	SUDIP
28080087-012	08/08/2008	SUDIP
28080087-013	08/08/2008	SUDIP
28080087-014	08/08/2008	SUDIP
28080087-015	08/08/2008	SUDIP
28080087-016	08/08/2008	SUDIP
28080087-017	08/08/2008	SUDIP
28080087-018	08/08/2008	SUDIP
28080087-019	08/08/2008	SUDIP
28080087-020	08/08/2008	SUDIP
28080087-021	08/08/2008	SUDIP
28080087-022	08/08/2008	SUDIP
28080087-023	08/08/2008	SUDIP
28080087-024	08/08/2008	SUDIP
28080087-025	08/12/2008	SUDIP
28080087-026	08/08/2008	SUDIP
28080087-027	08/08/2008	SUDIP
28080087-028	08/08/2008	SUDIP
28080087-029	08/08/2008	DBA

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-5

Lab Sample ID: 28080087-001
Lab File ID: 7V6562.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-5

Lab Sample ID: 28080087-001
Lab File ID: 7V6562.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-5

Lab Sample ID: 28080087-001
Lab File ID: 7V6562.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-6

Lab Sample ID: 28080087-002
Lab File ID: 7V6563.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	19.3		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	23.9		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-6

Lab Sample ID: 28080087-002
Lab File ID: 7V6563.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	17.7		0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-6

Lab Sample ID: 28080087-002
Lab File ID: 7V6563.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-7

Lab Sample ID: 28080087-003
Lab File ID: 7V6564.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-7

Lab Sample ID: 28080087-003
Lab File ID: 7V6564.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-7

Lab Sample ID: 28080087-003
Lab File ID: 7V6564.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-8S

Lab Sample ID: 28080087-004
Lab File ID: 7V6565.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene	1.45		0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	0.765		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane	2.53		0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	3.34		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-8S

Lab Sample ID: 28080087-004
Lab File ID: 7V6565.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	0.7		0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-8S

Lab Sample ID: 28080087-004
Lab File ID: 7V6565.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-8D

Lab Sample ID: 28080087-005
Lab File ID: 7V6566.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene	5.86		0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	2.33		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane	7.97		0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	8.84		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-8D

Lab Sample ID: 28080087-005
Lab File ID: 7V6566.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	12.5		0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant P-8D

Lab Sample ID: 28080087-005
Lab File ID: 7V6566.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-8R

Lab Sample ID: 28080087-006
Lab File ID: 7V6567.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride	6.47		0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	4.37		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	2.48		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample:
Grant MW-8R

Lab Sample ID: 28080087-006
Lab File ID: 7V6567.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	0.763		0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-8R

Lab Sample ID: 28080087-006
Lab File ID: 7V6567.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-9D

Lab Sample ID: 28080087-007
Lab File ID: 7V6568.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-9D

Lab Sample ID: 28080087-007
Lab File ID: 7V6568.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-9D

Lab Sample ID: 28080087-007
Lab File ID: 7V6568.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-10S

Lab Sample ID: 28080087-008
Lab File ID: 7V6569.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-10S

Lab Sample ID: 28080087-008
Lab File ID: 7V6569.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-10S

Lab Sample ID: 28080087-008
Lab File ID: 7V6569.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT
	unknown hydrocarbon	5.31	J	19.88

Number of TICs found: 1
Total Est Concentration: 5.31 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-10D

Lab Sample ID: 28080087-009
Lab File ID: 7V6570.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	1.56		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-10D

Lab Sample ID: 28080087-009
Lab File ID: 7V6570.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-10D

Lab Sample ID: 28080087-009
Lab File ID: 7V6570.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-11

Lab Sample ID: 28080087-010
Lab File ID: 7V6595.D
Date Collected: 30-Jul-08

Date Analyzed: 9-Aug-08
Dilution Factor: 5

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	6.85	25
74-87-3	Chloromethane		U	7.80	25
75-01-4	Vinyl Chloride		U	4.35	25
74-83-9	Bromomethane		U	5.55	25
75-00-3	Chloroethane		U	3.70	25
75-69-4	Trichlorofluoromethane		U	4.20	25
67-64-1	Acetone		U	8.35	25
75-35-4	1,1-Dichloroethene		U	1.60	25
75-65-0	tert-Butyl Alcohol		U	231	250
75-09-2	Methylene Chloride		U	1.65	25
75-15-0	Carbon Disulfide		U	0.750	25
107-13-1	Acrylonitrile		U	7.30	50
107-02-8	Acrolein		U	28.3	100
1634-04-4	Methyl tert-Butyl Ether		U	4.40	25
156-60-5	trans 1,2-Dichloroethene		U	1.30	25
108-05-4	Vinyl Acetate		U	4.15	25
75-34-3	1,1-Dichloroethane		U	0.800	25
78-93-3	2-Butanone		U	4.85	25
594-20-7	2,2-Dichloropropane		U	3.85	25
156-59-2	cis 1,2-Dichloroethene	404	D	1.55	25
67-66-3	Chloroform		U	0.700	25
74-97-5	Bromochloromethane		U	1.45	25
71-55-6	1,1,1-Trichloroethane		U	1.30	25
563-58-6	1,1-Dichloropropene		U	1.50	25
56-23-5	Carbon Tetrachloride		U	1.55	25
107-06-2	1,2-Dichloroethane		U	1.40	25
71-43-2	Benzene		U	0.400	25
79-01-6	Trichloroethene	286	D	1.20	25
78-87-5	1,2-Dichloropropane		U	2.95	25
75-27-4	Bromodichloromethane		U	1.55	25
74-95-3	Dibromomethane		U	2.35	25
110-75-8	2-Chloroethylvinyl Ether		U	20.0	25
108-10-1	4-Methyl-2-Pentanone		U	3.65	25
10061-01-5	cis 1,3-Dichloropropene		U	2.60	25
108-88-3	Toluene		U	0.250	25
10061-02-6	trans 1,3-Dichloropropene		U	2.50	25
591-78-6	2-Hexanone		U	1.35	25
79-00-5	1,1,2-Trichloroethane		U	1.80	25
142-28-9	1,3-Dichloropropane		U	0.600	25

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-11

Lab Sample ID: 28080087-010
Lab File ID: 7V6595.D
Date Collected: 30-Jul-08

Date Analyzed: 9-Aug-08
Dilution Factor: 5

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	5.11	D	1.05	25
124-48-1	Dibromochloromethane		U	2.70	25
106-93-4	1,2-Dibromoethane		U	1.25	25
108-90-7	Chlorobenzene		U	0.650	25
630-20-6	1,1,1,2-Tetrachloroethane		U	3.45	25
100-41-4	Ethylbenzene		U	0.550	25
1330-20-7	m+p-Xylenes		U	1.20	25
1330-20-7	o-Xylene		U	0.400	25
100-42-5	Styrene		U	0.850	25
98-82-8	Isopropylbenzene		U	0.500	25
75-25-2	Bromoform		U	4.55	25
79-34-5	1,1,2,2-Tetrachloroethane		U	1.00	25
96-18-4	1,2,3-Trichloropropane		U	2.20	25
108-86-1	Bromobenzene		U	1.10	25
95-49-8	2-Chlorotoluene		U	0.450	25
106-43-4	4-Chlorotoluene		U	0.800	25
541-73-1	1,3-Dichlorobenzene		U	1.25	25
106-46-7	1,4-Dichlorobenzene		U	1.10	25
95-50-1	1,2-Dichlorobenzene		U	0.600	25
96-12-8	1,2-Dibromo-3-chloropropane		U	0.600	25
120-82-1	1,2,4-Trichlorobenzene		U	2.85	25
87-68-3	Hexachlorobutadiene		U	4.35	25
91-20-3	Naphthalene		U	1.35	25
87-61-6	1,2,3-Trichlorobenzene		U	2.55	25

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-11

Lab Sample ID: 28080087-010
Lab File ID: 7V6595.D
Date Collected: 30-Jul-08

Date Analyzed: 9-Aug-08
Dilution Factor: 5

CAS No.	Compound	Est. Conc.	Q	RT
64-19-7	Acetic acid	76.7	JN	14.69
	unknown	16.4	J	15.29

Number of TICs found: 2
Total Est Concentration: 93.1 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-13

Lab Sample ID: 28080087-011
Lab File ID: 7V6571.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	3.68		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	4.74		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-13

Lab Sample ID: 28080087-011
Lab File ID: 7V6571.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	0.794		0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-13

Lab Sample ID: 28080087-011
Lab File ID: 7V6571.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-14

Lab Sample ID: 28080087-012
Lab File ID: 7V6572.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride	134		0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene	1.51		0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene	8.16		0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	2120	E	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	713	E	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-14

Lab Sample ID: 28080087-012
Lab File ID: 7V6572.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	16.3		0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-14 (2)

Lab Sample ID: 28080087-012 (2)
Lab File ID: 7V6590.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	137	500
74-87-3	Chloromethane		U	156	500
75-01-4	Vinyl Chloride	137	D	87.0	500
74-83-9	Bromomethane		U	111	500
75-00-3	Chloroethane		U	74.0	500
75-69-4	Trichlorofluoromethane		U	84.0	500
67-64-1	Acetone		U	167	500
75-35-4	1,1-Dichloroethene		U	32.0	500
75-65-0	tert-Butyl Alcohol		U	4620	5000
75-09-2	Methylene Chloride		U	33.0	500
75-15-0	Carbon Disulfide		U	15.0	500
107-13-1	Acrylonitrile		U	146	1000
107-02-8	Acrolein		U	566	2000
1634-04-4	Methyl tert-Butyl Ether		U	88.0	500
156-60-5	trans 1,2-Dichloroethene		U	26.0	500
108-05-4	Vinyl Acetate		U	83.0	500
75-34-3	1,1-Dichloroethane		U	16.0	500
78-93-3	2-Butanone		U	97.0	500
594-20-7	2,2-Dichloropropane		U	77.0	500
156-59-2	cis 1,2-Dichloroethene	3690	D	31.0	500
67-66-3	Chloroform		U	14.0	500
74-97-5	Bromochloromethane		U	29.0	500
71-55-6	1,1,1-Trichloroethane		U	26.0	500
563-58-6	1,1-Dichloropropene		U	30.0	500
56-23-5	Carbon Tetrachloride		U	31.0	500
107-06-2	1,2-Dichloroethane		U	28.0	500
71-43-2	Benzene		U	8.00	500
79-01-6	Trichloroethene	1020	D	24.0	500
78-87-5	1,2-Dichloropropane		U	59.0	500
75-27-4	Bromodichloromethane		U	31.0	500
74-95-3	Dibromomethane		U	47.0	500
110-75-8	2-Chloroethylvinyl Ether		U	401	500
108-10-1	4-Methyl-2-Pentanone		U	73.0	500
10061-01-5	cis 1,3-Dichloropropene		U	52.0	500
108-88-3	Toluene		U	5.00	500
10061-02-6	trans 1,3-Dichloropropene		U	50.0	500
591-78-6	2-Hexanone		U	27.0	500
79-00-5	1,1,2-Trichloroethane		U	36.0	500
142-28-9	1,3-Dichloropropane		U	12.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-14 (2)

Lab Sample ID: 28080087-012 (2)
Lab File ID: 7V6590.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	21.0	500
124-48-1	Dibromochloromethane		U	54.0	500
106-93-4	1,2-Dibromoethane		U	25.0	500
108-90-7	Chlorobenzene		U	13.0	500
630-20-6	1,1,1,2-Tetrachloroethane		U	69.0	500
100-41-4	Ethylbenzene		U	11.0	500
1330-20-7	m+p-Xylenes		U	24.0	500
1330-20-7	o-Xylene		U	8.00	500
100-42-5	Styrene		U	17.0	500
98-82-8	Isopropylbenzene		U	10.0	500
75-25-2	Bromoform		U	91.0	500
79-34-5	1,1,2,2-Tetrachloroethane		U	20.0	500
96-18-4	1,2,3-Trichloropropane		U	44.0	500
108-86-1	Bromobenzene		U	22.0	500
95-49-8	2-Chlorotoluene		U	9.00	500
106-43-4	4-Chlorotoluene		U	16.0	500
541-73-1	1,3-Dichlorobenzene		U	25.0	500
106-46-7	1,4-Dichlorobenzene		U	22.0	500
95-50-1	1,2-Dichlorobenzene		U	12.0	500
96-12-8	1,2-Dibromo-3-chloropropane		U	12.0	500
120-82-1	1,2,4-Trichlorobenzene		U	57.0	500
87-68-3	Hexachlorobutadiene		U	87.0	500
91-20-3	Naphthalene		U	27.0	500
87-61-6	1,2,3-Trichlorobenzene		U	51.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-14

Lab Sample ID: 28080087-012
Lab File ID: 7V6572.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-15

Lab Sample ID: 28080087-013
Lab File ID: 7V6591.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 50

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	68.5	250
74-87-3	Chloromethane		U	78.0	250
75-01-4	Vinyl Chloride		U	43.5	250
74-83-9	Bromomethane		U	55.5	250
75-00-3	Chloroethane		U	37.0	250
75-69-4	Trichlorofluoromethane		U	42.0	250
67-64-1	Acetone		U	83.5	250
75-35-4	1,1-Dichloroethene		U	16.0	250
75-65-0	tert-Butyl Alcohol		U	2310	2500
75-09-2	Methylene Chloride		U	16.5	250
75-15-0	Carbon Disulfide		U	7.50	250
107-13-1	Acrylonitrile		U	73.0	500
107-02-8	Acrolein		U	283	1000
1634-04-4	Methyl tert-Butyl Ether		U	44.0	250
156-60-5	trans 1,2-Dichloroethene		U	13.0	250
108-05-4	Vinyl Acetate		U	41.5	250
75-34-3	1,1-Dichloroethane		U	8.00	250
78-93-3	2-Butanone		U	48.5	250
594-20-7	2,2-Dichloropropane		U	38.5	250
156-59-2	cis 1,2-Dichloroethene	1470	D	15.5	250
67-66-3	Chloroform		U	7.00	250
74-97-5	Bromochloromethane		U	14.5	250
71-55-6	1,1,1-Trichloroethane		U	13.0	250
563-58-6	1,1-Dichloropropene		U	15.0	250
56-23-5	Carbon Tetrachloride		U	15.5	250
107-06-2	1,2-Dichloroethane		U	14.0	250
71-43-2	Benzene		U	4.00	250
79-01-6	Trichloroethene	388	D	12.0	250
78-87-5	1,2-Dichloropropane		U	29.5	250
75-27-4	Bromodichloromethane		U	15.5	250
74-95-3	Dibromomethane		U	23.5	250
110-75-8	2-Chloroethylvinyl Ether		U	201	250
108-10-1	4-Methyl-2-Pentanone		U	36.5	250
10061-01-5	cis 1,3-Dichloropropene		U	26.0	250
108-88-3	Toluene		U	2.50	250
10061-02-6	trans 1,3-Dichloropropene		U	25.0	250
591-78-6	2-Hexanone		U	13.5	250
79-00-5	1,1,2-Trichloroethane		U	18.0	250
142-28-9	1,3-Dichloropropane		U	6.00	250

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-15

Lab Sample ID: 28080087-013
Lab File ID: 7V6591.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 50

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	10.5	250
124-48-1	Dibromochloromethane		U	27.0	250
106-93-4	1,2-Dibromoethane		U	12.5	250
108-90-7	Chlorobenzene		U	6.50	250
630-20-6	1,1,1,2-Tetrachloroethane		U	34.5	250
100-41-4	Ethylbenzene		U	5.50	250
1330-20-7	m+p-Xylenes		U	12.0	250
1330-20-7	o-Xylene		U	4.00	250
100-42-5	Styrene		U	8.50	250
98-82-8	Isopropylbenzene		U	5.00	250
75-25-2	Bromoform		U	45.5	250
79-34-5	1,1,2,2-Tetrachloroethane		U	10.0	250
96-18-4	1,2,3-Trichloropropane		U	22.0	250
108-86-1	Bromobenzene		U	11.0	250
95-49-8	2-Chlorotoluene		U	4.50	250
106-43-4	4-Chlorotoluene		U	8.00	250
541-73-1	1,3-Dichlorobenzene		U	12.5	250
106-46-7	1,4-Dichlorobenzene		U	11.0	250
95-50-1	1,2-Dichlorobenzene		U	6.00	250
96-12-8	1,2-Dibromo-3-chloropropane		U	6.00	250
120-82-1	1,2,4-Trichlorobenzene		U	28.5	250
87-68-3	Hexachlorobutadiene		U	43.5	250
91-20-3	Naphthalene		U	13.5	250
87-61-6	1,2,3-Trichlorobenzene		U	25.5	250

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-15

Lab Sample ID: 28080087-013
Lab File ID: 7V6591.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 50

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-16

Lab Sample ID: 28080087-014
Lab File ID: 7V6573.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	16.5		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	3.03		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-16

Lab Sample ID: 28080087-014
Lab File ID: 7V6573.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-16

Lab Sample ID: 28080087-014
Lab File ID: 7V6573.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-17

Lab Sample ID: 28080087-015
Lab File ID: 7V6574.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride	20.9		0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	22.3		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	13.6		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-17

Lab Sample ID: 28080087-015
Lab File ID: 7V6574.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-17

Lab Sample ID: 28080087-015
Lab File ID: 7V6574.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-20

Lab Sample ID: 28080087-016
Lab File ID: 7V6575.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether	3.06		0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	2.81		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-20

Lab Sample ID: 28080087-016
Lab File ID: 7V6575.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-20

Lab Sample ID: 28080087-016
Lab File ID: 7V6575.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-21

Lab Sample ID: 28080087-017
Lab File ID: 7V6592.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 50

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	68.5	250
74-87-3	Chloromethane		U	78.0	250
75-01-4	Vinyl Chloride		U	43.5	250
74-83-9	Bromomethane		U	55.5	250
75-00-3	Chloroethane		U	37.0	250
75-69-4	Trichlorofluoromethane		U	42.0	250
67-64-1	Acetone		U	83.5	250
75-35-4	1,1-Dichloroethene		U	16.0	250
75-65-0	tert-Butyl Alcohol		U	2310	2500
75-09-2	Methylene Chloride		U	16.5	250
75-15-0	Carbon Disulfide		U	7.50	250
107-13-1	Acrylonitrile		U	73.0	500
107-02-8	Acrolein		U	283	1000
1634-04-4	Methyl tert-Butyl Ether		U	44.0	250
156-60-5	trans 1,2-Dichloroethene		U	13.0	250
108-05-4	Vinyl Acetate		U	41.5	250
75-34-3	1,1-Dichloroethane		U	8.00	250
78-93-3	2-Butanone		U	48.5	250
594-20-7	2,2-Dichloropropane		U	38.5	250
156-59-2	cis 1,2-Dichloroethene	1720	D	15.5	250
67-66-3	Chloroform		U	7.00	250
74-97-5	Bromochloromethane		U	14.5	250
71-55-6	1,1,1-Trichloroethane		U	13.0	250
563-58-6	1,1-Dichloropropene		U	15.0	250
56-23-5	Carbon Tetrachloride		U	15.5	250
107-06-2	1,2-Dichloroethane		U	14.0	250
71-43-2	Benzene		U	4.00	250
79-01-6	Trichloroethene	2360	D	12.0	250
78-87-5	1,2-Dichloropropane		U	29.5	250
75-27-4	Bromodichloromethane		U	15.5	250
74-95-3	Dibromomethane		U	23.5	250
110-75-8	2-Chloroethylvinyl Ether		U	201	250
108-10-1	4-Methyl-2-Pentanone		U	36.5	250
10061-01-5	cis 1,3-Dichloropropene		U	26.0	250
108-88-3	Toluene		U	2.50	250
10061-02-6	trans 1,3-Dichloropropene		U	25.0	250
591-78-6	2-Hexanone		U	13.5	250
79-00-5	1,1,2-Trichloroethane		U	18.0	250
142-28-9	1,3-Dichloropropane		U	6.00	250

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-21

Lab Sample ID: 28080087-017
Lab File ID: 7V6592.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 50

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	10.5	250
124-48-1	Dibromochloromethane		U	27.0	250
106-93-4	1,2-Dibromoethane		U	12.5	250
108-90-7	Chlorobenzene		U	6.50	250
630-20-6	1,1,1,2-Tetrachloroethane		U	34.5	250
100-41-4	Ethylbenzene		U	5.50	250
1330-20-7	m+p-Xylenes		U	12.0	250
1330-20-7	o-Xylene		U	4.00	250
100-42-5	Styrene		U	8.50	250
98-82-8	Isopropylbenzene		U	5.00	250
75-25-2	Bromoform		U	45.5	250
79-34-5	1,1,2,2-Tetrachloroethane		U	10.0	250
96-18-4	1,2,3-Trichloropropane		U	22.0	250
108-86-1	Bromobenzene		U	11.0	250
95-49-8	2-Chlorotoluene		U	4.50	250
106-43-4	4-Chlorotoluene		U	8.00	250
541-73-1	1,3-Dichlorobenzene		U	12.5	250
106-46-7	1,4-Dichlorobenzene		U	11.0	250
95-50-1	1,2-Dichlorobenzene		U	6.00	250
96-12-8	1,2-Dibromo-3-chloropropane		U	6.00	250
120-82-1	1,2,4-Trichlorobenzene		U	28.5	250
87-68-3	Hexachlorobutadiene		U	43.5	250
91-20-3	Naphthalene		U	13.5	250
87-61-6	1,2,3-Trichlorobenzene		U	25.5	250

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-21

Lab Sample ID: 28080087-017
Lab File ID: 7V6592.D
Date Collected: 30-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 50

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-22

Lab Sample ID: 28080087-018
Lab File ID: 7V6576.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	9.24		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	8.28		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-22

Lab Sample ID: 28080087-018
Lab File ID: 7V6576.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-41-4	Ethylbenzene		U	0.110	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-22

Lab Sample ID: 28080087-018
Lab File ID: 7V6576.D
Date Collected: 29-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-23

Lab Sample ID: 28080087-019
Lab File ID: 7V6585.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	137	500
74-87-3	Chloromethane		U	156	500
75-01-4	Vinyl Chloride		U	87.0	500
74-83-9	Bromomethane		U	111	500
75-00-3	Chloroethane		U	74.0	500
75-69-4	Trichlorofluoromethane		U	84.0	500
67-64-1	Acetone		U	167	500
75-35-4	1,1-Dichloroethene		U	32.0	500
75-65-0	tert-Butyl Alcohol		U	4620	5000
75-09-2	Methylene Chloride		U	33.0	500
75-15-0	Carbon Disulfide		U	15.0	500
107-13-1	Acrylonitrile		U	146	1000
107-02-8	Acrolein		U	566	2000
1634-04-4	Methyl tert-Butyl Ether		U	88.0	500
156-60-5	trans 1,2-Dichloroethene		U	26.0	500
108-05-4	Vinyl Acetate		U	83.0	500
75-34-3	1,1-Dichloroethane		U	16.0	500
78-93-3	2-Butanone		U	97.0	500
594-20-7	2,2-Dichloropropane		U	77.0	500
156-59-2	cis 1,2-Dichloroethene	2420	D	31.0	500
67-66-3	Chloroform		U	14.0	500
74-97-5	Bromochloromethane		U	29.0	500
71-55-6	1,1,1-Trichloroethane		U	26.0	500
563-58-6	1,1-Dichloropropene		U	30.0	500
56-23-5	Carbon Tetrachloride		U	31.0	500
107-06-2	1,2-Dichloroethane		U	28.0	500
71-43-2	Benzene		U	8.00	500
79-01-6	Trichloroethene	14800	D	24.0	500
78-87-5	1,2-Dichloropropane		U	59.0	500
75-27-4	Bromodichloromethane		U	31.0	500
74-95-3	Dibromomethane		U	47.0	500
110-75-8	2-Chloroethylvinyl Ether		U	401	500
108-10-1	4-Methyl-2-Pentanone		U	73.0	500
10061-01-5	cis 1,3-Dichloropropene		U	52.0	500
108-88-3	Toluene		U	5.00	500
10061-02-6	trans 1,3-Dichloropropene		U	50.0	500
591-78-6	2-Hexanone		U	27.0	500
79-00-5	1,1,2-Trichloroethane		U	36.0	500
142-28-9	1,3-Dichloropropane		U	12.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-23

Lab Sample ID: 28080087-019
Lab File ID: 7V6585.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	176	D	21.0	500
124-48-1	Dibromochloromethane		U	54.0	500
106-93-4	1,2-Dibromoethane		U	25.0	500
108-90-7	Chlorobenzene		U	13.0	500
630-20-6	1,1,1,2-Tetrachloroethane		U	69.0	500
1330-20-7	m+p-Xylenes		U	24.0	500
1330-20-7	o-Xylene		U	8.00	500
100-41-4	Ethylbenzene		U	11.0	500
100-42-5	Styrene		U	17.0	500
98-82-8	Isopropylbenzene		U	10.0	500
75-25-2	Bromoform		U	91.0	500
79-34-5	1,1,2,2-Tetrachloroethane		U	20.0	500
96-18-4	1,2,3-Trichloropropane		U	44.0	500
108-86-1	Bromobenzene		U	22.0	500
95-49-8	2-Chlorotoluene		U	9.00	500
106-43-4	4-Chlorotoluene		U	16.0	500
541-73-1	1,3-Dichlorobenzene		U	25.0	500
106-46-7	1,4-Dichlorobenzene		U	22.0	500
95-50-1	1,2-Dichlorobenzene		U	12.0	500
96-12-8	1,2-Dibromo-3-chloropropane		U	12.0	500
120-82-1	1,2,4-Trichlorobenzene		U	57.0	500
87-68-3	Hexachlorobutadiene		U	87.0	500
91-20-3	Naphthalene		U	27.0	500
87-61-6	1,2,3-Trichlorobenzene		U	51.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-23

Lab Sample ID: 28080087-019
Lab File ID: 7V6585.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-26

Lab Sample ID: 28080087-020
Lab File ID: 7V6586.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	137	500
74-87-3	Chloromethane		U	156	500
75-01-4	Vinyl Chloride		U	87.0	500
74-83-9	Bromomethane		U	111	500
75-00-3	Chloroethane		U	74.0	500
75-69-4	Trichlorofluoromethane		U	84.0	500
67-64-1	Acetone		U	167	500
75-35-4	1,1-Dichloroethene		U	32.0	500
75-65-0	tert-Butyl Alcohol		U	4620	5000
75-09-2	Methylene Chloride		U	33.0	500
75-15-0	Carbon Disulfide		U	15.0	500
107-13-1	Acrylonitrile		U	146	1000
107-02-8	Acrolein		U	566	2000
1634-04-4	Methyl tert-Butyl Ether		U	88.0	500
156-60-5	trans 1,2-Dichloroethene		U	26.0	500
108-05-4	Vinyl Acetate		U	83.0	500
75-34-3	1,1-Dichloroethane		U	16.0	500
78-93-3	2-Butanone		U	97.0	500
594-20-7	2,2-Dichloropropane		U	77.0	500
156-59-2	cis 1,2-Dichloroethene	5450	D	31.0	500
67-66-3	Chloroform		U	14.0	500
74-97-5	Bromochloromethane		U	29.0	500
71-55-6	1,1,1-Trichloroethane		U	26.0	500
563-58-6	1,1-Dichloropropene		U	30.0	500
56-23-5	Carbon Tetrachloride		U	31.0	500
107-06-2	1,2-Dichloroethane		U	28.0	500
71-43-2	Benzene		U	8.00	500
79-01-6	Trichloroethene	10700	D	24.0	500
78-87-5	1,2-Dichloropropane		U	59.0	500
75-27-4	Bromodichloromethane		U	31.0	500
74-95-3	Dibromomethane		U	47.0	500
110-75-8	2-Chloroethylvinyl Ether		U	401	500
108-10-1	4-Methyl-2-Pentanone		U	73.0	500
10061-01-5	cis 1,3-Dichloropropene		U	52.0	500
108-88-3	Toluene		U	5.00	500
10061-02-6	trans 1,3-Dichloropropene		U	50.0	500
591-78-6	2-Hexanone		U	27.0	500
79-00-5	1,1,2-Trichloroethane		U	36.0	500
142-28-9	1,3-Dichloropropane		U	12.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-26

Lab Sample ID: 28080087-020
Lab File ID: 7V6586.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	129	D	21.0	500
124-48-1	Dibromochloromethane		U	54.0	500
106-93-4	1,2-Dibromoethane		U	25.0	500
108-90-7	Chlorobenzene		U	13.0	500
630-20-6	1,1,1,2-Tetrachloroethane		U	69.0	500
100-41-4	Ethylbenzene		U	11.0	500
1330-20-7	m+p-Xylenes		U	24.0	500
1330-20-7	o-Xylene		U	8.00	500
100-42-5	Styrene		U	17.0	500
98-82-8	Isopropylbenzene		U	10.0	500
75-25-2	Bromoform		U	91.0	500
79-34-5	1,1,2,2-Tetrachloroethane		U	20.0	500
96-18-4	1,2,3-Trichloropropane		U	44.0	500
108-86-1	Bromobenzene		U	22.0	500
95-49-8	2-Chlorotoluene		U	9.00	500
106-43-4	4-Chlorotoluene		U	16.0	500
541-73-1	1,3-Dichlorobenzene		U	25.0	500
106-46-7	1,4-Dichlorobenzene		U	22.0	500
95-50-1	1,2-Dichlorobenzene		U	12.0	500
96-12-8	1,2-Dibromo-3-chloropropane		U	12.0	500
120-82-1	1,2,4-Trichlorobenzene		U	57.0	500
87-68-3	Hexachlorobutadiene		U	87.0	500
91-20-3	Naphthalene		U	27.0	500
87-61-6	1,2,3-Trichlorobenzene		U	51.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-26

Lab Sample ID: 28080087-020
Lab File ID: 7V6586.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-27

Lab Sample ID: 28080087-021
Lab File ID: 7V6587.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	137	500
74-87-3	Chloromethane		U	156	500
75-01-4	Vinyl Chloride		U	87.0	500
74-83-9	Bromomethane		U	111	500
75-00-3	Chloroethane		U	74.0	500
75-69-4	Trichlorofluoromethane		U	84.0	500
67-64-1	Acetone		U	167	500
75-35-4	1,1-Dichloroethene		U	32.0	500
75-65-0	tert-Butyl Alcohol		U	4620	5000
75-09-2	Methylene Chloride		U	33.0	500
75-15-0	Carbon Disulfide		U	15.0	500
107-13-1	Acrylonitrile		U	146	1000
107-02-8	Acrolein		U	566	2000
1634-04-4	Methyl tert-Butyl Ether		U	88.0	500
156-60-5	trans 1,2-Dichloroethene		U	26.0	500
108-05-4	Vinyl Acetate		U	83.0	500
75-34-3	1,1-Dichloroethane		U	16.0	500
78-93-3	2-Butanone		U	97.0	500
594-20-7	2,2-Dichloropropane		U	77.0	500
156-59-2	cis 1,2-Dichloroethene	8500	D	31.0	500
67-66-3	Chloroform		U	14.0	500
74-97-5	Bromochloromethane		U	29.0	500
71-55-6	1,1,1-Trichloroethane		U	26.0	500
563-58-6	1,1-Dichloropropene		U	30.0	500
56-23-5	Carbon Tetrachloride		U	31.0	500
107-06-2	1,2-Dichloroethane		U	28.0	500
71-43-2	Benzene		U	8.00	500
79-01-6	Trichloroethene	5820	D	24.0	500
78-87-5	1,2-Dichloropropane		U	59.0	500
75-27-4	Bromodichloromethane		U	31.0	500
74-95-3	Dibromomethane		U	47.0	500
110-75-8	2-Chloroethylvinyl Ether		U	401	500
108-10-1	4-Methyl-2-Pentanone		U	73.0	500
10061-01-5	cis 1,3-Dichloropropene		U	52.0	500
108-88-3	Toluene		U	5.00	500
10061-02-6	trans 1,3-Dichloropropene		U	50.0	500
591-78-6	2-Hexanone		U	27.0	500
79-00-5	1,1,2-Trichloroethane		U	36.0	500
142-28-9	1,3-Dichloropropane		U	12.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-27

Lab Sample ID: 28080087-021
Lab File ID: 7V6587.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	87.5	D	21.0	500
124-48-1	Dibromochloromethane		U	54.0	500
106-93-4	1,2-Dibromoethane		U	25.0	500
108-90-7	Chlorobenzene		U	13.0	500
630-20-6	1,1,1,2-Tetrachloroethane		U	69.0	500
100-41-4	Ethylbenzene		U	11.0	500
1330-20-7	m+p-Xylenes		U	24.0	500
1330-20-7	o-Xylene		U	8.00	500
100-42-5	Styrene		U	17.0	500
98-82-8	Isopropylbenzene		U	10.0	500
75-25-2	Bromoform		U	91.0	500
79-34-5	1,1,2,2-Tetrachloroethane		U	20.0	500
96-18-4	1,2,3-Trichloropropane		U	44.0	500
108-86-1	Bromobenzene		U	22.0	500
95-49-8	2-Chlorotoluene		U	9.00	500
106-43-4	4-Chlorotoluene		U	16.0	500
541-73-1	1,3-Dichlorobenzene		U	25.0	500
106-46-7	1,4-Dichlorobenzene		U	22.0	500
95-50-1	1,2-Dichlorobenzene		U	12.0	500
96-12-8	1,2-Dibromo-3-chloropropane		U	12.0	500
120-82-1	1,2,4-Trichlorobenzene		U	57.0	500
87-68-3	Hexachlorobutadiene		U	87.0	500
91-20-3	Naphthalene		U	27.0	500
87-61-6	1,2,3-Trichlorobenzene		U	51.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-27

Lab Sample ID: 28080087-021
Lab File ID: 7V6587.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-29

Lab Sample ID: 28080087-022
Lab File ID: 7V6588.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	137	500
74-87-3	Chloromethane		U	156	500
75-01-4	Vinyl Chloride		U	87.0	500
74-83-9	Bromomethane		U	111	500
75-00-3	Chloroethane		U	74.0	500
75-69-4	Trichlorofluoromethane		U	84.0	500
67-64-1	Acetone		U	167	500
75-35-4	1,1-Dichloroethene		U	32.0	500
75-65-0	tert-Butyl Alcohol		U	4620	5000
75-09-2	Methylene Chloride		U	33.0	500
75-15-0	Carbon Disulfide		U	15.0	500
107-13-1	Acrylonitrile		U	146	1000
107-02-8	Acrolein		U	566	2000
1634-04-4	Methyl tert-Butyl Ether		U	88.0	500
156-60-5	trans 1,2-Dichloroethene		U	26.0	500
108-05-4	Vinyl Acetate		U	83.0	500
75-34-3	1,1-Dichloroethane		U	16.0	500
78-93-3	2-Butanone		U	97.0	500
594-20-7	2,2-Dichloropropane		U	77.0	500
156-59-2	cis 1,2-Dichloroethene	955	D	31.0	500
67-66-3	Chloroform		U	14.0	500
74-97-5	Bromochloromethane		U	29.0	500
71-55-6	1,1,1-Trichloroethane		U	26.0	500
563-58-6	1,1-Dichloropropene		U	30.0	500
56-23-5	Carbon Tetrachloride		U	31.0	500
107-06-2	1,2-Dichloroethane		U	28.0	500
71-43-2	Benzene		U	8.00	500
79-01-6	Trichloroethene	3430	D	24.0	500
78-87-5	1,2-Dichloropropane		U	59.0	500
75-27-4	Bromodichloromethane		U	31.0	500
74-95-3	Dibromomethane		U	47.0	500
110-75-8	2-Chloroethylvinyl Ether		U	401	500
108-10-1	4-Methyl-2-Pentanone		U	73.0	500
10061-01-5	cis 1,3-Dichloropropene		U	52.0	500
108-88-3	Toluene		U	5.00	500
10061-02-6	trans 1,3-Dichloropropene		U	50.0	500
591-78-6	2-Hexanone		U	27.0	500
79-00-5	1,1,2-Trichloroethane		U	36.0	500
142-28-9	1,3-Dichloropropane		U	12.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-29

Lab Sample ID: 28080087-022
Lab File ID: 7V6588.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	21.0	500
124-48-1	Dibromochloromethane		U	54.0	500
106-93-4	1,2-Dibromoethane		U	25.0	500
108-90-7	Chlorobenzene		U	13.0	500
630-20-6	1,1,1,2-Tetrachloroethane		U	69.0	500
100-41-4	Ethylbenzene		U	11.0	500
1330-20-7	m+p-Xylenes		U	24.0	500
1330-20-7	o-Xylene		U	8.00	500
100-42-5	Styrene		U	17.0	500
98-82-8	Isopropylbenzene		U	10.0	500
75-25-2	Bromoform		U	91.0	500
79-34-5	1,1,2,2-Tetrachloroethane		U	20.0	500
96-18-4	1,2,3-Trichloropropane		U	44.0	500
108-86-1	Bromobenzene		U	22.0	500
95-49-8	2-Chlorotoluene		U	9.00	500
106-43-4	4-Chlorotoluene		U	16.0	500
541-73-1	1,3-Dichlorobenzene		U	25.0	500
106-46-7	1,4-Dichlorobenzene		U	22.0	500
95-50-1	1,2-Dichlorobenzene		U	12.0	500
96-12-8	1,2-Dibromo-3-chloropropane		U	12.0	500
120-82-1	1,2,4-Trichlorobenzene		U	57.0	500
87-68-3	Hexachlorobutadiene		U	87.0	500
91-20-3	Naphthalene		U	27.0	500
87-61-6	1,2,3-Trichlorobenzene		U	51.0	500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-29

Lab Sample ID: 28080087-022
Lab File ID: 7V6588.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant T.B.

Lab Sample ID: 28080087-023
Lab File ID: 7V6578.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant T.B.

Lab Sample ID: 28080087-023
Lab File ID: 7V6578.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-41-4	Ethylbenzene		U	0.110	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant T.B.

Lab Sample ID: 28080087-023
Lab File ID: 7V6578.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-12

Lab Sample ID: 28080087-024
Lab File ID: 7V6583.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 500

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	685	2500
74-87-3	Chloromethane		U	780	2500
75-01-4	Vinyl Chloride	25100	D	435	2500
74-83-9	Bromomethane		U	555	2500
75-00-3	Chloroethane		U	370	2500
75-69-4	Trichlorofluoromethane		U	420	2500
67-64-1	Acetone		U	835	2500
75-35-4	1,1-Dichloroethene		U	160	2500
75-65-0	tert-Butyl Alcohol		U	23100	25000
75-09-2	Methylene Chloride		U	165	2500
75-15-0	Carbon Disulfide		U	75.0	2500
107-13-1	Acrylonitrile		U	730	5000
107-02-8	Acrolein		U	2830	10000
1634-04-4	Methyl tert-Butyl Ether		U	440	2500
156-60-5	trans 1,2-Dichloroethene		U	130	2500
108-05-4	Vinyl Acetate		U	415	2500
75-34-3	1,1-Dichloroethane		U	80.0	2500
78-93-3	2-Butanone		U	485	2500
594-20-7	2,2-Dichloropropane		U	385	2500
156-59-2	cis 1,2-Dichloroethene	47700	D	155	2500
67-66-3	Chloroform		U	70.0	2500
74-97-5	Bromochloromethane		U	145	2500
71-55-6	1,1,1-Trichloroethane		U	130	2500
563-58-6	1,1-Dichloropropene		U	150	2500
56-23-5	Carbon Tetrachloride		U	155	2500
107-06-2	1,2-Dichloroethane		U	140	2500
71-43-2	Benzene		U	40.0	2500
79-01-6	Trichloroethene	283	D	120	2500
78-87-5	1,2-Dichloropropane		U	295	2500
75-27-4	Bromodichloromethane		U	155	2500
74-95-3	Dibromomethane		U	235	2500
110-75-8	2-Chloroethylvinyl Ether		U	2010	2500
108-10-1	4-Methyl-2-Pentanone		U	365	2500
10061-01-5	cis 1,3-Dichloropropene		U	260	2500
108-88-3	Toluene		U	25.0	2500
10061-02-6	trans 1,3-Dichloropropene		U	250	2500
591-78-6	2-Hexanone		U	135	2500
79-00-5	1,1,2-Trichloroethane		U	180	2500
142-28-9	1,3-Dichloropropane		U	60.0	2500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-12

Lab Sample ID: 28080087-024
Lab File ID: 7V6583.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 500

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	105	2500
124-48-1	Dibromochloromethane		U	270	2500
106-93-4	1,2-Dibromoethane		U	125	2500
108-90-7	Chlorobenzene		U	65.0	2500
630-20-6	1,1,1,2-Tetrachloroethane		U	345	2500
100-41-4	Ethylbenzene		U	55.0	2500
1330-20-7	m+p-Xylenes		U	120	2500
1330-20-7	o-Xylene		U	40.0	2500
100-42-5	Styrene		U	85.0	2500
98-82-8	Isopropylbenzene		U	50.0	2500
75-25-2	Bromoform		U	455	2500
79-34-5	1,1,2,2-Tetrachloroethane		U	100	2500
96-18-4	1,2,3-Trichloropropane		U	220	2500
108-86-1	Bromobenzene		U	110	2500
95-49-8	2-Chlorotoluene		U	45.0	2500
106-43-4	4-Chlorotoluene		U	80.0	2500
541-73-1	1,3-Dichlorobenzene		U	125	2500
106-46-7	1,4-Dichlorobenzene		U	110	2500
95-50-1	1,2-Dichlorobenzene		U	60.0	2500
96-12-8	1,2-Dibromo-3-chloropropane		U	60.0	2500
120-82-1	1,2,4-Trichlorobenzene		U	285	2500
87-68-3	Hexachlorobutadiene		U	435	2500
91-20-3	Naphthalene		U	135	2500
87-61-6	1,2,3-Trichlorobenzene		U	255	2500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-12

Lab Sample ID: 28080087-024
Lab File ID: 7V6583.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 500

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-18

Lab Sample ID: 28080087-025
Lab File ID: 7V6663.D
Date Collected: 31-Jul-08

Date Analyzed: 12-Aug-08
Dilution Factor: 2

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	2.74	10
74-87-3	Chloromethane		U	3.12	10
75-01-4	Vinyl Chloride		U	1.74	10
74-83-9	Bromomethane		U	2.22	10
75-00-3	Chloroethane		U	1.48	10
75-69-4	Trichlorofluoromethane		U	1.68	10
67-64-1	Acetone		U	3.34	10
75-35-4	1,1-Dichloroethene		U	0.640	10
75-65-0	tert-Butyl Alcohol		U	92.5	100
75-09-2	Methylene Chloride		U	0.660	10
75-15-0	Carbon Disulfide		U	0.300	10
107-13-1	Acrylonitrile		U	2.92	20
107-02-8	Acrolein		U	11.3	40
1634-04-4	Methyl tert-Butyl Ether		U	1.76	10
156-60-5	trans 1,2-Dichloroethene		U	0.520	10
108-05-4	Vinyl Acetate		U	1.66	10
75-34-3	1,1-Dichloroethane	11.8	D	0.320	10
78-93-3	2-Butanone		U	1.94	10
594-20-7	2,2-Dichloropropane		U	1.54	10
67-66-3	Chloroform		U	0.280	10
156-59-2	cis 1,2-Dichloroethene	64.5	D	0.620	10
74-97-5	Bromochloromethane		U	0.580	10
71-55-6	1,1,1-Trichloroethane		U	0.520	10
563-58-6	1,1-Dichloropropene		U	0.600	10
56-23-5	Carbon Tetrachloride		U	0.620	10
107-06-2	1,2-Dichloroethane		U	0.560	10
71-43-2	Benzene	1.65	D	0.160	10
79-01-6	Trichloroethene	28.1	D	0.480	10
78-87-5	1,2-Dichloropropane		U	1.18	10
75-27-4	Bromodichloromethane		U	0.620	10
74-95-3	Dibromomethane		U	0.940	10
110-75-8	2-Chloroethylvinyl Ether		U	8.02	10
108-10-1	4-Methyl-2-Pentanone		U	1.46	10
10061-01-5	cis 1,3-Dichloropropene		U	1.04	10
108-88-3	Toluene	5.35	D	0.100	10
10061-02-6	trans 1,3-Dichloropropene		U	1.00	10
79-00-5	1,1,2-Trichloroethane		U	0.720	10
591-78-6	2-Hexanone		U	0.540	10
142-28-9	1,3-Dichloropropane		U	0.240	10

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-18

Lab Sample ID: 28080087-025
Lab File ID: 7V6663.D
Date Collected: 31-Jul-08

Date Analyzed: 12-Aug-08
Dilution Factor: 2

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.420	10
124-48-1	Dibromochloromethane		U	1.08	10
106-93-4	1,2-Dibromoethane		U	0.500	10
108-90-7	Chlorobenzene		U	0.260	10
630-20-6	1,1,1,2-Tetrachloroethane		U	1.38	10
100-41-4	Ethylbenzene	2.85	D	0.220	10
1330-20-7	m+p-Xylenes	2.04	D	0.480	10
100-42-5	Styrene		U	0.340	10
1330-20-7	o-Xylene	1.5	D	0.160	10
98-82-8	Isopropylbenzene		U	0.200	10
75-25-2	Bromoform		U	1.82	10
79-34-5	1,1,2,2-Tetrachloroethane		U	0.400	10
96-18-4	1,2,3-Trichloropropane		U	0.880	10
108-86-1	Bromobenzene		U	0.440	10
95-49-8	2-Chlorotoluene		U	0.180	10
106-43-4	4-Chlorotoluene		U	0.320	10
541-73-1	1,3-Dichlorobenzene		U	0.500	10
106-46-7	1,4-Dichlorobenzene		U	0.440	10
95-50-1	1,2-Dichlorobenzene		U	0.240	10
96-12-8	1,2-Dibromo-3-chloropropane		U	0.240	10
120-82-1	1,2,4-Trichlorobenzene		U	1.14	10
87-68-3	Hexachlorobutadiene		U	1.74	10
91-20-3	Naphthalene		U	0.540	10
87-61-6	1,2,3-Trichlorobenzene		U	1.02	10

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-18

Lab Sample ID: 28080087-025
Lab File ID: 7V6663.D
Date Collected: 31-Jul-08

Date Analyzed: 12-Aug-08
Dilution Factor: 2

CAS No.	Compound	Est. Conc.	Q	RT
	unknown	9.12	J	8.18
	unknown	10.7	J	10.16
	unknown	10.6	J	19.44

Number of TICs found: 3
Total Est Concentration: 30.42 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-19

Lab Sample ID: 28080087-026
Lab File ID: 7V6593.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 200

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	274	1000
74-87-3	Chloromethane		U	312	1000
75-01-4	Vinyl Chloride	873	D	174	1000
74-83-9	Bromomethane		U	222	1000
75-00-3	Chloroethane		U	148	1000
75-69-4	Trichlorofluoromethane		U	168	1000
67-64-1	Acetone		U	334	1000
75-35-4	1,1-Dichloroethene		U	64.0	1000
75-65-0	tert-Butyl Alcohol		U	9250	10000
75-09-2	Methylene Chloride		U	66.0	1000
75-15-0	Carbon Disulfide		U	30.0	1000
107-13-1	Acrylonitrile		U	292	2000
107-02-8	Acrolein		U	1130	4000
1634-04-4	Methyl tert-Butyl Ether		U	176	1000
156-60-5	trans 1,2-Dichloroethene		U	52.0	1000
108-05-4	Vinyl Acetate		U	166	1000
75-34-3	1,1-Dichloroethane		U	32.0	1000
78-93-3	2-Butanone		U	194	1000
594-20-7	2,2-Dichloropropane		U	154	1000
156-59-2	cis 1,2-Dichloroethene	15400	D	62.0	1000
67-66-3	Chloroform		U	28.0	1000
74-97-5	Bromochloromethane		U	58.0	1000
71-55-6	1,1,1-Trichloroethane		U	52.0	1000
563-58-6	1,1-Dichloropropene		U	60.0	1000
56-23-5	Carbon Tetrachloride		U	62.0	1000
107-06-2	1,2-Dichloroethane		U	56.0	1000
71-43-2	Benzene		U	16.0	1000
79-01-6	Trichloroethene	835	D	48.0	1000
78-87-5	1,2-Dichloropropane		U	118	1000
75-27-4	Bromodichloromethane		U	62.0	1000
74-95-3	Dibromomethane		U	94.0	1000
110-75-8	2-Chloroethylvinyl Ether		U	802	1000
108-10-1	4-Methyl-2-Pentanone		U	146	1000
10061-01-5	cis 1,3-Dichloropropene		U	104	1000
108-88-3	Toluene		U	10.0	1000
10061-02-6	trans 1,3-Dichloropropene		U	100	1000
591-78-6	2-Hexanone		U	54.0	1000
79-00-5	1,1,2-Trichloroethane		U	72.0	1000
142-28-9	1,3-Dichloropropane		U	24.0	1000

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-19

Lab Sample ID: 28080087-026
Lab File ID: 7V6593.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 200

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	42.0	1000
124-48-1	Dibromochloromethane		U	108	1000
106-93-4	1,2-Dibromoethane		U	50.0	1000
108-90-7	Chlorobenzene		U	26.0	1000
630-20-6	1,1,1,2-Tetrachloroethane		U	138	1000
100-41-4	Ethylbenzene		U	22.0	1000
1330-20-7	m+p-Xylenes		U	48.0	1000
1330-20-7	o-Xylene		U	16.0	1000
100-42-5	Styrene		U	34.0	1000
98-82-8	Isopropylbenzene		U	20.0	1000
75-25-2	Bromoform		U	182	1000
79-34-5	1,1,2,2-Tetrachloroethane		U	40.0	1000
96-18-4	1,2,3-Trichloropropane		U	88.0	1000
108-86-1	Bromobenzene		U	44.0	1000
95-49-8	2-Chlorotoluene		U	18.0	1000
106-43-4	4-Chlorotoluene		U	32.0	1000
541-73-1	1,3-Dichlorobenzene		U	50.0	1000
106-46-7	1,4-Dichlorobenzene		U	44.0	1000
95-50-1	1,2-Dichlorobenzene		U	24.0	1000
96-12-8	1,2-Dibromo-3-chloropropane		U	24.0	1000
120-82-1	1,2,4-Trichlorobenzene		U	114	1000
87-68-3	Hexachlorobutadiene		U	174	1000
91-20-3	Naphthalene		U	54.0	1000
87-61-6	1,2,3-Trichlorobenzene		U	102	1000

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-19

Lab Sample ID: 28080087-026
Lab File ID: 7V6593.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 200

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-24

Lab Sample ID: 28080087-027
Lab File ID: 7V6584.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 500

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	685	2500
74-87-3	Chloromethane		U	780	2500
75-01-4	Vinyl Chloride		U	435	2500
74-83-9	Bromomethane		U	555	2500
75-00-3	Chloroethane		U	370	2500
75-69-4	Trichlorofluoromethane		U	420	2500
67-64-1	Acetone		U	835	2500
75-35-4	1,1-Dichloroethene		U	160	2500
75-65-0	tert-Butyl Alcohol		U	23100	25000
75-09-2	Methylene Chloride		U	165	2500
75-15-0	Carbon Disulfide		U	75.0	2500
107-13-1	Acrylonitrile		U	730	5000
107-02-8	Acrolein		U	2830	10000
1634-04-4	Methyl tert-Butyl Ether		U	440	2500
156-60-5	trans 1,2-Dichloroethene		U	130	2500
108-05-4	Vinyl Acetate		U	415	2500
75-34-3	1,1-Dichloroethane		U	80.0	2500
78-93-3	2-Butanone		U	485	2500
594-20-7	2,2-Dichloropropane		U	385	2500
156-59-2	cis 1,2-Dichloroethene	18000	D	155	2500
67-66-3	Chloroform		U	70.0	2500
74-97-5	Bromochloromethane		U	145	2500
71-55-6	1,1,1-Trichloroethane		U	130	2500
563-58-6	1,1-Dichloropropene		U	150	2500
56-23-5	Carbon Tetrachloride		U	155	2500
107-06-2	1,2-Dichloroethane		U	140	2500
71-43-2	Benzene		U	40.0	2500
79-01-6	Trichloroethene	36400	D	120	2500
78-87-5	1,2-Dichloropropane		U	295	2500
75-27-4	Bromodichloromethane		U	155	2500
74-95-3	Dibromomethane		U	235	2500
110-75-8	2-Chloroethylvinyl Ether		U	2010	2500
108-10-1	4-Methyl-2-Pentanone		U	365	2500
10061-01-5	cis 1,3-Dichloropropene		U	260	2500
108-88-3	Toluene		U	25.0	2500
10061-02-6	trans 1,3-Dichloropropene		U	250	2500
591-78-6	2-Hexanone		U	135	2500
79-00-5	1,1,2-Trichloroethane		U	180	2500
142-28-9	1,3-Dichloropropane		U	60.0	2500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-24

Lab Sample ID: 28080087-027
Lab File ID: 7V6584.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 500

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene	359	D	105	2500
124-48-1	Dibromochloromethane		U	270	2500
106-93-4	1,2-Dibromoethane		U	125	2500
108-90-7	Chlorobenzene		U	65.0	2500
630-20-6	1,1,1,2-Tetrachloroethane		U	345	2500
1330-20-7	m+p-Xylenes		U	120	2500
1330-20-7	o-Xylene		U	40.0	2500
100-41-4	Ethylbenzene		U	55.0	2500
100-42-5	Styrene		U	85.0	2500
98-82-8	Isopropylbenzene		U	50.0	2500
75-25-2	Bromoform		U	455	2500
79-34-5	1,1,2,2-Tetrachloroethane		U	100	2500
96-18-4	1,2,3-Trichloropropane		U	220	2500
108-86-1	Bromobenzene		U	110	2500
95-49-8	2-Chlorotoluene		U	45.0	2500
106-43-4	4-Chlorotoluene		U	80.0	2500
541-73-1	1,3-Dichlorobenzene		U	125	2500
106-46-7	1,4-Dichlorobenzene		U	110	2500
95-50-1	1,2-Dichlorobenzene		U	60.0	2500
96-12-8	1,2-Dibromo-3-chloropropane		U	60.0	2500
120-82-1	1,2,4-Trichlorobenzene		U	285	2500
87-68-3	Hexachlorobutadiene		U	435	2500
91-20-3	Naphthalene		U	135	2500
87-61-6	1,2,3-Trichlorobenzene		U	255	2500

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-24

Lab Sample ID: 28080087-027
Lab File ID: 7V6584.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 500

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-25

Lab Sample ID: 28080087-028
Lab File ID: 7V6577.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride	35.3		0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene	2.16		0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene	158		0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene	95.5		0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-25

Lab Sample ID: 28080087-028
Lab File ID: 7V6577.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-25

Lab Sample ID: 28080087-028
Lab File ID: 7V6577.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Aqua Pro-Tech Laboratories
EPA Method EPA 624 Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample:
Grant MW-28

Lab Sample ID: 28080087-029
Lab File ID: 7V6589.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	137	500
74-87-3	Chloromethane		U	156	500
75-01-4	Vinyl Chloride		U	87.0	500
74-83-9	Bromomethane		U	111	500
75-00-3	Chloroethane		U	74.0	500
75-69-4	Trichlorofluoromethane		U	84.0	500
67-64-1	Acetone		U	167	500
75-35-4	1,1-Dichloroethene		U	32.0	500
75-65-0	tert-Butyl Alcohol		U	4620	5000
75-09-2	Methylene Chloride		U	33.0	500
75-15-0	Carbon Disulfide		U	15.0	500
107-13-1	Acrylonitrile		U	146	1000
107-02-8	Acrolein		U	566	2000
1634-04-4	Methyl tert-Butyl Ether		U	88.0	500
156-60-5	trans 1,2-Dichloroethene		U	26.0	500
108-05-4	Vinyl Acetate		U	83.0	500
75-34-3	1,1-Dichloroethane		U	16.0	500
78-93-3	2-Butanone		U	97.0	500
594-20-7	2,2-Dichloropropane		U	77.0	500
156-59-2	cis 1,2-Dichloroethene	412	D	31.0	500
67-66-3	Chloroform		U	14.0	500
74-97-5	Bromochloromethane		U	29.0	500
71-55-6	1,1,1-Trichloroethane		U	26.0	500
563-58-6	1,1-Dichloropropene		U	30.0	500
56-23-5	Carbon Tetrachloride		U	31.0	500
107-06-2	1,2-Dichloroethane		U	28.0	500
71-43-2	Benzene		U	8.00	500
79-01-6	Trichloroethene	3870	D	24.0	500
78-87-5	1,2-Dichloropropane		U	59.0	500
75-27-4	Bromodichloromethane		U	31.0	500
74-95-3	Dibromomethane		U	47.0	500
110-75-8	2-Chloroethylvinyl Ether		U	401	500
108-10-1	4-Methyl-2-Pentanone		U	73.0	500
10061-01-5	cis 1,3-Dichloropropene		U	52.0	500
108-88-3	Toluene		U	5.00	500
10061-02-6	trans 1,3-Dichloropropene		U	50.0	500
591-78-6	2-Hexanone		U	27.0	500
79-00-5	1,1,2-Trichloroethane		U	36.0	500
142-28-9	1,3-Dichloropropane		U	12.0	500

Aqua Pro-Tech Laboratories
EPA Method EPA 624 Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample:
Grant MW-28

Lab Sample ID: 28080087-029
Lab File ID: 7V6589.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	21.0	500
124-48-1	Dibromochloromethane		U	54.0	500
106-93-4	1,2-Dibromoethane		U	25.0	500
108-90-7	Chlorobenzene		U	13.0	500
630-20-6	1,1,1,2-Tetrachloroethane		U	69.0	500
100-41-4	Ethylbenzene		U	11.0	500
1330-20-7	m+p-Xylenes		U	24.0	500
1330-20-7	o-Xylene		U	8.00	500
100-42-5	Styrene		U	17.0	500
98-82-8	Isopropylbenzene		U	10.0	500
75-25-2	Bromoform		U	91.0	500
79-34-5	1,1,2,2-Tetrachloroethane		U	20.0	500
96-18-4	1,2,3-Trichloropropane		U	44.0	500
108-86-1	Bromobenzene		U	22.0	500
95-49-8	2-Chlorotoluene		U	9.00	500
106-43-4	4-Chlorotoluene		U	16.0	500
541-73-1	1,3-Dichlorobenzene		U	25.0	500
106-46-7	1,4-Dichlorobenzene		U	22.0	500
95-50-1	1,2-Dichlorobenzene		U	12.0	500
96-12-8	1,2-Dibromo-3-chloropropane		U	12.0	500
120-82-1	1,2,4-Trichlorobenzene		U	57.0	500
87-68-3	Hexachlorobutadiene		U	87.0	500
91-20-3	Naphthalene		U	27.0	500
87-61-6	1,2,3-Trichlorobenzene		U	51.0	500

Aqua Pro-Tech Laboratories
EPA Method EPA 624 Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Grant MW-28

Lab Sample ID: 28080087-029
Lab File ID: 7V6589.D
Date Collected: 31-Jul-08

Date Analyzed: 8-Aug-08
Dilution Factor: 100

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Data File : G:\HPCHEM\7\DATA\08072008\7V6562.D Vial: 26
Acq On : 8 Aug 2008 5:20 am Operator: sdp
Sample : 28080087-001 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:52 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 12:21:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	204435	30.00 ug/L	0.02
30) 1,4-Difluorobenzene	10.97	114	477089	30.00 ug/L	0.02
47) Chlorobenzene-d5	15.95	82	249602	30.00 ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.98	152	140178	30.00 ug/L	0.05
System Monitoring Compounds					
24) Dibromofluoromethane	9.60	113	167702	32.18 ug/L	0.04
Spiked Amount 30.000	Range 89 - 116		Recovery = 107.27%		
38) Toluene-d8	13.45	98	534038	29.80 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 99.33%		
57) 4-Bromofluorobenzene	17.94	95	227914	29.05 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 96.83%		

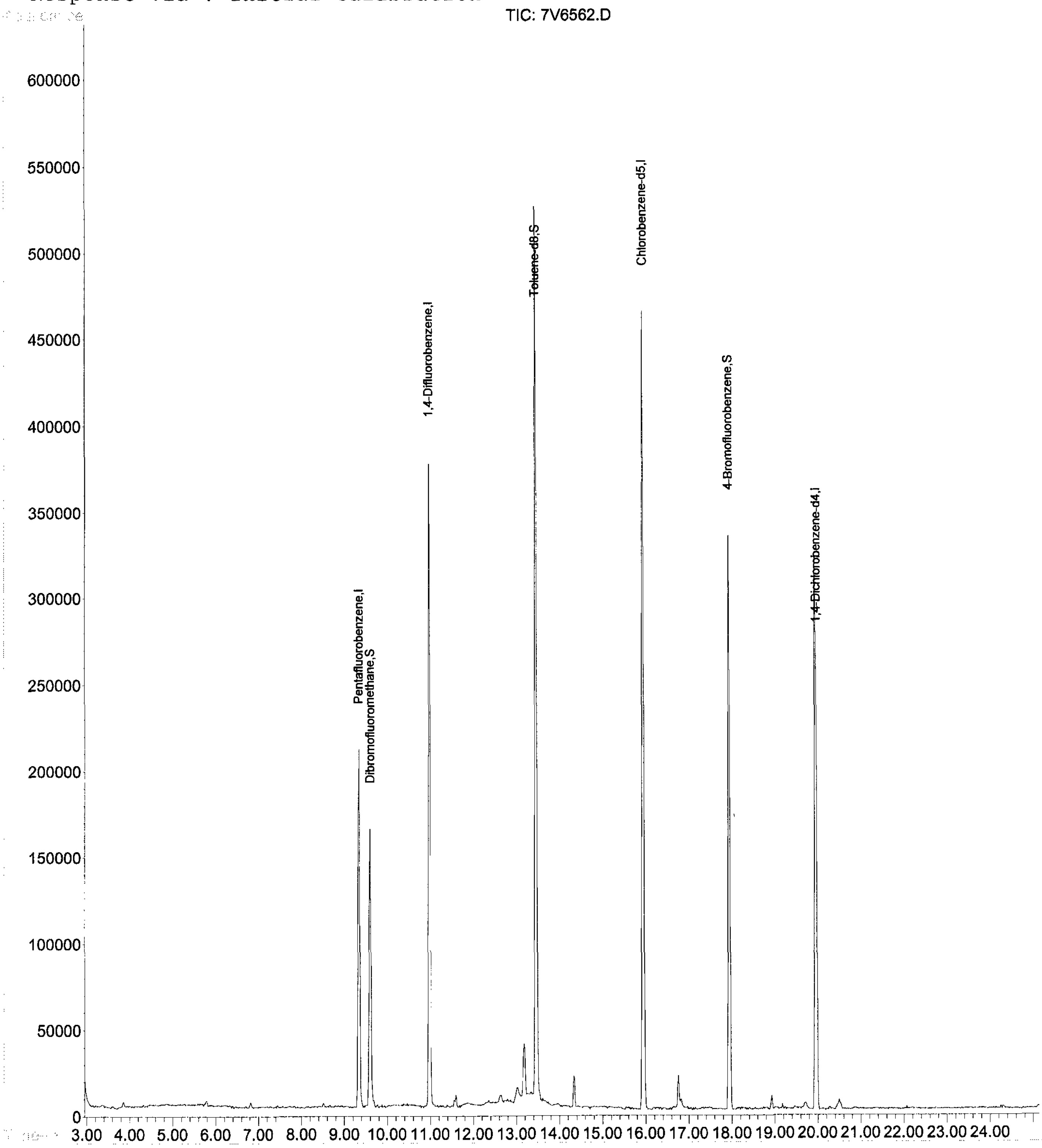
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6562.D Vial: 26
Acq On : 8 Aug 2008 5:20 am Operator: sdp
Sample : 28080087-001 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:52 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08072008\7V6563.D Vial: 27
Acq On : 8 Aug 2008 5:53 am Operator: sdp
Sample : 28080087-002 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:53 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 12:21:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

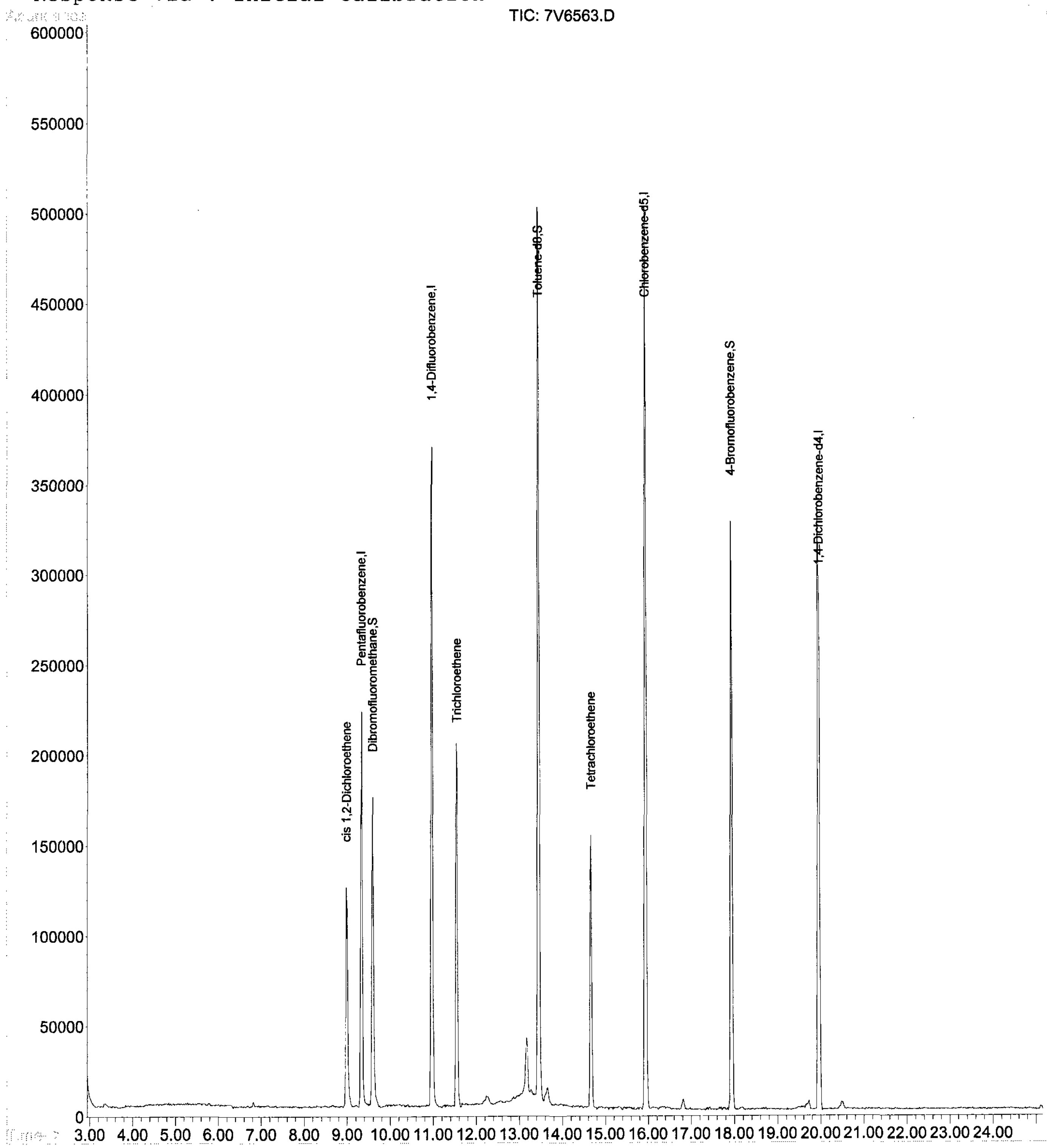
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	211393	30.00 ug/L	0.02
30) 1,4-Difluorobenzene	10.98	114	493809	30.00 ug/L	0.03
47) Chlorobenzene-d5	15.94	82	256912	30.00 ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.98	152	149099	30.00 ug/L	0.05
System Monitoring Compounds					
24) Dibromofluoromethane	9.59	113	172982	32.10 ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery =	107.00%	
38) Toluene-d8	13.46	98	551702	29.74 ug/L	0.03
Spiked Amount 30.000	Range 93 - 108		Recovery =	99.13%	
57) 4-Bromofluorobenzene	17.93	95	233930	28.97 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery =	96.57%	
Target Compounds					Qvalue
21) cis 1,2-Dichloroethene	8.99	61	127438	19.26 ug/L	87
31) Trichloroethene	11.56	130	110485	23.85 ug/L	97
44) Tetrachloroethene	14.67	166	74281	17.69 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6563.D   Vial: 27
Acq On : 8 Aug 2008 5:53 am   Operator: sdp
Sample : 28080087-002   Inst : GCMS-7
Misc :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:53 2008   Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : G:\HPCHEM\7\DATA\08072008\7V6564.D   Vial: 28
Acq On : 8 Aug 2008 6:26 am   Operator: sdp
Sample : 28080087-003   Inst : GCMS-7
Misc :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 11:59 2008   Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	188581	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.98	114	445074	30.00	ug/L	0.03
47) Chlorobenzene-d5	15.94	82	233153	30.00	ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.98	152	130177	30.00	ug/L	0.05

System Monitoring Compounds

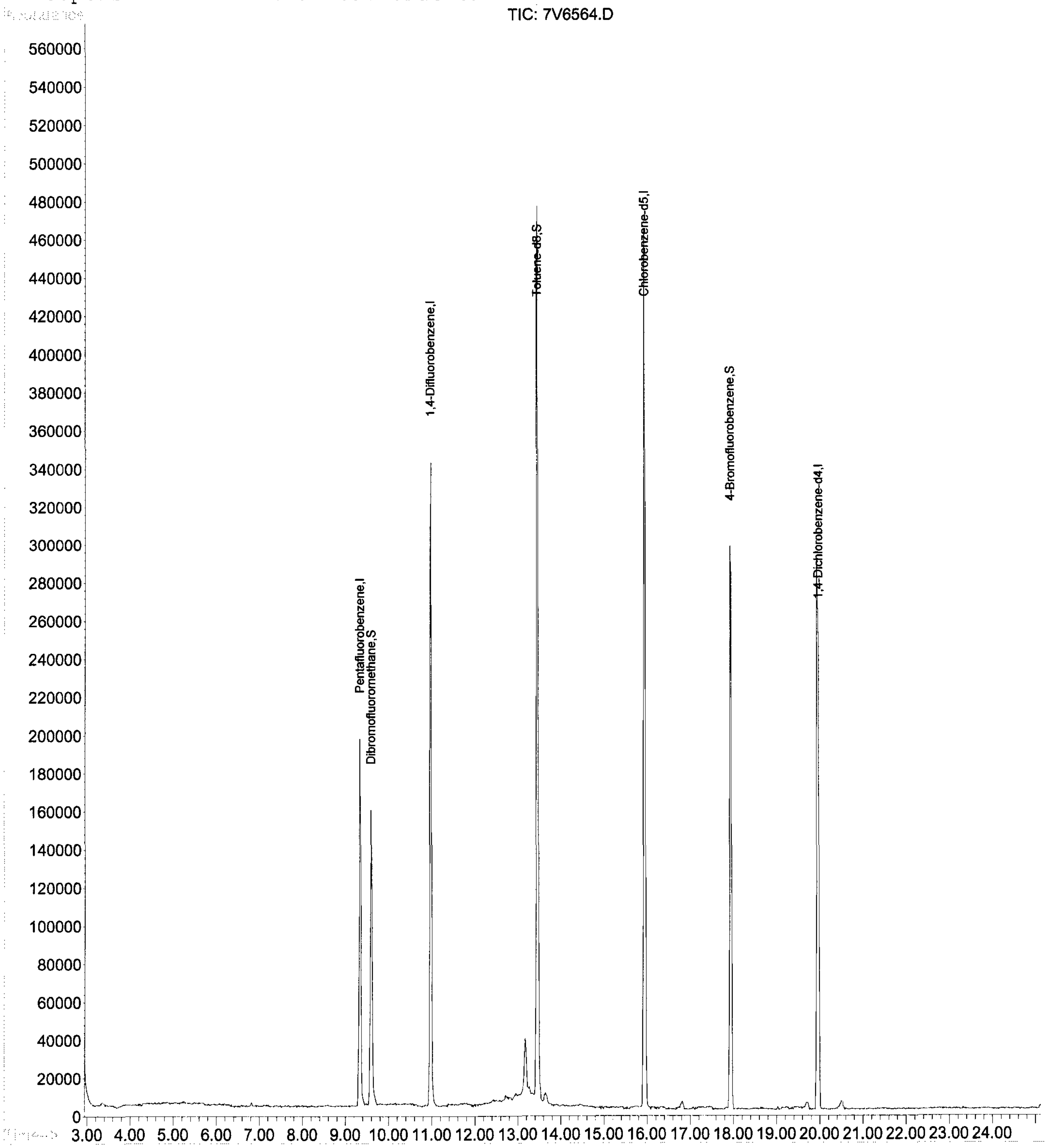
24) Dibromofluoromethane	9.59	113	160180	33.32	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 111.07%			
38) Toluene-d8	13.46	98	502820	28.11	ug/L	0.03
Spiked Amount 30.000	Range 93 - 108		Recovery = 93.70%			
57) 4-Bromofluorobenzene	17.93	95	216975	29.61	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 98.70%			

Target Compounds   Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08072008\7V6564.D   Vial: 28
Acq On : 8 Aug 2008 6:26 am   Operator: sdp
Sample : 28080087-003   Inst : GCMS-7
Misc :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 11:59 2008   Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



```
Data File : G:\HPCHEM\7\DATA\08072008\7V6565.D          Vial: 29
Acq On    :  8 Aug 2008   7:00 am                   Operator: sdp
Sample    : 28080087-004                            Inst     : GCMS-7
Misc      :                                         Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  8 13:54 2008              Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title        : VOC's by EPA Method 624
Last Update  : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7
```

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	190819	30.00 ug/L	0.02
30) 1,4-Difluorobenzene	10.98	114	453458	30.00 ug/L	0.03
47) Chlorobenzene-d5	15.94	82	237286	30.00 ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.94	152	139442	30.00 ug/L	0.02

System Monitoring Compounds

24) Dibromofluoromethane	9.60	113	161295	33.16 ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 110.53%		
38) Toluene-d8	13.45	98	520068	28.53 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 95.10%		
57) 4-Bromofluorobenzene	17.93	95	215309	28.87 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 96.23%		

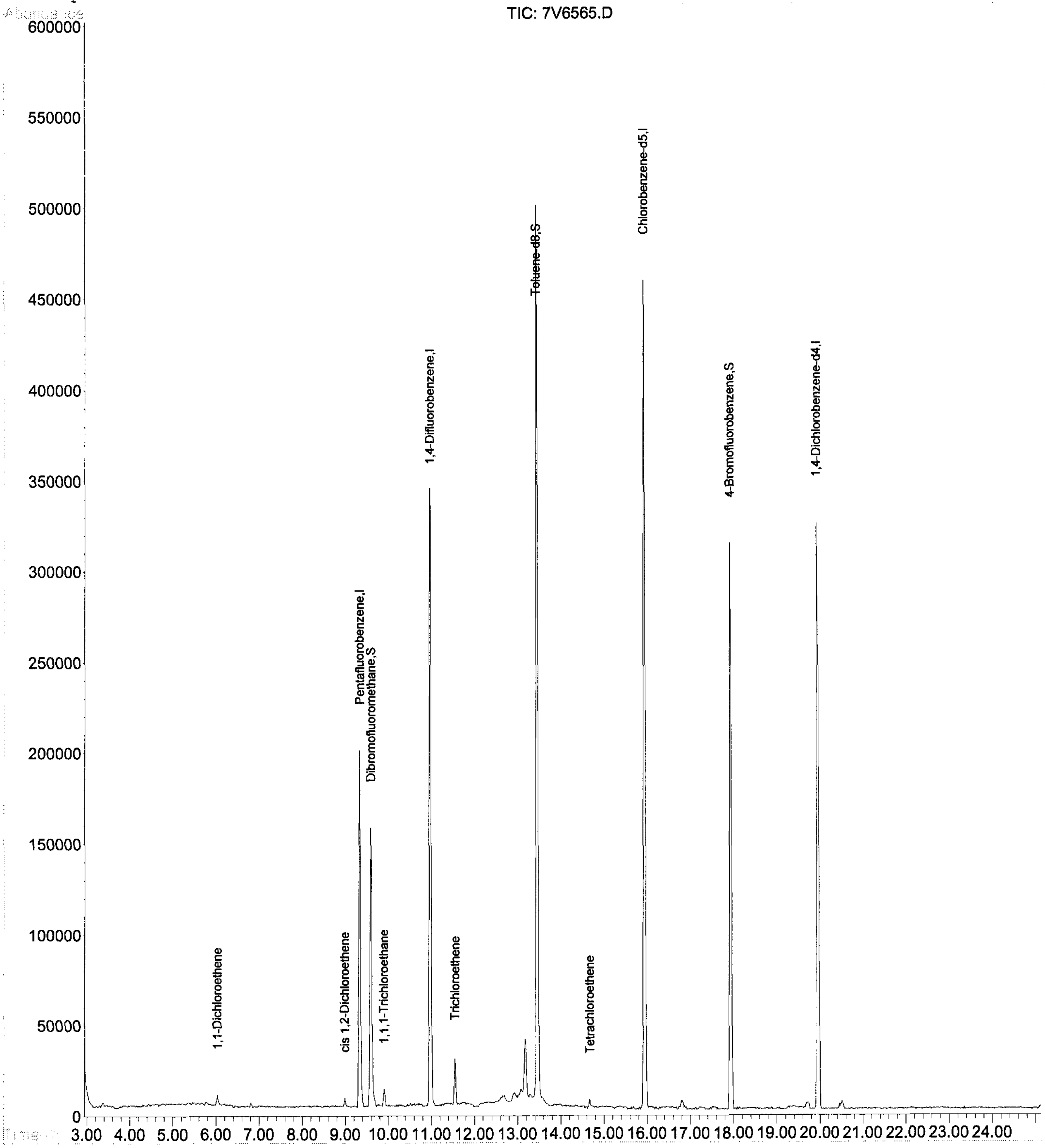
Target Compounds					Qvalue
10) 1,1-Dichloroethene	6.03	61	7738	1.45 ug/L	97
21) cis 1,2-Dichloroethene	8.99	61	4567	0.76 ug/L	85
25) 1,1,1-Trichloroethane	9.90	97	11519	2.53 ug/L	91
31) Trichloroethene	11.56	130	14199	3.34 ug/L	92
44) Tetrachloroethene	14.67	166	2700	0.70 ug/L #	58

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6565.D   Vial: 29
Acq On   : 8 Aug 2008   7:00 am   Operator: sdp
Sample   : 28080087-004   Inst   : GCMS-7
Misc   :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:54 2008   Quant Results File: 0805VO7.RES

Method   : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title   : VOC's by EPA Method 624
Last Update   : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08072008\7V6566.D Vial: 30
Acq On : 8 Aug 2008 7:33 am Operator: sdp
Sample : 28080087-005 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:55 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	199977	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.98	114	474341	30.00	ug/L	0.03
47) Chlorobenzene-d5	15.94	82	249225	30.00	ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.94	152	142557	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.59	113	166053	32.57	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 108.57%			
38) Toluene-d8	13.46	98	538095	28.22	ug/L	0.03
Spiked Amount 30.000	Range 93 - 108		Recovery = 94.07%			
57) 4-Bromofluorobenzene	17.93	95	223662	28.55	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 95.17%			
Target Compounds						Qvalue
10) 1,1-Dichloroethene	6.03	61	32817	5.86	ug/L	97
21) cis 1,2-Dichloroethene	8.99	61	14597	2.33	ug/L	89
25) 1,1,1-Trichloroethane	9.90	97	38061	7.97	ug/L	99
31) Trichloroethene	11.54	130	39354	8.84	ug/L	98
44) Tetrachloroethene	14.67	166	50397	12.50	ug/L	99

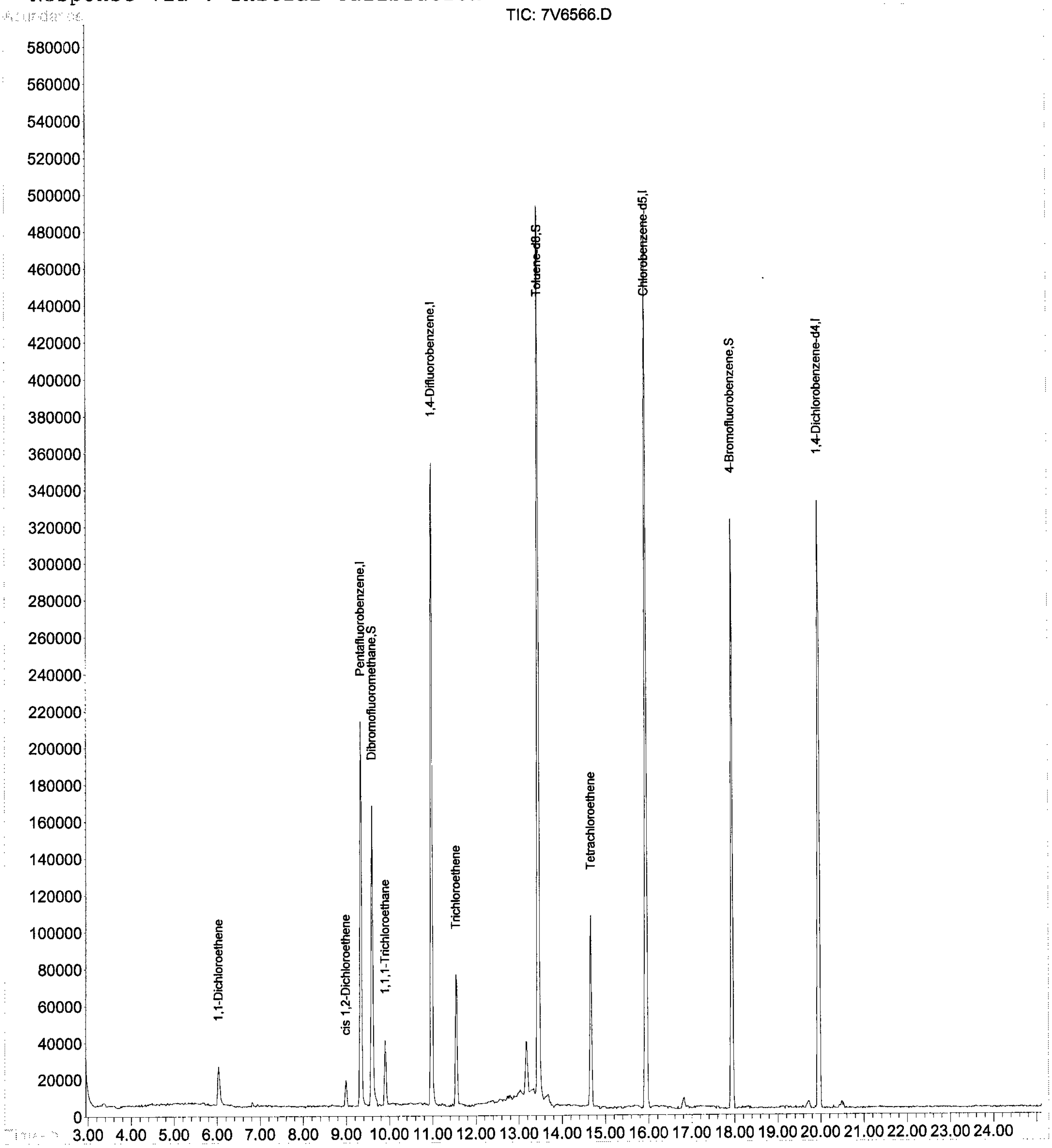
(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08072008\7V6566.D
Acq On : 8 Aug 2008 7:33 am
Sample : 28080087-005
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:55 2008

Vial: 30
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08072008\7V6567.D Vial: 31
Acq On : 8 Aug 2008 8:06 am Operator: sdp
Sample : 28080087-006 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:55 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	190044	30.00 ug/L	0.01
30) 1,4-Difluorobenzene	10.98	114	451583	30.00 ug/L	0.03
47) Chlorobenzene-d5	15.94	82	230786	30.00 ug/L	0.01
63) 1,4-Dichlorobenzene-d4	19.94	152	138370	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.59	113	159877	33.00 ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 110.00%		
38) Toluene-d8	13.46	98	513854	28.31 ug/L	0.03
Spiked Amount 30.000	Range 93 - 108		Recovery = 94.37%		
57) 4-Bromofluorobenzene	17.93	95	217521	29.99 ug/L	0.01
Spiked Amount 30.000	Range 75 - 141		Recovery = 99.97%		
Target Compounds					Qvalue
4) Vinyl Chloride	3.68	62	18248	6.47 ug/L	97
21) cis 1,2-Dichloroethene	8.99	61	25966	4.37 ug/L	83
31) Trichloroethene	11.55	130	10522	2.48 ug/L	95
44) Tetrachloroethene	14.67	166	2930	0.76 ug/L #	72

(#) = qualifier out of range (m) = manual integration

```
Data File : G:\HPCHEM\7\DATA\08072008\7V6567.D          Vial: 31
Acq On    :  8 Aug 2008   8:06 am                   Operator: sdp
Sample    : 28080087-006                            Inst    : GCMS-7
Misc      :                                         Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  8 13:55 2008            Quant Results File: 0805VO7.RES

Method         : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title          : VOC's by EPA Method 624
Last Update    : Wed Aug 06 13:16:47 2008
Response via   : Initial Calibration
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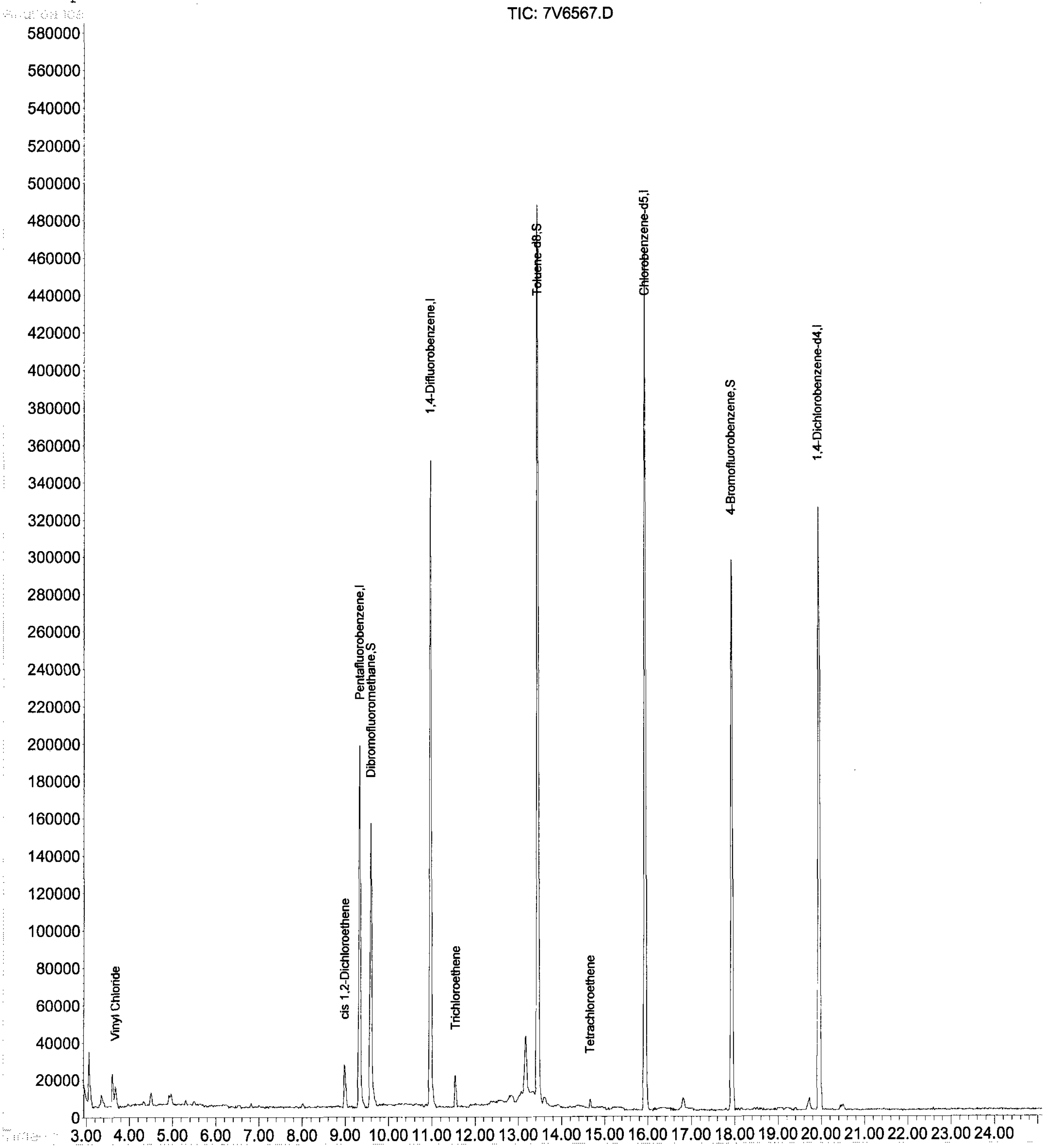


Quantitation Report (QT Reviewed)

Data File : G:\HPCHEM\7\DATA\08072008\7V6568.D
Acq On : 8 Aug 2008 8:39 am
Sample : 28080087-007
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:56 2008

Vial: 32
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00
Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

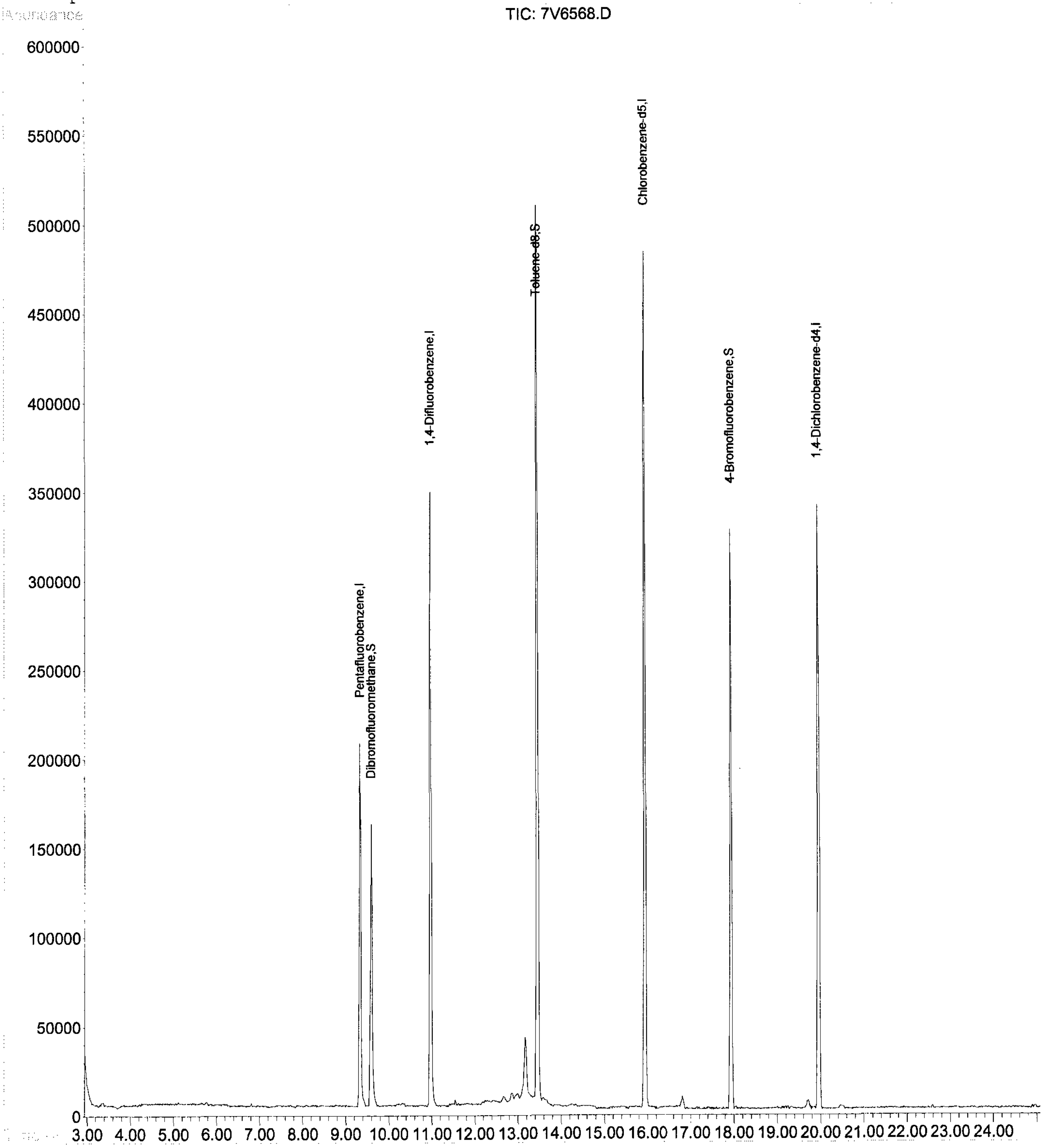
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	203297	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.98	114	478947	30.00	ug/L	0.03
47) Chlorobenzene-d5	15.94	82	251266	30.00	ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.94	152	136596	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.59	113	168029	32.42	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 108.07%			
38) Toluene-d8	13.45	98	557326	28.95	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 96.50%			
57) 4-Bromofluorobenzene	17.93	95	226895	28.73	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 95.77%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08072008\7V6568.D Vial: 32
Acq On : 8 Aug 2008 8:39 am Operator: sdp
Sample : 28080087-007 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:56 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



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Data File : G:\HPCHEM\7\DATA\08072008\7V6569.D          Vial: 33
Acq On    :  8 Aug 2008   9:12 am                    Operator: sdp
Sample    : 28080087-008                             Inst    : GCMS-7
Misc      :                                          Multiplr: 1.00
MS Integration Params: RTEINT.P
 Quant Time: Aug  8 13:56 2008               Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title        : VOC's by EPA Method 624
Last Update  : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

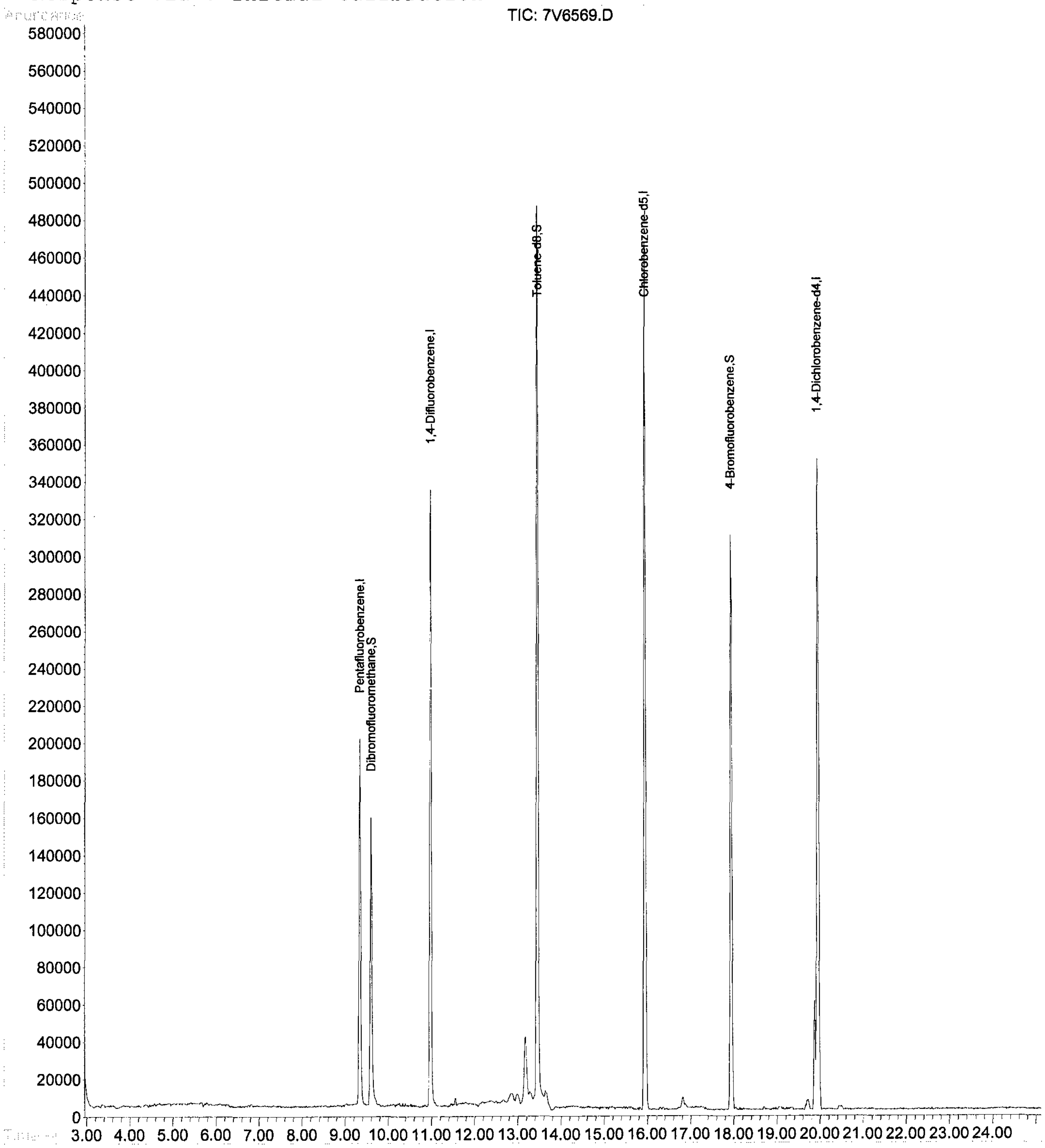
 Internal Standards                 R.T. QIon  Response  Conc Units Dev(Min)
 ---------------------------------------------------------------------------
  1) Pentafluorobenzene             9.33  168   185865    30.00 ug/L    0.01
 30) 1,4-Difluorobenzene           10.98  114   439253    30.00 ug/L    0.03
 47) Chlorobenzene-d5              15.94   82   237429    30.00 ug/L    0.01
 63) 1,4-Dichlorobenzene-d4        19.94  152   139369    30.00 ug/L    0.01

 System Monitoring Compounds
 24) Dibromofluoromethane           9.59  113   157982    33.34 ug/L    0.03
  Spiked Amount     30.000   Range  89 - 116    Recovery   =  111.13%
 38) Toluene-d8                    13.46   98   524195    29.69 ug/L    0.03
  Spiked Amount     30.000   Range  93 - 108    Recovery   =   98.97%
 57) 4-Bromofluorobenzene          17.93   95   216311    28.99 ug/L    0.01
  Spiked Amount     30.000   Range  75 - 141    Recovery   =   96.63%

 Target Compounds                                                   Qvalue
```

Data File : G:\HPCHEM\7\DATA\08072008\7V6569.D Vial: 33
Acq On : 8 Aug 2008 9:12 am Operator: sdp
Sample : 28080087-008 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 13:56 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08072008\7V6570.D Vial: 34
Acq On : 8 Aug 2008 9:46 am Operator: sdp
Sample : 28080087-009 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:00 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

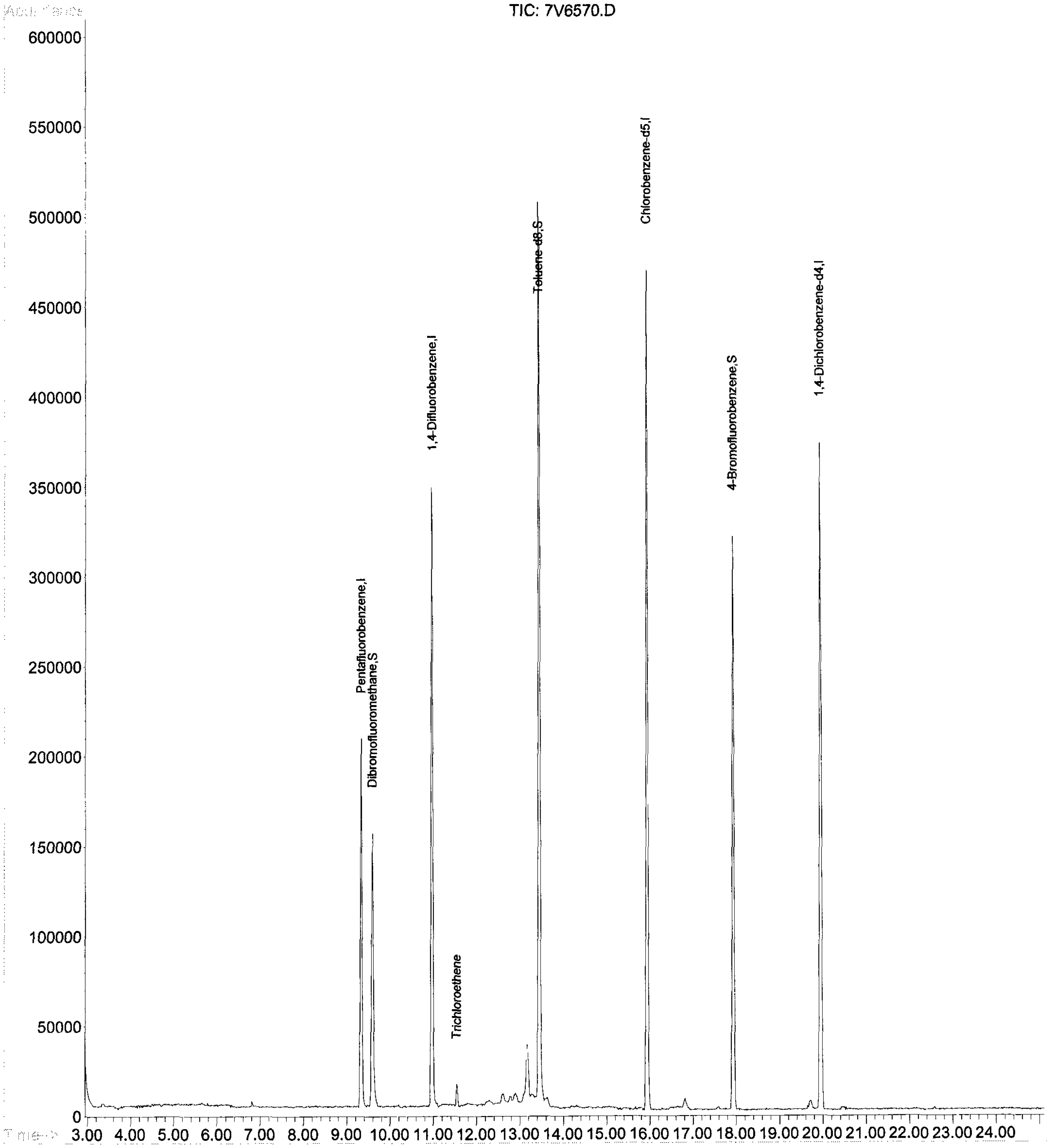
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	195318	30.00 ug/L	0.02
30) 1,4-Difluorobenzene	10.98	114	461153	30.00 ug/L	0.03
47) Chlorobenzene-d5	15.94	82	243241	30.00 ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.94	152	140125	30.00 ug/L	0.02
System Monitoring Compounds					
24) Dibromofluoromethane	9.59	113	161265	32.39 ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 107.97%		
38) Toluene-d8	13.44	98	530283	28.61 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 95.37%		
57) 4-Bromofluorobenzene	17.93	95	219564	28.72 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 95.73%		
Target Compounds					Qvalue
31) Trichloroethene	11.54	130	6766	1.56 ug/L	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6570.D   Vial: 34
Acq On   : 8 Aug 2008   9:46 am   Operator: sdp
Sample   : 28080087-009   Inst   : GCMS-7
Misc   :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:00 2008   Quant Results File: 0805VO7.RES

Method   : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title   : VOC's by EPA Method 624
Last Update   : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6595.D
Acq On : 9 Aug 2008 12:07 am
Sample : 28080087-010
Misc : 1:5
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:31 2008

Vial: 59
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

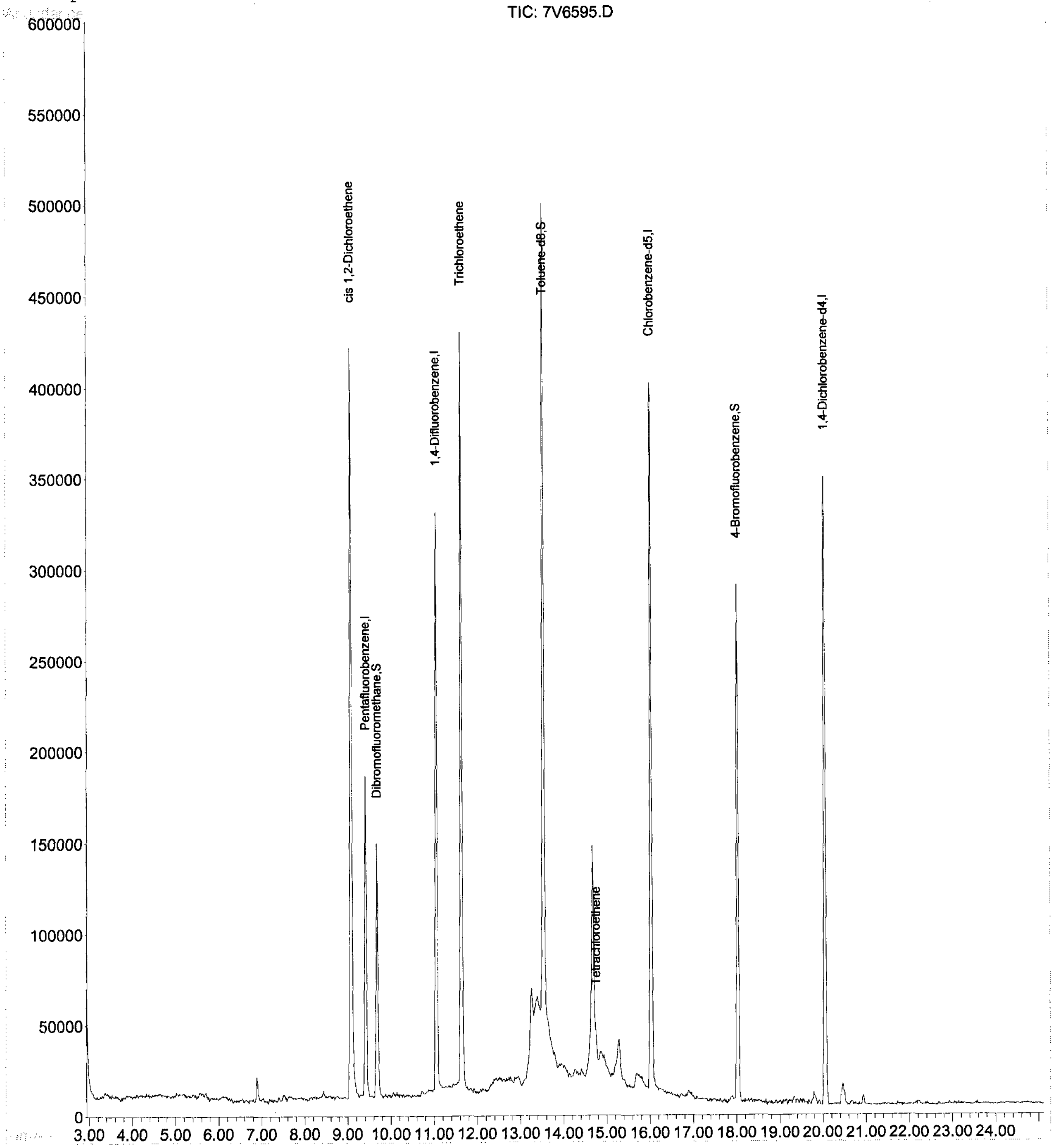
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.42	168	167404	30.00	ug/L	0.10
30) 1,4-Difluorobenzene	11.06	114	409173	30.00	ug/L	0.12
47) Chlorobenzene-d5	16.03	82	213981	30.00	ug/L	0.10
63) 1,4-Dichlorobenzene-d4	20.06	152	175316	30.00	ug/L	0.13
System Monitoring Compounds						
24) Dibromofluoromethane	9.68	113	143665	33.66	ug/L	0.12
Spiked Amount 30.000	Range 89 - 116		Recovery =	112.20%		
38) Toluene-d8	13.55	98	464375	28.24	ug/L	0.12
Spiked Amount 30.000	Range 93 - 108		Recovery =	94.13%		
57) 4-Bromofluorobenzene	18.03	95	197273	29.33	ug/L	0.12
Spiked Amount 30.000	Range 75 - 141		Recovery =	97.77%		
Target Compounds						Qvalue
21) cis 1,2-Dichloroethene	9.07	61	423230	80.79	ug/L	86
31) Trichloroethene	11.64	130	219775	57.26	ug/L	97
44) Tetrachloroethene	14.76	166	3556	1.02	ug/L #	83

(#) = qualifier out of range (m) = manual integration

```
Data File : G:\HPCHEM\7\DATA\08082008\7V6595.D          Vial: 59
Acq On    :  9 Aug 2008  12:07 am                   Operator: sdp
Sample    : 28080087-010                            Inst    : GCMS-7
Misc      : 1:5                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:31 2008            Quant Results File: 0805VO7.RES

Method       : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title        : VOC's by EPA Method 624
Last Update  : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
```



Data File : G:\HPCHEM\7\DATA\08072008\7V6571.D Vial: 35
Acq On : 8 Aug 2008 10:19 am Operator: sdp
Sample : 28080087-011 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:01 2008 Quant Results File: 0805VO7.RES

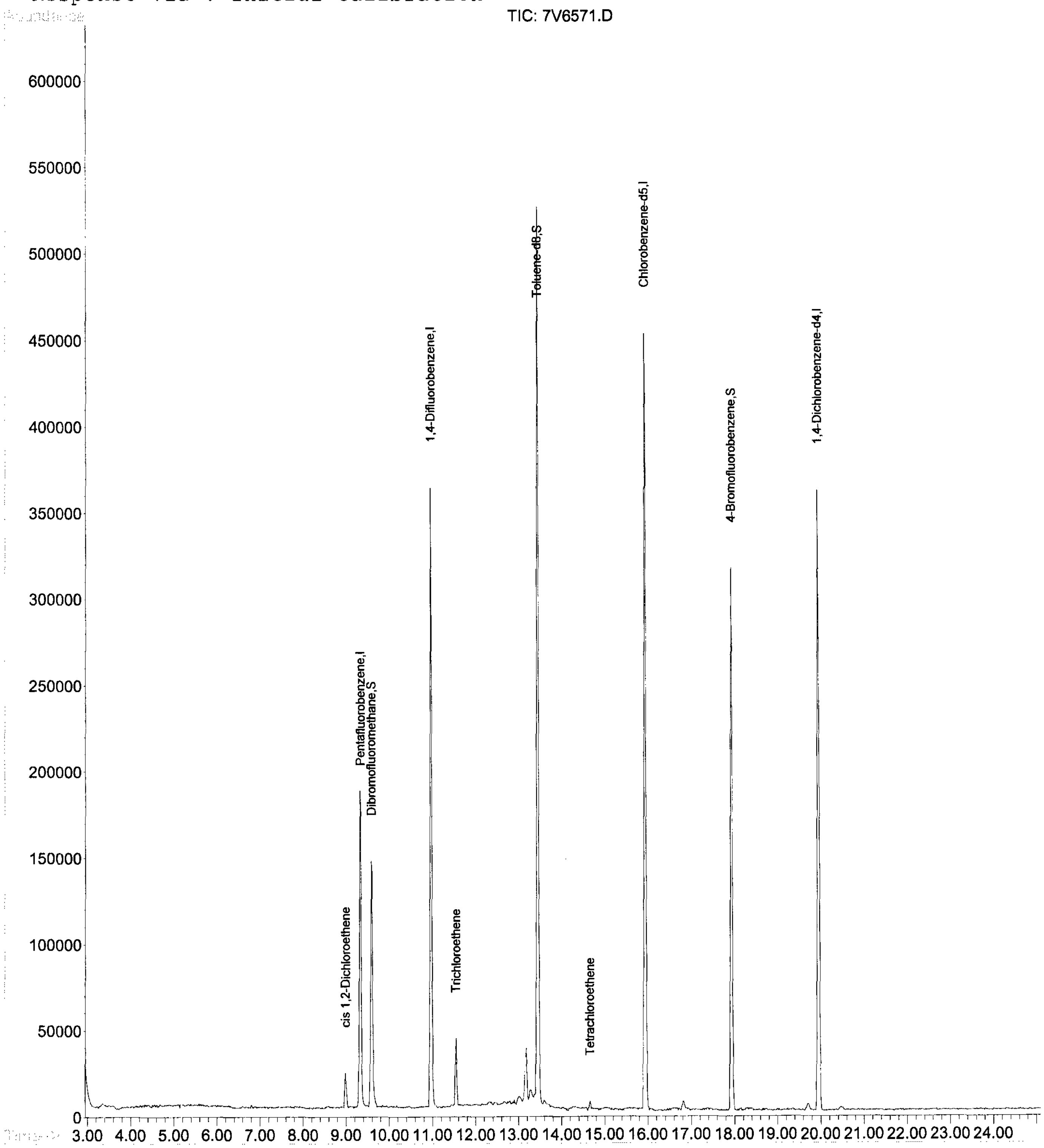
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Fri Aug 08 11:54:15 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	183975	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.97	114	446242	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	236261	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	132729	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	158353	33.76	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	112.53%		
38) Toluene-d8	13.45	98	524275	29.23	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery =	97.43%		
57) 4-Bromofluorobenzene	17.94	95	217848	29.34	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery =	97.80%		
Target Compounds						Qvalue
21) cis 1,2-Dichloroethene	8.99	61	21174	3.68	ug/L	86
31) Trichloroethene	11.55	130	19830	4.74	ug/L	97
44) Tetrachloroethene	14.66	166	3013	0.79	ug/L #	62

Quantitation Report


```
Data File : G:\HPCHEM\7\DATA\08072008\7V6571.D              Vial: 35
Acq On    :  8 Aug 2008  10:19 am                       Operator: sdp
Sample    : 28080087-011                                Inst    : GCMS-7
Misc      :                                             Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  8 12:01 2008               Quant Results File: 0805VO7.RES

Method       : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title        : VOC's by EPA Method 624
Last Update  : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
```



Quantitation Report (QT Reviewed)

Data File : G:\HPCHEM\7\DATA\08072008\7V6572.D Vial: 36
Acq On : 8 Aug 2008 10:53 am Operator: sdp
Sample : 28080087-012 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:11 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	181735	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.97	114	429481	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	233808	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	138247	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.60	113	155037	33.46	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 111.53%			
38) Toluene-d8	13.45	98	514843	29.82	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 99.40%			
57) 4-Bromofluorobenzene	17.93	95	215040	29.26	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 97.53%			

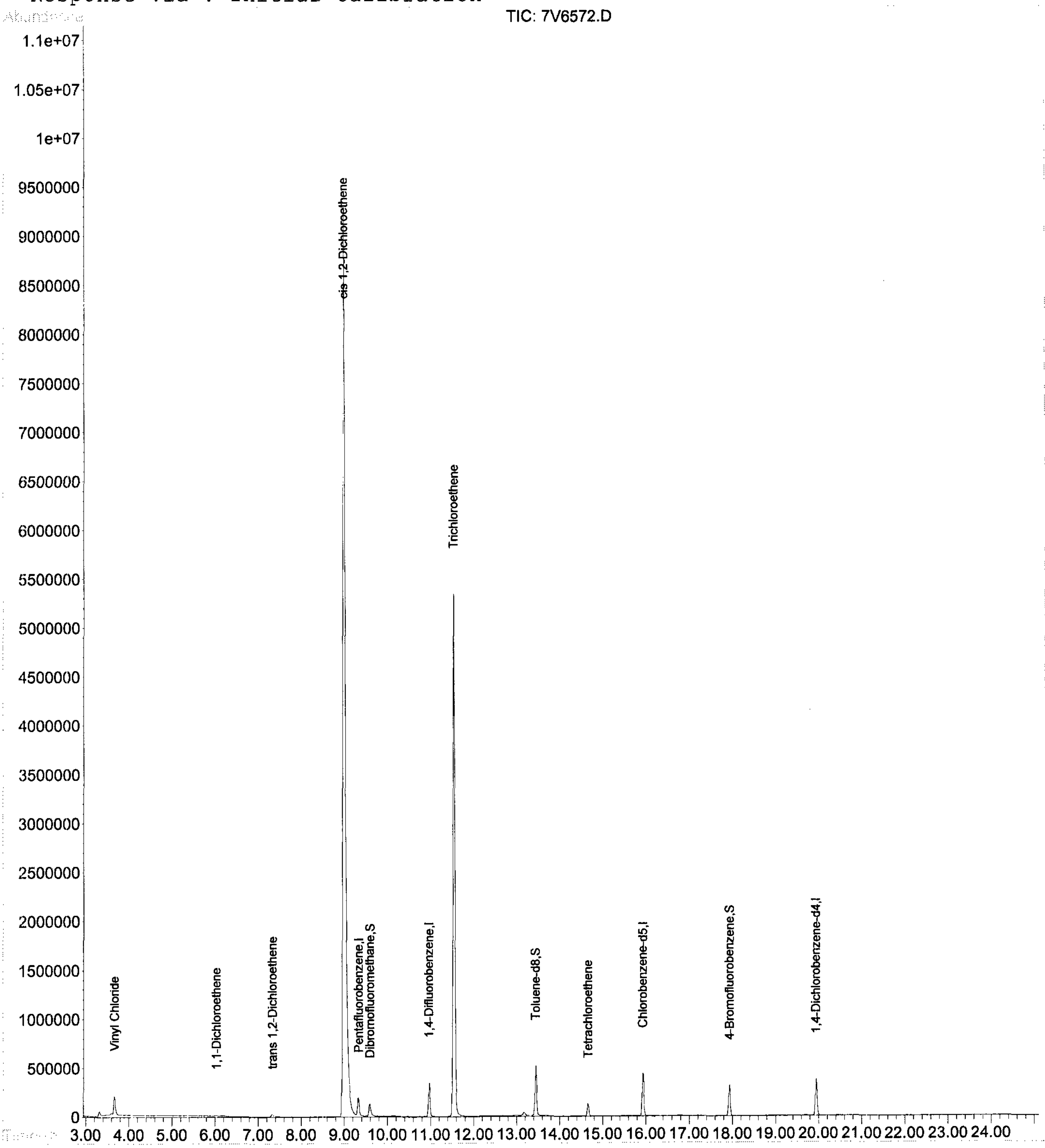
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
4) Vinyl Chloride	3.67	62	361571	134.16	ug/L	98
10) 1,1-Dichloroethene	6.03	61	7679	1.51	ug/L	97
16) trans 1,2-Dichloroethene	7.33	61	41974	8.16	ug/L	98
21) cis 1,2-Dichloroethene	8.99	61	12064205	2121.26	ug/L	84
31) Trichloroethene	11.54	130	2872655	713.05	ug/L	97
44) Tetrachloroethene	14.66	166	59457	16.28	ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6572.D Vial: 36
Acq On : 8 Aug 2008 10:53 am Operator: sdp
Sample : 28080087-012 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:11 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6590.D Vial: 54
Acq On : 8 Aug 2008 9:20 pm Operator: sdp
Sample : 28080087-012 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:27 2008 Quant Results File: 0805VO7.RES

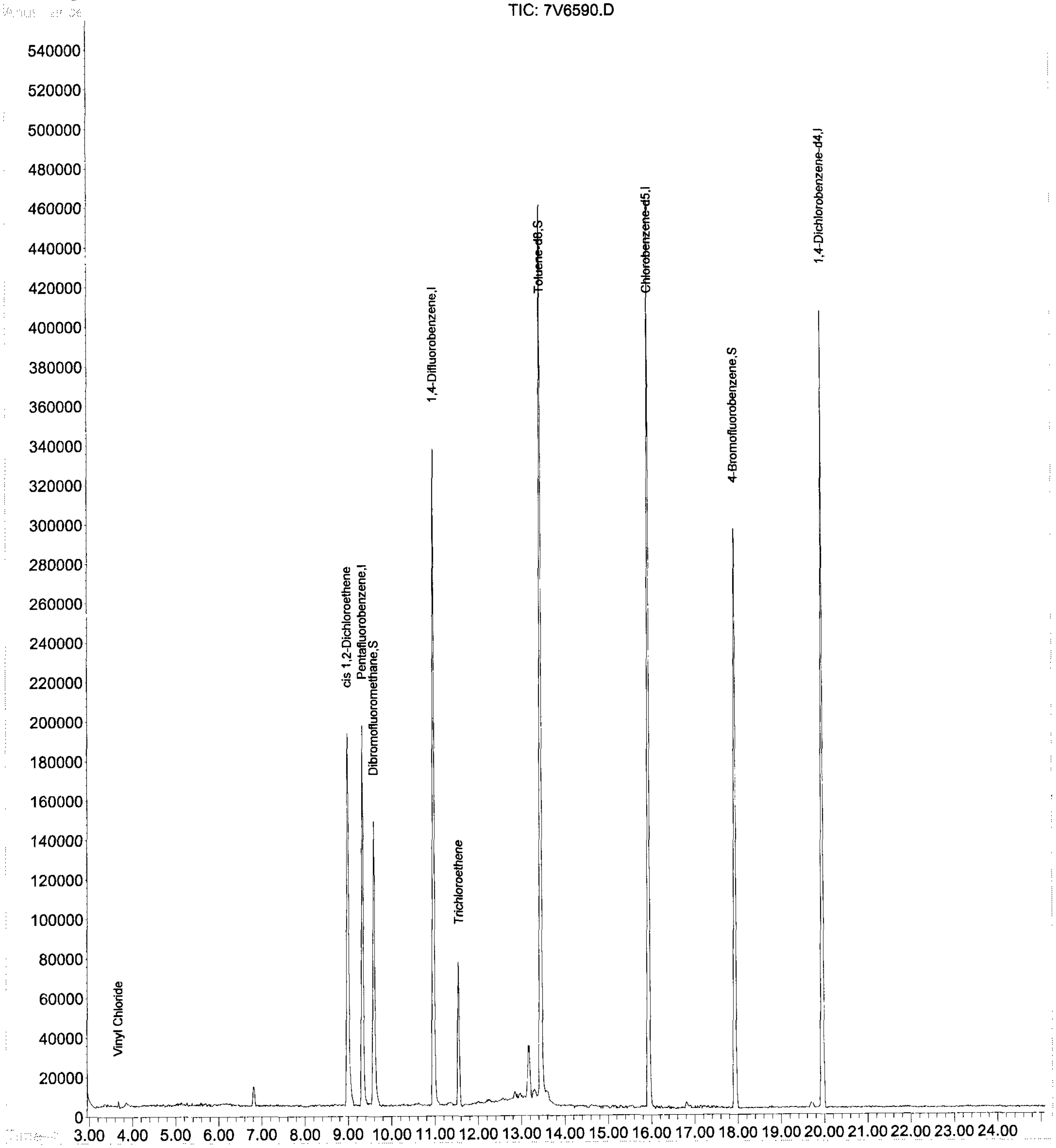
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	182099	30.00 ug/L	0.00
30) 1,4-Difluorobenzene	10.97	114	431942	30.00 ug/L	0.02
47) Chlorobenzene-d5	15.93	82	230126	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	144750	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.58	113	155952	33.59 ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	111.97%	
38) Toluene-d8	13.45	98	493793	28.44 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery =	94.80%	
57) 4-Bromofluorobenzene	17.92	95	214286	29.63 ug/L	0.00
Spiked Amount 30.000	Range 75 - 141		Recovery =	98.77%	
Target Compounds					Qvalue
4) Vinyl Chloride	3.67	62	3703	1.37 ug/L	85
21) cis 1,2-Dichloroethene	8.98	61	210488	36.94 ug/L	88
31) Trichloroethene	11.54	130	41171	10.16 ug/L	96

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08082008\7V6590.D Vial: 54
Acq On : 8 Aug 2008 9:20 pm Operator: sdp
Sample : 28080087-012 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:27 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6591.D Vial: 55
Acq On : 8 Aug 2008 9:54 pm Operator: sdp
Sample : 28080087-013 Inst : GCMS-7
Misc : 1:50 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:28 2008 Quant Results File: 0805VO7.RES

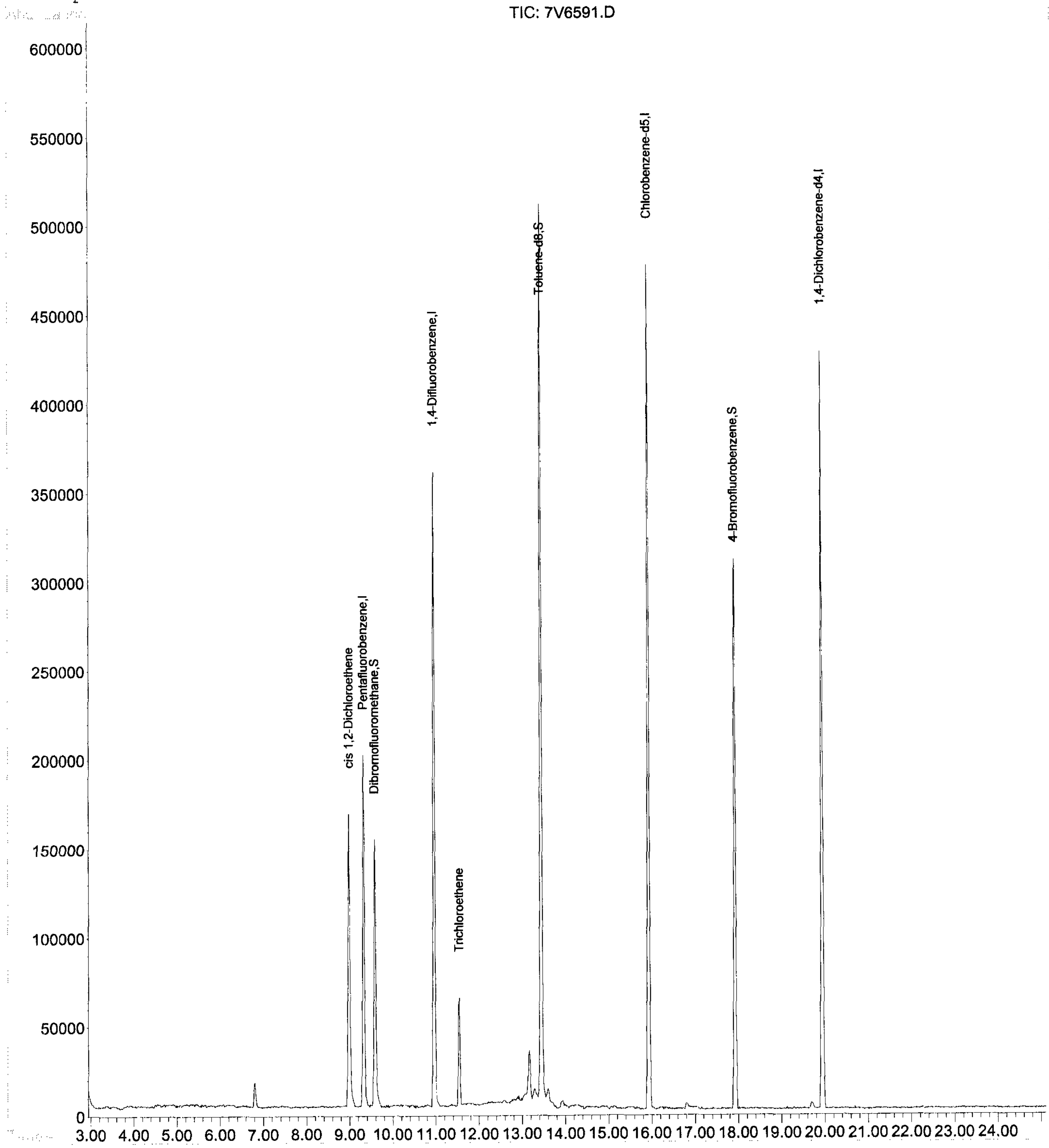
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	188677	30.00 ug/L	0.00
30) 1,4-Difluorobenzene	10.97	114	445372	30.00 ug/L	0.02
47) Chlorobenzene-d5	15.93	82	242268	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	150408	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.58	113	165744	34.46 ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery = 114.87%		
38) Toluene-d8	13.45	98	517239	28.89 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 96.30%		
57) 4-Bromofluorobenzene	17.92	95	221069	29.03 ug/L	0.00
Spiked Amount 30.000	Range 75 - 141		Recovery = 96.77%		
Target Compounds					Qvalue
21) cis 1,2-Dichloroethene	8.99	61	173825	29.44 ug/L	87
31) Trichloroethene	11.54	130	32380	7.75 ug/L	95

(#) = qualifier out of range (m) = manual integration

```
Data File : G:\HPCHEM\7\DATA\08082008\7V6591.D          Vial: 55
Acq On    :  8 Aug 2008   9:54 pm                   Operator: sdp
Sample    : 28080087-013                            Inst    : GCMS-7
Misc      : 1:50                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:28 2008               Quant Results File: 0805VO7.RES

Method          : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title           : VOC's by EPA Method 624
Last Update     : Wed Aug 06 13:16:47 2008
Response via    : Initial Calibration
```



Data File : G:\HPCHEM\7\DATA\08072008\7V6573.D Vial: 37
Acq On : 8 Aug 2008 11:27 am Operator: sdp
Sample : 28080087-014 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:12 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	178562	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.97	114	430232	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	230061	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	139887	30.00	ug/L	0.01

System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	154355	33.91	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	113.03%		
38) Toluene-d8	13.45	98	511914	29.60	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery =	98.67%		
57) 4-Bromofluorobenzene	17.94	95	214016	29.60	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery =	98.67%		

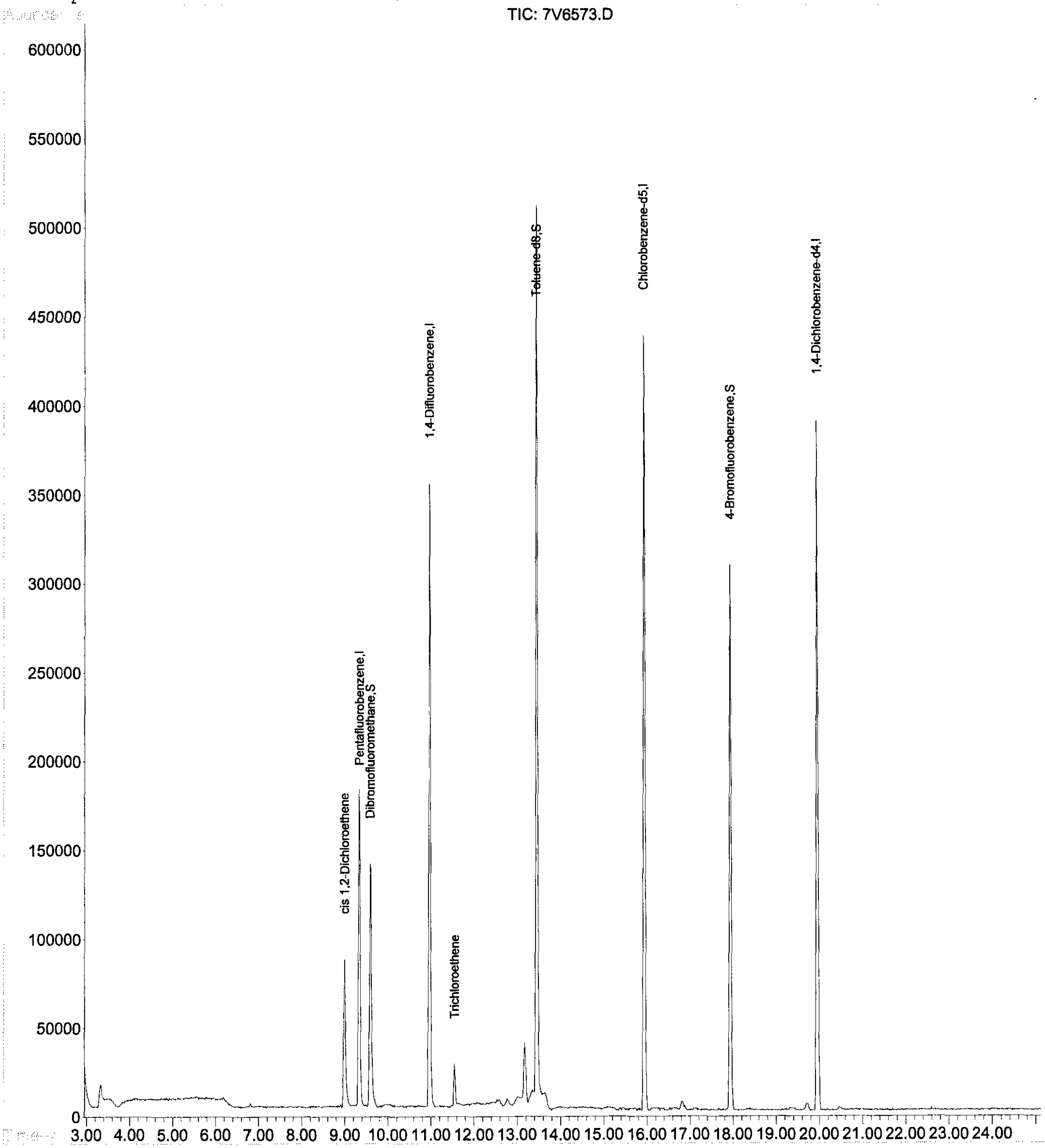
Target Compounds						Qvalue
21) cis 1,2-Dichloroethene	8.99	61	92202	16.50	ug/L	86
31) Trichloroethene	11.54	130	12227	3.03	ug/L	94

(#) = qualifier out of range (m) = manual integration

Quantitation Report

```
Data File : G:\HPCHEM\7\DATA\08072008\7V6573.D          Vial: 37
Acq On    :  8 Aug 2008  11:27 am                   Operator: sdp
Sample    : 28080087-014                            Inst    : GCMS-7
Misc      :                                         Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  8 14:12 2008              Quant Results File: 0805VO7.RES

Method        : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title         : VOC's by EPA Method 624
Last Update   : Wed Aug 06 13:16:47 2008
Response via  : Initial Calibration
```



Quantitation Report (QT Reviewed)

Data File : G:\HPCHEM\7\DATA\08072008\7V6574.D   Vial: 38
Acq On : 8 Aug 2008 12:01 pm   Operator: sdp
Sample : 28080087-015   Inst : GCMS-7
Misc :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:08 2008   Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

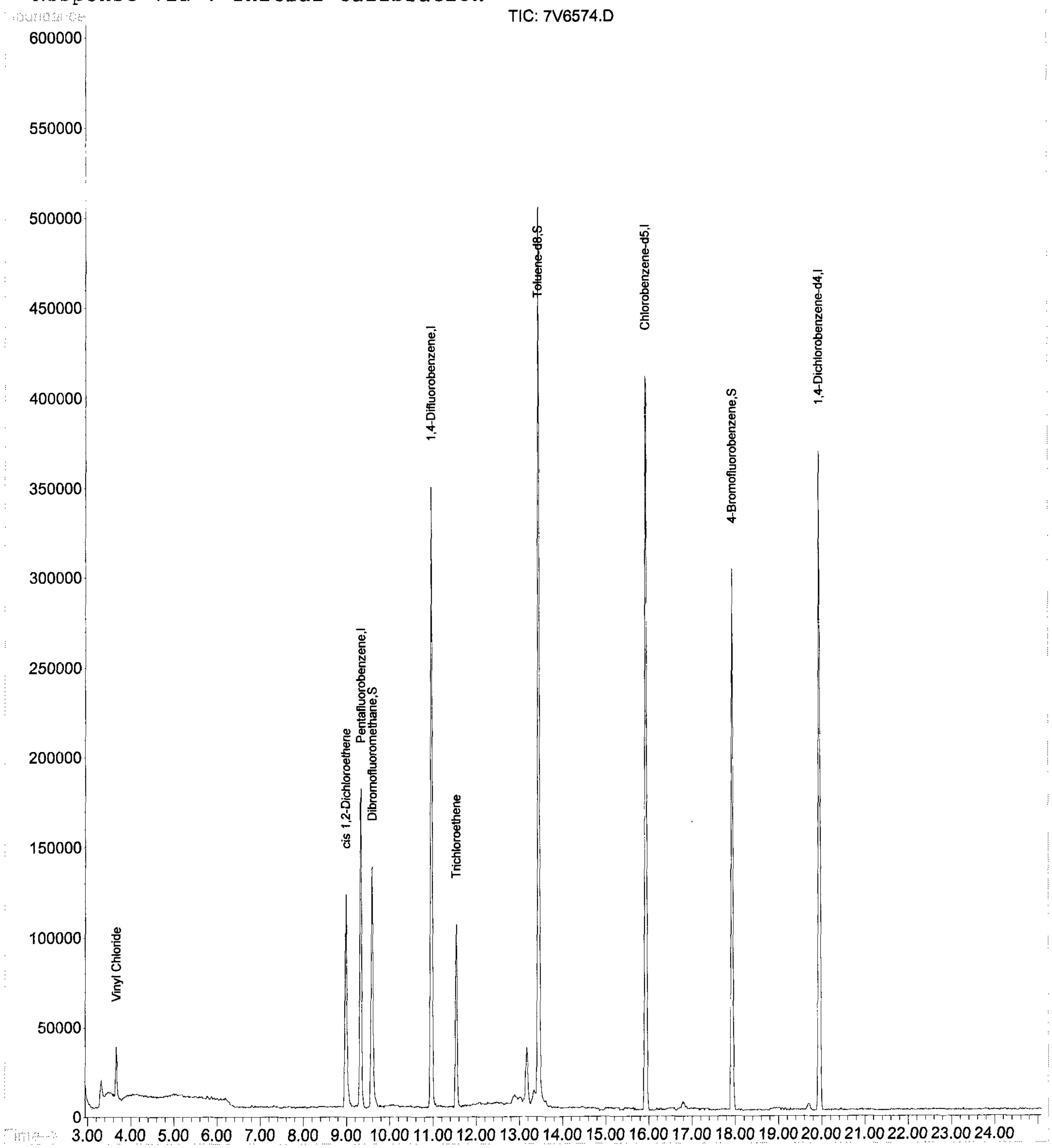
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	177785	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.96	114	419875	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	223070	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	130823	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.59	113	151596	33.45	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery =	111.50%		
38) Toluene-d8	13.45	98	498025	29.51	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery =	98.37%		
57) 4-Bromofluorobenzene	17.93	95	206048	29.39	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery =	97.97%		
Target Compounds						Qvalue
4) Vinyl Chloride	3.66	62	55109	20.90	ug/L	95
21) cis 1,2-Dichloroethene	8.99	61	124078	22.30	ug/L	84
31) Trichloroethene	11.54	130	53602	13.61	ug/L	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report


```
Data File : G:\HPCHEM\7\DATA\08072008\7V6574.D          Vial: 38
Acq On    :  8 Aug 2008  12:01 pm                   Operator: sdp
Sample    : 28080087-015                            Inst    : GCMS-7
Misc      :                                         Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  8 14:08 2008            Quant Results File: 0805VO7.RES

Method         : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title          : VOC's by EPA Method 624
Last Update    : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
```



Data File : G:\HPCHEM\7\DATA\08072008\7V6575.D Vial: 39
Acq On : 8 Aug 2008 12:35 pm Operator: sdp
Sample : 28080087-016 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:13 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

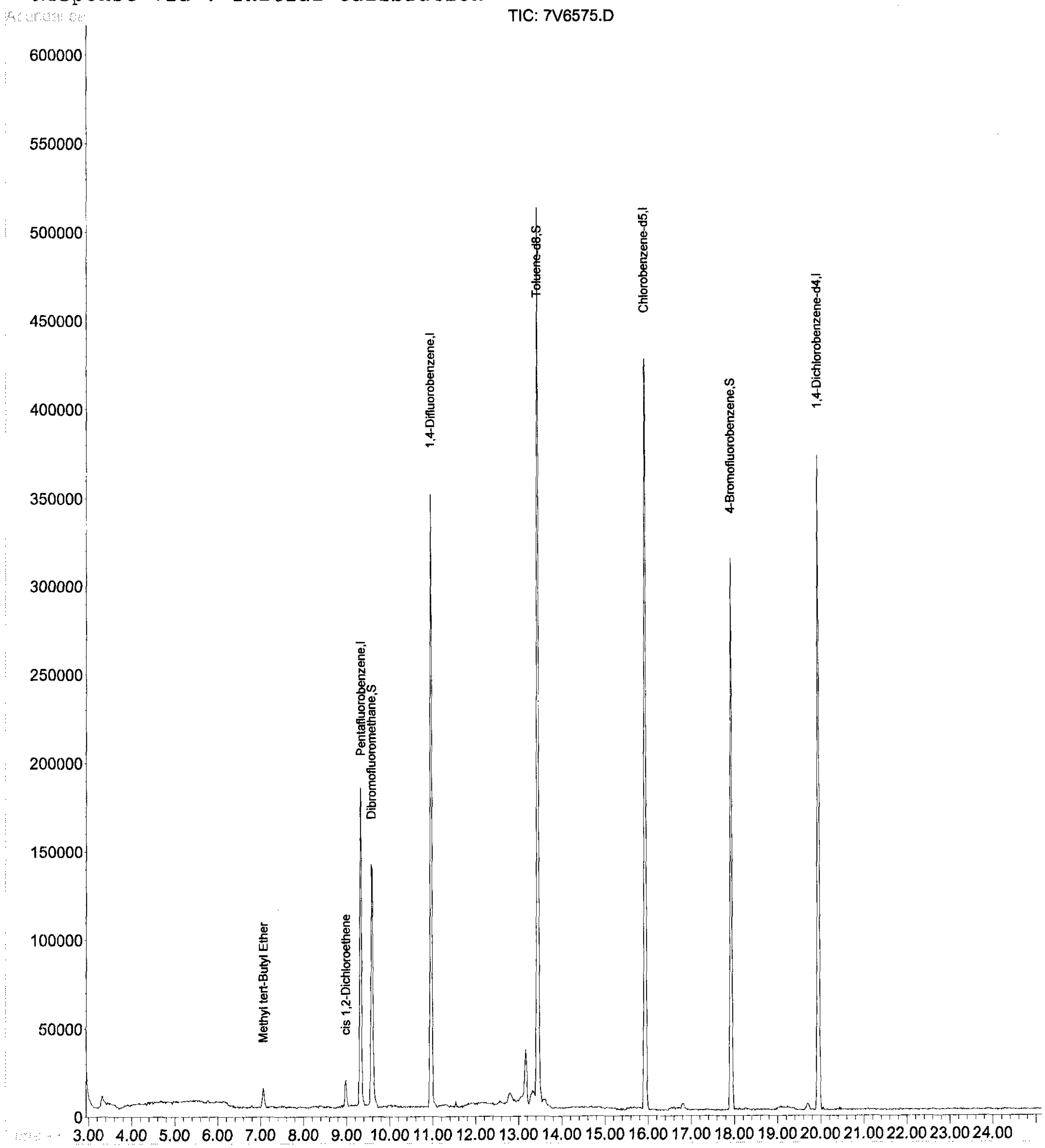
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	178040	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.96	114	429115	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	232549	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	132372	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	155871	34.34	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery = 114.47%			
38) Toluene-d8	13.44	98	504580	29.26	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 97.53%			
57) 4-Bromofluorobenzene	17.93	95	214240	29.31	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 97.70%			
Target Compounds						Qvalue
15) Methyl tert-Butyl Ether	7.07	73	22976	3.06	ug/L	99
21) cis 1,2-Dichloroethene	8.99	61	15642	2.81	ug/L	80

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6575.D
Vial: 39
Acq On : 8 Aug 2008 12:35 pm
Operator: sdp
Sample : 28080087-016
Inst : GCMS-7
Misc :
Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:13 2008
Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



```
Data File : G:\HPCHEM\7\DATA\08082008\7V6592.D          Vial: 56
Acq On    :  8 Aug 2008  10:27 pm                    Operator: sdp
Sample    : 28080087-017                             Inst    : GCMS-7
Misc      : 1:50                                     Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:29 2008                Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title        : VOC's by EPA Method 624
Last Update  : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

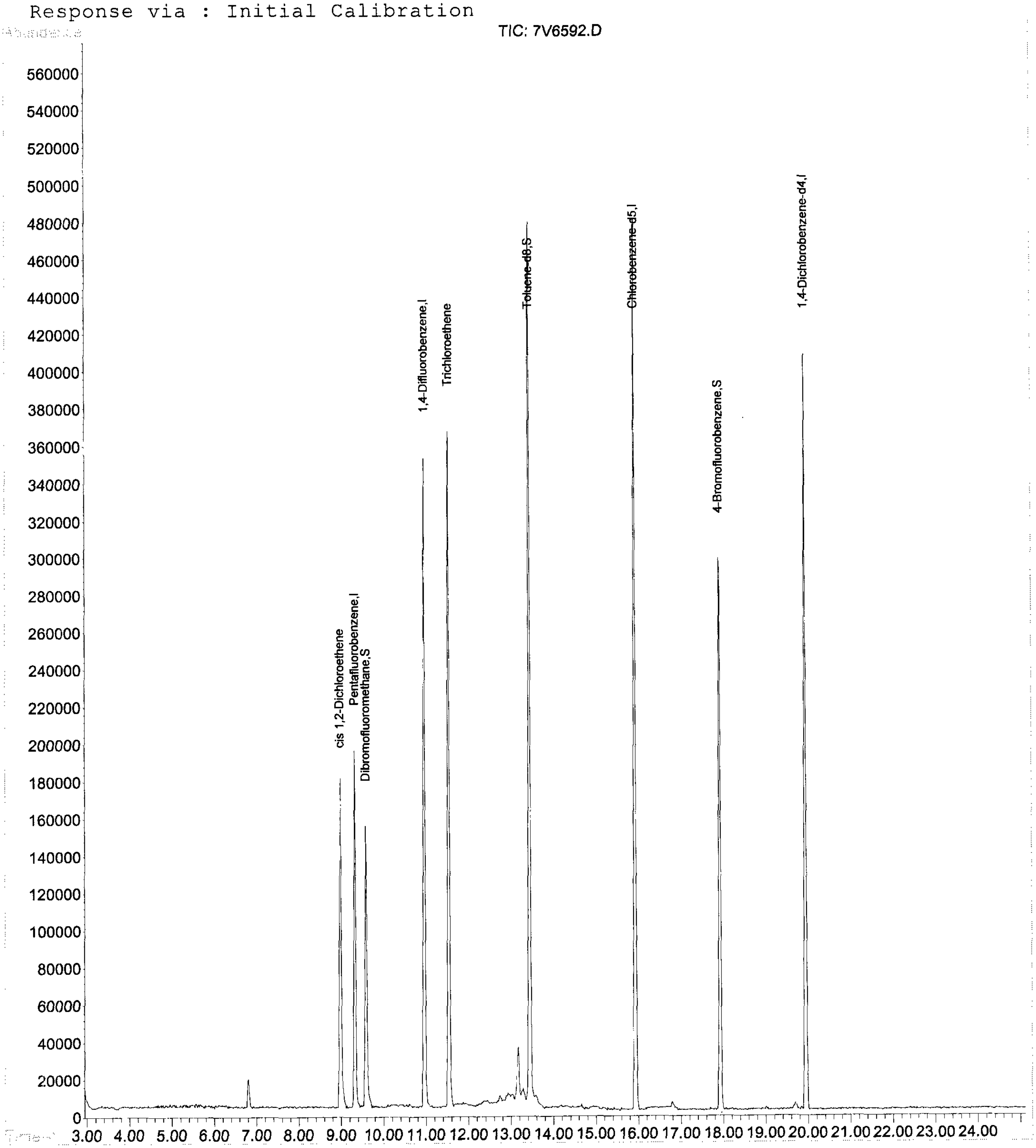
Internal Standards                   R.T. QIon  Response  Conc Units Dev(Min)
------------------------------------------------------------------------------
  1) Pentafluorobenzene              9.32  168   181757    30.00 ug/L    0.00
 30) 1,4-Difluorobenzene            10.97  114   444569    30.00 ug/L    0.02
 47) Chlorobenzene-d5               15.93   82   236414    30.00 ug/L    0.00
 63) 1,4-Dichlorobenzene-d4         19.94  152   146687    30.00 ug/L    0.01

System Monitoring Compounds
 24) Dibromofluoromethane            9.58  113   158319    34.17 ug/L    0.02
  Spiked Amount     30.000   Range  89 - 116    Recovery   =  113.90%
 38) Toluene-d8                     13.45   98   502690    28.13 ug/L    0.02
  Spiked Amount     30.000   Range  93 - 108    Recovery   =   93.77%
 57) 4-Bromofluorobenzene           17.92   95   219034    29.48 ug/L    0.00
  Spiked Amount     30.000   Range  75 - 141    Recovery   =   98.27%

Target Compounds                                                    Qvalue
 21) cis 1,2-Dichloroethene          8.98   61   195583    34.39 ug/L      89
 31) Trichloroethene                11.55  130   196562    47.13 ug/L      95
```

Data File : G:\HPCHEM\7\DATA\08082008\7V6592.D   Vial: 56
Acq On : 8 Aug 2008 10:27 pm   Operator: sdp
Sample : 28080087-017   Inst : GCMS-7
Misc : 1:50   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:29 2008   Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08072008\7V6576.D Vial: 40
Acq On : 8 Aug 2008 1:09 pm Operator: sdp
Sample : 28080087-018 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:13 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

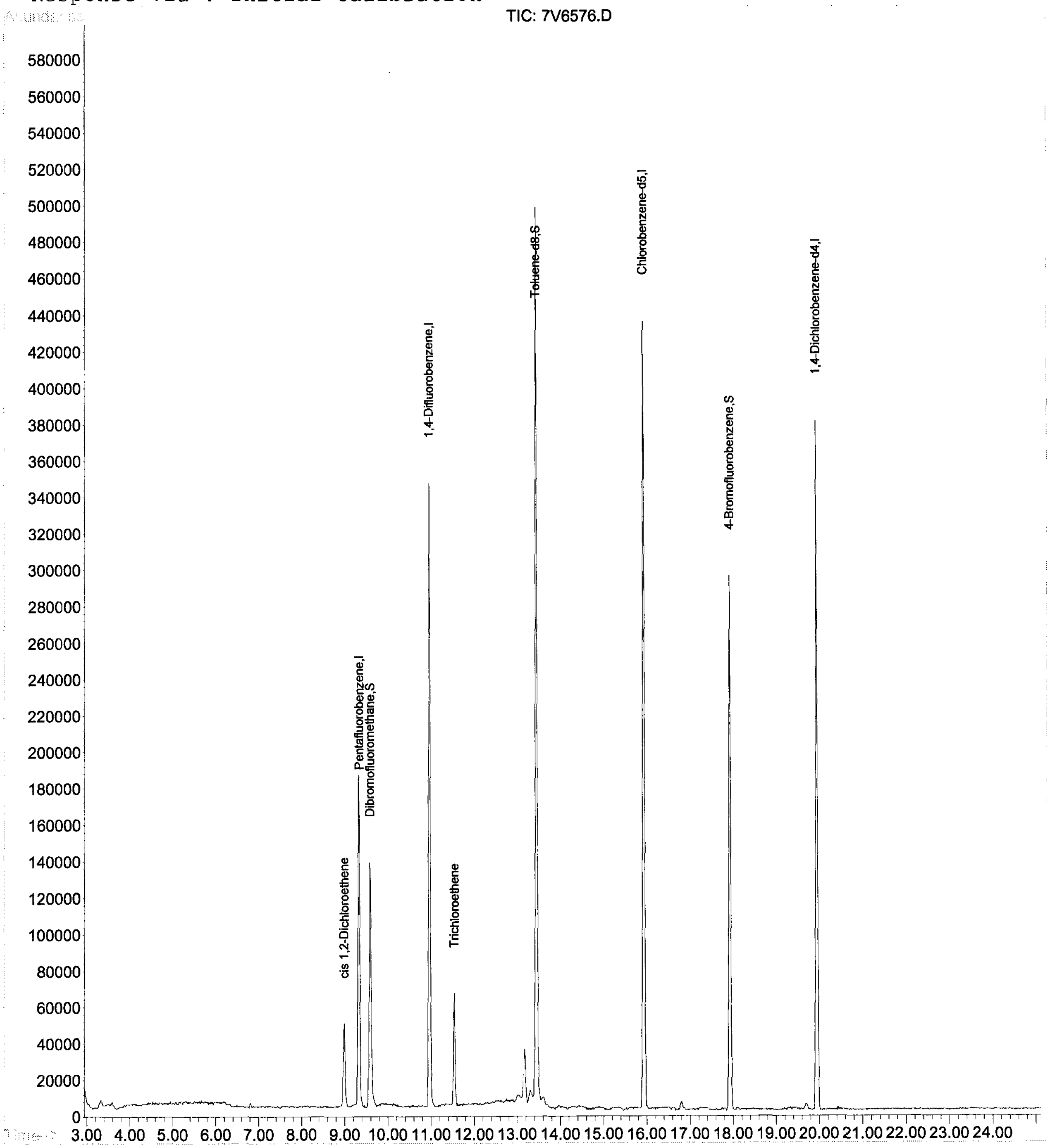
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	176835	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.97	114	419723	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	223626	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	131417	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	152599	33.85	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery = 112.83%			
38) Toluene-d8	13.45	98	494671	29.32	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 97.73%			
57) 4-Bromofluorobenzene	17.93	95	205538	29.24	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 97.47%			
Target Compounds						Qvalue
21) cis 1,2-Dichloroethene	8.99	61	51154	9.24	ug/L	85
31) Trichloroethene	11.54	130	32586	8.28	ug/L	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6576.D Vial: 40
Acq On : 8 Aug 2008 1:09 pm Operator: sdp
Sample : 28080087-018 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:13 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6585.D
Acq On : 8 Aug 2008 6:31 pm
Sample : 28080087-019
Misc : 1:100
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:14 2008

Vial: 49
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805V07.RES

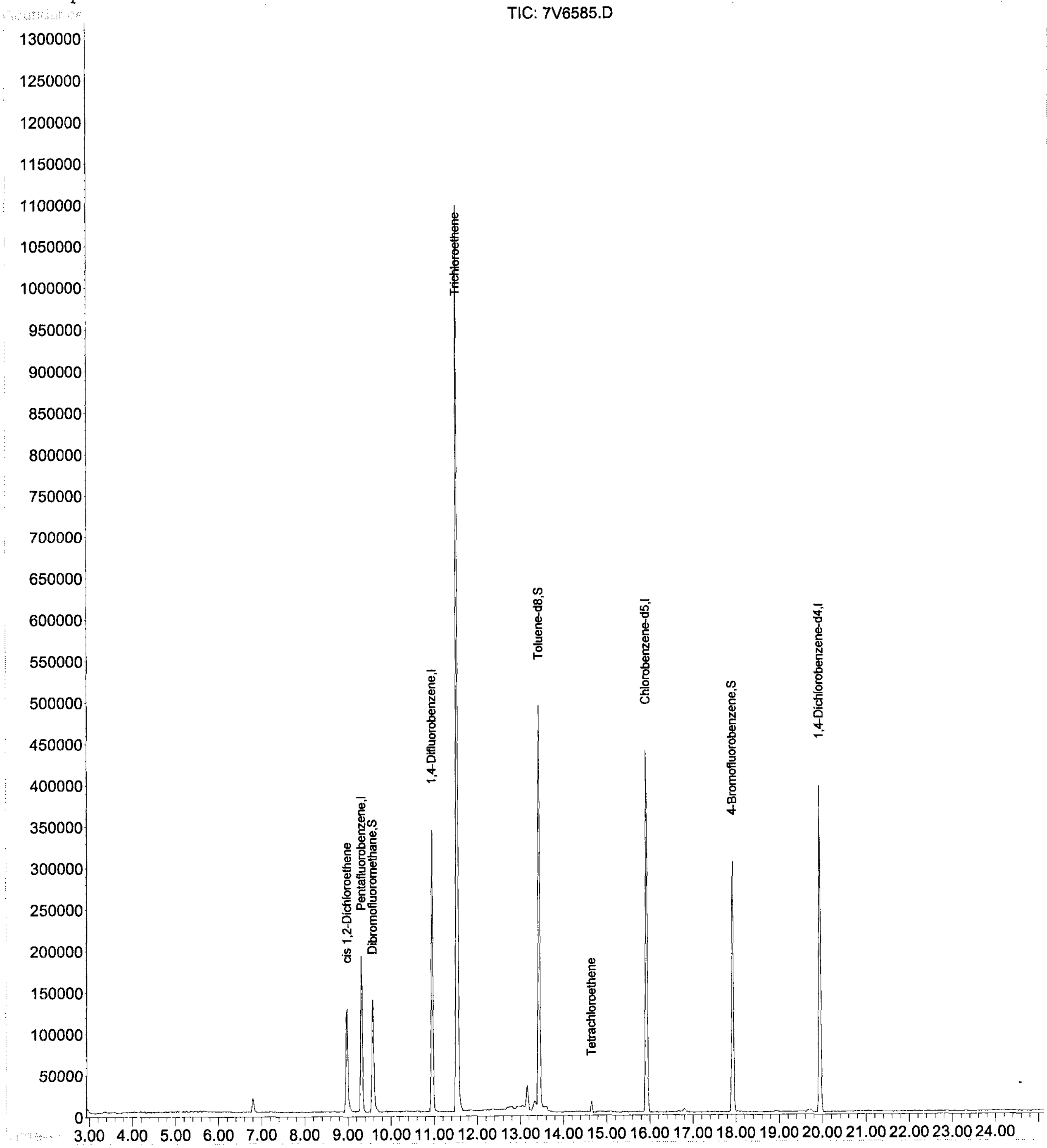
Quant Method : G:\HPCHEM\7\METHODS\0805V07.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	176405	30.00 ug/L	0.00
30) 1,4-Difluorobenzene	10.96	114	419948	30.00 ug/L	0.01
47) Chlorobenzene-d5	15.93	82	223271	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	138166	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.58	113	150767	33.52 ug/L	0.01
Spiked Amount 30.000	Range 89 - 116		Recovery = 111.73%		
38) Toluene-d8	13.44	98	498404	29.53 ug/L	0.01
Spiked Amount 30.000	Range 93 - 108		Recovery = 98.43%		
57) 4-Bromofluorobenzene	17.93	95	211877	30.19 ug/L	0.01
Spiked Amount 30.000	Range 75 - 141		Recovery = 100.63%		
Target Compounds					Qvalue
21) cis 1,2-Dichloroethene	8.99	61	133514	24.19 ug/L	85
31) Trichloroethene	11.54	130	584521	148.38 ug/L	97
44) Tetrachloroethene	14.66	166	6300	1.76 ug/L	91

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08082008\7V6585.D Vial: 49
Acq On : 8 Aug 2008 6:31 pm Operator: sdp
Sample : 28080087-019 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:14 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6586.D Vial: 50
Acq On : 8 Aug 2008 7:05 pm Operator: sdp
Sample : 28080087-020 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:14 2008 Quant Results File: 0805V07.RES

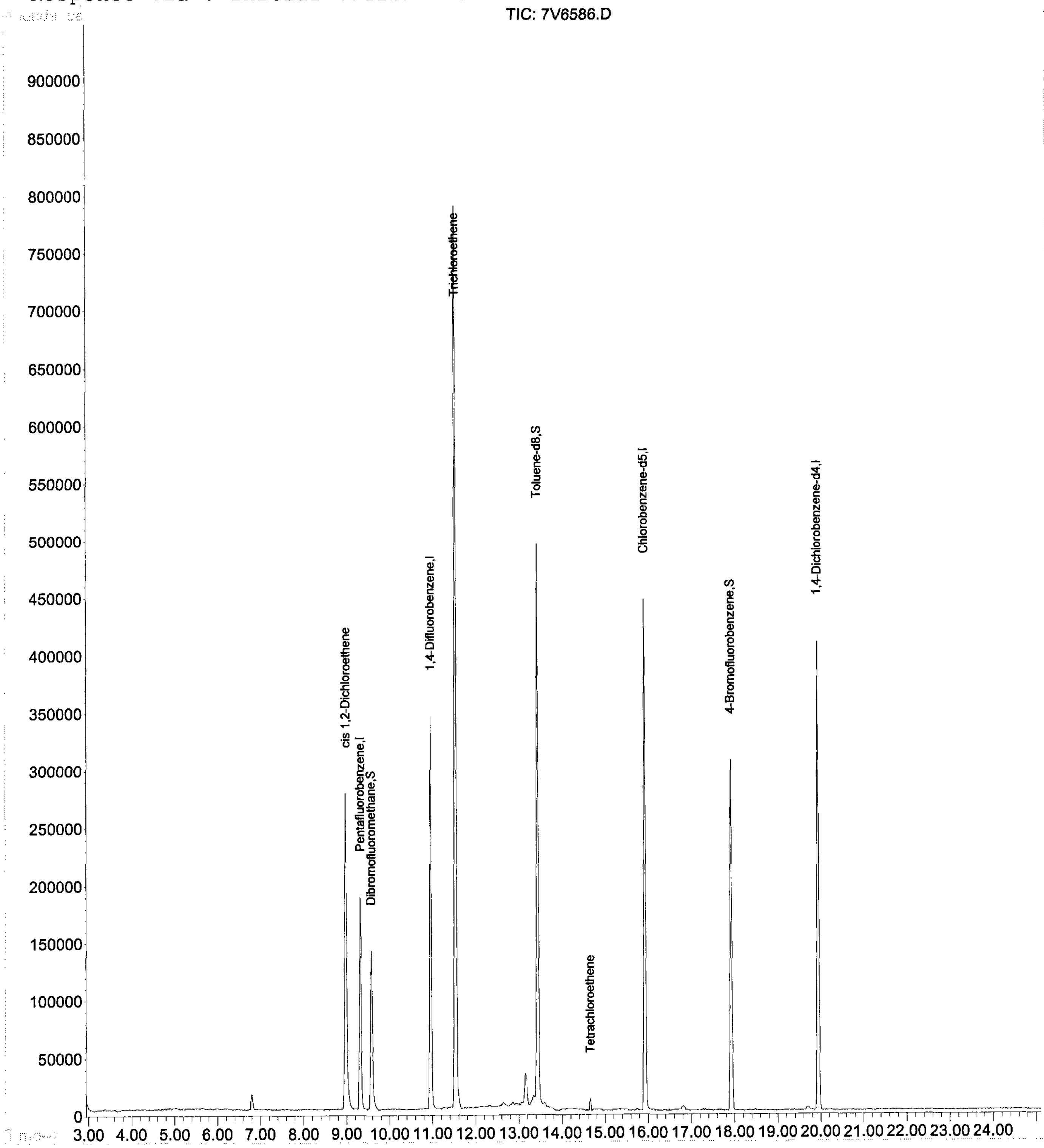
Quant Method : G:\HPCHEM\7\METHODS\0805V07.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	179875	30.00	ug/L	0.00
30) 1,4-Difluorobenzene	10.96	114	424482	30.00	ug/L	0.01
47) Chlorobenzene-d5	15.93	82	228209	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	143532	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	152907	33.34	ug/L	0.01
Spiked Amount 30.000	Range 89 - 116		Recovery = 111.13%			
38) Toluene-d8	13.44	98	507996	29.77	ug/L	0.01
Spiked Amount 30.000	Range 93 - 108		Recovery = 99.23%			
57) 4-Bromofluorobenzene	17.93	95	212624	29.64	ug/L	0.01
Spiked Amount 30.000	Range 75 - 141		Recovery = 98.80%			
Target Compounds						Qvalue
21) cis 1,2-Dichloroethene	8.99	61	306748	54.49	ug/L	88
31) Trichloroethene	11.54	130	426621	107.14	ug/L	97
44) Tetrachloroethene	14.66	166	4649	1.29	ug/L	97

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08082008\7V6586.D Vial: 50
Acq On : 8 Aug 2008 7:05 pm Operator: sdp
Sample : 28080087-020 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:14 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6587.D Vial: 51
Acq On : 8 Aug 2008 7:39 pm Operator: sdp
Sample : 28080087-021 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:15 2008 Quant Results File: 0805VO7.RES

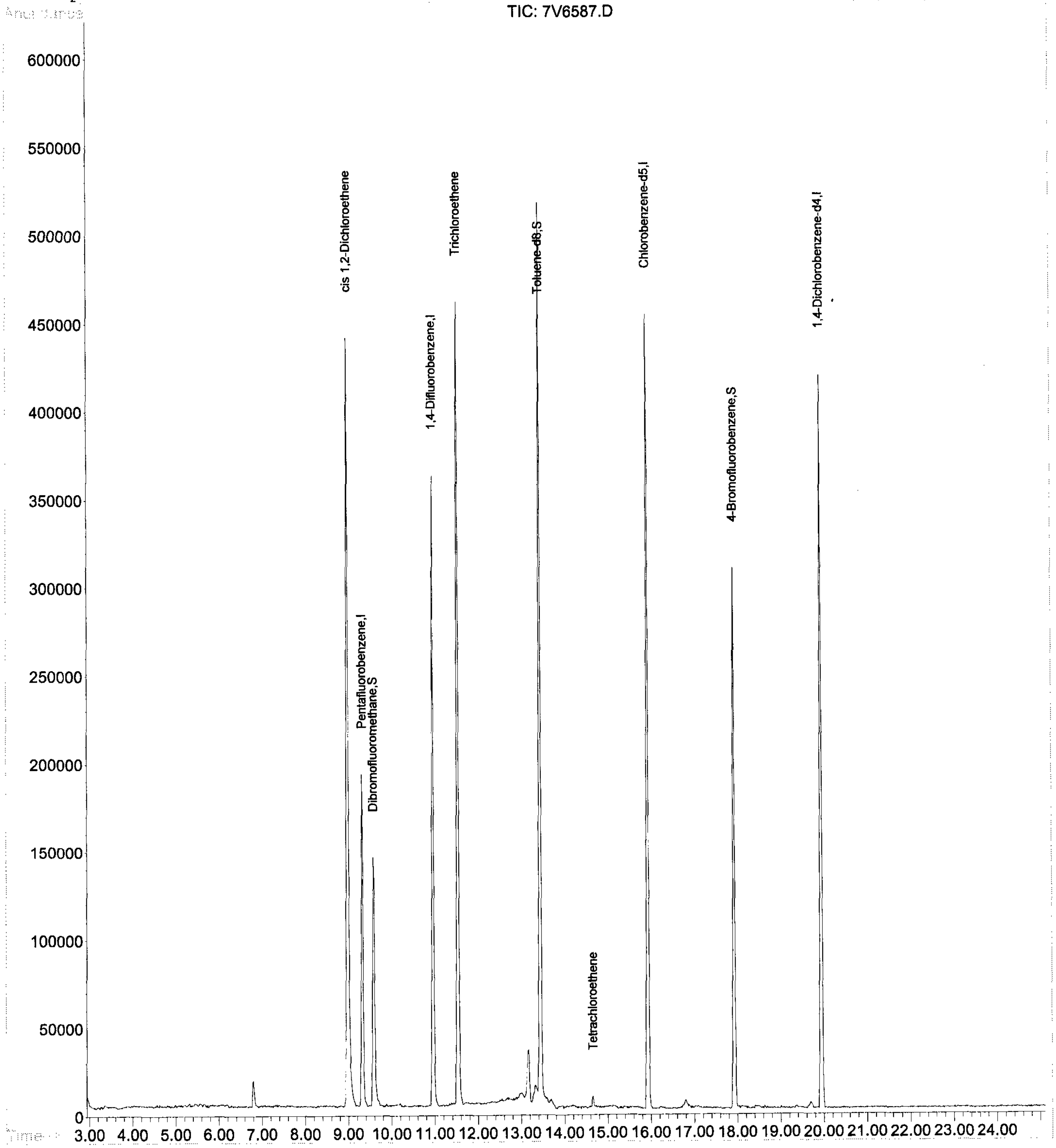
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	180781	30.00 ug/L	0.00
30) 1,4-Difluorobenzene	10.96	114	442912	30.00 ug/L	0.02
47) Chlorobenzene-d5	15.93	82	230312	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	149342	30.00 ug/L	0.02
System Monitoring Compounds					
24) Dibromofluoromethane	9.58	113	157093	34.08 ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery = 113.60%		
38) Toluene-d8	13.44	98	517100	29.05 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 96.83%		
57) 4-Bromofluorobenzene	17.93	95	216934	29.97 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 99.90%		
Target Compounds					Qvalue
21) cis 1,2-Dichloroethene	8.99	61	480923	85.01 ug/L	88
31) Trichloroethene	11.54	130	241743	58.19 ug/L	97
44) Tetrachloroethene	14.66	166	3296	0.88 ug/L #	84

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08082008\7V6587.D   Vial: 51
Acq On : 8 Aug 2008 7:39 pm   Operator: sdp
Sample : 28080087-021   Inst : GCMS-7
Misc : 1:100   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:15 2008   Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6588.D
Acq On : 8 Aug 2008 8:13 pm
Sample : 28080087-022
Misc : 1:100
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:24 2008

Vial: 52
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

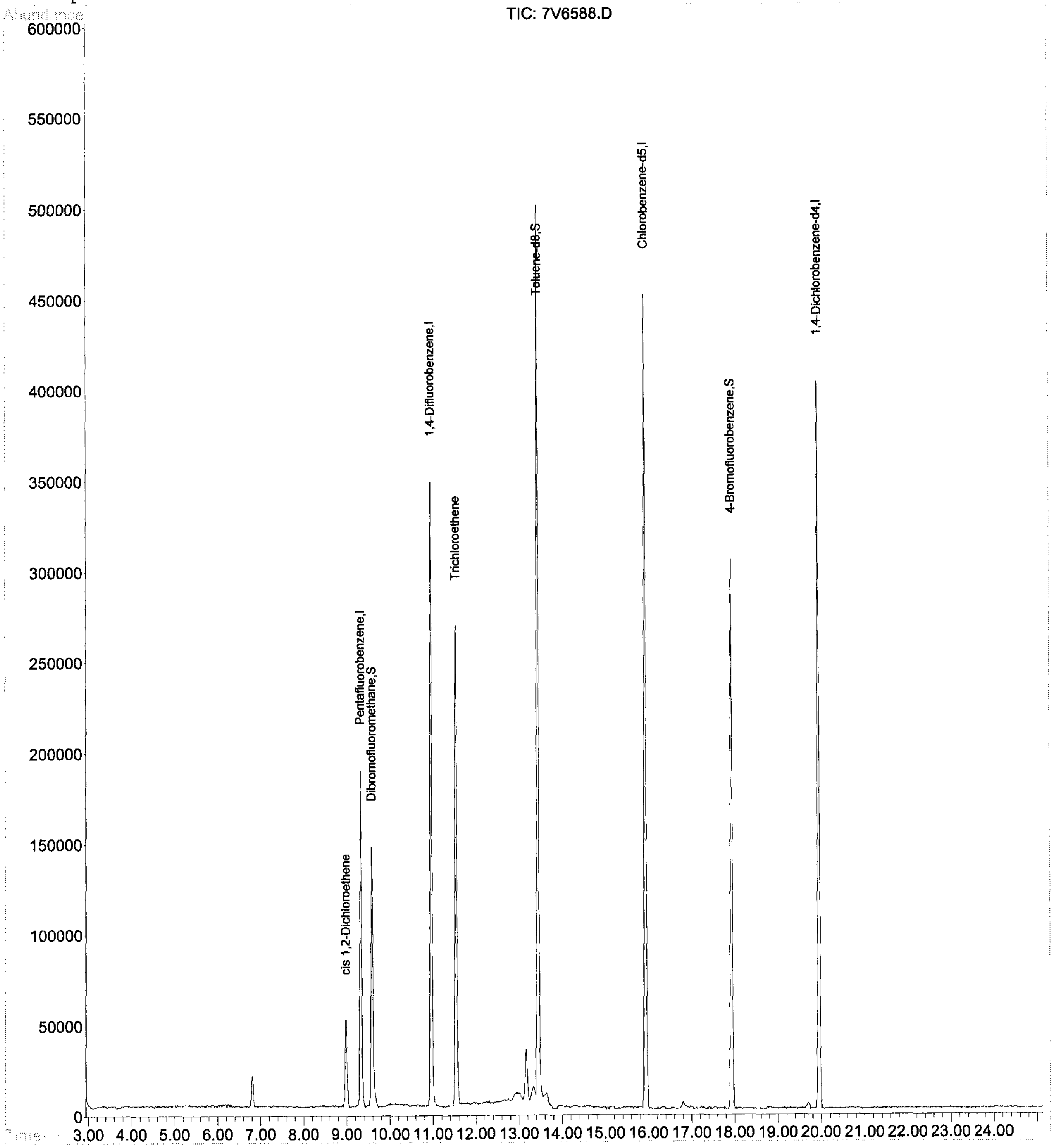
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	179003	30.00 ug/L	0.00
30) 1,4-Difluorobenzene	10.96	114	430026	30.00 ug/L	0.02
47) Chlorobenzene-d5	15.93	82	230442	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	140400	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.58	113	154089	33.76 ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	112.53%	
38) Toluene-d8	13.44	98	501154	29.00 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery =	96.67%	
57) 4-Bromofluorobenzene	17.93	95	213565	29.48 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery =	98.27%	
Target Compounds					Qvalue
21) cis 1,2-Dichloroethene	8.97	61	53497	9.55 ug/L	84
31) Trichloroethene	11.54	130	138270	34.28 ug/L	97

(#) = qualifier out of range (m) = manual integration

```
Data File : G:\HPCHEM\7\DATA\08082008\7V6588.D            Vial: 52
Acq On    :  8 Aug 2008   8:13 pm                      Operator: sdp
Sample    : 28080087-022                               Inst    : GCMS-7
Misc      : 1:100                                      Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:24 2008                  Quant Results File: 0805VO7.RES

Method       : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title        : VOC's by EPA Method 624
Last Update  : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
```



Data File : G:\HPCHEM\7\DATA\08072008\7V6578.D Vial: 42
Acq On : 8 Aug 2008 2:18 pm Operator: sdp
Sample : 28080087-023 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 16:28 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

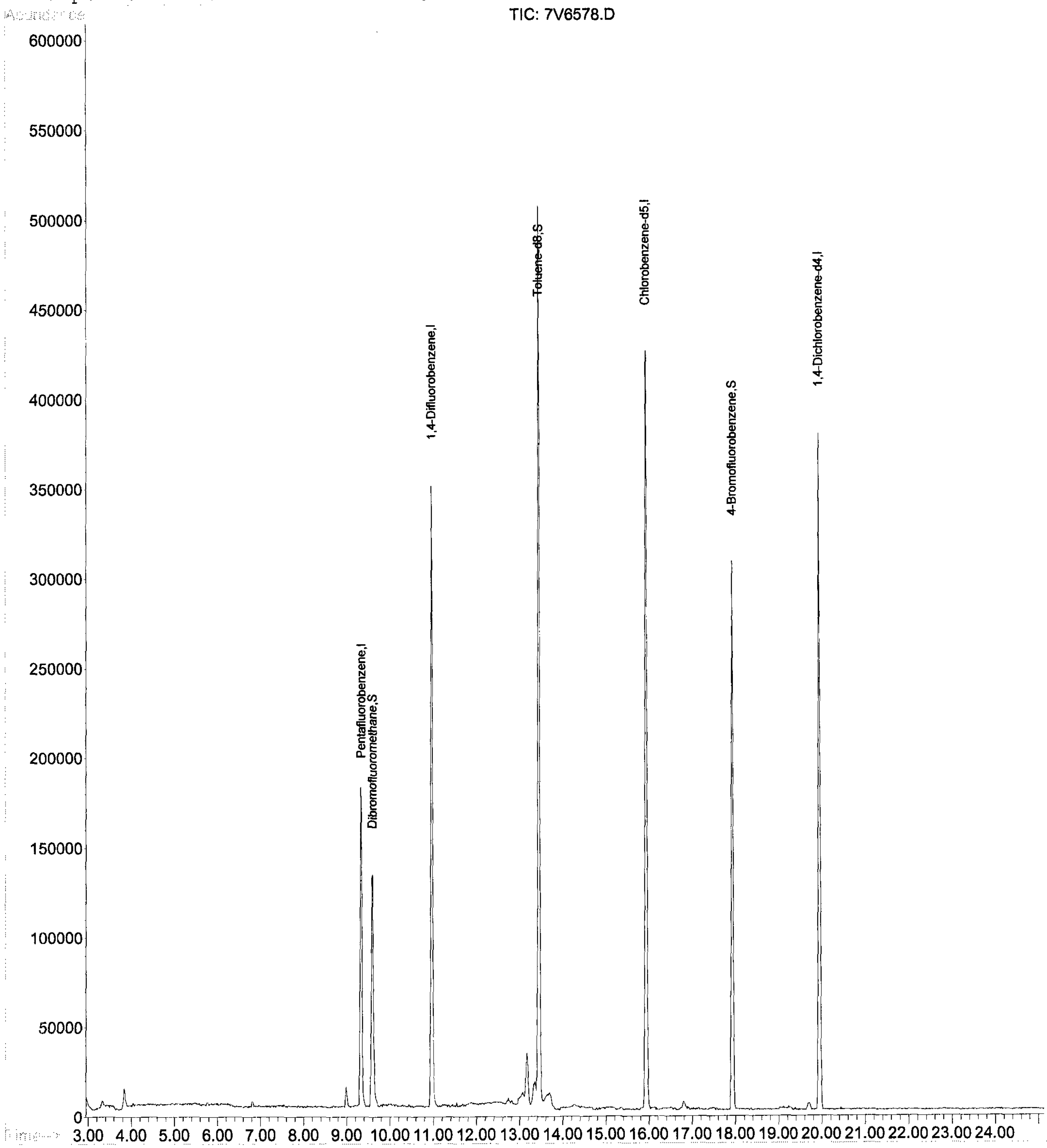
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	180997	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.96	114	427351	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	230993	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	133578	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.59	113	153048	33.17	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 110.57%			
38) Toluene-d8	13.44	98	509011	29.63	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery = 98.77%			
57) 4-Bromofluorobenzene	17.93	95	210966	29.06	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery = 96.87%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08072008\7V6578.D Vial: 42
Acq On : 8 Aug 2008 2:18 pm Operator: sdp
Sample : 28080087-023 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 16:28 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6583.D Vial: 47
Acq On : 8 Aug 2008 5:22 pm Operator: sdp
Sample : 28080087-024 Inst : GCMS-7
Misc : 1:500 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:12 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

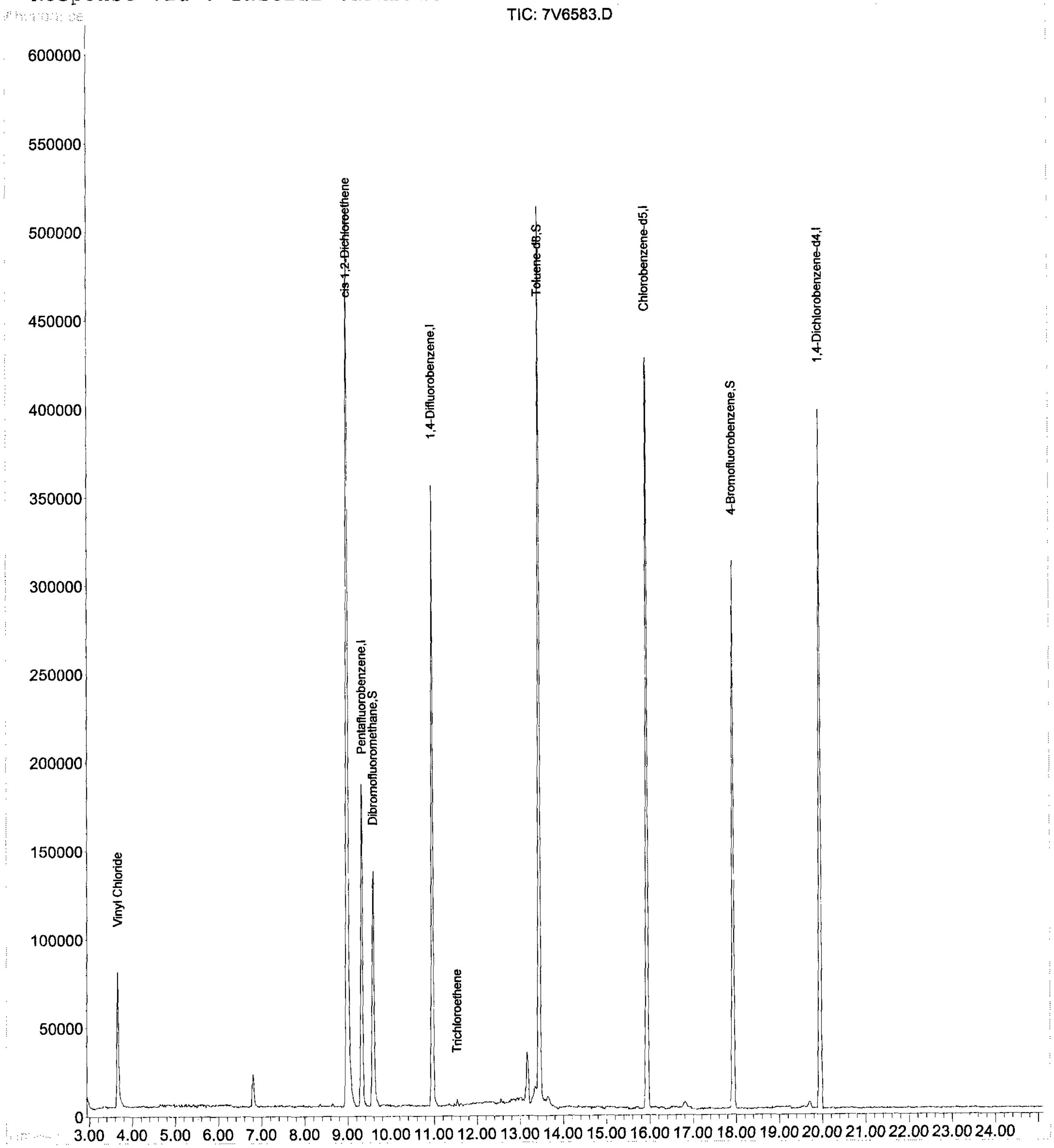
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	182623	30.00 ug/L	0.01
30) 1,4-Difluorobenzene	10.96	114	427567	30.00 ug/L	0.01
47) Chlorobenzene-d5	15.93	82	231261	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	142037	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.59	113	155762	33.45 ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 111.50%		
38) Toluene-d8	13.44	98	517912	30.14 ug/L	0.01
Spiked Amount 30.000	Range 93 - 108		Recovery = 100.47%		
57) 4-Bromofluorobenzene	17.93	95	213354	29.35 ug/L	0.01
Spiked Amount 30.000	Range 75 - 141		Recovery = 97.83%		
Target Compounds					Qvalue
4) Vinyl Chloride	3.66	62	135796	50.14 ug/L	98
21) cis 1,2-Dichloroethene	8.99	61	545003	95.36 ug/L	87
31) Trichloroethene	11.54	130	2271	0.57 ug/L #	59

(#) = qualifier out of range (m) = manual integration

Quantitation Report


```
Data File : G:\HPCHEM\7\DATA\08082008\7V6583.D          Vial: 47
Acq On    :  8 Aug 2008   5:22 pm                   Operator: sdp
Sample    : 28080087-024                            Inst    : GCMS-7
Misc      : 1:500                                   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:12 2008            Quant Results File: 0805V07.RES

Method         : G:\HPCHEM\7\METHODS\0805V07.M (RTE Integrator)
Title          : VOC's by EPA Method 624
Last Update    : Wed Aug 06 13:16:47 2008
Response via   : Initial Calibration
```



Quantitation Report (QT Reviewed)

Data File : G:\HPCHEM\7\DATA\08112008\7V6663.D   Vial: 42
Acq On : 12 Aug 2008 10:36 am   Operator: sdp
Sample : 28080087-025   Inst : GCMS-7
Misc : 1:2 antifoam added   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 12 12:31 2008   Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Tue Aug 12 10:46:45 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.55	168	242704	30.00	ug/L	0.24
30) 1,4-Difluorobenzene	11.14	114	622675	30.00	ug/L	0.19
47) Chlorobenzene-d5	16.00	82	307455	30.00	ug/L	0.08
63) 1,4-Dichlorobenzene-d4	20.00	152	214306	30.00	ug/L	0.08

System Monitoring Compounds

24) Dibromofluoromethane	9.81	113	173063	24.76	ug/L	0.25
Spiked Amount 30.000	Range 89 - 116		Recovery =	82.53%#		
38) Toluene-d8	13.55	98	709019	28.33	ug/L	0.12
Spiked Amount 30.000	Range 93 - 108		Recovery =	94.43%		
57) 4-Bromofluorobenzene	17.98	95	254528	26.34	ug/L	0.06
Spiked Amount 30.000	Range 75 - 141		Recovery =	87.80%		

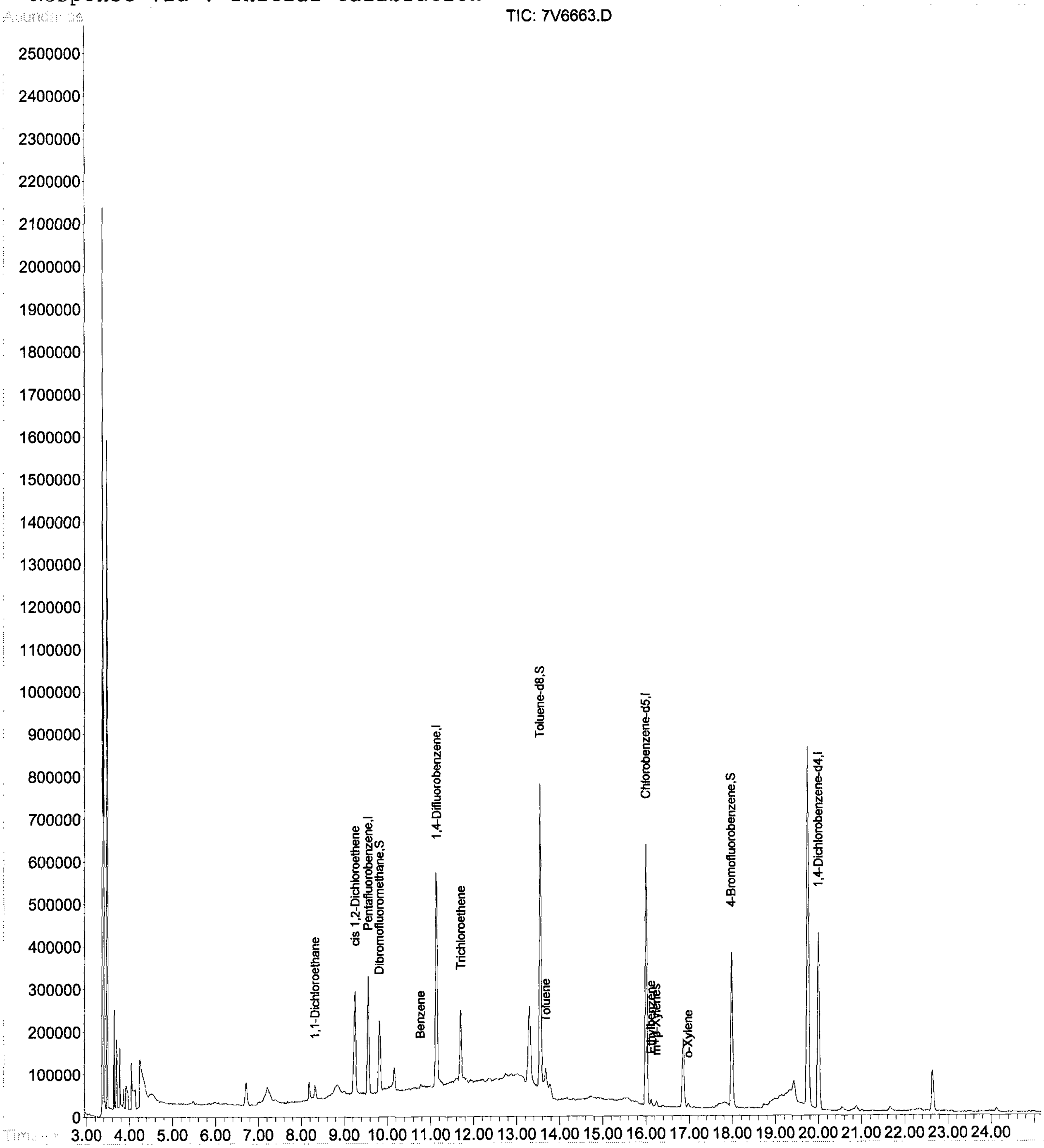
Target Compounds						Qvalue
17) 1,1-Dichloroethane	8.31	63	49555	5.90	ug/L	96
21) cis 1,2-Dichloroethene	9.25	61	244784	32.23	ug/L	84
29) Benzene	10.77	78	13443	0.82	ug/L	81
31) Trichloroethene	11.70	130	82156	14.07	ug/L	93
39) Toluene	13.68	91	56523	2.68	ug/L	89
50) Ethylbenzene	16.12	91	29882	1.42	ug/L	96
51) m+p-Xylenes	16.23	106	8393	1.02	ug/L	98
52) o-Xylene	16.97	91	12193	0.75	ug/L	94

(#) = qualifier out of range (m) = manual integration

Quantitation Report


```
Data File : G:\HPCHEM\7\DATA\08112008\7V6663.D          Vial: 42
Acq On    : 12 Aug 2008  10:36 am                   Operator: sdp
Sample    : 28080087-025                            Inst    : GCMS-7
Misc      : 1:2   antifoam added                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 12 12:31 2008              Quant Results File: 0805VO7.RES

Method         : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title          : VOC's by EPA Method 624
Last Update    : Wed Aug 06 13:16:47 2008
Response via   : Initial Calibration
```



Data File : G:\HPCHEM\7\DATA\08082008\7V6593.D Vial: 57
Acq On : 8 Aug 2008 11:00 pm Operator: sdp
Sample : 28080087-026 Inst : GCMS-7
Misc : 1:200 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:30 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

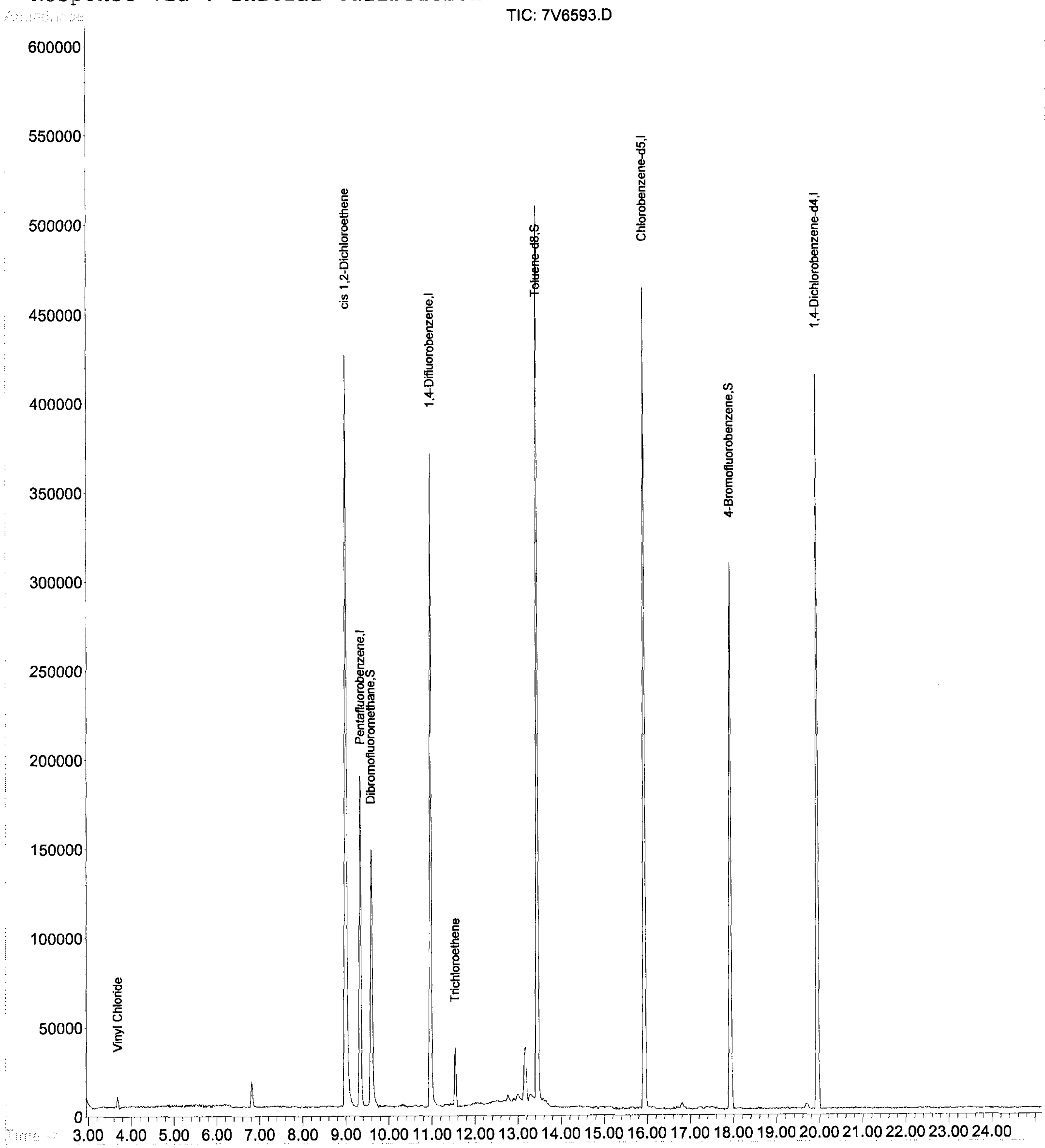
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	185729	30.00	ug/L	0.02
30) 1,4-Difluorobenzene	10.96	114	447434	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	233428	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	146257	30.00	ug/L	0.02
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	160781	33.96	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	113.20%		
38) Toluene-d8	13.45	98	510602	28.39	ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery =	94.63%		
57) 4-Bromofluorobenzene	17.93	95	214499	29.23	ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery =	97.43%		
Target Compounds						Qvalue
4) Vinyl Chloride	3.68	62	12024	4.37	ug/L	90
21) cis 1,2-Dichloroethene	8.99	61	447312	76.96	ug/L	88
31) Trichloroethene	11.54	130	17521	4.17	ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08082008\7V6593.D   Vial: 57
Acq On : 8 Aug 2008 11:00 pm   Operator: sdp
Sample : 28080087-026   Inst : GCMS-7
Misc : 1:200   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:30 2008   Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6584.D
Acq On : 8 Aug 2008 5:56 pm
Sample : 28080087-027
Misc : 1:500
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:13 2008

Vial: 48
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00
Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

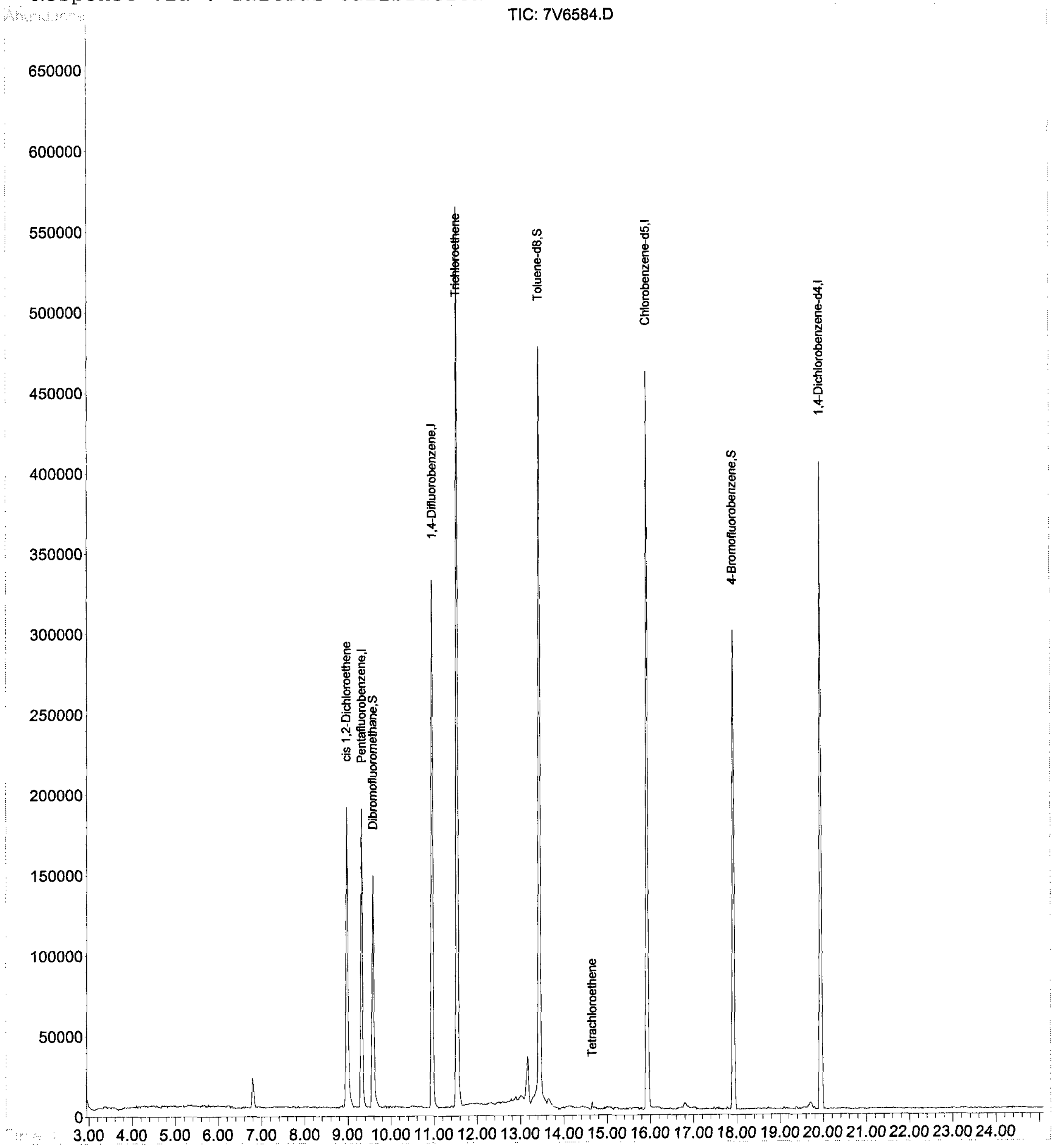
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	177171	30.00	ug/L	0.00
30) 1,4-Difluorobenzene	10.97	114	440743	30.00	ug/L	0.02
47) Chlorobenzene-d5	15.93	82	230991	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	141605	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	157769	34.93	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	116.43%#		
38) Toluene-d8	13.44	98	511540	28.88	ug/L	0.00
Spiked Amount 30.000	Range 93 - 108		Recovery =	96.27%		
57) 4-Bromofluorobenzene	17.92	95	214213	29.50	ug/L	0.00
Spiked Amount 30.000	Range 75 - 141		Recovery =	98.33%		
Target Compounds						Qvalue
21) cis 1,2-Dichloroethene	8.98	61	199261	35.94	ug/L	88
31) Trichloroethene	11.53	130	300595	72.71	ug/L	97
44) Tetrachloroethene	14.66	166	2694	0.72	ug/L #	59

(#) = qualifier out of range (m) = manual integration

Quantitation Report


```
Data File : G:\HPCHEM\7\DATA\08082008\7V6584.D          Vial: 48
Acq On    :  8 Aug 2008   5:56 pm                    Operator: sdp
Sample    : 28080087-027                             Inst    : GCMS-7
Misc      : 1:500                                    Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:13 2008              Quant Results File: 0805VO7.RES

Method        : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title         : VOC's by EPA Method 624
Last Update   : Wed Aug 06 13:16:47 2008
Response via  : Initial Calibration
```



Quantitation Report (QT Reviewed)

Data File : G:\HPCHEM\7\DATA\08072008\7V6577.D Vial: 41
Acq On : 8 Aug 2008 1:43 pm Operator: sdp
Sample : 28080087-028 Inst : GCMS-7
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:38 2008 Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

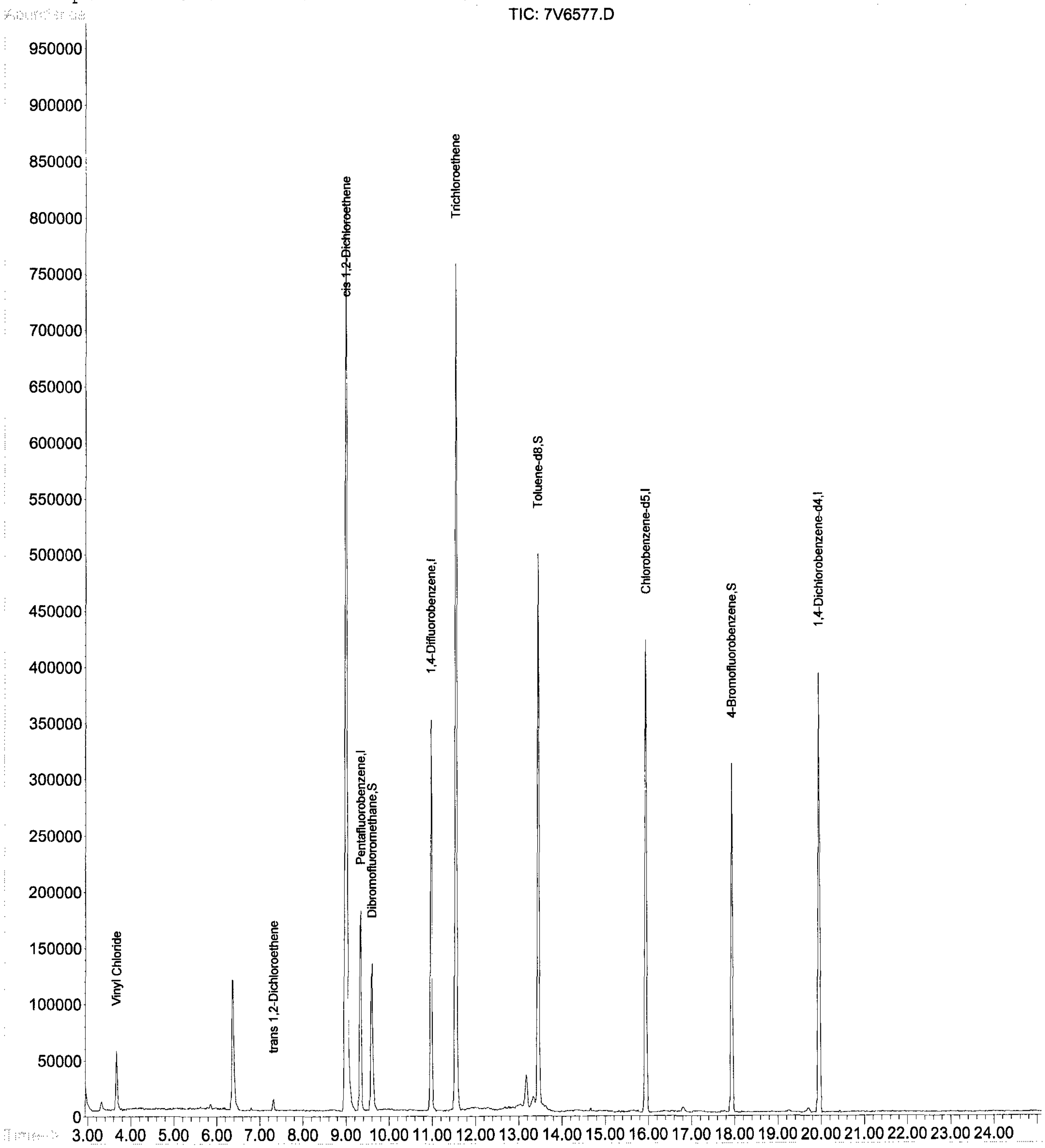
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	176244	30.00	ug/L	0.01
30) 1,4-Difluorobenzene	10.96	114	429829	30.00	ug/L	0.01
47) Chlorobenzene-d5	15.94	82	224047	30.00	ug/L	0.01
63) 1,4-Dichlorobenzene-d4	19.94	152	138844	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.59	113	153895	34.25	ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery = 114.17%			
38) Toluene-d8	13.44	98	504501	29.20	ug/L	0.01
Spiked Amount 30.000	Range 93 - 108		Recovery = 97.33%			
57) 4-Bromofluorobenzene	17.93	95	210572	29.90	ug/L	0.01
Spiked Amount 30.000	Range 75 - 141		Recovery = 99.67%			
Target Compounds						Qvalue
4) Vinyl Chloride	3.66	62	92162	35.26	ug/L	100
16) trans 1,2-Dichloroethene	7.31	61	10783	2.16	ug/L	99
21) cis 1,2-Dichloroethene	8.99	61	872866	158.26	ug/L	88
31) Trichloroethene	11.54	130	384930	95.47	ug/L	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6577.D   Vial: 41
Acq On   : 8 Aug 2008   1:43 pm   Operator: sdp
Sample   : 28080087-028   Inst   : GCMS-7
Misc   :   Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 14:38 2008   Quant Results File: 0805VO7.RES

Method   : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title   : VOC's by EPA Method 624
Last Update   : Wed Aug 06 13:16:47 2008
Response via   : Initial Calibration



Data File : G:\HPCHEM\7\DATA\08082008\7V6589.D Vial: 53
Acq On : 8 Aug 2008 8:47 pm Operator: sdp
Sample : 28080087-029 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:26 2008 Quant Results File: 0805VO7.RES

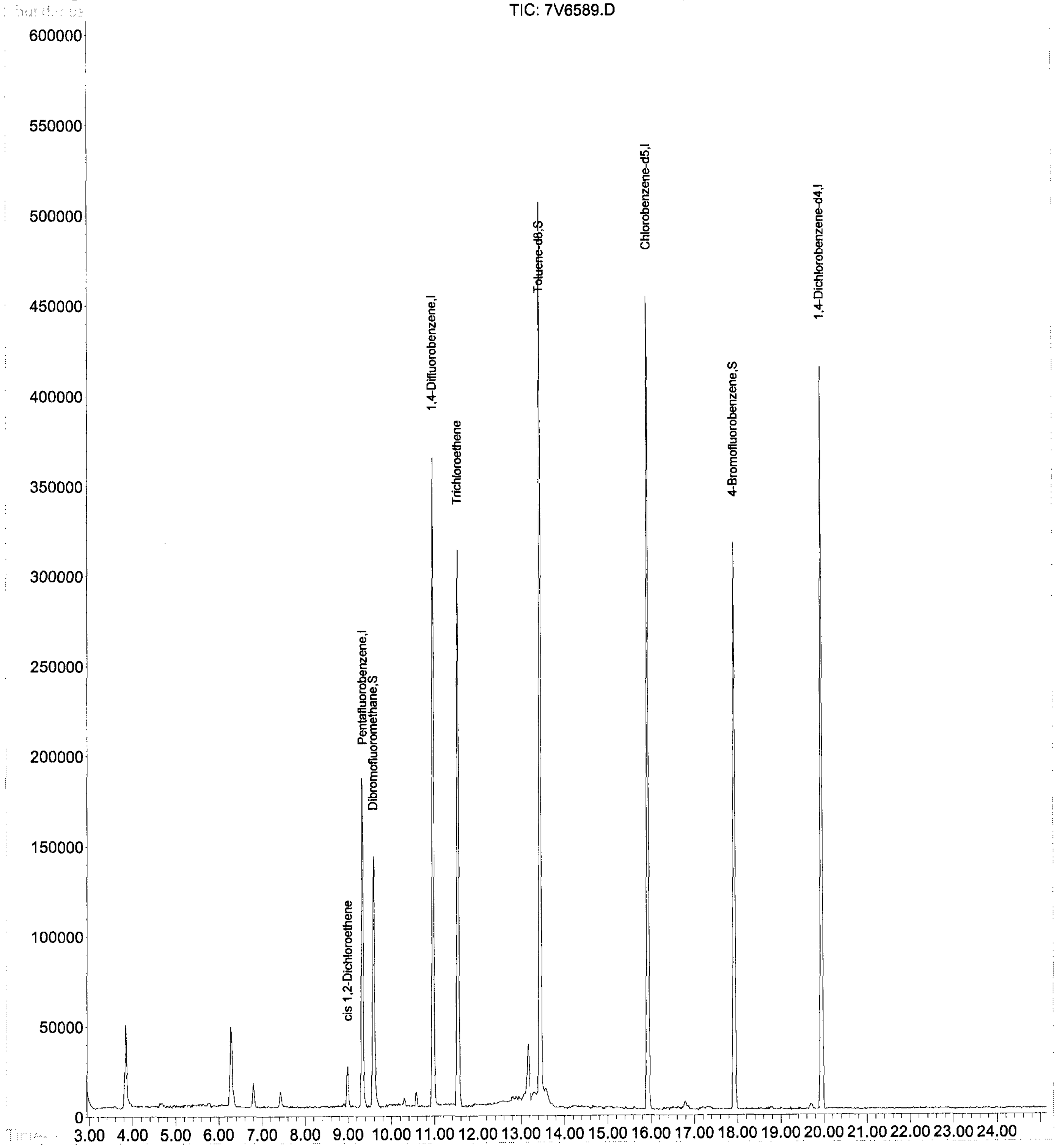
Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Mon Aug 11 09:33:03 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	184088	30.00 ug/L	0.01
30) 1,4-Difluorobenzene	10.96	114	442654	30.00 ug/L	0.01
47) Chlorobenzene-d5	15.93	82	234718	30.00 ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	147925	30.00 ug/L	0.01
System Monitoring Compounds					
24) Dibromofluoromethane	9.58	113	157582	33.58 ug/L	0.01
Spiked Amount 30.000	Range 89 - 116		Recovery =	111.93%	
38) Toluene-d8	13.44	98	502309	28.23 ug/L	0.01
Spiked Amount 30.000	Range 93 - 108		Recovery =	94.10%	
57) 4-Bromofluorobenzene	17.93	95	219048	29.69 ug/L	0.01
Spiked Amount 30.000	Range 75 - 141		Recovery =	98.97%	
Target Compounds					Qvalue
21) cis 1,2-Dichloroethene	8.99	61	23722	4.12 ug/L	84
31) Trichloroethene	11.54	130	160895	38.75 ug/L	97

(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08082008\7V6589.D Vial: 53
Acq On : 8 Aug 2008 8:47 pm Operator: sdp
Sample : 28080087-029 Inst : GCMS-7
Misc : 1:100 Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:26 2008 Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Aqua Pro-Tech Laboratories
Conformance/Non Conformance Checklist

	YES	NO
GC/MS TUNE SPECIFICATIONS		
BFB passes criteria	X	
GC/MS TUNING FREQUENCY		
Method 624-Performed within 24 hours prior to sample analysis	X	
Method 8260B-Performed within 12 hours prior to sample analysis		
GC/MS CONTINUING CALIBRATION		
Method 624-Performed within 24 hours prior to sample analysis	X	
Method 8260B-Performed within 12 hours prior to sample analysis		
GC/MS CALIBRATION REQUIREMENTS		
Calibration Check Compounds pass criteria	X	
System Performance Check Compounds pass criteria	N/A	
SURROGATE RECOVERIES PASS CRITERIA		X
MATRIX SPIKE/SPIKE DUPLICATE RECOVERIES PASS CRITERIA	X	
BLANK SPIKE PASSES CRITERIA	X	
INTERNAL STANDARD AREAS AND RETENTION TIMES PASS CRITERIA	X	
ANALYSIS HOLDING TIMES MET (from date of collection)		
Method 624 (non-preserved water)-7 days		
Method 624 (acid preserved water)-14 days	X	
Method 8260B(soil/solid waste)-14 days		

COMMENTS:

Sample 28080087-025 has one surrogate below the QC limits.

Reviewed By: Robert Goldman

Robert Goldman

15-Aug-08
Date

Conformance/Non Conformance Checklist

Form 2 Volatile Organics Water
Volatile System Monitoring (Surrogate) Compound Recovery

Client: Geovation Engineering P.C.
Project: Grant Hardware

		(% Recovery)
QC Limits	S1 = Dibromofluoromethane	(89 - 116%)
	S2 = Toluene-d8	(93 - 108%)
	S3 = 4-Bromofluorobenzene	(75 - 141%)

* = Values outside of QC limits

Sample ID	Sample Name	S1	S2	S3	TOTAL OUT
28080087-001	Grant P-5	107	99	97	0
28080087-002	Grant P-6	107	99	97	0
28080087-003	Grant P-7	111	94	99	0
28080087-004	Grant P-8S	111	95	96	0
28080087-005	Grant P-8D	109	94	95	0
28080087-006	Grant MW-8R	110	94	100	0
28080087-007	Grant MW-9D	108	96	96	0
28080087-008	Grant MW-10S	111	99	97	0
28080087-009	Grant MW-10D	108	95	96	0
28080087-010	Grant MW-11	112	94	98	0
28080087-011	Grant MW-13	113	97	98	0
28080087-012	Grant MW-14	112	99	98	0
28080087-012 (2)	Grant MW-14 (2)	112	95	99	0
28080087-013	Grant MW-15	115	96	97	0
28080087-014	Grant MW-16	113	99	99	0
28080087-015	Grant MW-17	112	98	98	0
28080087-016	Grant MW-20	114	98	98	0
28080087-017	Grant MW-21	114	94	98	0
28080087-018	Grant MW-22	113	98	97	0
28080087-019	Grant MW-23	112	98	101	0
28080087-020	Grant MW-26	111	99	99	0
28080087-021	Grant MW-27	114	97	100	0
28080087-022	Grant MW-29	113	97	98	0
28080087-023	Grant T.B.	111	99	97	0
28080087-024	Grant MW-12	112	100	98	0
28080087-025	Grant MW-18	83*	94	88	1
28080087-026	Grant MW-19	113	95	97	0
28080087-027	Grant MW-24	116	96	98	0
28080087-028	Grant MW-25	114	97	100	0
28080087-029	Grant MW-28	112	94	99	0
Blank - 1	Blank	107	95	98	0
Blank - 2	Blank	111	99	98	0
Blank - 3	Blank	106	95	96	0

Aqua Pro-Tech Laboratories
Volatile Matrix Spike Recovery

Sample File: G:\HPCHEM\7\Data\08072008\7V6551.D
28080086-004
Matrix Spike File: G:\HPCHEM\7\Data\08082008\7V6602.D
ms 28080086-004

* Denotes values outside of method required QC limits

CAS No.	Compound	Sample Conc.	MS Conc.	Recovery Conc.	% Recovery	QC Limits
74-87-3	Chloromethane	0.00	32.9	32.9	164	Detected - 273 %
74-83-9	Bromomethane	0.00	21.0	21.0	105	Detected - 242 %
75-69-4	Trichlorofluoromethane	0.00	24.6	24.6	123	17.0 - 181 %
75-09-2	Methylene Chloride	1.10	29.0	27.9	140	Detected - 221 %
67-66-3	Chloroform	0.00	24.6	24.6	123	51.0 - 138 %
56-23-5	Carbon Tetrachloride	0.00	22.2	22.2	111	70.0 - 140 %
107-06-2	1,2-Dichloroethane	0.00	24.8	24.8	124	49.0 - 155 %
78-87-5	1,2-Dichloropropane	0.00	24.0	24.0	120	Detected - 210 %
75-27-4	Bromodichloromethane	0.00	21.4	21.4	107	35.0 - 155 %
108-88-3	Toluene	0.00	20.6	20.6	103	47.0 - 150 %
79-00-5	1,1,2-Trichloroethane	0.00	21.2	21.2	106	52.0 - 150 %
124-48-1	Dibromochloromethane	0.00	17.8	17.8	89.0	53.0 - 149 %
75-25-2	Bromoform	0.00	18.7	18.7	93.5	45.0 - 169 %
541-73-1	1,3-Dichlorobenzene	0.00	22.2	22.2	111	59.0 - 156 %
95-50-1	1,2-Dichlorobenzene	0.00	20.3	20.3	102	18.0 - 190 %
75-35-4	1,1-Dichloroethene	0.00	26.0	26.0	130	Detected - 234 %
156-60-5	trans 1,2-Dichloroethene	0.00	26.3	26.3	132	54.0 - 156 %
79-01-6	Trichloroethene	0.00	20.2	20.2	101	71.0 - 157 %
127-18-4	Tetrachloroethene	0.00	18.8	18.8	94.0	64.0 - 148 %
108-90-7	Chlorobenzene	0.00	21.5	21.5	108	37.0 - 160 %
75-01-4	Vinyl Chloride	0.00	33.0	33.0	165	Detected - 251 %
75-00-3	Chloroethane	1.30	24.1	22.8	114	14.0 - 230 %
75-34-3	1,1-Dichloroethane	0.00	26.8	26.8	134	59.0 - 155 %
71-55-6	1,1,1-Trichloroethane	0.00	23.9	23.9	119	52.0 - 162 %
71-43-2	Benzene	0.00	24.9	24.9	124	37.0 - 151 %
10061-01-5	cis 1,3-Dichloropropene	0.00	18.8	18.8	94.0	Detected - 227 %
10061-02-6	trans 1,3-Dichloropropene	0.00	18.1	18.1	90.5	17.0 - 183 %
100-41-4	Ethylbenzene	0.00	21.7	21.7	108	37.0 - 162 %
79-34-5	1,1,2,2-Tetrachloroethane	0.00	20.7	20.7	103	46.0 - 157 %
106-46-7	1,4-Dichlorobenzene	0.00	22.4	22.4	112	18.0 - 190 %

Aqua Pro-Tech Laboratories
Volatile Blank Spike Recoveries

Blank Spike File: G:\HPCHEM\7\Data\08082008\7V6603.D

* Denotes values outside of method required QC Limits

CAS	Compound	Conc.	QC Limits
74-87-3	Chloromethane	36.6	Detected - 40.8
75-01-4	Vinyl Chloride	34.3	0.800 - 39.2
75-00-3	Chloroethane	27.0	7.60 - 32.4
75-35-4	1,1-Dichloroethene	26.9	10.1 - 29.9
75-34-3	1,1-Dichloroethane	26.6*	14.5 - 25.5
71-55-6	1,1,1-Trichloroethane	24.0	15.0 - 25.0
71-43-2	Benzene	25.2	12.8 - 27.2
79-01-6	Trichloroethene	20.5	13.3 - 26.7
78-87-5	1,2-Dichloropropane	23.9	6.80 - 33.2
10061-01-5	cis 1,3-Dichloropropene	18.7	4.80 - 35.2
10061-02-6	trans 1,3-Dichloropropene	17.8	10.0 - 30.0
127-18-4	Tetrachloroethene	19.0	14.7 - 25.3
100-41-4	Ethylbenzene	21.4	11.8 - 28.2
79-34-5	1,1,2,2-Tetrachloroethane	19.0	12.1 - 27.9
106-46-7	1,4-Dichlorobenzene	14.7	12.6 - 27.4
110-75-8	2-Chloroethylvinyl Ether	11.9	Detected - 44.6
75-69-4	Trichlorofluoromethane	25.3	9.60 - 30.4
75-09-2	Methylene Chloride	29.1*	12.1 - 27.9
107-06-2	1,2-Dichloroethane	24.9	13.6 - 26.4
79-00-5	1,1,2-Trichloroethane	21.3	14.2 - 25.8
124-48-1	Dibromochloromethane	17.8	13.5 - 26.5
95-50-1	1,2-Dichlorobenzene	13.9	12.6 - 27.4
74-83-9	Bromomethane	20.7	2.80 - 37.2
156-60-5	trans 1,2-Dichloroethene	26.5*	13.9 - 26.1
67-66-3	Chloroform	24.3	13.5 - 26.5
56-23-5	Carbon Tetrachloride	22.3	14.6 - 25.4
75-27-4	Bromodichloromethane	21.4	13.1 - 26.9
108-88-3	Toluene	20.5	14.9 - 25.1
108-90-7	Chlorobenzene	21.5	13.2 - 26.8
75-25-2	Bromoform	18.0	14.2 - 25.8
541-73-1	1,3-Dichlorobenzene	19.5	12.6 - 27.4

a File : G:\HPCHEM\7\DATA\08072008\7V6551.D   Vial: 15
On : 7 Aug 2008 11:13 pm   Operator: sdp
ple : 28080086-004   Inst : GCMS-7
c :   Multiplr: 1.00
Integration Params: RTEINT.P
ant Time: Aug 8 13:43 2008   Quant Results File: 0805VO7.RES

nt Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
le : VOC's by EPA Method 624
t Update : Fri Aug 08 11:54:15 2008
ponse via : Initial Calibration
aAcq Meth : VOCRUN7

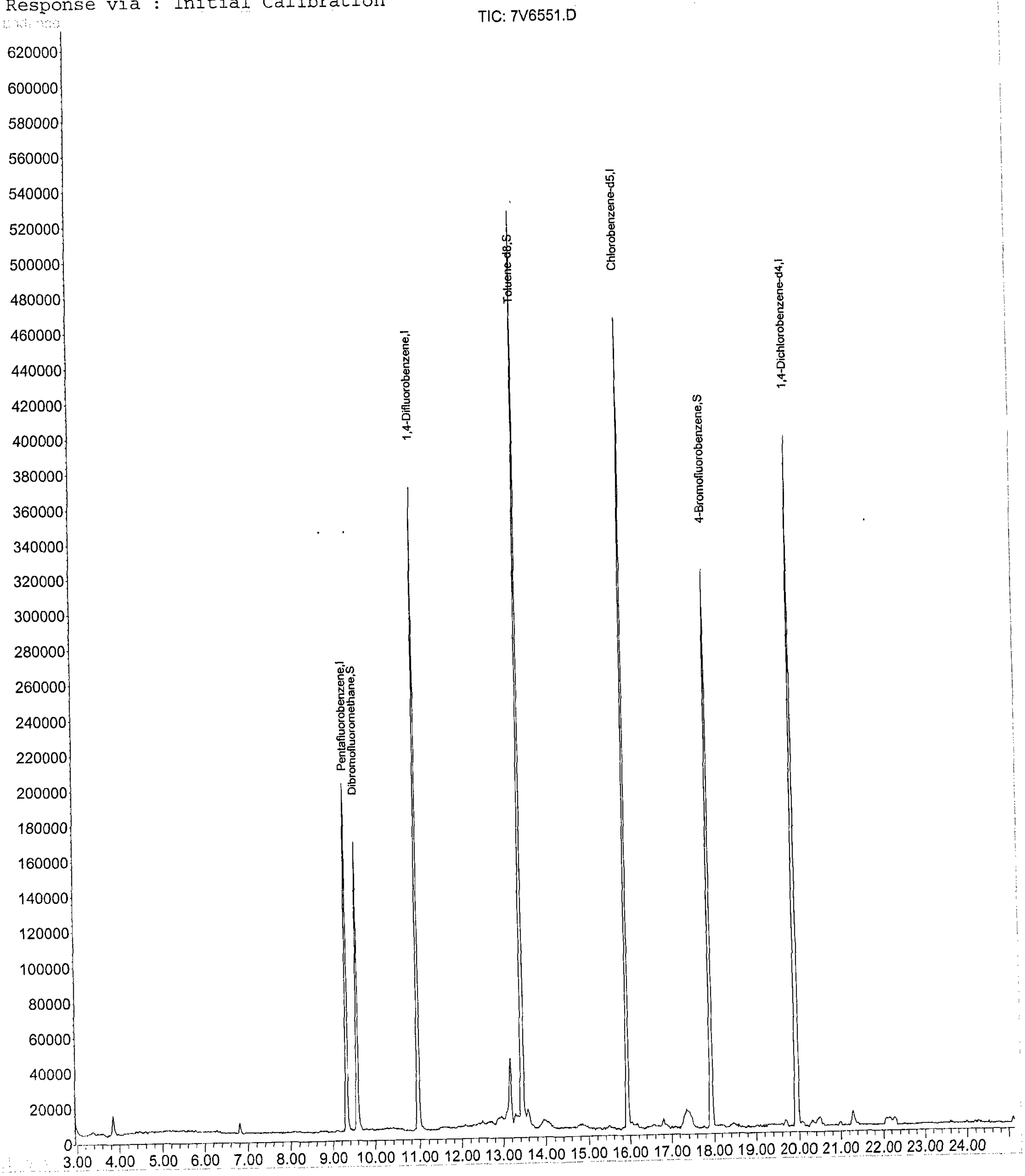
ternal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.34	168	195296	30.00 ug/L	0.02
0) 1,4-Difluorobenzene	10.97	114	448827	30.00 ug/L	0.02
7) Chlorobenzene-d5	15.93	82	238755	30.00 ug/L	0.00
3) 1,4-Dichlorobenzene-d4	19.94	152	148675	30.00 ug/L	0.02
stem Monitoring Compounds					
4) Dibromofluoromethane	9.58	113	161577	32.45 ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery	= 108.17%	
8) Toluene-d8	13.45	98	527133	29.22 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery	= 97.40%	
7) 4-Bromofluorobenzene	17.94	95	222817	29.69 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery	= 98.97%	

rget Compounds   Qvalue

#) = qualifier out of range (m) = manual integration

```
Data File : G:\HPCHEM\7\DATA\08072008\7V6551.D          Vial: 15
Acq On    :  7 Aug 2008  11:13 pm                    Operator: sdp
Sample    : 28080086-004                             Inst    : GCMS-7
Misc      :                                          Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug  8 13:43 2008              Quant Results File: 0805VO7.RES

Method        : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title         : VOC's by EPA Method 624
Last Update   : Wed Aug 06 13:16:47 2008
Response via  : Initial Calibration
```



a File : G:\HPCHEM\7\DATA\08082008\7V6602.D
On : 9 Aug 2008 3:59 am
ple : ms 28080086-004
c :
Integration Params: RTEINT.P
ant Time: Aug 11 9:47 2008

Vial: 66
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

nt Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
le : VOC's by EPA Method 624
t Update : Wed Aug 06 13:16:47 2008
ponse via : Initial Calibration
aAcq Meth : VOCRUN7

ternal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.38	168	162956	30.00 ug/L	0.06
0) 1,4-Difluorobenzene	11.01	114	392761	30.00 ug/L	0.06
7) Chlorobenzene-d5	15.98	82	210124	30.00 ug/L	0.06
3) 1,4-Dichlorobenzene-d4	20.01	152	189542	30.00 ug/L	0.08

stem Monitoring Compounds					
4) Dibromofluoromethane	9.64	113	146989	35.38 ug/L	0.07
Spiked Amount 30.000	Range 89 - 116		Recovery	= 117.93%#	
38) Toluene-d8	13.49	98	450877	28.56 ug/L	0.06
Spiked Amount 30.000	Range 93 - 108		Recovery	= 95.20%	
57) 4-Bromofluorobenzene	17.98	95	193788	29.34 ug/L	0.06
Spiked Amount 30.000	Range 75 - 141		Recovery	= 97.80%	

arget Compounds					Qvalue
2) Dichlorodifluoromethane	3.13	85	36893	16.59 ug/L	88
3) Chloromethane	3.55	50	119284	32.94 ug/L	100
4) Vinyl Chloride	3.71	62	79936	33.08 ug/L	96
5) Bromomethane	4.44	94	43577	21.06 ug/L	95
6) Chloroethane	4.59	64	58560	24.13 ug/L	88
7) Trichlorofluoromethane	5.03	101	80771	24.66 ug/L	95
8) Acrolein	7.11	56	9076	69.05 ug/L	77
9) Acetone	5.81	43	34508	11.68 ug/L	100
10) 1,1-Dichloroethene	6.06	61	118750	26.04 ug/L	97
11) tert-Butyl Alcohol	6.17	59	58156	185.78 ug/L	96
12) Methylene Chloride	6.85	84	79902	29.09 ug/L	92
13) Carbon Disulfide	6.92	76	219315	24.81 ug/L	99
14) Acrylonitrile	7.03	53	69815	52.49 ug/L	97
15) Methyl tert-Butyl Ether	7.11	73	161095	23.46 ug/L	98
16) trans 1,2-Dichloroethene	7.36	61	121732	26.38 ug/L	98
17) 1,1-Dichloroethane	8.05	63	151665	26.89 ug/L	100
18) Vinyl Acetate	8.01	43	146019	24.85 ug/L	98
19) 2-Butanone	8.70	43	53192	13.88 ug/L	87
20) 2,2-Dichloropropane	8.96	77	78601	19.21 ug/L	97
21) cis 1,2-Dichloroethene	9.03	61	133571	26.19 ug/L	98
22) Chloroform	9.29	83	119839	24.60 ug/L	100
23) Bromochloromethane	9.55	49	94829	32.34 ug/L	85
25) 1,1,1-Trichloroethane	9.94	97	93082	23.93 ug/L	99
26) 1,1-Dichloropropene	10.18	75	98570	22.78 ug/L	97
27) Carbon Tetrachloride	10.37	117	80396	22.27 ug/L	96
28) 1,2-Dichloroethane	10.56	62	91601	24.81 ug/L	100
29) Benzene	10.62	78	273510	24.93 ug/L	99
31) Trichloroethene	11.58	130	74480	20.22 ug/L	96
32) 1,2-Dichloropropane	11.84	63	93485	24.08 ug/L	98
33) Bromodichloromethane	12.23	83	90739	21.49 ug/L	99
34) Dibromomethane	12.33	174	45862	21.49 ug/L	95
36) 4-Methyl-2-Pentanone	12.69	43	106850	20.45 ug/L	90
37) cis 1,3-Dichloropropene	13.06	75	113235	18.89 ug/L	97
39) Toluene	13.62	91	274544	20.61 ug/L	98
40) trans 1,3-Dichloropropene	13.85	75	96348	18.13 ug/L	96
41) 1,1,2-Trichloroethane	14.12	97	66849	21.25 ug/L	99
42) 2-Hexanone	14.08	43	75833	11.31 ug/L	94
43) 1,3-Dichloropropane	14.53	76	121662	20.06 ug/L	100
44) Tetrachloroethene	14.70	166	62986	18.86 ug/L	98
45) Dibromochloromethane	15.02	129	71438	17.89 ug/L	99
46) 1,2-Dibromoethane	15.36	107	83787	21.17 ug/L	99
48) Chlorobenzene	16.04	112	195192	21.55 ug/L	99

(#) = qualifier out of range (m) = manual integration

```
a File : G:\HPCHEM\7\DATA\08082008\7V6602.D          Vial: 66
 On    :  9 Aug 2008   3:59 am                    Operator: sdp
ple    : ms 28080086-004                           Inst    : GCMS-7
c      :                                           Multiplr: 1.00
Integration Params: RTEINT.P
ant Time: Aug 11  9:47 2008               Quant Results File: 0805VO7.RES

nt Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
le        : VOC's by EPA Method 624
t Update  : Wed Aug 06 13:16:47 2008
ponse via : Initial Calibration
aAcq Meth : VOCRUN7
```

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
9)	1,1,1,2-Tetrachloroethane	16.09	131	59231	19.69 ug/L	97
0)	Ethylbenzene	16.10	91	311839	21.74 ug/L	97
1)	m+p-Xylenes	16.21	106	240263	42.75 ug/L	94
2)	o-Xylene	16.95	91	236069	21.29 ug/L	99
3)	Styrene	17.01	104	204411	22.70 ug/L	97
4)	Isopropylbenzene	17.53	105	268222	20.98 ug/L	99
5)	Bromoform	17.63	173	43966	18.70 ug/L	96
6)	1,1,2,2-Tetrachloroethane	17.80	83	103277	20.77 ug/L	100
8)	1,2,3-Trichloropropane	18.06	110	24656	20.24 ug/L	97
59)	Bromobenzene	18.35	77	127187	20.88 ug/L	96
60)	2-Chlorotoluene	18.55	91	206295	21.17 ug/L	94
61)	4-Chlorotoluene	18.62	91	208048	21.61 ug/L	99
62)	1,3-Dichlorobenzene	19.88	146	133503	22.20 ug/L	98
64)	1,4-Dichlorobenzene	20.05	146	121007	22.41 ug/L	96
65)	1,2-Dichlorobenzene	20.68	146	115205	20.37 ug/L	96
66)	1,2-Dibromo-3-chloropropan	21.94	75	12481	15.18 ug/L	98
67)	1,2,4-Trichlorobenzene	23.55	180	67826	19.74 ug/L	97
68)	Hexachlorobutadiene	23.80	225	18253	15.64 ug/L	92
69)	Naphthalene	24.10	128	192219	17.13 ug/L	99
70)	1,2,3-Trichlorobenzene	24.61	180	59331	18.73 ug/L	95

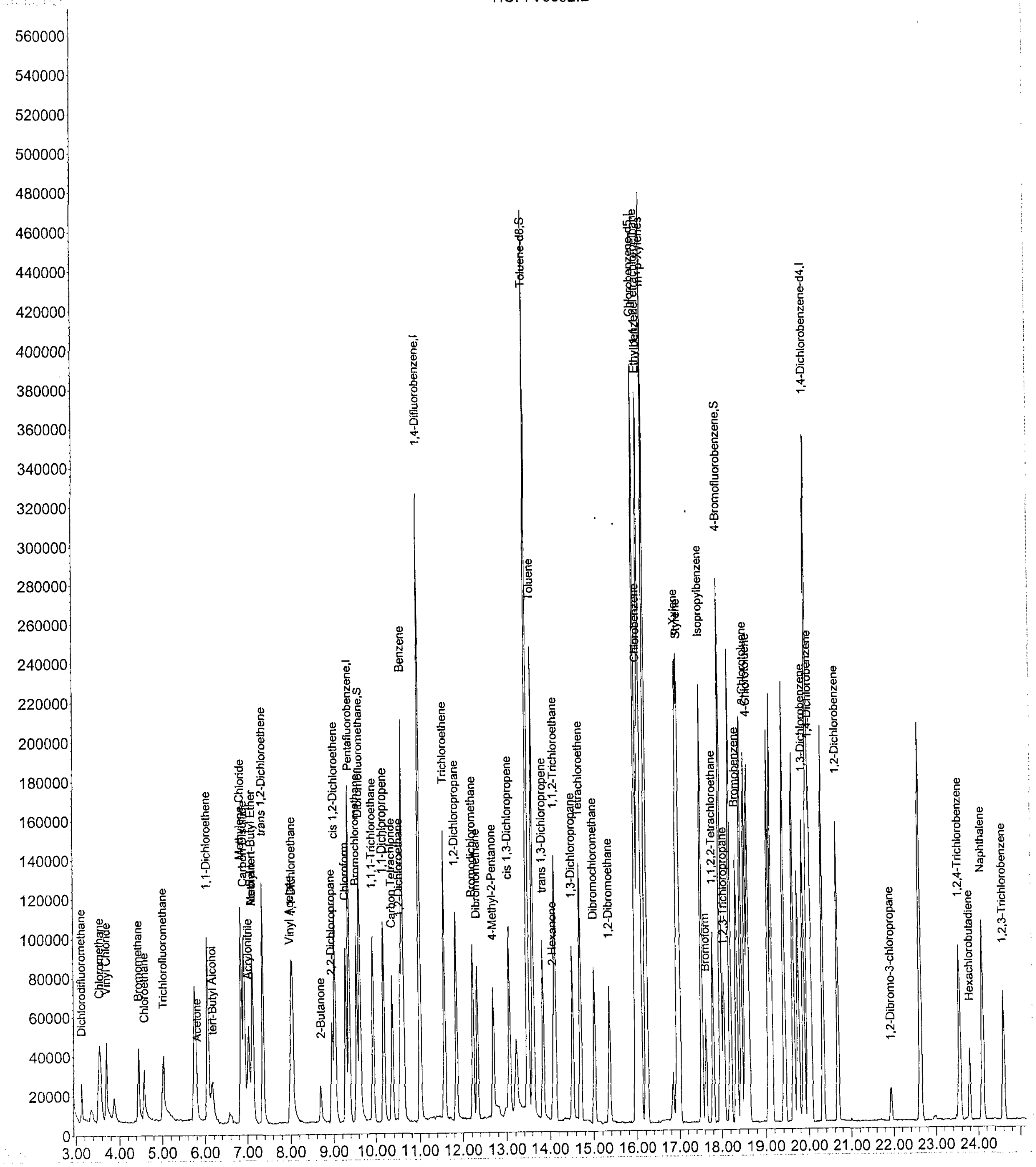
Data File : G:\HPCHEM\7\DATA\08082008\7V6602.D
Acq On : 9 Aug 2008 3:59 am
Sample : ms 28080086-004
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 11 9:47 2008

Vial: 66
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration

TIC: 7V6602.D



Aqua Pro-Tech Laboratories
Volatile Matrix Spike Recovery

Sample File: G:\HPCHEM\7\Data\08062008\7V6518.D
28071417-002
Matrix Spike File: G:\HPCHEM\7\Data\08072008\7V6557.D
ms 28071417-002

* Denotes values outside of method required QC limits

CAS No.	Compound	Sample Conc.	MS Conc.	Recovery Conc.	% Recovery	QC Limits
74-87-3	Chloromethane	0.00	28.0	28.0	140	Detected - 273 %
74-83-9	Bromomethane	0.00	24.3	24.3	122	Detected - 242 %
75-69-4	Trichlorofluoromethane	0.00	24.1	24.1	120	17.0 - 181 %
75-09-2	Methylene Chloride	0.00	28.4	28.4	142	Detected - 221 %
67-66-3	Chloroform	0.00	25.6	25.6	128	51.0 - 138 %
56-23-5	Carbon Tetrachloride	0.00	23.4	23.4	117	70.0 - 140 %
107-06-2	1,2-Dichloroethane	0.00	25.3	25.3	127	49.0 - 155 %
78-87-5	1,2-Dichloropropane	0.00	24.7	24.7	123	Detected - 210 %
75-27-4	Bromodichloromethane	0.00	23.3	23.3	116	35.0 - 155 %
108-88-3	Toluene	0.00	22.6	22.6	113	47.0 - 150 %
79-00-5	1,1,2-Trichloroethane	0.00	24.3	24.3	122	52.0 - 150 %
124-48-1	Dibromochloromethane	0.00	21.9	21.9	110	53.0 - 149 %
75-25-2	Bromoform	0.00	22.2	22.2	111	45.0 - 169 %
541-73-1	1,3-Dichlorobenzene	0.00	23.0	23.0	115	59.0 - 156 %
95-50-1	1,2-Dichlorobenzene	0.00	37.6	37.6	188	18.0 - 190 %
75-35-4	1,1-Dichloroethene	0.00	26.4	26.4	132	Detected - 234 %
156-60-5	trans 1,2-Dichloroethene	0.00	26.6	26.6	133	54.0 - 156 %
79-01-6	Trichloroethene	0.00	22.9	22.9	114	71.0 - 157 %
127-18-4	Tetrachloroethene	0.00	22.6	22.6	113	64.0 - 148 %
108-90-7	Chlorobenzene	0.00	24.8	24.8	124	37.0 - 160 %
75-01-4	Vinyl Chloride	0.00	28.6	28.6	143	Detected - 251 %
75-00-3	Chloroethane	0.500	30.7	30.2	151	14.0 - 230 %
75-34-3	1,1-Dichloroethane	0.00	27.0	27.0	135	59.0 - 155 %
71-55-6	1,1,1-Trichloroethane	0.00	24.9	24.9	124	52.0 - 162 %
71-43-2	Benzene	0.00	26.5	26.5	132	37.0 - 151 %
10061-01-5	cis 1,3-Dichloropropene	0.00	21.4	21.4	107	Detected - 227 %
10061-02-6	trans 1,3-Dichloropropene	0.00	20.9	20.9	104	17.0 - 183 %
100-41-4	Ethylbenzene	0.00	24.5	24.5	123	37.0 - 162 %
79-34-5	1,1,2,2-Tetrachloroethane	0.00	25.1	25.1	126	46.0 - 157 %
106-46-7	1,4-Dichlorobenzene	0.00	47.1	47.1	236*	18.0 - 190 %

Aqua Pro-Tech Laboratories
Volatile Blank Spike Recoveries

Blank Spike File: G:\HPCHEM\7\Data\08072008\7V6558.D

* Denotes values outside of method required QC Limits

CAS	Compound	Conc.	QC Limits
74-87-3	Chloromethane	25.0	Detected - 40.8
75-01-4	Vinyl Chloride	23.7	0.800 - 39.2
75-00-3	Chloroethane	28.4	7.60 - 32.4
75-35-4	1,1-Dichloroethene	22.8	10.1 - 29.9
75-34-3	1,1-Dichloroethane	23.5	14.5 - 25.5
71-55-6	1,1,1-Trichloroethane	20.4	15.0 - 25.0
71-43-2	Benzene	22.9	12.8 - 27.2
79-01-6	Trichloroethene	20.6	13.3 - 26.7
78-87-5	1,2-Dichloropropane	21.5	6.80 - 33.2
10061-01-5	cis 1,3-Dichloropropene	18.4	4.80 - 35.2
10061-02-6	trans 1,3-Dichloropropene	17.5	10.0 - 30.0
127-18-4	Tetrachloroethene	19.3	14.7 - 25.3
100-41-4	Ethylbenzene	20.8	11.8 - 28.2
79-34-5	1,1,2,2-Tetrachloroethane	19.1	12.1 - 27.9
106-46-7	1,4-Dichlorobenzene	40.3*	12.6 - 27.4
110-75-8	2-Chloroethylvinyl Ether	15.9	Detected - 44.6
75-69-4	Trichlorofluoromethane	21.2	9.60 - 30.4
75-09-2	Methylene Chloride	25.4	12.1 - 27.9
107-06-2	1,2-Dichloroethane	21.9	13.6 - 26.4
79-00-5	1,1,2-Trichloroethane	20.6	14.2 - 25.8
124-48-1	Dibromochloromethane	17.9	13.5 - 26.5
95-50-1	1,2-Dichlorobenzene	32.4*	12.6 - 27.4
74-83-9	Bromomethane	19.1	2.80 - 37.2
156-60-5	trans 1,2-Dichloroethene	23.1	13.9 - 26.1
67-66-3	Chloroform	21.0	13.5 - 26.5
56-23-5	Carbon Tetrachloride	20.0	14.6 - 25.4
75-27-4	Bromodichloromethane	19.3	13.1 - 26.9
108-88-3	Toluene	19.4	14.9 - 25.1
108-90-7	Chlorobenzene	21.0	13.2 - 26.8
75-25-2	Bromoform	18.5	14.2 - 25.8
541-73-1	1,3-Dichlorobenzene	19.6	12.6 - 27.4

Quantitation Report (LSC Reviewed)

Data File : G:\HPCHEM\7\DATA\08062008\7V6518.D
Acq On : 7 Aug 2008 12:01 am
Sample : 28071417-002
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 7 15:31 2008

Vial: 51
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Quant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration
DataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	174431	30.00	ug/L	0.00
30) 1,4-Difluorobenzene	10.95	114	415323	30.00	ug/L	0.00
47) Chlorobenzene-d5	15.92	82	220419	30.00	ug/L	0.00
63) 1,4-Dichlorobenzene-d4	19.94	152	152342	30.00	ug/L	0.01
System Monitoring Compounds						
24) Dibromofluoromethane	9.58	113	150180	33.77	ug/L	0.02
Spiked Amount 30.000	Range 89 - 116		Recovery =	112.57%		
38) Toluene-d8	13.44	98	460706	27.60	ug/L	0.00
Spiked Amount 30.000	Range 93 - 108		Recovery =	92.00%#		
57) 4-Bromofluorobenzene	17.92	95	201627	29.10	ug/L	0.00
Spiked Amount 30.000	Range 75 - 141		Recovery =	97.00%		

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

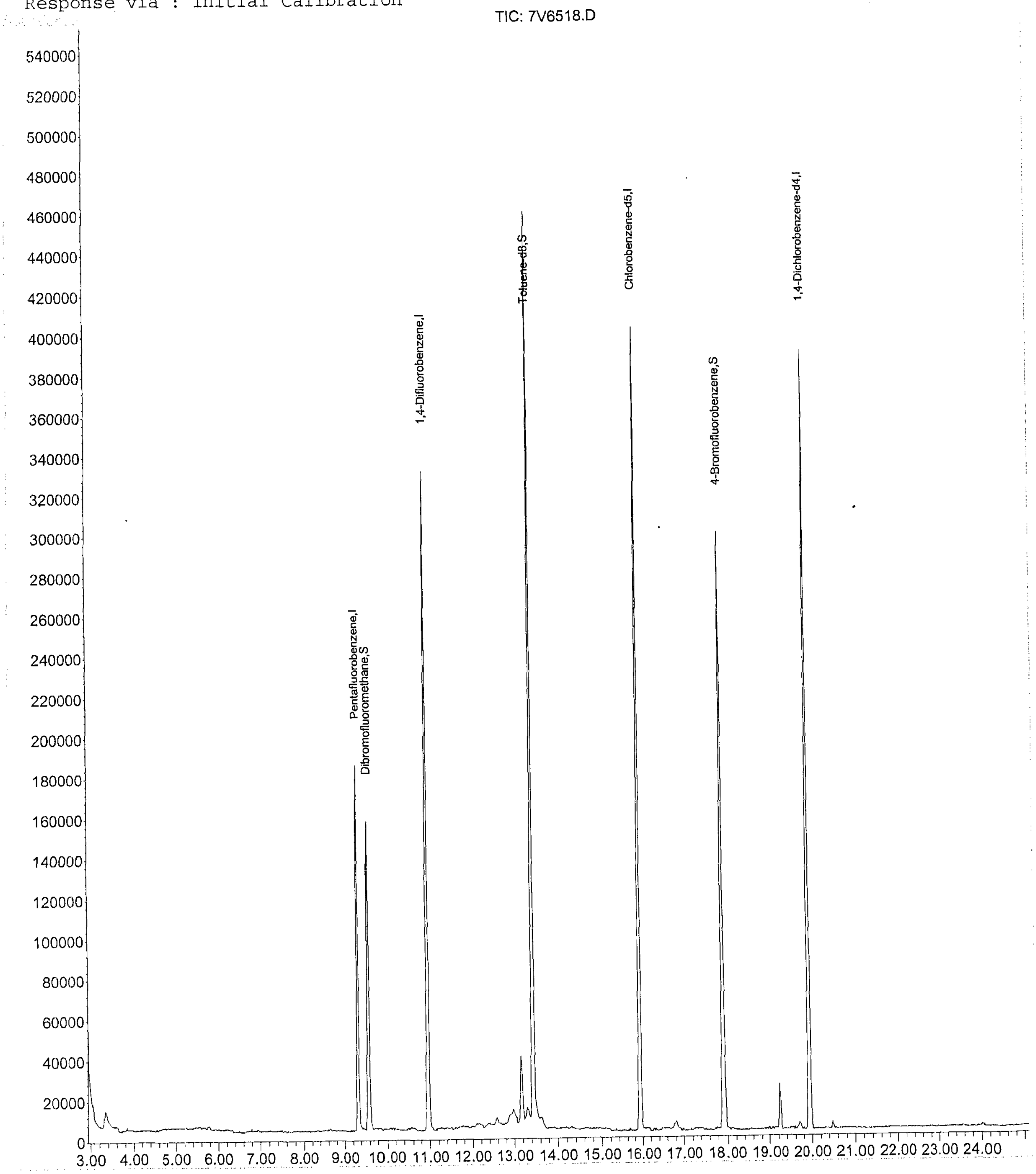
Quantitation Report

Data File : G:\HPCHEM\7\DATA\08062008\7V6518.D
Acq On : 7 Aug 2008 12:01 am
Sample : 28071417-002
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 7 15:31 2008

Vial: 51
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



ata File : G:\HPCHEM\7\DATA\08072008\7V6557.D
cq On : 8 Aug 2008 2:34 am
ample : ms 28071417-002
isc :
S Integration Params: RTEINT.P
Quant Time: Aug 8 12:23 2008

Vial: 21
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

uant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
itle : VOC's by EPA Method 624
ast Update : Fri Aug 08 12:21:47 2008
esponse via : Initial Calibration
ataAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.33	168	195388	30.00 ug/L	0.02
30) 1,4-Difluorobenzene	10.96	114	461501	30.00 ug/L	0.02
47) Chlorobenzene-d5	15.94	82	246096	30.00 ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.94	152	141260	30.00 ug/L	0.01

System Monitoring Compounds	R.T.	QIon	Response	Conc Units	Dev(Min)
24) Dibromofluoromethane	9.59	113	162973	32.72 ug/L	0.03
Spiked Amount 30.000	Range 89 - 116		Recovery	= 109.07%	
38) Toluene-d8	13.45	98	514861	29.70 ug/L	0.02
Spiked Amount 30.000	Range 93 - 108		Recovery	= 99.00%	
57) 4-Bromofluorobenzene	17.93	95	231042	29.87 ug/L	0.02
Spiked Amount 30.000	Range 75 - 141		Recovery	= 99.57%	

Target Compounds	R.T.	QIon	Response	Conc Units	Qvalue
2) Dichlorodifluoromethane	3.12	85	50989	19.13 ug/L	98
3) Chloromethane	3.52	50	121761	28.04 ug/L	100
4) Vinyl Chloride	3.68	62	82879	28.60 ug/L	97
5) Bromomethane	4.41	94	60383	24.34 ug/L	97
6) Chloroethane	4.54	64	89380	30.72 ug/L	96
7) Trichlorofluoromethane	4.99	101	94909	24.17 ug/L	98
8) Acrolein	7.07	56	10088	64.01 ug/L	84
9) Acetone	5.78	43	42150	11.90 ug/L	97
10) 1,1-Dichloroethene	6.03	61	144774	26.48 ug/L	95
11) tert-Butyl Alcohol	6.13	59	90846	242.03 ug/L	97
12) Methylene Chloride	6.81	84	93572	28.41 ug/L	92
13) Carbon Disulfide	6.88	76	275076	25.95 ug/L	100
14) Acrylonitrile	6.98	53	87064	54.60 ug/L	97
15) Methyl tert-Butyl Ether	7.07	73	210910	25.62 ug/L	98
16) trans 1,2-Dichloroethene	7.31	61	147379	26.63 ug/L	95
17) 1,1-Dichloroethane	8.01	63	183202	27.09 ug/L	100
18) Vinyl Acetate	7.96	43	192472	27.32 ug/L	100
19) 2-Butanone	8.66	43	66304	14.42 ug/L	97
20) 2,2-Dichloropropane	8.92	77	103498	21.10 ug/L	98
21) cis 1,2-Dichloroethene	8.99	61	160730	26.29 ug/L	95
22) Chloroform	9.25	83	150049	25.69 ug/L	99
23) Bromochloromethane	9.51	49	107475	30.57 ug/L	97
25) 1,1,1-Trichloroethane	9.90	97	116286	24.93 ug/L	100
26) 1,1-Dichloropropene	10.14	75	129152	24.89 ug/L	98
27) Carbon Tetrachloride	10.33	117	101587	23.47 ug/L	100
28) 1,2-Dichloroethane	10.52	62	112333	25.38 ug/L	98
29) Benzene	10.57	78	349511	26.57 ug/L	99
31) Trichloroethene	11.54	130	99434	22.97 ug/L	97
32) 1,2-Dichloropropane	11.81	63	113087	24.79 ug/L	97
33) Bromodichloromethane	12.19	83	115897	23.36 ug/L	100
34) Dibromomethane	12.29	174	61754	24.63 ug/L	99
36) 4-Methyl-2-Pentanone	12.65	43	144122	23.47 ug/L	93
37) cis 1,3-Dichloropropene	13.03	75	150709	21.40 ug/L	98
39) Toluene	13.57	91	354102	22.63 ug/L	98
40) trans 1,3-Dichloropropene	13.81	75	130762	20.95 ug/L	99
41) 1,1,2-Trichloroethane	14.08	97	90102	24.37 ug/L	100
42) 2-Hexanone	14.04	43	110223	14.00 ug/L	99
43) 1,3-Dichloropropane	14.48	76	166166	23.31 ug/L	100
44) Tetrachloroethene	14.67	166	88660	22.60 ug/L	99
45) Dibromochloromethane	14.97	129	103165	21.99 ug/L	99
46) 1,2-Dibromoethane	15.32	107	111343	23.94 ug/L	99
48) Chlorobenzene	16.00	112	263483	24.84 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

ata File : G:\HPCHEM\7\DATA\08072008\7V6557.D
cq On : 8 Aug 2008 2:34 am
ample : ms 28071417-002
isc :
S Integration Params: RTEINT.P
Quant Time: Aug 8 12:23 2008

Vial: 21
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

uant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
itle : VOC's by EPA Method 624
ast Update : Fri Aug 08 12:21:47 2008
esponse via : Initial Calibration
ataAcq Meth : VOCRUN7

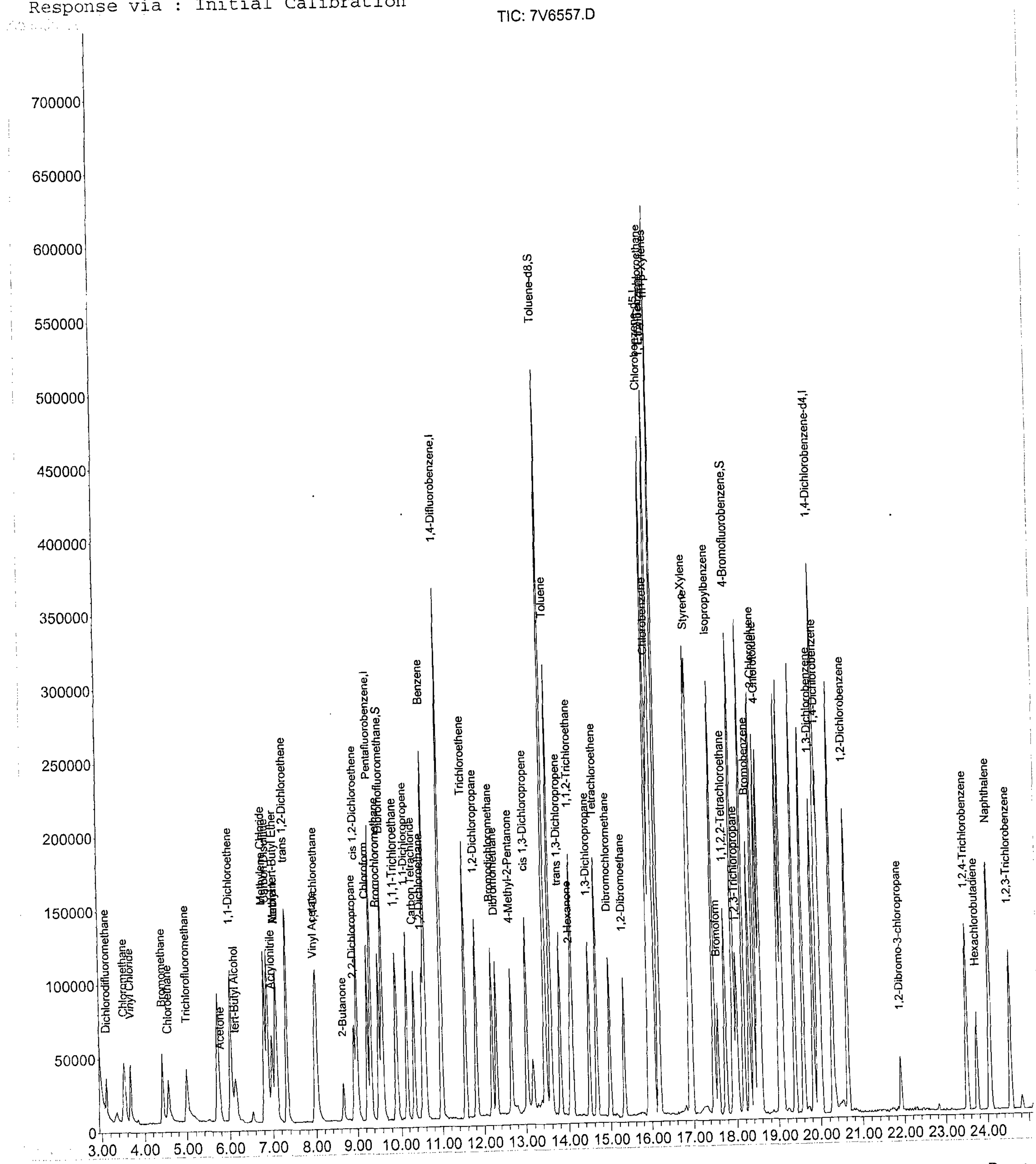
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
49)	1,1,1,2-Tetrachloroethane	16.04	131	84282	23.92 ug/L	97
50)	Ethylbenzene	16.06	91	413024	24.59 ug/L	97
51)	m+p-Xylenes	16.17	106	318067	48.32 ug/L	95
52)	o-Xylene	16.92	91	314559	24.22 ug/L	97
53)	Styrene	16.97	104	263294	24.97 ug/L	99
54)	Isopropylbenzene	17.48	105	356041	23.78 ug/L	99
55)	Bromoform	17.59	173	61371	22.29 ug/L	97
56)	1,1,2,2-Tetrachloroethane	17.76	83	146332	25.12 ug/L	96
58)	1,2,3-Trichloropropane	18.02	110	35093	24.60 ug/L	97
59)	Bromobenzene	18.31	77	171345	24.02 ug/L	89
60)	2-Chlorotoluene	18.51	91	276845	24.25 ug/L	96
61)	4-Chlorotoluene	18.58	91	273559	24.26 ug/L	98
62)	1,3-Dichlorobenzene	19.84	146	162586	23.08 ug/L	97
64)	1,4-Dichlorobenzene	20.01	146	189561	47.12 ug/L	98
65)	1,2-Dichlorobenzene	20.64	146	158697	37.65 ug/L	97
66)	1,2-Dibromo-3-chloropropan	21.90	75	19124	31.20 ug/L	90
67)	1,2,4-Trichlorobenzene	23.51	180	97105	37.93 ug/L	99
68)	Hexachlorobutadiene	23.74	225	29748	34.19 ug/L	96
69)	Naphthalene	24.06	128	327565	39.18 ug/L	100
70)	1,2,3-Trichlorobenzene	24.55	180	91224	38.65 ug/L	99

Data File : G:\HPCHEM\7\DATA\08072008\7V6557.D
Acq On : 8 Aug 2008 2:34 am
Sample : ms 28071417-002
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:23 2008

Vial: 21
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Aqua Pro-Tech Laboratories
Volatile Matrix Spike Recovery

Sample File: G:\HPCHEM\7\Data\08082008\7V6614.D
28080011-001
Matrix Spike File: G:\HPCHEM\7\Data\08112008\7V6642.D
ms 28080011-001

* Denotes values outside of method required QC limits

CAS No.	Compound	Sample Conc.	MS Conc.	Recovery Conc.	% Recovery	QC Limits
74-87-3	Chloromethane	0.00	33.0	33.0	165	Detected - 273 %
74-83-9	Bromomethane	0.00	21.2	21.2	106	Detected - 242 %
75-69-4	Trichlorofluoromethane	0.00	24.2	24.2	121	17.0 - 181 %
75-09-2	Methylene Chloride	0.00	28.7	28.7	144	Detected - 221 %
67-66-3	Chloroform	0.00	24.4	24.4	122	51.0 - 138 %
56-23-5	Carbon Tetrachloride	0.00	22.5	22.5	112	70.0 - 140 %
107-06-2	1,2-Dichloroethane	0.00	23.8	23.8	119	49.0 - 155 %
78-87-5	1,2-Dichloropropane	0.00	25.3	25.3	127	Detected - 210 %
75-27-4	Bromodichloromethane	0.00	22.7	22.7	114	35.0 - 155 %
108-88-3	Toluene	0.00	22.3	22.3	112	47.0 - 150 %
79-00-5	1,1,2-Trichloroethane	0.00	23.2	23.2	116	52.0 - 150 %
124-48-1	Dibromochloromethane	0.00	19.8	19.8	99.0	53.0 - 149 %
75-25-2	Bromoform	0.00	19.6	19.6	98.0	45.0 - 169 %
541-73-1	1,3-Dichlorobenzene	0.00	19.0	19.0	95.0	59.0 - 156 %
95-50-1	1,2-Dichlorobenzene	0.00	29.1	29.1	146	18.0 - 190 %
75-35-4	1,1-Dichloroethene	0.00	26.7	26.7	134	Detected - 234 %
156-60-5	trans 1,2-Dichloroethene	0.00	26.8	26.8	134	54.0 - 156 %
79-01-6	Trichloroethene	0.00	21.6	21.6	108	71.0 - 157 %
127-18-4	Tetrachloroethene	0.00	21.1	21.1	106	64.0 - 148 %
108-90-7	Chlorobenzene	0.00	21.4	21.4	107	37.0 - 160 %
75-01-4	Vinyl Chloride	0.00	32.8	32.8	164	Detected - 251 %
75-00-3	Chloroethane	0.00	28.7	28.7	144	14.0 - 230 %
75-34-3	1,1-Dichloroethane	0.00	26.5	26.5	132	59.0 - 155 %
71-55-6	1,1,1-Trichloroethane	0.00	24.2	24.2	121	52.0 - 162 %
71-43-2	Benzene	0.00	26.3	26.3	132	37.0 - 151 %
10061-01-5	cis 1,3-Dichloropropene	0.00	20.8	20.8	104	Detected - 227 %
10061-02-6	trans 1,3-Dichloropropene	0.00	19.7	19.7	98.5	17.0 - 183 %
100-41-4	Ethylbenzene	0.00	22.1	22.1	110	37.0 - 162 %
79-34-5	1,1,2,2-Tetrachloroethane	0.00	20.4	20.4	102	46.0 - 157 %
106-46-7	1,4-Dichlorobenzene	0.00	36.5	36.5	182	18.0 - 190 %

Aqua Pro-Tech Laboratories
Volatile Blank Spike Recoveries

Blank Spike File: G:\HPCHEM\7\Data\08112008\7V6643.D

* Denotes values outside of method required QC Limits

CAS	Compound	Conc.	QC Limits
74-87-3	Chloromethane	31.5	Detected - 40.8
75-01-4	Vinyl Chloride	30.9	0.800 - 39.2
75-00-3	Chloroethane	27.6	7.60 - 32.4
75-35-4	1,1-Dichloroethene	26.6	10.1 - 29.9
75-34-3	1,1-Dichloroethane	26.4*	14.5 - 25.5
71-55-6	1,1,1-Trichloroethane	23.2	15.0 - 25.0
71-43-2	Benzene	25.7	12.8 - 27.2
79-01-6	Trichloroethene	22.0	13.3 - 26.7
78-87-5	1,2-Dichloropropane	24.5	6.80 - 33.2
10061-01-5	cis 1,3-Dichloropropene	19.8	4.80 - 35.2
10061-02-6	trans 1,3-Dichloropropene	18.8	10.0 - 30.0
127-18-4	Tetrachloroethene	20.3	14.7 - 25.3
100-41-4	Ethylbenzene	21.1	11.8 - 28.2
79-34-5	1,1,2,2-Tetrachloroethane	19.3	12.1 - 27.9
106-46-7	1,4-Dichlorobenzene	35.9*	12.6 - 27.4
110-75-8	2-Chloroethylvinyl Ether	10.9	Detected - 44.6
75-69-4	Trichlorofluoromethane	23.3	9.60 - 30.4
75-09-2	Methylene Chloride	30.7*	12.1 - 27.9
107-06-2	1,2-Dichloroethane	23.9	13.6 - 26.4
79-00-5	1,1,2-Trichloroethane	22.5	14.2 - 25.8
124-48-1	Dibromochloromethane	19.0	13.5 - 26.5
95-50-1	1,2-Dichlorobenzene	29.0*	12.6 - 27.4
74-83-9	Bromomethane	21.5	2.80 - 37.2
156-60-5	trans 1,2-Dichloroethene	26.6*	13.9 - 26.1
67-66-3	Chloroform	23.6	13.5 - 26.5
56-23-5	Carbon Tetrachloride	21.6	14.6 - 25.4
75-27-4	Bromodichloromethane	21.2	13.1 - 26.9
108-88-3	Toluene	21.3	14.9 - 25.1
108-90-7	Chlorobenzene	20.8	13.2 - 26.8
75-25-2	Bromoform	19.5	14.2 - 25.8
541-73-1	1,3-Dichlorobenzene	18.6	12.6 - 27.4

Quantitation Report (QT Reviewed)

ta File : G:\HPCHEM\7\DATA\08082008\7V6614.D
q On : 9 Aug 2008 10:36 am
ıple : 28080011-001
'sc :
Integration Params: RTEINT.P
uant Time: Aug 11 11:29 2008

Vial: 78
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00
Quant Results File: 0805VO7.RES

ant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
'tle : VOC's by EPA Method 624
st Update : Mon Aug 11 09:33:03 2008
sponse via : Initial Calibration
taAcq Meth : VOCRUN7

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.35	168	187658	30.00 ug/L	0.03
30) 1,4-Difluorobenzene	10.98	114	452812	30.00 ug/L	0.03
47) Chlorobenzene-d5	15.95	82	241370	30.00 ug/L	0.03
63) 1,4-Dichlorobenzene-d4	19.98	152	148097	30.00 ug/L	0.05

System Monitoring Compounds					
24) Dibromofluoromethane	9.61	113	163991	34.28 ug/L	0.04
Spiked Amount 30.000	Range 89 - 116		Recovery = 114.27%		
38) Toluene-d8	13.46	98	517452	28.43 ug/L	0.03
Spiked Amount 30.000	Range 93 - 108		Recovery = 94.77%		
57) 4-Bromofluorobenzene	17.95	95	217628	28.69 ug/L	0.03
Spiked Amount 30.000	Range 75 - 141		Recovery = 95.63%		

Target Compounds Qvalue

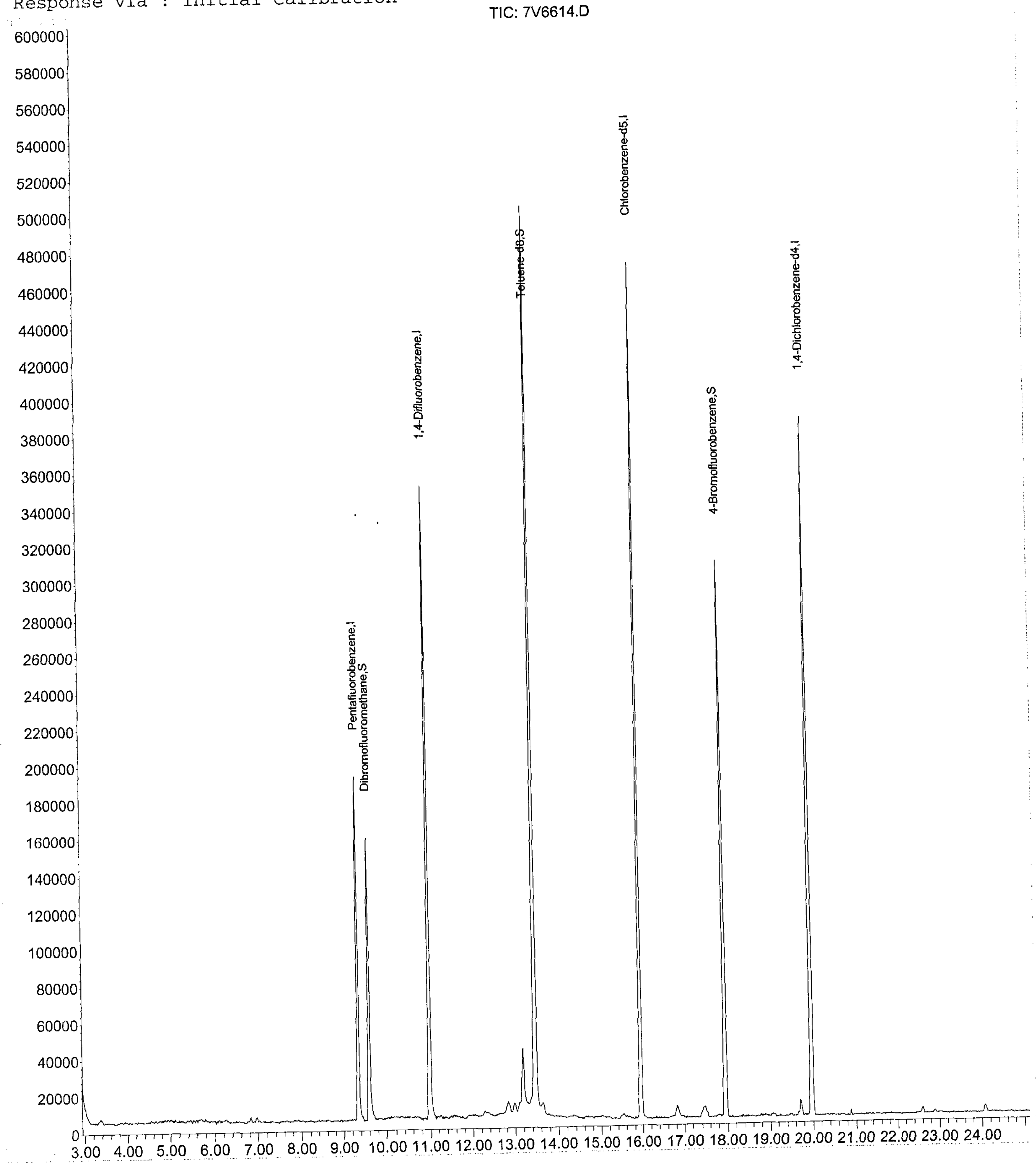
(#) = qualifier out of range (m) = manual integration

Data File : G:\HPCHEM\7\DATA\08082008\7V6614.D
Acq On : 9 Aug 2008 10:36 am
Sample : 28080011-001
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 11 11:29 2008

Vial: 78
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 13 14:47:21 2008
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

ta File : G:\HPCHEM\7\DATA\08112008\7V6642.D Vial: 21
q On : 11 Aug 2008 10:23 pm Operator: sdp
mple : ms 28080011-001 Inst : GCMS-7
sc : Multiplr: 1.00
Integration Params: RTEINT.P
uant Time: Aug 12 10:40 2008 Quant Results File: 0805VO7.RES

ant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
'tle : VOC's by EPA Method 624
st Update : Wed Aug 06 13:16:47 2008
sponse via : Initial Calibration
taAcq Meth : VOCRUN7

nternal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.35	168	190487	30.00 ug/L	0.03
30) 1,4-Difluorobenzene	10.98	114	449807	30.00 ug/L	0.03
47) Chlorobenzene-d5	15.94	82	254417	30.00 ug/L	0.02
63) 1,4-Dichlorobenzene-d4	19.98	152	154621	30.00 ug/L	0.05
System Monitoring Compounds					
24) Dibromofluoromethane	9.61	113	161454	33.25 ug/L	0.05
Spiked Amount 30.000	Range 89 - 116		Recovery	= 110.83%	
38) Toluene-d8	13.46	98	522136	28.88 ug/L	0.03
Spiked Amount 30.000	Range 93 - 108		Recovery	= 96.27%	
57) 4-Bromofluorobenzene	17.95	95	238948	29.88 ug/L	0.03
Spiked Amount 30.000	Range 75 - 141		Recovery	= 99.60%	

Target Compounds					Qvalue
2) Dichlorodifluoromethane	3.12	85	49356	18.99 ug/L	99
3) Chloromethane	3.52	50	139821	33.03 ug/L	100
4) Vinyl Chloride	3.68	62	92754	32.83 ug/L	98
5) Bromomethane	4.43	94	51302	21.21 ug/L	97
6) Chloroethane	4.56	64	81510	28.73 ug/L	95
7) Trichlorofluoromethane	5.01	101	92747	24.23 ug/L	100
8) Acrolein	7.08	56	9797	63.76 ug/L	82
9) Acetone	5.79	43	33242	9.62 ug/L	99
10) 1,1-Dichloroethene	6.03	61	142388	26.71 ug/L	97
11) tert-Butyl Alcohol	6.15	59	67714	185.05 ug/L	97
12) Methylene Chloride	6.82	84	92184	28.71 ug/L	93
13) Carbon Disulfide	6.90	76	273873	26.51 ug/L	99
14) Acrylonitrile	7.00	53	85582	55.05 ug/L	96
15) Methyl tert-Butyl Ether	7.08	73	193725	24.13 ug/L	95
16) trans 1,2-Dichloroethene	7.33	61	144885	26.86 ug/L	98
17) 1,1-Dichloroethane	8.02	63	174959	26.54 ug/L	97
18) Vinyl Acetate	7.98	43	182927	26.63 ug/L	100
19) 2-Butanone	8.67	43	59291	13.23 ug/L	97
20) 2,2-Dichloropropane	8.93	77	95862	20.04 ug/L	100
21) cis 1,2-Dichloroethene	9.00	61	158487	26.59 ug/L	96
22) Chloroform	9.26	83	139370	24.48 ug/L	99
23) Bromochloromethane	9.52	49	109444	31.93 ug/L	89
25) 1,1,1-Trichloroethane	9.91	97	110432	24.29 ug/L	98
26) 1,1-Dichloropropene	10.16	75	123662	24.45 ug/L	97
27) Carbon Tetrachloride	10.34	117	95257	22.57 ug/L	100
28) 1,2-Dichloroethane	10.53	62	102809	23.82 ug/L	99
29) Benzene	10.59	78	338094	26.36 ug/L	100
31) Trichloroethene	11.56	130	91296	21.64 ug/L	95
32) 1,2-Dichloropropane	11.82	63	112766	25.37 ug/L	98
33) Bromodichloromethane	12.21	83	110003	22.75 ug/L	99
34) Dibromomethane	12.31	174	55806	22.83 ug/L	96
36) 4-Methyl-2-Pentanone	12.67	43	121820	20.36 ug/L	93
37) cis 1,3-Dichloropropene	13.03	75	142831	20.81 ug/L	97
39) Toluene	13.59	91	340228	22.31 ug/L	99
40) trans 1,3-Dichloropropene	13.82	75	120420	19.79 ug/L	96
41) 1,1,2-Trichloroethane	14.10	97	83765	23.25 ug/L	99
42) 2-Hexanone	14.05	43	94263	12.28 ug/L	92
43) 1,3-Dichloropropane	14.50	76	145899	21.00 ug/L	100
44) Tetrachloroethene	14.67	166	80912	21.16 ug/L	98
45) Dibromochloromethane	14.99	129	90855	19.87 ug/L	98
46) 1,2-Dibromoethane	15.34	107	101416	22.37 ug/L	98
48) Chlorobenzene	16.01	112	234908	21.42 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

ta File : G:\HPCHEM\7\DATA\08112008\7V6642.D Vial: 21
q On : 11 Aug 2008 10:23 pm Operator: sdp
mple : ms 28080011-001 Inst : GCMS-7
sc : Multiplr: 1.00
Integration Params: RTEINT.P
uant Time: Aug 12 10:40 2008 Quant Results File: 0805VO7.RES

ant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
tle : VOC's by EPA Method 624
st Update : Wed Aug 06 13:16:47 2008
sponse via : Initial Calibration
taAcq Meth : VOCRUN7

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
49) 1,1,1,2-Tetrachloroethane	16.06	131	75469	20.72 ug/L	96
50) Ethylbenzene	16.06	91	383917	22.11 ug/L	95
51) m+p-Xylenes	16.19	106	291319	42.81 ug/L	98
52) o-Xylene	16.92	91	287090	21.39 ug/L	99
53) Styrene	16.97	104	235512	21.60 ug/L	99
54) Isopropylbenzene	17.50	105	328505	21.22 ug/L	98
55) Bromoform	17.60	173	56017	19.68 ug/L	98
56) 1,1,2,2-Tetrachloroethane	17.77	83	122829	20.40 ug/L	99
58) 1,2,3-Trichloropropane	18.02	110	29332	19.89 ug/L	99
59) Bromobenzene	18.32	77	152448	20.67 ug/L	88
60) 2-Chlorotoluene	18.52	91	254495	21.57 ug/L	95
61) 4-Chlorotoluene	18.58	91	244361	20.96 ug/L	95
62) 1,3-Dichlorobenzene	19.85	146	138739	19.05 ug/L	97
64) 1,4-Dichlorobenzene	20.02	146	161043	36.57 ug/L	96
65) 1,2-Dichlorobenzene	20.65	146	134329	29.11 ug/L	99
66) 1,2-Dibromo-3-chloropropan	21.91	75	14626	21.80 ug/L	85
67) 1,2,4-Trichlorobenzene	23.53	180	79510	28.37 ug/L	99
68) Hexachlorobutadiene	23.76	225	19603	20.58 ug/L	95
69) Naphthalene	24.07	128	222293	24.29 ug/L	99
70) 1,2,3-Trichlorobenzene	24.56	180	67986	26.31 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

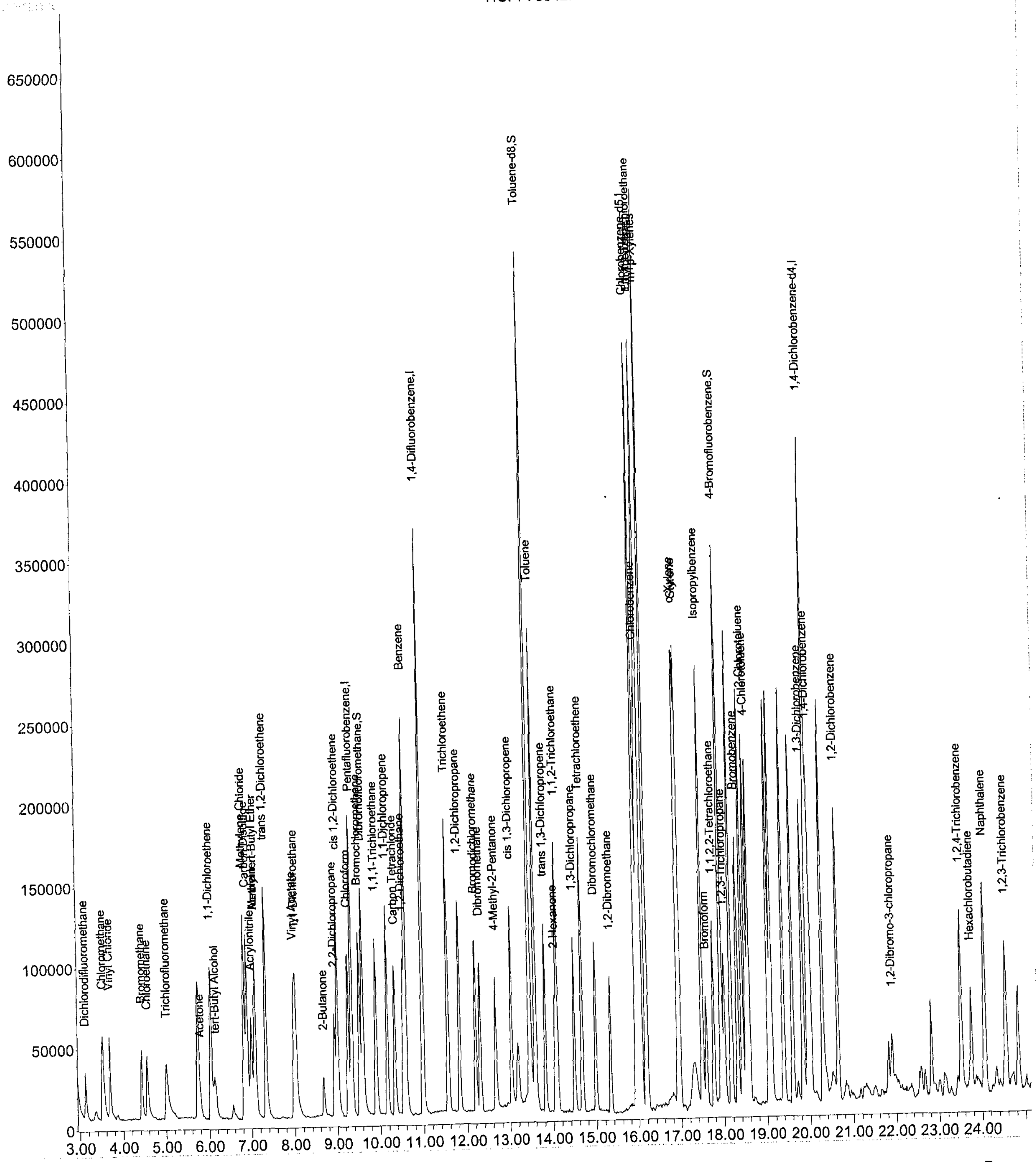
Data File : G:\HPCHEM\7\DATA\08112008\7V6642.D
Acq On : 11 Aug 2008 10:23 pm
Sample : ms 28080011-001
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 12 10:40 2008

Vial: 21
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 13 14:47:21 2008
Response via : Initial Calibration

TIC: 7V6642.D



Aqua Pro-Tech Laboratories
Volatile Method Blank Summary

Blank: VO- MBlank #1

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID: 7V6539.D
Date Acquired: 7-Aug-08

Lab Sample ID: Blank
Time Acquired 16:17

This Method Blank applies to the following samples:

Client Sample	Lab Sample ID	Lab File ID	Time Acquired
Grant P-5	28080087-001	7V6562.D	5:20
Grant P-6	28080087-002	7V6563.D	5:53
Grant P-7	28080087-003	7V6564.D	6:26
Grant P-8S	28080087-004	7V6565.D	7:00
Grant P-8D	28080087-005	7V6566.D	7:33
Grant MW-8R	28080087-006	7V6567.D	8:06
Grant MW-9D	28080087-007	7V6568.D	8:39
Grant MW-10S	28080087-008	7V6569.D	9:12
Grant MW-10D	28080087-009	7V6570.D	9:46
Grant MW-13	28080087-011	7V6571.D	10:19
Grant MW-14	28080087-012	7V6572.D	10:53
Grant MW-16	28080087-014	7V6573.D	11:27
Grant MW-17	28080087-015	7V6574.D	12:01
Grant MW-20	28080087-016	7V6575.D	12:35
Grant MW-22	28080087-018	7V6576.D	13:09
Grant T.B.	28080087-023	7V6578.D	14:18
Grant MW-25	28080087-028	7V6577.D	13:43

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 1

Lab Sample ID: Blank - 1
Lab File ID: 7V6539.D

Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 1

Lab Sample ID: Blank - 1
Lab File ID: 7V6539.D

Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 1

Lab Sample ID: Blank - 1
Lab File ID: 7V6539.D

Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Quantitation Report (QT/LSC Reviewed)

```
ata File : G:\HPCHEM\7\DATA\08072008\7V6539.D          Vial: 3
cq On    :  7 Aug 2008   4:17 pm                   Operator: sdp
ample    : Blank                                   Inst    : GCMS-7
isc      :                                         Multiplr: 1.00
S Integration Params: RTEINT.P
Quant Time: Aug  8 12:19 2008               Quant Results File: 0805VO7.RES

uant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
itle        : VOC's by EPA Method 624
ast Update  : Fri Aug 08 11:54:15 2008
esponse via : Initial Calibration
ataAcq Meth : VOCRUN7

Internal Standards                 R.T.  QIon  Response  Conc Units Dev(Min)
-------------------------------------------------------------------------------
  1) Pentafluorobenzene            9.32   168   181970   30.00 ug/L     0.00
 30) 1,4-Difluorobenzene          10.96   114   427816   30.00 ug/L     0.02
 47) Chlorobenzene-d5             15.93    82   227562   30.00 ug/L     0.00
 63) 1,4-Dichlorobenzene-d4       19.94   152   150961   30.00 ug/L     0.01

System Monitoring Compounds
 24) Dibromofluoromethane          9.58   113   148981   32.11 ug/L     0.02
  Spiked Amount      30.000   Range  89 - 116   Recovery   =  107.03%
 38) Toluene-d8                   13.44    98   487614   28.36 ug/L     0.02
  Spiked Amount      30.000   Range  93 - 108   Recovery   =   94.53%
 57) 4-Bromofluorobenzene         17.92    95   210769   29.47 ug/L     0.00
  Spiked Amount      30.000   Range  75 - 141   Recovery   =   98.23%

Target Compounds                                                    Qvalue
```

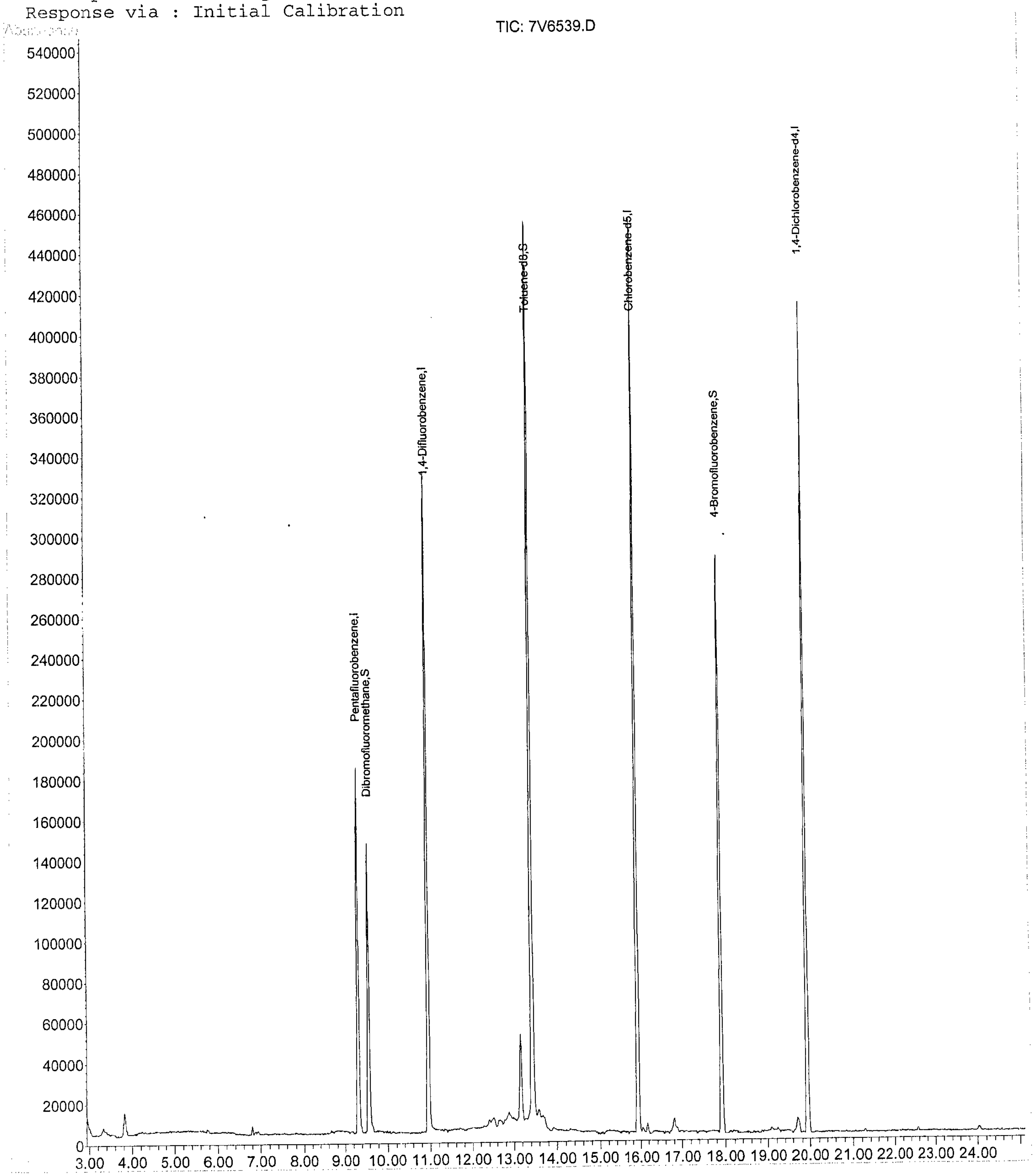
Quantitation Report

Data File : G:\HPCHEM\7\DATA\08072008\7V6539.D
Acq On : 7 Aug 2008 4:17 pm
Sample : Blank
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 8 12:19 2008

Vial: 3
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Aqua Pro-Tech Laboratories
Volatile Method Blank Summary

Blank:
VO- MBlank #2

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID: 7V6582.D
Date Acquired: 8-Aug-08

Lab Sample ID: Blank
Time Acquired 16:47

This Method Blank applies to the following samples:

Client Sample	Lab Sample ID	Lab File ID	Time Acquired
Grant MW-11	28080087-010	7V6595.D	0:07
Grant MW-14 (2)	28080087-012 (2)	7V6590.D	21:20
Grant MW-15	28080087-013	7V6591.D	21:54
Grant MW-21	28080087-017	7V6592.D	22:27
Grant MW-23	28080087-019	7V6585.D	18:31
Grant MW-26	28080087-020	7V6586.D	19:05
Grant MW-27	28080087-021	7V6587.D	19:39
Grant MW-29	28080087-022	7V6588.D	20:13
Grant MW-12	28080087-024	7V6583.D	17:22
Grant MW-19	28080087-026	7V6593.D	23:00
Grant MW-24	28080087-027	7V6584.D	17:56
Grant MW-28	28080087-029	7V6589.D	20:47

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 2

Lab Sample ID: Blank - 2
Lab File ID: 7V6582.D

Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 2

Lab Sample ID: Blank - 2
Lab File ID: 7V6582.D

Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 2

Lab Sample ID: Blank - 2
Lab File ID: 7V6582.D

Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

```
a File : G:\HPCHEM\7\DATA\08082008\7V6582.D          Vial: 46
 On    :  8 Aug 2008    4:47 pm                  Operator: sdp
ple    : Blank                                   Inst    : GCMS-7
c      :                                         Multiplr: 1.00
Integration Params: RTEINT.P
ant Time: Aug 11 10:11 2008              Quant Results File: 0805V07.RES

ant Method : G:\HPCHEM\7\METHODS\0805V07.M (RTE Integrator)
tle        : VOC's by EPA Method 624
st Update  : Mon Aug 11 09:33:03 2008
sponse via : Initial Calibration
taAcq Meth : VOCRUN7

nternal Standards                    R.T. QIon  Response  Conc Units Dev(Min)
------------------------------------------------------------------------------
 1) Pentafluorobenzene               9.33  168   185760    30.00 ug/L    0.02
30) 1,4-Difluorobenzene             10.96  114   435698    30.00 ug/L    0.02
47) Chlorobenzene-d5                15.93   82   233262    30.00 ug/L    0.00
63) 1,4-Dichlorobenzene-d4          19.94  152   135819    30.00 ug/L    0.01

ystem Monitoring Compounds
24) Dibromofluoromethane             9.58  113   158056    33.37 ug/L    0.02
 Spiked Amount     30.000   Range  89 - 116    Recovery   =  111.23%
38) Toluene-d8                      13.44   98   518279    29.60 ug/L    0.02
 Spiked Amount     30.000   Range  93 - 108    Recovery   =   98.67%
57) 4-Bromofluorobenzene            17.93   95   215816    29.44 ug/L    0.02
 Spiked Amount     30.000   Range  75 - 141    Recovery   =   98.13%

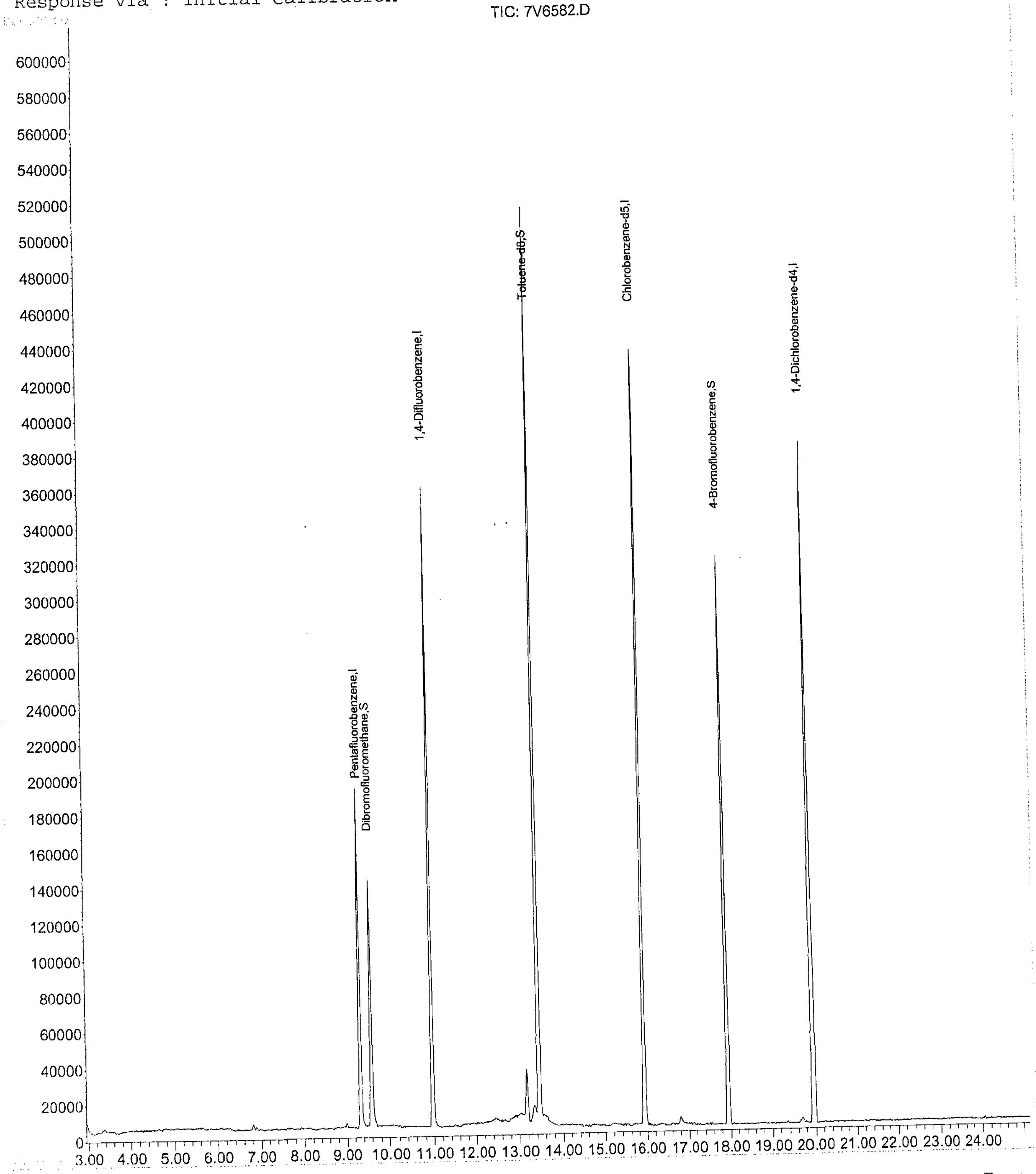
                                                                   Qvalue
arget Compounds
```

Data File : G:\HPCHEM\7\DATA\08082008\7V6582.D
Acq On : 8 Aug 2008 4:47 pm
Sample : Blank
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 11 10:11 2008

Vial: 46
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 06 13:16:47 2008
Response via : Initial Calibration



Aqua Pro-Tech Laboratories
Volatile Method Blank Summary

Blank: VO- MBlank #3

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID: 7V6625.D
Date Acquired: 11-Aug-08

Lab Sample ID: Blank
Time Acquired 12:56

This Method Blank applies to the following samples:

Client Sample	Lab Sample ID	Lab File ID	Time Acquired
Grant MW-18	28080087-025	7V6663.D	10:36

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 3

Lab Sample ID: Blank - 3
Lab File ID: 7V6625.D

Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
75-71-8	Dichlorodifluoromethane		U	1.37	5
74-87-3	Chloromethane		U	1.56	5
75-01-4	Vinyl Chloride		U	0.870	5
74-83-9	Bromomethane		U	1.11	5
75-00-3	Chloroethane		U	0.740	5
75-69-4	Trichlorofluoromethane		U	0.840	5
67-64-1	Acetone		U	1.67	5
75-35-4	1,1-Dichloroethene		U	0.320	5
75-65-0	tert-Butyl Alcohol		U	46.2	50
75-09-2	Methylene Chloride		U	0.330	5
75-15-0	Carbon Disulfide		U	0.150	5
107-13-1	Acrylonitrile		U	1.46	10
107-02-8	Acrolein		U	5.66	20
1634-04-4	Methyl tert-Butyl Ether		U	0.880	5
156-60-5	trans 1,2-Dichloroethene		U	0.260	5
108-05-4	Vinyl Acetate		U	0.830	5
75-34-3	1,1-Dichloroethane		U	0.160	5
78-93-3	2-Butanone		U	0.970	5
594-20-7	2,2-Dichloropropane		U	0.770	5
156-59-2	cis 1,2-Dichloroethene		U	0.310	5
67-66-3	Chloroform		U	0.140	5
74-97-5	Bromochloromethane		U	0.290	5
71-55-6	1,1,1-Trichloroethane		U	0.260	5
563-58-6	1,1-Dichloropropene		U	0.300	5
56-23-5	Carbon Tetrachloride		U	0.310	5
107-06-2	1,2-Dichloroethane		U	0.280	5
71-43-2	Benzene		U	0.0800	5
79-01-6	Trichloroethene		U	0.240	5
78-87-5	1,2-Dichloropropane		U	0.590	5
75-27-4	Bromodichloromethane		U	0.310	5
74-95-3	Dibromomethane		U	0.470	5
110-75-8	2-Chloroethylvinyl Ether		U	4.01	5
108-10-1	4-Methyl-2-Pentanone		U	0.730	5
10061-01-5	cis 1,3-Dichloropropene		U	0.520	5
108-88-3	Toluene		U	0.0500	5
10061-02-6	trans 1,3-Dichloropropene		U	0.500	5
591-78-6	2-Hexanone		U	0.270	5
79-00-5	1,1,2-Trichloroethane		U	0.360	5
142-28-9	1,3-Dichloropropane		U	0.120	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 3

Lab Sample ID: Blank - 3
Lab File ID: 7V6625.D

Dilution Factor: 1

CAS No.	Compound	Conc ug/L	Q	MDL	PQL
127-18-4	Tetrachloroethene		U	0.210	5
124-48-1	Dibromochloromethane		U	0.540	5
106-93-4	1,2-Dibromoethane		U	0.250	5
108-90-7	Chlorobenzene		U	0.130	5
630-20-6	1,1,1,2-Tetrachloroethane		U	0.690	5
100-41-4	Ethylbenzene		U	0.110	5
1330-20-7	m+p-Xylenes		U	0.240	5
1330-20-7	o-Xylene		U	0.0800	5
100-42-5	Styrene		U	0.170	5
98-82-8	Isopropylbenzene		U	0.100	5
75-25-2	Bromoform		U	0.910	5
79-34-5	1,1,2,2-Tetrachloroethane		U	0.200	5
96-18-4	1,2,3-Trichloropropane		U	0.440	5
108-86-1	Bromobenzene		U	0.220	5
95-49-8	2-Chlorotoluene		U	0.0900	5
106-43-4	4-Chlorotoluene		U	0.160	5
541-73-1	1,3-Dichlorobenzene		U	0.250	5
106-46-7	1,4-Dichlorobenzene		U	0.220	5
95-50-1	1,2-Dichlorobenzene		U	0.120	5
96-12-8	1,2-Dibromo-3-chloropropane		U	0.120	5
120-82-1	1,2,4-Trichlorobenzene		U	0.570	5
87-68-3	Hexachlorobutadiene		U	0.870	5
91-20-3	Naphthalene		U	0.270	5
87-61-6	1,2,3-Trichlorobenzene		U	0.510	5

Aqua Pro-Tech Laboratories
EPA Method SW 846 8260B Analytical Report
TICs

Client: Geovation Engineering P.C.
Project: Grant Hardware
Matrix: Groundwater

Client Sample: Blank - 3

Lab Sample ID: Blank - 3
Lab File ID: 7V6625.D

Dilution Factor: 1

CAS No.	Compound	Est. Conc.	Q	RT

Number of TICs found: 0
Total Est Concentration: 0 ug/L

Quantitation Report (QT Reviewed)

ta File : G:\HPCHEM\7\DATA\08112008\7V6625.D
q On : 11 Aug 2008 12:56 pm
ple : Blank
sc :
Integration Params: RTEINT.P
uant Time: Aug 12 10:50 2008

Vial: 4
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

ant Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
tle : VOC's by EPA Method 624
st Update : Wed Aug 06 13:16:47 2008
sponse via : Initial Calibration
taAcq Meth : VOCRUN7

nternal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	9.32	168	183117	30.00 ug/L	0.00
30) 1,4-Difluorobenzene	10.95	114	448731	30.00 ug/L	0.00
47) Chlorobenzene-d5	15.90	82	247684	30.00 ug/L	-0.03
63) 1,4-Dichlorobenzene-d4	19.91	152	224654	30.00 ug/L	-0.01
ystem Monitoring Compounds					
24) Dibromofluoromethane	9.57	113	167190	31.70 ug/L	0.00
Spiked Amount 30.000	Range 89 - 116		Recovery = 105.67%		
38) Toluene-d8	13.43	98	515012	28.55 ug/L	0.00
Spiked Amount 30.000	Range 93 - 108		Recovery = 95.17%		
57) 4-Bromofluorobenzene	17.89	95	225276	28.94 ug/L	-0.03
Spiked Amount 30.000	Range 75 - 141		Recovery = 96.47%		

arget Compounds Qvalue

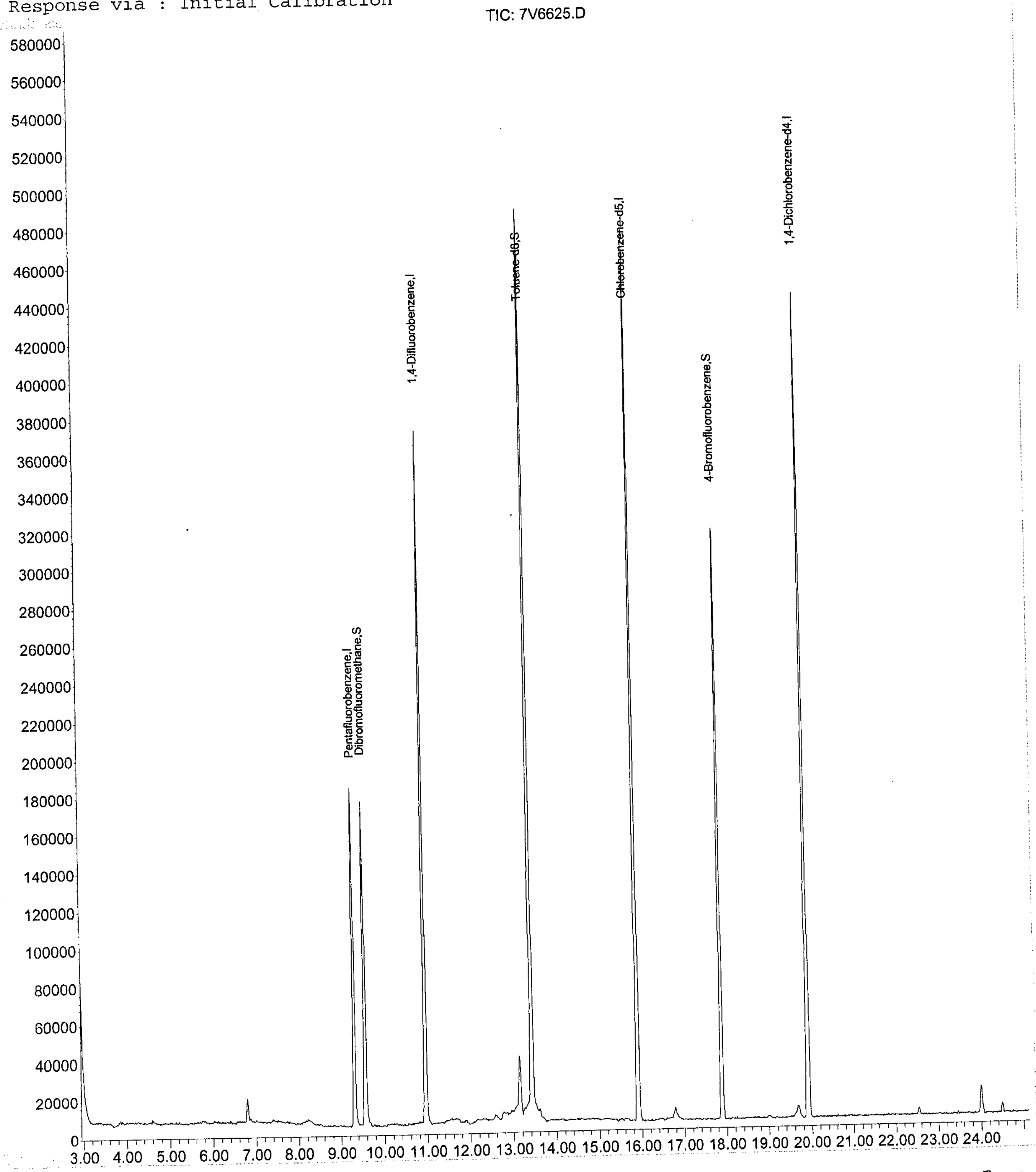
Quantitation Report

Data File : G:\HPCHEM\7\DATA\08112008\7V6625.D
Acq On : 11 Aug 2008 12:56 pm
Sample : Blank
Misc :
MS Integration Params: RTEINT.P
Quant Time: Aug 12 10:50 2008

Vial: 4
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00

Quant Results File: 0805VO7.RES

Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624
Last Update : Wed Aug 13 14:47:21 2008
Response via : Initial Calibration



Aqua Pro-Tech Laboratories
Volatile Organic Instrument Performance Check
Bromofluorobenzene(BFB)

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID: G:\HPCHEM\7\Data\08072008\7V6537.D

BFB Injection Date: 7-Aug-08
BFB Injection Time: 15:08

m/z	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	19.8
75	30.0 - 60.0% of mass 95	43.0
95	100 - 100% of mass 95	100
96	5.00 - 9.00% of mass 95	6.50
173	0.00 - 2.00% of mass 174	0.400
174	50.0 - 100% of mass 95	73.4
175	5.00 - 9.00% of mass 174	7.60
176	95.0 - 101% of mass 174	97.2
177	5.00 - 9.00% of mass 176	6.70

This check applies to the following Samples, MS, MSD, Blanks, and Standards

Client Sample	Lab Sample ID	Lab File ID	Date Acquired	Time Acquired
CCC	020 ppb ccv	7V6538.D	7-Aug-08	15:43
Blank - 1	Blank	7V6539.D	7-Aug-08	16:17
Blank Spike - 1	020 ppb lcs	7V6558.D	8-Aug-08	3:07
Matrix Spike - 1	ms 28071417-002	7V6557.D	8-Aug-08	2:34
Grant P-5	28080087-001	7V6562.D	8-Aug-08	5:20
Grant P-6	28080087-002	7V6563.D	8-Aug-08	5:53
Grant P-7	28080087-003	7V6564.D	8-Aug-08	6:26
Grant P-8S	28080087-004	7V6565.D	8-Aug-08	7:00
Grant P-8D	28080087-005	7V6566.D	8-Aug-08	7:33
Grant MW-8R	28080087-006	7V6567.D	8-Aug-08	8:06
Grant MW-9D	28080087-007	7V6568.D	8-Aug-08	8:39
Grant MW-10S	28080087-008	7V6569.D	8-Aug-08	9:12
Grant MW-10D	28080087-009	7V6570.D	8-Aug-08	9:46
Grant MW-13	28080087-011	7V6571.D	8-Aug-08	10:19
Grant MW-14	28080087-012	7V6572.D	8-Aug-08	10:53
Grant MW-16	28080087-014	7V6573.D	8-Aug-08	11:27
Grant MW-17	28080087-015	7V6574.D	8-Aug-08	12:01
Grant MW-20	28080087-016	7V6575.D	8-Aug-08	12:35
Grant MW-22	28080087-018	7V6576.D	8-Aug-08	13:09
Grant T.B.	28080087-023	7V6578.D	8-Aug-08	14:18
Grant MW-25	28080087-028	7V6577.D	8-Aug-08	13:43

```
Data File : G:\HPCHEM\7\DATA\08072008\7V6537.D          Vial: 1
Acq On    :  7 Aug 2008   3:08 pm                   Operator: sdp
Sample    : Bfb                                     Inst    : GCMS-7
Misc      :                                         Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title     : VOC's by EPA Method 624
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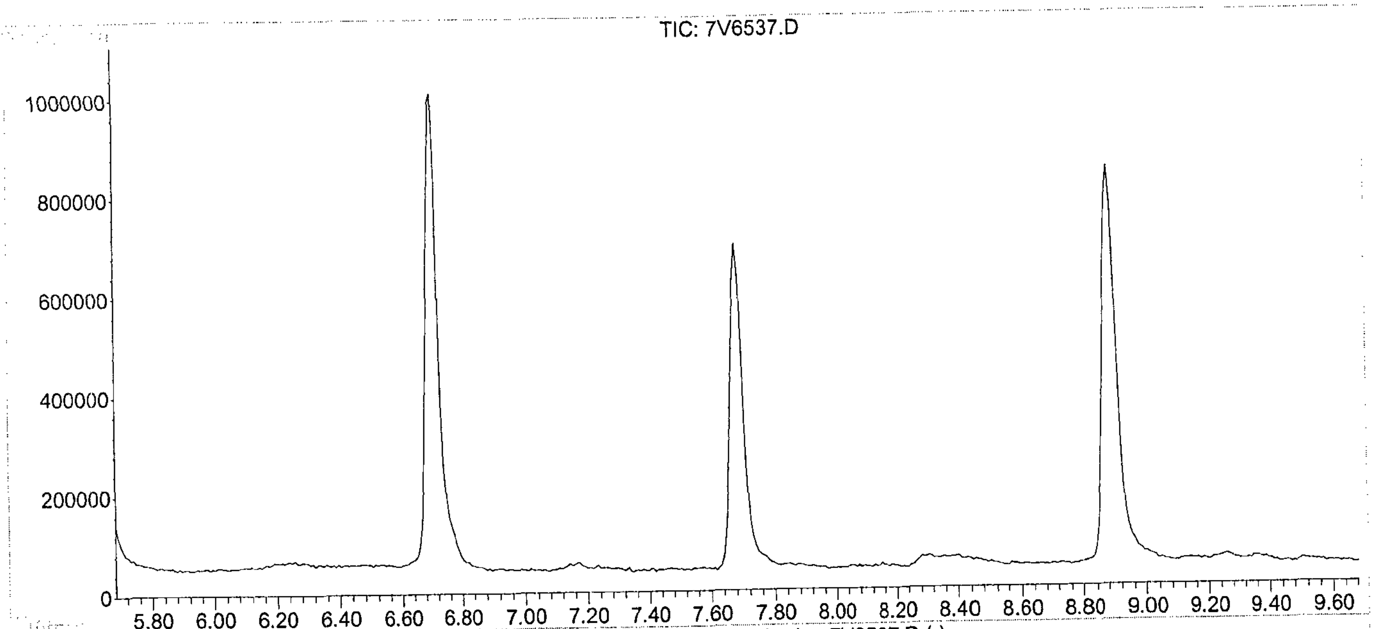
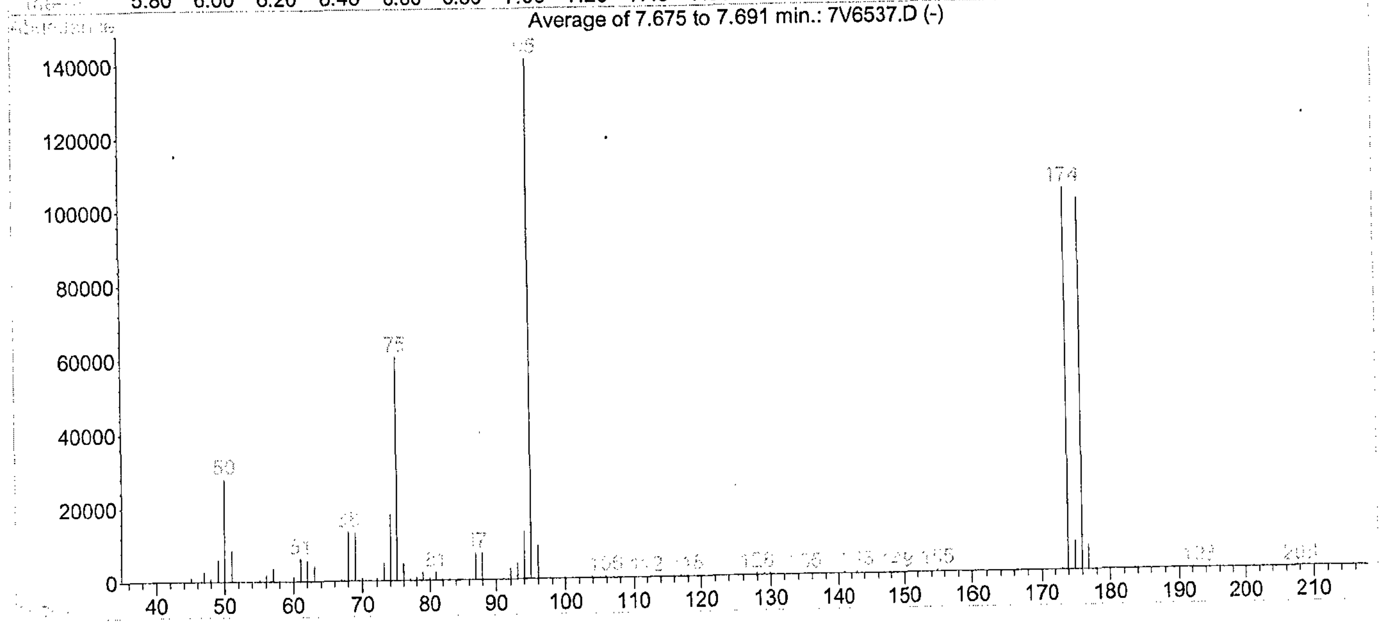




Spectrum Information: Average of 7.675 to 7.691 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.8	27939	PASS
75	95	30	60	43.0	60604	PASS
95	95	100	100	100.0	141020	PASS
96	95	5	9	6.5	9174	PASS
173	174	0.00	2	0.4	410	PASS
174	95	50	100	73.4	103547	PASS
175	174	5	9	7.6	7832	PASS
176	174	95	101	97.2	100640	PASS
177	176	5	9	6.7	6710	PASS

Aqua Pro-Tech Laboratories
Volatile Organic Instrument Performance Check
Bromofluorobenzene(BFB)

Client: Geovation Engineering P.C. BFB Injection Date: 8-Aug-08
Project: Grant Hardware BFB Injection Time: 15:40
Lab File ID: G:\HPCHEM\7\Data\08082008\7V6580.D

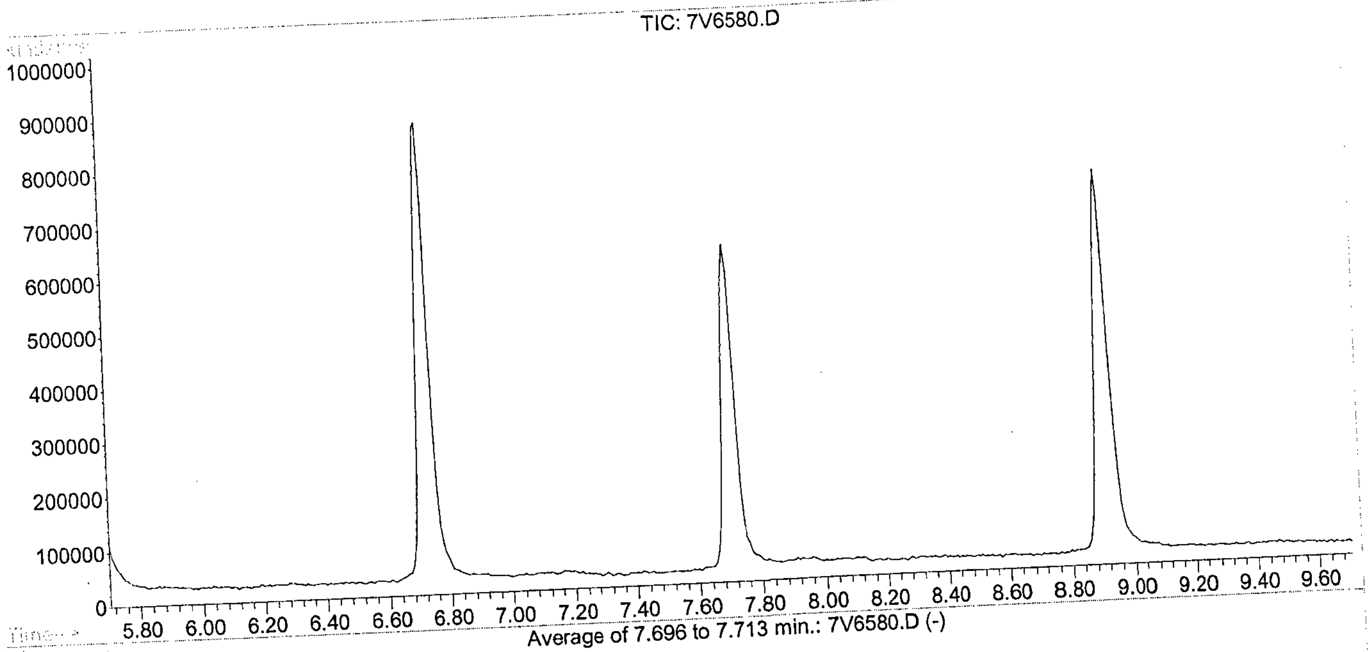
m/z	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	41.4
95	100 - 100% of mass 95	100
96	5.00 - 9.00% of mass 95	6.70
173	0.00 - 2.00% of mass 174	0.500
174	50.0 - 100% of mass 95	70.9
175	5.00 - 9.00% of mass 174	6.90
176	95.0 - 101% of mass 174	96.1
177	5.00 - 9.00% of mass 176	6.60

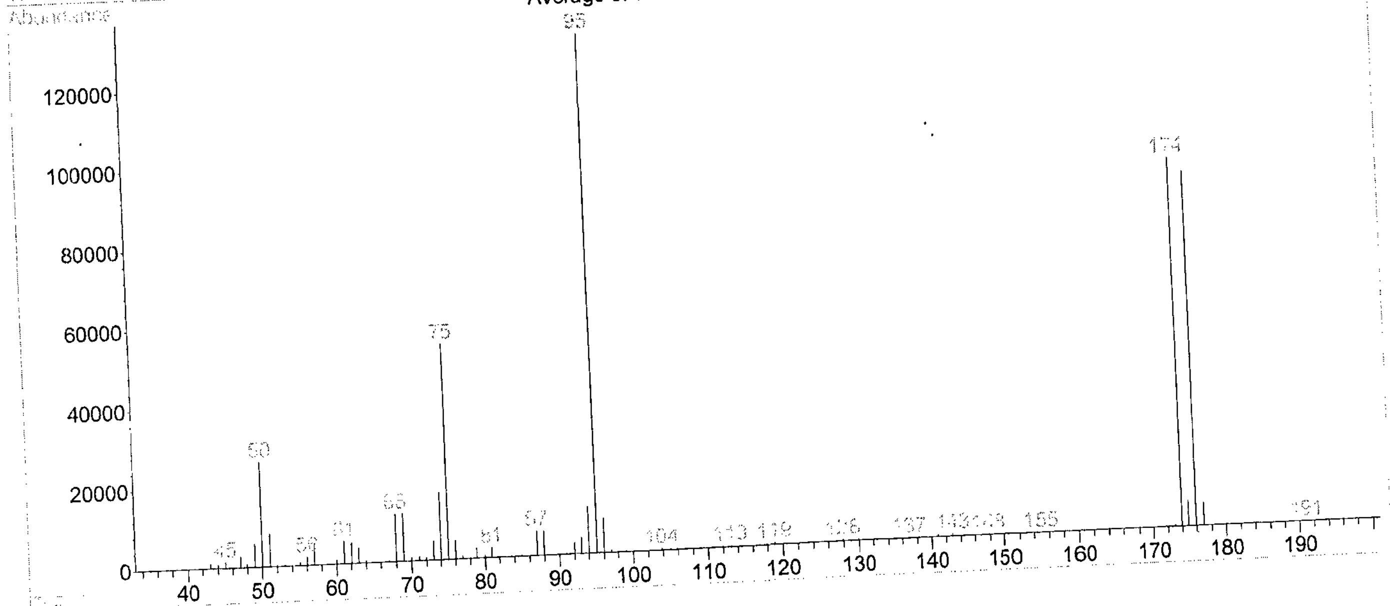
This check applies to the following Samples, MS, MSD, Blanks, and Standards

Client Sample	Lab Sample ID	Lab File ID	Date Acquired	Time Acquired
CCC	020 ppb ccv	7V6581.D	8-Aug-08	16:13
Blank - 2	Blank	7V6582.D	8-Aug-08	16:47
Blank Spike - 2	020 ppb lcs	7V6603.D	9-Aug-08	4:32
Matrix Spike - 2	ms 28080086-004	7V6602.D	9-Aug-08	3:59
Grant MW-11	28080087-010	7V6595.D	9-Aug-08	0:07
Grant MW-14 (2)	28080087-012 (2)	7V6590.D	8-Aug-08	21:20
Grant MW-15	28080087-013	7V6591.D	8-Aug-08	21:54
Grant MW-21	28080087-017	7V6592.D	8-Aug-08	22:27
Grant MW-23	28080087-019	7V6585.D	8-Aug-08	18:31
Grant MW-26	28080087-020	7V6586.D	8-Aug-08	19:05
Grant MW-27	28080087-021	7V6587.D	8-Aug-08	19:39
Grant MW-29	28080087-022	7V6588.D	8-Aug-08	20:13
Grant MW-12	28080087-024	7V6583.D	8-Aug-08	17:22
Grant MW-19	28080087-026	7V6593.D	8-Aug-08	23:00
Grant MW-24	28080087-027	7V6584.D	8-Aug-08	17:56
Grant MW-28	28080087-029	7V6589.D	8-Aug-08	20:47

Data File : G:\HPCHEM\7\DATA\08082008\7V6580.D
Acq On : 8 Aug 2008 3:40 pm
Sample : Bfb
Misc :
MS Integration Params: RTEINT.P
Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624

Vial: 44
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00





Spectrum Information: Average of 7.696 to 7.713 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.1	26278	PASS
75	95	30	60	41.4	54125	PASS
95	95	100	100	100.0	130789	PASS
96	95	5	9	6.7	8802	PASS
173	174	0.00	2	0.5	446	PASS
174	95	50	100	70.9	92755	PASS
175	174	5	9	6.9	6380	PASS
176	174	95	101	96.1	89157	PASS
177	176	5	9	6.6	5864	PASS

Aqua Pro-Tech Laboratories
Volatile Organic Instrument Performance Check
Bromofluorobenzene(BFB)

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID: G:\HPCHEM\7\Data\08112008\7V6623.D

BFB Injection Date: 11-Aug-08
BFB Injection Time: 11:49

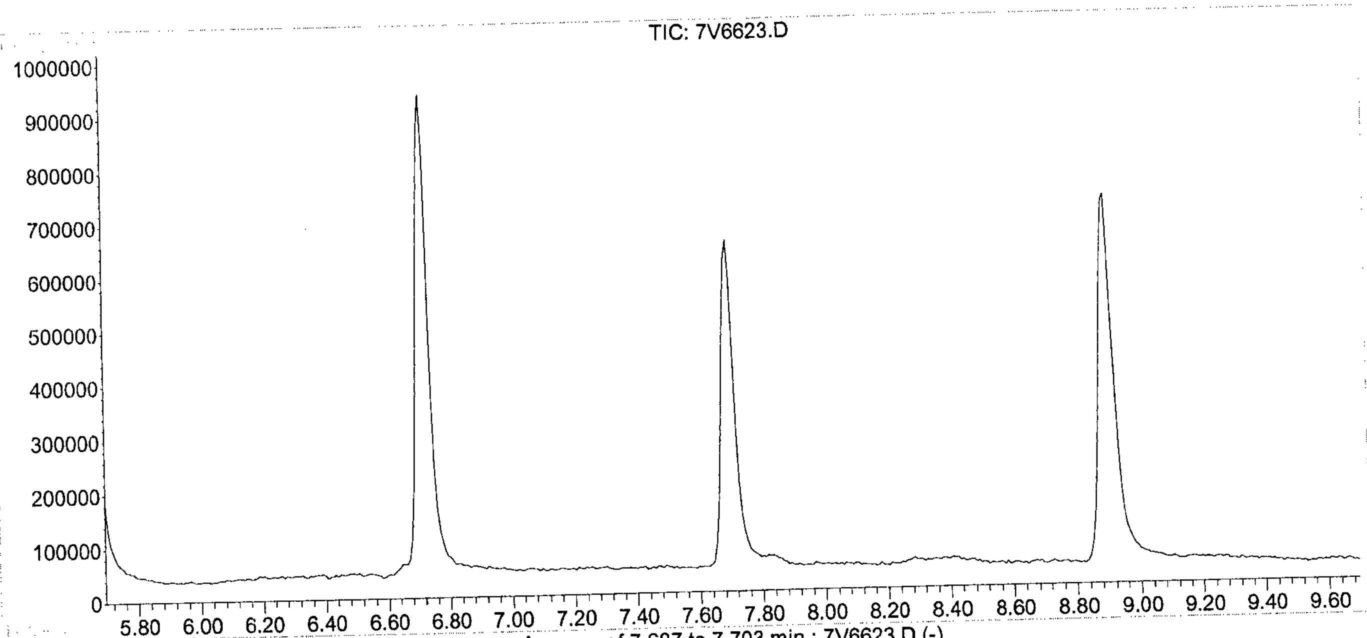
m/z	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	20.4
75	30.0 - 60.0% of mass 95	43.2
95	100 - 100% of mass 95	100
96	5.00 - 9.00% of mass 95	6.80
173	0.00 - 2.00% of mass 174	0.100
174	50.0 - 100% of mass 95	72.4
175	5.00 - 9.00% of mass 174	7.00
176	95.0 - 101% of mass 174	96.5
177	5.00 - 9.00% of mass 176	6.90

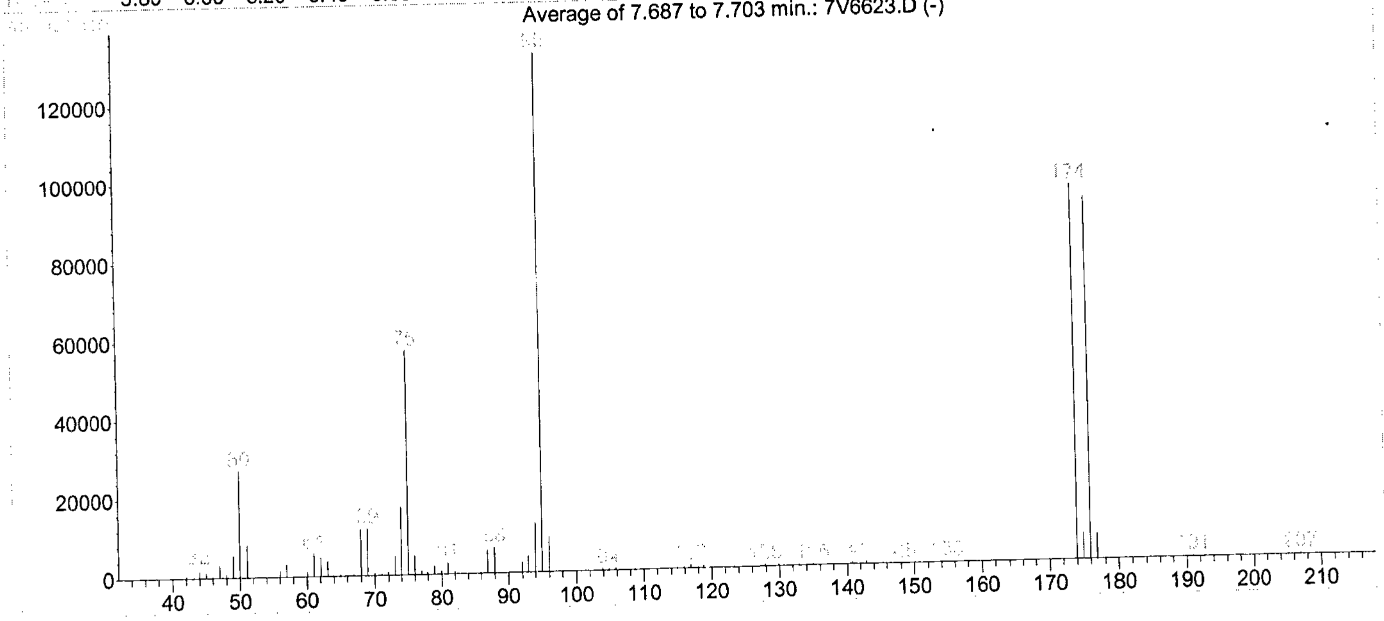
This check applies to the following Samples, MS, MSD, Blanks, and Standards

Client Sample	Lab Sample ID	Lab File ID	Date Acquired	Time Acquired
CCC	020 ppb ccv	7V6624.D	11-Aug-08	12:22
Blank - 3	Blank	7V6625.D	11-Aug-08	12:56
Blank Spike - 3	020 ppb lcs	7V6643.D	11-Aug-08	22:57
Matrix Spike - 3	ms 28080011-001	7V6642.D	11-Aug-08	22:23
Grant MW-18	28080087-025	7V6663.D	12-Aug-08	10:36

Data File : G:\HPCHEM\7\DATA\08112008\7V6623.D
Acq On : 11 Aug 2008 11:49 am
Sample : Bfb
Misc :
MS Integration Params: RTEINT.P
Method : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title : VOC's by EPA Method 624

Vial: 2
Operator: sdp
Inst : GCMS-7
Multiplr: 1.00





Spectrum Information: Average of 7.687 to 7.703 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.4	26984	PASS
75	95	30	60	43.2	57107	PASS
95	95	100	100	100.0	132316	PASS
96	95	5	9	6.8	9020	PASS
173	174	0.00	2	0.1	136	PASS
174	95	50	100	72.4	95731	PASS
175	174	5	9	7.0	6740	PASS
176	174	95	101	96.5	92424	PASS
177	176	5	9	6.9	6412	PASS

Aqua Pro-Tech Laboratories
Volatile Organic Initial Calibration

Client: Geovation Engineering P.C.
Project: Grant Hardware
Calibration Date: 6-Aug-08
Lab File ID: RRF5: 7V6470.D RRF10: 7V6471.D RRF20: 7V6472.D
RRF50: 7V6473.D RRF100: 7V6474.D RRF200: 7V6475.D

Compound	RRF5	RRF10	RRF20	RRF50	RRF100	RRF200	Avg RRF	% RSD	Cal Type
Dichlorodifluoromethane	0.367	0.419	0.414	0.406	0.417	0.435	0.410	**5.60**	Average RRF
Chloromethane	0.698	0.672	0.677	0.652	0.647	0.654	0.667	**2.91**	Average RRF
Vinyl Chloride	0.482	0.506	0.452	0.420	0.398	0.411	0.445	**9.61**	Average RRF
Bromomethane			0.384	0.385	0.382	0.404	0.389	**2.63**	Average RRF
Chloroethane	1.13	0.525	0.597	0.484	0.446	0.443	0.604	**43.6**	Average RRF
Trichlorofluoromethane	0.516	0.612	0.622	0.615	0.614	0.638	0.603	**7.23**	Average RRF
Acetone	0.594	0.635	0.582	0.500	0.482	0.470	0.544	**12.6**	Average RRF
1,1-Dichloroethene	0.785	0.900	0.809	0.842	0.843	0.858	0.839	**4.74**	Average RRF
tert-Butyl Alcohol	0.0470	0.0570	0.0610	0.0600	0.0600	0.0610	0.0577	**9.41**	Linear
Methylene Chloride	0.914	0.739	0.590	0.528	0.488	0.507	0.628	**26.6**	Average RRF
Carbon Disulfide	1.60	1.80	1.62	1.53	1.57	1.63	1.63	**5.57**	Average RRF
Acrylonitrile	0.210	0.250	0.260	0.250	0.245	0.255	0.245	**7.30**	Average RRF
Acrolein			0.0270	0.0260	0.0230	0.0240	0.0250	**7.30**	Linear
Methyl tert-Butyl Ether	1.29	1.32	1.30	1.28	1.19	1.20	1.26	**4.26**	Average RRF
trans 1,2-Dichloroethene	0.847	0.923	0.858	0.810	0.817	0.842	0.849	**4.75**	Average RRF
Vinyl Acetate	1.19	1.24	1.13	0.995	0.951	0.984	1.08	**11.2**	Linear
1,1-Dichloroethane	1.02	1.08	1.08	1.02	0.995	1.04	1.04	**3.38**	Average RRF
2-Butanone	0.817	0.747	0.768	0.662	0.617	0.624	0.706	**11.8**	Average RRF
2,2-Dichloropropane	0.768	0.794	0.791	0.738	0.701	0.727	0.753	**4.95**	Average RRF
cis 1,2-Dichloroethene	0.902	1.00	0.993	0.906	0.884	0.946	0.939	**5.31**	Average RRF
Chloroform	0.897	0.935	0.917	0.908	0.848	0.876	0.897	**3.46**	Average RRF
Bromochloromethane	0.476	0.560	0.589	0.538	0.522	0.553	0.540	**7.13**	Average RRF
Dibromofluoromethane	0.758	0.789	0.777	0.761	0.757	0.747	0.765	**2.00**	Average RRF
1,1,1-Trichloroethane	0.718	0.761	0.724	0.711	0.668	0.715	0.716	**4.15**	Average RRF
1,1-Dichloropropene	0.801	0.843	0.809	0.770	0.751	0.806	0.797	**4.05**	Average RRF
Carbon Tetrachloride	0.647	0.691	0.682	0.671	0.644	0.653	0.665	**2.94**	Average RRF
1,2-Dichloroethane	0.655	0.717	0.704	0.679	0.647	0.676	0.680	**3.99**	Average RRF
Benzene	2.14	2.16	2.00	1.98	1.89	1.95	2.02	**5.35**	Average RRF
Trichloroethene	0.277	0.285	0.288	0.284	0.267	0.288	0.282	**2.90**	Average RRF
1,2-Dichloropropane	0.292	0.308	0.305	0.289	0.293	0.293	0.297	**2.63**	Average RRF
Bromodichloromethane	0.310	0.331	0.338	0.318	0.314	0.324	0.323	**3.29**	Average RRF
Dibromomethane	0.159	0.164	0.171	0.163	0.157	0.164	0.163	**2.98**	Average RRF
2-Chloroethylvinyl Ether	0.252	0.304	0.313	0.340	0.355		0.313	**12.7**	Average RRF
4-Methyl-2-Pentanone	0.414	0.399	0.433	0.376	0.351	0.421	0.399	**7.68**	Average RRF
cis 1,3-Dichloropropene	0.452	0.478	0.461	0.454	0.442	0.459	0.458	**2.62**	Average RRF
Toluene-d8	1.18	1.19	1.20	1.20	1.24	1.23	1.21	**1.91**	Average RRF
Toluene	1.04	1.06	1.05	0.989	0.962	0.995	1.02	**4.01**	Average RRF
trans 1,3-Dichloropropene	0.399	0.408	0.425	0.403	0.389	0.410	0.406	**2.97**	Average RRF
2-Hexanone	0.552	0.548	0.532	0.488	0.473	0.478	0.512	**7.07**	Average RRF
1,1,2-Trichloroethane	0.237	0.253	0.251	0.237	0.228	0.236	0.240	**4.02**	Average RRF
1,3-Dichloropropane	0.455	0.472	0.492	0.458	0.442	0.461	0.463	**3.68**	Average RRF
Tetrachloroethene	0.246	0.265	0.262	0.254	0.246	0.257	0.255	**3.12**	Average RRF
Dibromochloromethane	0.288	0.310	0.316	0.307	0.295	0.313	0.305	**3.60**	Average RRF

Aqua Pro-Tech Laboratories
Volatile Organic Initial Calibration

Client: Geovation Engineering P.C.
Project: Grant Hardware
Calibration Date: 6-Aug-08
Lab File ID: RRF5: 7V6470.D RRF10: 7V6471.D RRF20: 7V6472.D
RRF50: 7V6473.D RRF100: 7V6474.D RRF200: 7V6475.D

Compound	RRF5	RRF10	RRF20	RRF50	RRF100	RRF200	Avg RRF	% RSD	Cal Type
1,2-Dibromoethane	0.293	0.307	0.319	0.302	0.293	0.300	0.302	**3.24**	Average RRF
Chlorobenzene	1.30	1.32	1.34	1.29	1.24	1.26	1.29	**3.01**	Average RRF
1,1,1,2-Tetrachloroethane	0.423	0.444	0.455	0.426	0.407	0.421	0.429	**4.03**	Average RRF
Ethylbenzene	2.12	2.17	2.15	2.00	1.90	1.94	2.05	**5.53**	Average RRF
m+p-Xylenes	2.12	2.17	2.15	2.00	1.90	1.94	2.05	**5.53**	Average RRF
o-Xylene	2.12	2.17	2.15	2.00	1.90	1.94	2.05	**5.53**	Average RRF
Styrene	1.26	1.33	1.35	1.27	1.24	1.27	1.29	**3.53**	Average RRF
Isopropylbenzene	1.82	1.88	1.91	1.80	1.76	1.80	1.83	**3.06**	Average RRF
Bromoform	0.316	0.333	0.356	0.340	0.328	0.341	0.336	**4.03**	Average RRF
1,1,2,2-Tetrachloroethane	0.702	0.726	0.750	0.706	0.681	0.696	0.710	**3.43**	Average RRF
4-Bromofluorobenzene	0.948	0.948	0.949	0.927	0.937	0.948	0.943	**0.952**	Average RRF
1,2,3-Trichloropropane		0.177	0.185	0.178	0.168	0.177	0.177	**3.41**	Average RRF
Bromobenzene	0.891	0.900	0.912	0.850	0.831	0.834	0.870	**4.09**	Average RRF
2-Chlorotoluene	1.39	1.45	1.49	1.34	1.34	1.34	1.39	**4.68**	Average RRF
4-Chlorotoluene	1.42	1.38	1.41	1.40	1.30	1.33	1.37	**3.34**	Average RRF
1,3-Dichlorobenzene	0.831	0.878	0.897	0.861	0.835	0.850	0.859	**2.97**	Average RRF
1,4-Dichlorobenzene	0.858	0.862	0.892	0.847	0.826	0.843	0.855	**2.60**	Average RRF
1,2-Dichlorobenzene	0.866	0.890	0.931	0.895	0.885	0.906	0.896	**2.44**	Average RRF
1,2-Dibromo-3-chloropropane		0.106	0.124	0.128	0.125	0.132	0.123	**8.13**	Average RRF
1,2,4-Trichlorobenzene	0.497	0.532	0.558	0.554	0.551	0.571	0.544	**4.81**	Linear
Hexachlorobutadiene	0.129	0.175	0.193	0.197	0.202	0.213	0.185	**16.3**	Average RRF
Naphthalene	1.63	1.71	1.84	1.83	1.78	1.86	1.78	**4.99**	Average RRF
1,2,3-Trichlorobenzene	0.448	0.479	0.523	0.517	0.512	0.529	0.501	**6.27**	Quadratic

Average %RSD = 5.98

Aqua Pro-Tech Laboratories
Volatile Organic Instrument Performance Check
Bromofluorobenzene(BFB)

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID: G:\HPCHEM\7\Data\08052008\7V6469.D

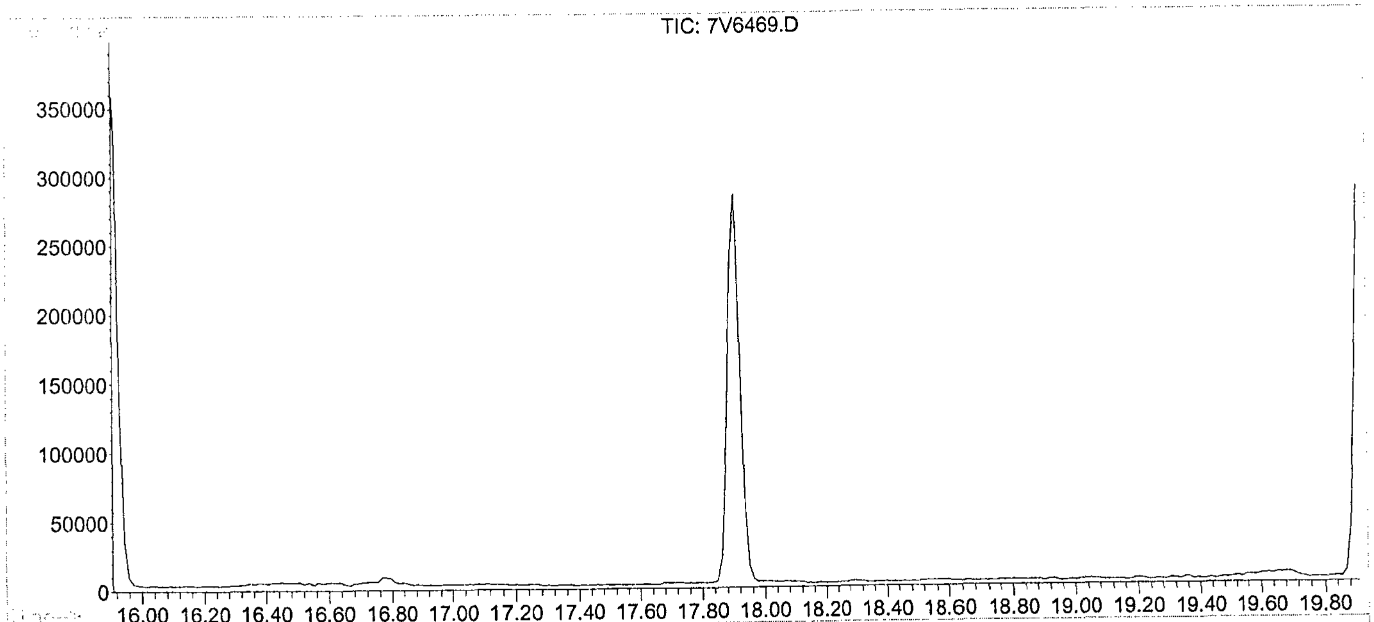
BFB Injection Date: 5-Aug-08
BFB Injection Time: 13:29

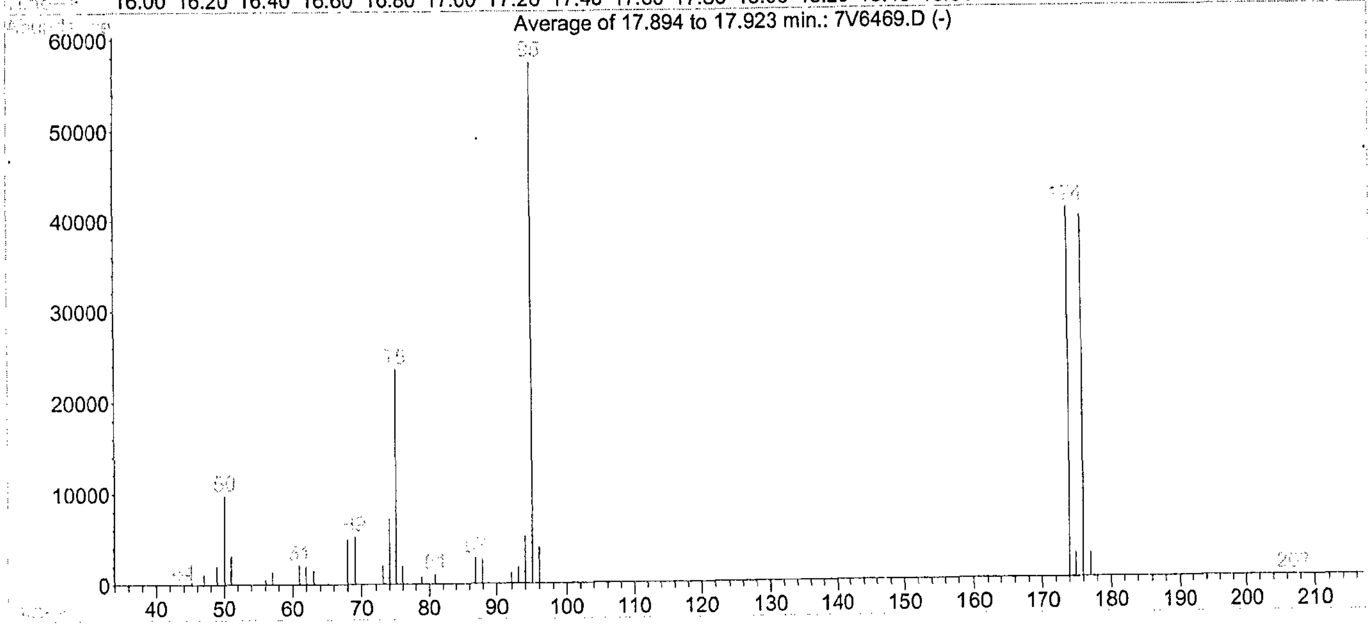
m/z	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	17.1
75	30.0 - 60.0% of mass 95	41.2
95	100 - 100% of mass 95	100
96	5.00 - 9.00% of mass 95	7.10
173	0.00 - 2.00% of mass 174	0.00
174	50.0 - 100% of mass 95	71.1
175	5.00 - 9.00% of mass 174	6.80
176	95.0 - 101% of mass 174	97.7
177	5.00 - 9.00% of mass 176	6.60

This check applies to the following Samples, MS, MSD, Blanks, and Standards

Client Sample	Lab Sample ID	Lab File ID	Date Acquired	Time Acquired
VSTD5	005 ppb M624 i.cal std	7V6470.D	5-Aug-08	14:04
VSTD10	010 ppb M624 i.cal std	7V6471.D	5-Aug-08	14:39
VSTD20	020 ppb M624 i.cal std	7V6472.D	5-Aug-08	15:14
VSTD50	050 ppb M624 i.cal std	7V6473.D	5-Aug-08	15:50
VSTD100	100 ppb M624 i.cal std	7V6474.D	5-Aug-08	16:25
VSTD200	200 ppb M624 i.cal std	7V6475.D	5-Aug-08	17:01

```
Data File : G:\HPCHEM\7\DATA\08052008\7V6469.D        Vial: 2
Acq On    :  5 Aug 2008   1:29 pm                   Operator: sdp
Sample    : Bfb                                     Inst     : GCMS-7
Misc      :                                         Multiplr: 1.00
MS Integration Params: RTEINT.P
Method    : G:\HPCHEM\7\METHODS\0805VO7.M (RTE Integrator)
Title     : VOC's by EPA Method 624
```





Spectrum Information: Average of 17.894 to 17.923 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.1	9844	PASS
75	95	30	60	41.2	23628	PASS
95	95	100	100	100.0	57405	PASS
96	95	5	9	7.1	4061	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	71.1	40811	PASS
175	174	5	9	6.8	2766	PASS
176	174	95	101	97.7	39867	PASS
177	176	5	9	6.6	2620	PASS

Aqua Pro-Tech Laboratories
Volatile Continuing Calibration Check

Continuing Calibration File: G:\HPCHEM\7\Data\08072008\7V6538.D

* Denotes values outside of method required QC Limits

CAS	Compound	Conc.	QC Limits
71-43-2	Benzene	22.2	12.8 - 27.2
106-46-7	1,4-Dichlorobenzene	24.3	12.6 - 27.4
75-00-3	Chloroethane	22.5	7.60 - 32.4
10061-02-6	trans 1,3-Dichloropropene	18.4	10.0 - 30.0
71-55-6	1,1,1-Trichloroethane	20.1	15.0 - 25.0
79-34-5	1,1,2,2-Tetrachloroethane	20.7	12.1 - 27.9
74-83-9	Bromomethane	17.4	2.80 - 37.2
75-69-4	Trichlorofluoromethane	19.9	9.60 - 30.4
156-60-5	trans 1,2-Dichloroethene	21.3	13.9 - 26.1
67-66-3	Chloroform	20.3	13.5 - 26.5
56-23-5	Carbon Tetrachloride	20.4	14.6 - 25.4
107-06-2	1,2-Dichloroethane	20.2	13.6 - 26.4
79-01-6	Trichloroethene	20.1	13.3 - 26.7
75-27-4	Bromodichloromethane	19.4	13.1 - 26.9
108-88-3	Toluene	19.1	14.9 - 25.1
79-00-5	1,1,2-Trichloroethane	18.6	14.2 - 25.8
108-90-7	Chlorobenzene	21.2	13.2 - 26.8
75-25-2	Bromoform	19.6	14.2 - 25.8
541-73-1	1,3-Dichlorobenzene	20.1	12.6 - 27.4
95-50-1	1,2-Dichlorobenzene	26.4	12.6 - 27.4
110-75-8	2-Chloroethylvinyl Ether	17.4	Detected - 44.6
75-35-4	1,1-Dichloroethene	20.8	10.1 - 29.9
127-18-4	Tetrachloroethene	19.2	14.7 - 25.3
75-01-4	Vinyl Chloride	19.3	0.800 - 39.2
75-34-3	1,1-Dichloroethane	21.8	14.5 - 25.5
10061-01-5	cis 1,3-Dichloropropene	18.7	4.80 - 35.2
100-41-4	Ethylbenzene	21.2	11.8 - 28.2
74-87-3	Chloromethane	21.3	Detected - 40.8
78-87-5	1,2-Dichloropropane	20.7	6.80 - 33.2
75-09-2	Methylene Chloride	22.5	12.1 - 27.9
124-48-1	Dibromochloromethane	18.4	13.5 - 26.5

Aqua Pro-Tech Laboratories
Volatile Continuing Calibration Check

Continuing Calibration File: G:\HPCHEM\7\Data\08082008\7V6581.D

* Denotes values outside of method required QC Limits

CAS	Compound	Conc.	QC Limits
71-43-2	Benzene	23.9	12.8 - 27.2
106-46-7	1,4-Dichlorobenzene	23.5	12.6 - 27.4
75-00-3	Chloroethane	23.1	7.60 - 32.4
10061-02-6	trans 1,3-Dichloropropene	18.4	10.0 - 30.0
71-55-6	1,1,1-Trichloroethane	22.5	15.0 - 25.0
79-34-5	1,1,2,2-Tetrachloroethane	21.3	12.1 - 27.9
74-83-9	Bromomethane	20.3	2.80 - 37.2
75-69-4	Trichlorofluoromethane	23.7	9.60 - 30.4
156-60-5	trans 1,2-Dichloroethene	24.3	13.9 - 26.1
67-66-3	Chloroform	23.0	13.5 - 26.5
56-23-5	Carbon Tetrachloride	21.8	14.6 - 25.4
107-06-2	1,2-Dichloroethane	22.9	13.6 - 26.4
79-01-6	Trichloroethene	20.0	13.3 - 26.7
75-27-4	Bromodichloromethane	20.3	13.1 - 26.9
108-88-3	Toluene	20.6	14.9 - 25.1
79-00-5	1,1,2-Trichloroethane	20.9	14.2 - 25.8
108-90-7	Chlorobenzene	21.5	13.2 - 26.8
75-25-2	Bromoform	19.0	14.2 - 25.8
541-73-1	1,3-Dichlorobenzene	20.5	12.6 - 27.4
95-50-1	1,2-Dichlorobenzene	23.5	12.6 - 27.4
110-75-8	2-Chloroethylvinyl Ether	12.1	Detected - 44.6
75-35-4	1,1-Dichloroethene	25.1	10.1 - 29.9
127-18-4	Tetrachloroethene	20.1	14.7 - 25.3
75-01-4	Vinyl Chloride	24.8	0.800 - 39.2
75-34-3	1,1-Dichloroethane	24.9	14.5 - 25.5
10061-01-5	cis 1,3-Dichloropropene	18.9	4.80 - 35.2
100-41-4	Ethylbenzene	21.9	11.8 - 28.2
74-87-3	Chloromethane	29.2	Detected - 40.8
78-87-5	1,2-Dichloropropane	22.1	6.80 - 33.2
75-09-2	Methylene Chloride	26.0	12.1 - 27.9
124-48-1	Dibromochloromethane	18.1	13.5 - 26.5

Aqua Pro-Tech Laboratories
Volatile Continuing Calibration Check

Continuing Calibration File: G:\HPCHEM\7\Data\08112008\7V6624.D

* Denotes values outside of method required QC Limits

CAS	Compound	Conc.	QC Limits
71-43-2	Benzene	27.0	12.8 - 27.2
106-46-7	1,4-Dichlorobenzene	15.9	12.6 - 27.4
75-00-3	Chloroethane	26.3	7.60 - 32.4
10061-02-6	trans 1,3-Dichloropropene	20.4	10.0 - 30.0
71-55-6	1,1,1-Trichloroethane	25.9*	15.0 - 25.0
79-34-5	1,1,2,2-Tetrachloroethane	20.6	12.1 - 27.9
74-83-9	Bromomethane	22.6	2.80 - 37.2
75-69-4	Trichlorofluoromethane	25.4	9.60 - 30.4
156-60-5	trans 1,2-Dichloroethene	28.1*	13.9 - 26.1
67-66-3	Chloroform	25.6	13.5 - 26.5
56-23-5	Carbon Tetrachloride	25.3	14.6 - 25.4
107-06-2	1,2-Dichloroethane	25.7	13.6 - 26.4
79-01-6	Trichloroethene	21.1	13.3 - 26.7
75-27-4	Bromodichloromethane	22.5	13.1 - 26.9
108-88-3	Toluene	21.7	14.9 - 25.1
79-00-5	1,1,2-Trichloroethane	22.0	14.2 - 25.8
108-90-7	Chlorobenzene	20.9	13.2 - 26.8
75-25-2	Bromoform	20.3	14.2 - 25.8
541-73-1	1,3-Dichlorobenzene	19.2	12.6 - 27.4
95-50-1	1,2-Dichlorobenzene	19.1	12.6 - 27.4
110-75-8	2-Chloroethylvinyl Ether	36.6	Detected - 44.6
75-35-4	1,1-Dichloroethene	27.6	10.1 - 29.9
127-18-4	Tetrachloroethene	20.8	14.7 - 25.3
75-01-4	Vinyl Chloride	29.8	0.800 - 39.2
75-34-3	1,1-Dichloroethane	28.4*	14.5 - 25.5
10061-01-5	cis 1,3-Dichloropropene	21.0	4.80 - 35.2
100-41-4	Ethylbenzene	21.6	11.8 - 28.2
74-87-3	Chloromethane	34.1	Detected - 40.8
78-87-5	1,2-Dichloropropane	25.0	6.80 - 33.2
75-09-2	Methylene Chloride	31.6*	12.1 - 27.9
124-48-1	Dibromochloromethane	20.0	13.5 - 26.5

Aqua Pro-Tech Laboratories
Volatile Internal Standard Area and RT Summary

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID (Standard): 7V6538.D

Date Acquired: 7-Aug-08
Time Acquired: 15:43

IS1= Pentafluorobenzene
IS2= 1,4-Difluorobenzene
IS3= Chlorobenzene-d5
IS4= 1,4-Dichlorobenzene-d4

Area Upper Limit=+100% of Internal Standard Area
Area Lower Limit=-50% of Internal Standard Area
RT Upper Limit=+0.50 minutes of Internal Standard RT
RT Lower Limit=-0.50 minutes of Internal Standard RT

* Denotes values outside of method required QC limits

	IS1 Area	RT	IS2 Area	RT	IS3 Area	RT	IS4 Area	RT
12 Hour Std.	197964	9.3	448009	10.95	238665	15.93	166471	19.94
Upper Limit	395928	9.8	896018	11.45	477330	16.43	332942	20.44
Lower Limit	98982	8.8	224004	10.45	119332	15.43	83236	19.44
Client Sample								
Blank - 1	181970	9.32	427816	10.96	227562	15.93	150961	19.94
Grant MW-10D	195318	9.33	461153	10.98	243241	15.94	140125	19.94
Grant MW-10S	185865	9.33	439253	10.98	237429	15.94	139369	19.94
Grant MW-13	183975	9.34	446242	10.97	236261	15.93	132729	19.94
Grant MW-14	181735	9.34	429481	10.97	233808	15.93	138247	19.94
Grant MW-16	178562	9.34	430232	10.97	230061	15.93	139887	19.94
Grant MW-17	177785	9.33	419875	10.96	223070	15.93	130823	19.94
Grant MW-20	178040	9.33	429115	10.96	232549	15.93	132372	19.94
Grant MW-22	176835	9.34	419723	10.97	223626	15.93	131417	19.94
Grant MW-25	176244	9.33	429829	10.96	224047	15.94	138844	19.94
Grant MW-8R	190044	9.33	451583	10.98	230786	15.94	138370	19.94
Grant MW-9D	203297	9.33	478947	10.98	251266	15.94	136596	19.94
Grant P-5	204435	9.34	477089	10.97	249602	15.95	140178	19.98
Grant P-6	211393	9.33	493809	10.98	256912	15.94	149099	19.98
Grant P-7	188581	9.33	445074	10.98	233153	15.94	130177	19.98
Grant P-8D	199977	9.33	474341	10.98	249225	15.94	142557	19.94
Grant P-8S	190819	9.34	453458	10.98	237286	15.94	139442	19.94
Grant T.B.	180997	9.33	427351	10.96	230993	15.93	133578	19.94

Aqua Pro-Tech Laboratories
Volatile Internal Standard Area and RT Summary

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID (Standard): 7V6581.D

Date Acquired: 8-Aug-08
Time Acquired: 16:13

IS1= Pentafluorobenzene
IS2= 1,4-Difluorobenzene
IS3= Chlorobenzene-d5
IS4= 1,4-Dichlorobenzene-d4

Area Upper Limit=+100% of Internal Standard Area
Area Lower Limit=-50% of Internal Standard Area
RT Upper Limit=+0.50 minutes of Internal Standard RT
RT Lower Limit=-0.50 minutes of Internal Standard RT

* Denotes values outside of method required QC limits

	IS1 Area	RT	IS2 Area	RT	IS3 Area	RT	IS4 Area	RT
12 Hour Std.	169246	9.32	407846	10.96	217094	15.93	133624	19.94
Upper Limit	338492	9.82	815692	11.46	434188	16.43	267248	20.44
Lower Limit	84623	8.82	203923	10.46	108547	15.43	66812	19.44
Client Sample								
Blank - 2	185760	9.33	435698	10.96	233262	15.93	135819	19.94
Grant MW-11	167404	9.42	409173	11.06	213981	16.03	175316	20.06
Grant MW-12	182623	9.33	427567	10.96	231261	15.93	142037	19.94
Grant MW-14 (2)	182099	9.32	431942	10.97	230126	15.93	144750	19.94
Grant MW-15	188677	9.32	445372	10.97	242268	15.93	150408	19.94
Grant MW-19	185729	9.33	447434	10.96	233428	15.93	146257	19.94
Grant MW-21	181757	9.32	444569	10.97	236414	15.93	146687	19.94
Grant MW-23	176405	9.32	419948	10.96	223271	15.93	138166	19.94
Grant MW-24	177171	9.32	440743	10.97	230991	15.93	141605	19.94
Grant MW-26	179875	9.32	424482	10.96	228209	15.93	143532	19.94
Grant MW-27	180781	9.32	442912	10.96	230312	15.93	149342	19.94
Grant MW-28	184088	9.33	442654	10.96	234718	15.93	147925	19.94
Grant MW-29	179003	9.32	430026	10.96	230442	15.93	140400	19.94

Aqua Pro-Tech Laboratories
Volatile Internal Standard Area and RT Summary

Client: Geovation Engineering P.C.
Project: Grant Hardware
Lab File ID (Standard): 7V6624.D

Date Acquired: 11-Aug-08
Time Acquired: 12:22

IS1= Pentafluorobenzene
IS2= 1,4-Difluorobenzene
IS3= Chlorobenzene-d5
IS4= 1,4-Dichlorobenzene-d4

Area Upper Limit=+100% of Internal Standard Area
Area Lower Limit=-50% of Internal Standard Area
RT Upper Limit=+0.50 minutes of Internal Standard RT
RT Lower Limit=-0.50 minutes of Internal Standard RT

* Denotes values outside of method required QC limits

	IS1 Area	RT	IS2 Area	RT	IS3 Area	RT	IS4 Area	RT
12 Hour Std.	171257	9.3	426204	10.95	237448	15.9	220613	19.91
Upper Limit	342514	9.8	852408	11.45	474896	16.4	441226	20.41
Lower Limit	85628	8.8	213102	10.45	118724	15.4	110306	19.41
Client Sample								
Blank - 3	183117	9.32	448731	10.95	247684	15.9	224654	19.91
Grant MW-18	242704	9.55	622675	11.14	307455	16	214306	20

Geovation Engineering, P.C.
468 Route 17A, P.O. Box 293
Florida, NY 10921
(845) 651-4141
(845) 651-0040 FAX
www.geovation.com

26 June 2007

Chek Beng Ng, P.E.
Environmental Engineer 2
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, NY 12233-7015
Phone (518) 402-9620

Re: Source area Soil IRM - Soil Vapor Extraction Workplan
Former Grant Hardware Site # 344031
44 High Street
West Nyack, New York 10960

Dear Chek:

This Workplan outlines the system design specifications for an interim remedial measure (IRM) to treat source area soil with soil vapor extraction (SVE) technology at the Former Grant Hardware Facility located at 44 High Street in West Nyack, New York (Figure 1). The system design is based on Geovation's 1999 *Remedial Investigation Report* and the soil vapor extraction pilot testing findings previously submitted to the NYSDEC in March of 2002. The proposed interim remedial measures consist of a two-phase approach for treating impacted soils located in the source area. Phase I will utilize targeted soil excavation and off-site disposal of the more heavily impacted shallow soils, while Phase II will utilize soil vapor extraction (SVE) to treat impacted soil remaining after excavation. An operation and monitoring program will be implemented to optimize system performance, evaluate the carbon use and monitor system effluent. Additionally, quarterly sampling and reporting will be provided to verify system performance and to evaluate potential system expansion as a component of the selected remedy for this site. Please note that this IRM system design is subject to modifications based on the soil conditions observed in the field following the soils excavation phase of the IRM.

Phase I - Shallow Soil Removal and Off-Site Disposal

The area of targeted soil excavation is shown located on the western side of the facility (Figure 2). The contaminants of concern are predominantly petroleum hydrocarbons, tetrachloroethylene (PCE) and trichloroethylene (TCE). The area to be excavated is approximately 20 feet long by 25 feet wide and 1.5 feet deep. While approximate horizontal and vertical contaminant limits were previously determined during soil boring investigation work, the goal of this excavation effort is not to remove all impacted soils, but rather to perform limited excavation of the most heavily impacted soils to achieve immediate reduction of contaminant mass in the source area and decrease the burden placed on the *in-situ* technologies which will be utilized to perform the bulk of remediation in this area. Confirmation samples will not be collected from the excavation, rather selected soil samples will be collected to serve as baseline values prior to progressing to phase II of the IRM, soil vapor extraction.

Shallow overburden soils will be excavated and stockpiled. The stockpiled soil will be analyzed and characterized for off-site disposal to a New York State certified Storage, Treatment and Disposal Facility (TSDF). Analyses will be performed by a New York State Department of Health (NYSDOH) certified laboratory and all activities will be performed in accordance with New York State Department of Environmental Conservation (NYSDEC) guidelines and industry accepted procedures.

Phase II - Soil Vapor Extraction

Following the removal of the most heavily contaminated shallow soils, SVE will be utilized to treat unsaturated impacted soils in the area approximately 55 feet by 55 feet using four soil vapor extraction wells as shown on Figure 3. The layout of the treatment wells will be based on the results of previous soil sampling and observations made during the soil excavation phase of this workplan. SVE pilot testing in January of 2002 determined the Effective Radius of Influence (ROI_{eff}), utilizing 36 to 70 cubic feet per minute (cfm) of negative air flow under 63 to 65 inches of water (in H_2O) of negative pressure (vacuum), to be approximately 15 feet. Geovation has designed the SVE system (Figure 3 –Remedial System Layout) based on the parameters defined in the pilot test as discussed in more detail below.

Soil Vapor Extraction System Recovery Wells and Piping

The SVE system design, Figure 3, utilizes four (4) vertical vapor extraction points, configured in a diamond shape and plumbed to two parallel 4 inch PVC manifolds with each manifold accepting soil gas from two SVE wells. The SVE wells will be spaced approximately 25 feet apart and will be screened from 3 feet below grade to bedrock (approximately 15 feet below grade). Each SVE well will be constructed using two inch inside diameter schedule 40 PVC pipe with 0.020 inch slotted screen. The annular space between the borehole and the well screen will be filled with No. 2 silica sand from the bottom of the boring to above the the top of the screened PVC, then sealed with 2-feet of wetted benonite. Each SVE well will be housed within a 12-inch corrugated PVC pipe and capped with a 12-inch curb box. The area over the SVE system will be paved which will provide an impervious surface and both optimize the recovery of vapors and allow for vehicles to drive through the area.

The individual SVE wells will utilize two inch Schedule 40 PVC horizontal piping to connect to the four inch Schedule 40 PVC manifold. Prior to connection to the manifold, each SVE well will be fitted with a ball valve, pressure gauge and air flow port, to monitor and regulate soil vapor flow. There will be a minimum of five pipe diameters (or 10 inches) of straight pipe upstream of each pressure gauge/air flow port and two pipe diameters (or 4 inches) of straight pipe downstream of each port.

The pair of four (4) inch Schedule 40 PVC headers will run parallel, in a common trench. These pipe headers are sized to allow for the expansion of the extraction well system at a later date, if desired. These headers will be utilized to transport extracted soil vapors from the SVE wells back to the treatment shed (Figure 3). All piping will be installed to a depth of twelve (12) inches below grade.

The system will also include two monitoring points to verify the radius of influence achieved and evaluate changes in the ROI_{eff} over time. The monitoring points will be constructed in a similar manner as the recovery points, however the diameter of the monitoring points will be one inch rather than two and they will be protected at the ground surface with 6 inch flush mount covers rather than twelve inch covers. The proposed locations for the two monitoring points are shown on Figure 3.

Recovery System Mechanical Components and Treatment Shed

A summary of the vacuum data and air flow rates from the pilot test from the March 2002 SVE Pilot Test report prepared by Aaron Environmental is attached as Appendix A. The data show that a sufficient vacuum of 0.1 inches of water was achieved at a 15 ft distance from the test well with a vacuum of 63 to 65 inches at the test well, with corresponding air flow rates ranging from 36 scfm to 71 scfm, with the 36 scfm measurement being the final measurement recorded at a time period of 210 minutes into the test. In analyzing these data in conjunction with the review of pump curves from multiple blower manufacturers, it appears that a total design flow of approximately 200 cfm should both provide an adequate radius of influence while being practical in terms of the available blowers.

Head loss calculations based on the system components described above and shown in Figure 3 are included in Appendix B. The friction loss through the system is estimated at 15 inches of water based on the information currently available. Assuming that a negative pressure of 63 inches of water is actually required under the final field conditions to effect the 15 ft radius of influence, the total requirement for the blower would be 200 cfm at 78 inches of water. In order to meet this requirement a 10-hp blower is required.

The pilot test conducted at the site was of very short duration – 210 minutes from start to finish. The motor requirements for the blower calculated for use with the four extraction wells and discussed above may be excessive. As noted above, the piping headers and other appurtenances have been sized such that it may be possible to add additional extraction wells to the system once the system has started up and stabilized (e.g., beyond an IRM). At that time system design parameters may change based on the information obtained from the system monitoring points measured during the implementation of the IRM.

The regenerative blower is designed to be 230V, with a 3 phase explosion proof motor. A 40-gal moisture separator with explosion proof emergency high sump switch, manway, sight glass, and manual drain will provide vapor stream moisture removal. An in-line filter will provide vapor stream particulate matter removal and a silencer will be utilized to minimize noise emissions.

Off-gas treatment will be provided by four 140-lb vapor phase granular activated carbon (GAC) treatment canisters. Sample ports will be provided such that breakthrough in the first unit can be detected and the influent and effluent from the GAC system can be monitored. It is expected that the carbon canisters will have to be replaced frequently during the first several days or week of operation, based on the analytical data for the air samples collected during the SVE pilot test; however, concentrations in the vapor typically decline very quickly following system startup.

Following treatment, the effluent will be discharged to the atmosphere. The vent line will extend to more than twenty feet above grade and will be constructed of four (4) inch Schedule 40 PVC. The vent line will be attached to the side of the Grant Hardware facility, exhausting approximately two feet above the roof line. Pressure gauges, air flow monitoring, sampling ports and temperature gauges will be provided to monitor system operating conditions and to allow system optimization. There will be a minimum of five pipe diameters (or 10 inches) of straight pipe upstream of the pressure gauge/air flow port and two pipe diameters (or 4 inches) of straight pipe downstream of the port. Emergency shut-off switches will be provided to deactivate the system in the event of pressure, temperature or moisture build-up.

All equipment and gauges will be housed in an eight feet wide by ten feet long treatment trailer. The treatment trailer will be constructed of metal with sound proofing, insulated walls with a wood floor. The trailer will be transported to the site, demobilized by removing the tires, leveled and positioned on stationary louver jacks.

Electrical Power Supply

A 100 amp 3 phase electrical power supply with individual circuit breaker capabilities will be provided to power the treatment trailer. An emergency shut-off will be supplied to remotely deactivate the system in the event of an emergency.

System Operation & Maintenance

Upon completion of installation of the SVE system, Geovation will initiate start-up and optimization activities. This will include monitoring and adjusting the negative pressure attained at each of the four vertical extraction wells, and monitoring of air flow rates, and vapor recovery rates. Individual SVE well recovery rates, cumulative recovery rates, after treatment air flow rates and contaminant removal efficiency will be recorded to verify that the effluent air contaminant concentrations are below NYSDEC guidelines.

During initial start-up, the system will be monitored daily for the first week, weekly for the first month, bi-monthly for the next two months and monthly thereafter. During these site visits for monitoring the SVE system will be evaluated and optimized. System operating parameters will be recorded utilizing a field calibrated photo-ionization detector (PID) and relative removal rates will be determined.

Quarterly Sampling & Reporting

The data generated during startup activities and subsequent site visits will be summarized and provided to the NYSDEC in quarterly reports. These reports will include the results of PID sampling performed and calculations of system operation efficiency.

Associated ground water monitoring will be performed as part of a separate effort by Gussack Realty and Geovation and reported the results of ground water monitoring under separate cover.

Schedule

Geovation is currently conducting a bioremediation pilot project in the source area. This pilot project utilizes two ground water monitoring wells and two treatment wells, completed with flush-mount protective casings set in concrete in the pavement capping the source area. Soil removal activities will require the paving and flush-mount protective covers be removed to excavate underlying soil. Once removed, excavation activities will be required to be conducted around the four pilot test wells, potentially impacting the utility of the wells and results of the pilot test. To-date, the bioremediation pilot has shown very encouraging results and it is Geovation's recommendation that phase I of the soil IRM be initiated after the completion of the bioremediation pilot project in December 2007. The pilot test has been responsible for a reduction of between 67% and 89% of dissolved phase trichloroethene in ground water and corresponding increases in TCE daughter products. Potential project goals which would be put at risk by excavation activities in source area include evaluation of the continued growth or decline of daughter products, evaluation of the reaction of microbial community to additional carbon sources and/or electron acceptors, quantification of contaminant degradation rates, and identification of microorganisms responsible for contaminant degradation.

Based on the initial success of the bioremediation pilot and the value of the additional information anticipated to be produced during its completion, Geovation requests that the NYSDEC consider allowing Gussack Realty and Geovation to postpone the implementation of this soil IRM for approximately six months until the completion of the bioremediation pilot. If approved, excavation activities would be conducted in January 2008 and installation and startup of the SVE system would take place in the spring of 2008.

Should you have any questions concerning the enclosed SVE system design or should you require additional project information, please do not hesitate to contact me or Sheila McGroddy at (845) 651-4141.

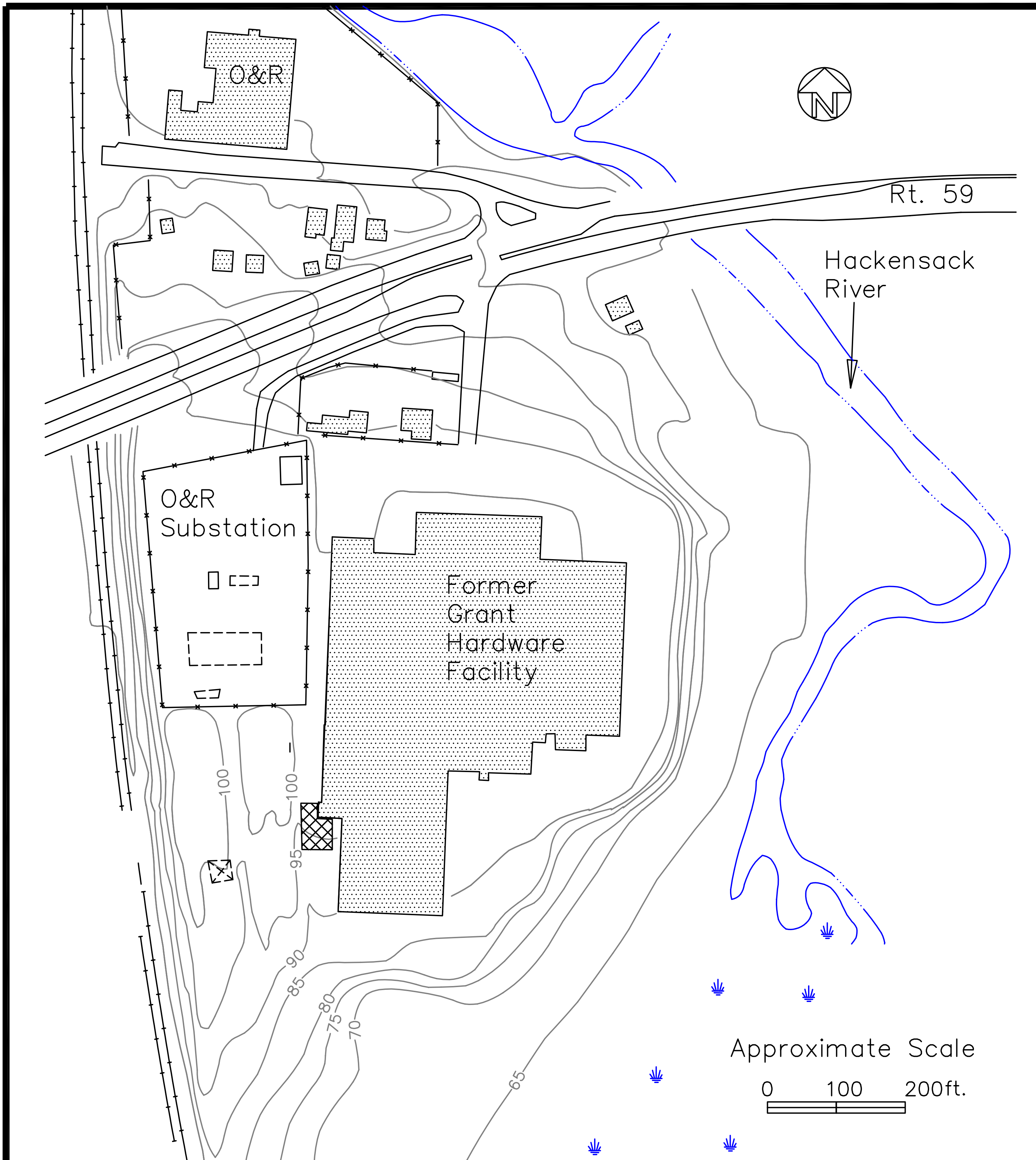
Sincerely,

Robert L. Zimmer, P.E.
Vice President

cc.

D. Gussack	General Bearing Corp.
F. Navratil	(NYSDOH)

Enclosures



LEGEND

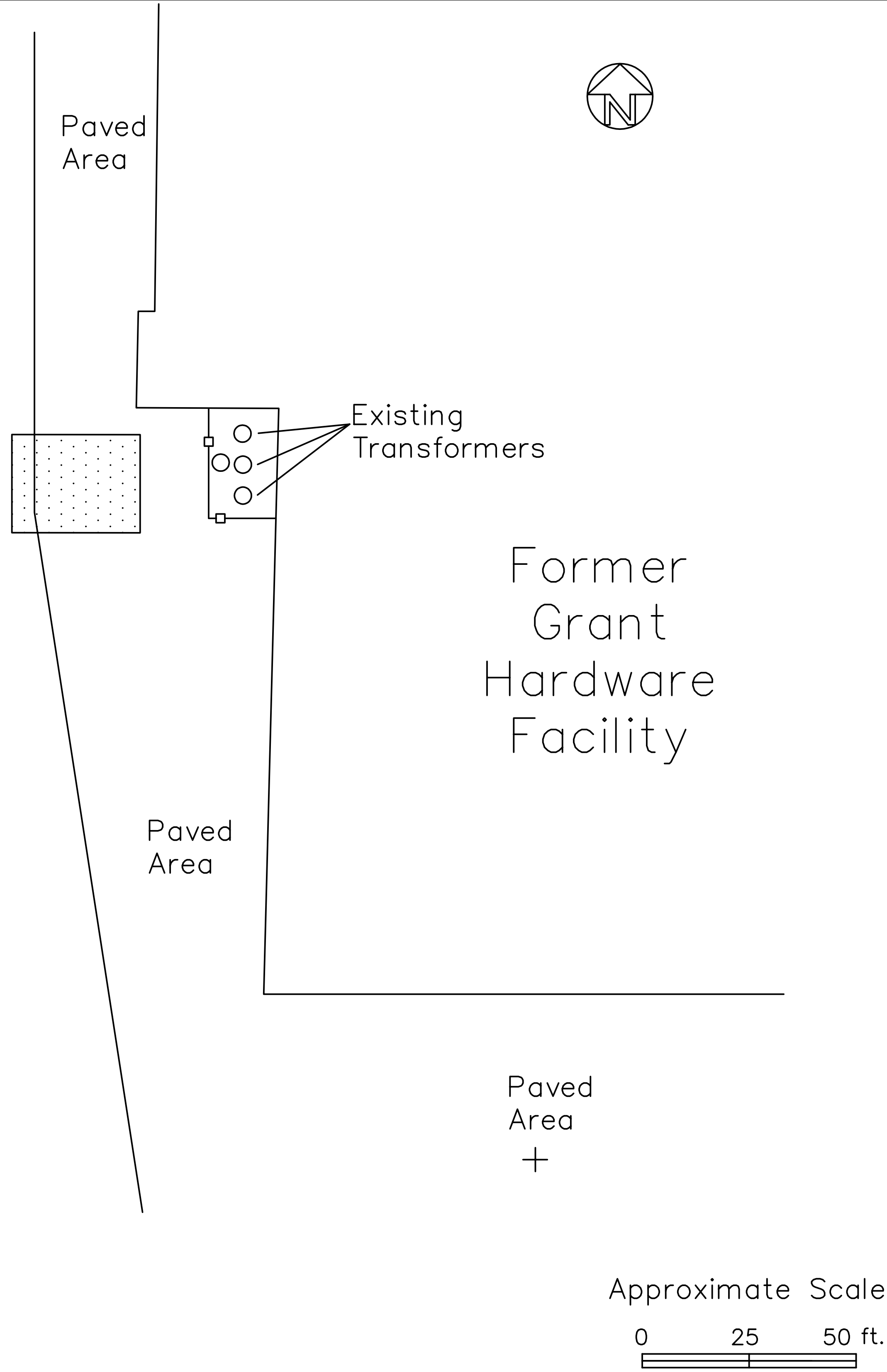
Location of Source Area Soil

90 Elevation Contour (in feet relative to arbitrary datum)

Building

Swamp

Former Grant Hardware Facility West Nyack, New York		
Site Map		
Date: 6–26–07	RLZ	Figure
Geovation Engineering, P.C. 468 Route 17A - Florida, NY 10921		1



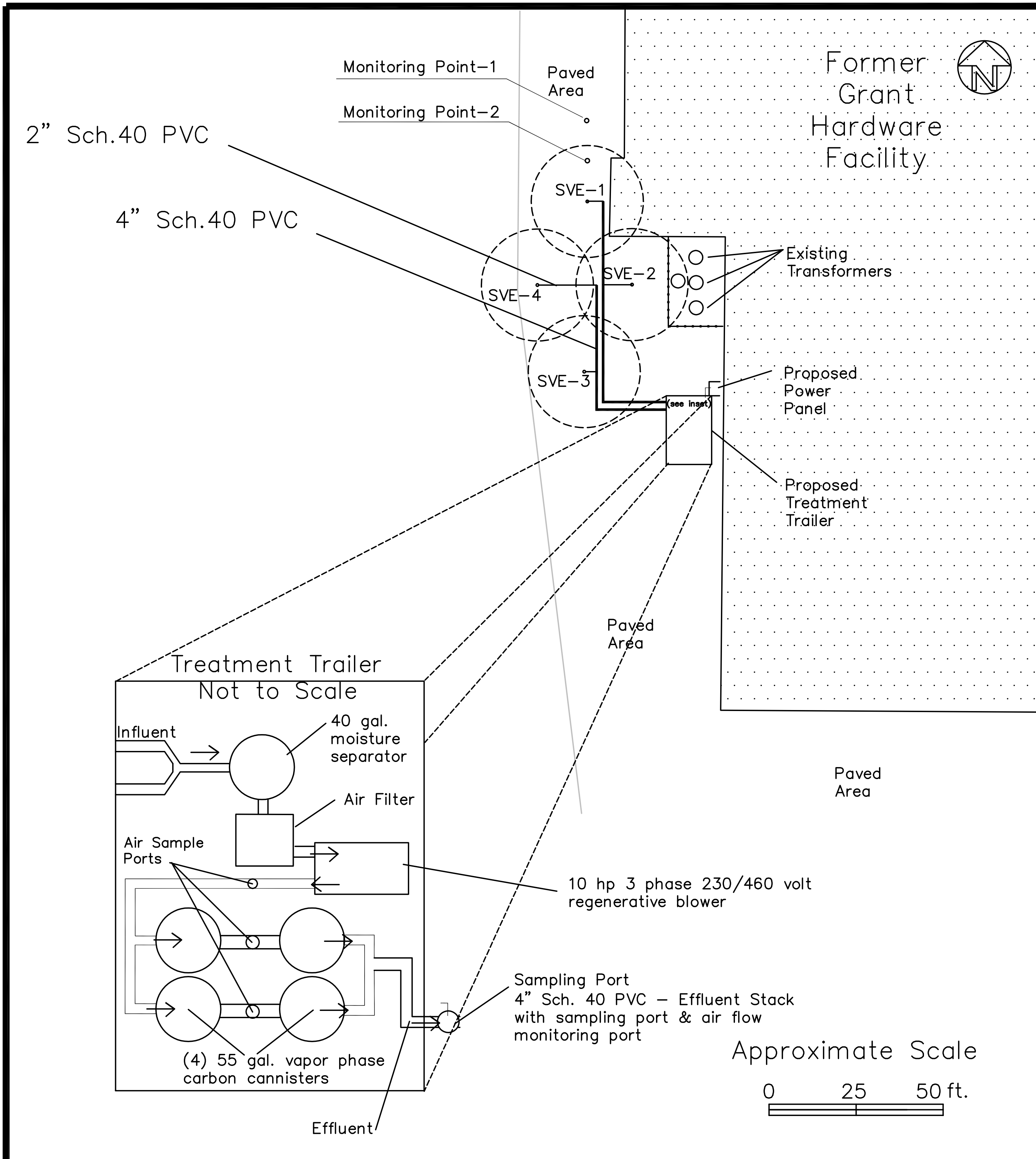
LEGEND

Area af targeted excavtion

Former Grant Hardware Facility
West Nyack, New York

Proposed Area of Soil Excavation

Date: 6-25-07	RLZ	Figure
Geovation Engineering, P.C. 468 Route 17A - Florida, NY 10921		2



LEGEND

Building

Former Grant Hardware Facility
West Nyack, New York

Soil Vapor Extraction System
IRM

Date: 06−25−07	RLZ	Figure

GEOVATION
Geovation Engineering, P.C.
468 Route 17A - Florida, NY 10921

3

APPENDIX A

DATA FROM 2002 PILOT TEST

Site Name	Former Grant Hardware	Weather	Rain
Date	1/9/2002	Temp	35 - F
Client	Geovation Consultants	Blower Info	2-hp regenerative
Technicians	MB, CL	Test Well	2" screened 5-15'

Elapsed Time	Vac Test Well (in. H2O)	Flow Test Well (fm)	CFM	Vac 5' (in. H2O)	Vac 10' (in. H2O)	Vac 15' (in. H2O)	Effluent PID (ppm)	Sample ID	
0	40	2650	57.78	0.0	0	0	271		Bleed valve open 1/2.
5	40	2650	57.78	0.0	0	0	281		
10	40	2550	55.60	0.0	0	0	274		
15	40	2250	49.06	3.0	0.3	0	283		
25	40	1850	40.34	3.0	0.3	0	279		
30	40	2000	43.61	3.0	0.3	0	277		
45	40	2000	43.61	3.0	0.3	0	280		
50	62	2000	43.61	4.0	0.3	0	911		Closed bleed valve.
60	65	1750	38.16	4.0	0.4	0	758	1	
90	65	2350	51.24	4.0	0.4	0	728		
105	65	2450	53.42	4.0	0.35	0.1	1589		
135	65	2650	57.78	4.0	0.45	0.1	842		
165	63	3250	70.87	4.0	0.4	0.15	848		
180	63	1950	42.52	4.0	0.4	0.1	890		
210	63	1650	35.98	4.0	0.45	0.1	865	2	

APPENDIX B

HEAD LOSS CALCULATIONS

Head Loss Calculations for Grant Hardware SVE System (Page 1 of 2) 6/25/2007

Assumptions for Calculations:

Total air flow rate from 4 extraction wells:	200 scfm
Air flow rate per extraction well:	50 scfm
Air flow rate in each of the two PVC headers:	112 scfm

Piping run for longest distance to blower:

2 inch PVC pipe + fittings @ 50 scfm

Pipe area = 0.022 ft2

Velocity= 2293 ft/min

	No.	Equiv. Length
2 inch PVC pipe:	NA	18.0 ft
2 inch 90's:	1	5.0
2 in to 4 in adapter:	1	0.5
2 inch gate valve:		1.0
2 inch air flow/pressure gauge port		0.5
		25.0

Friction loss = 0.05 in. water per ft of tubing (see attached chart)

Loss =	1.25 in. water

4 inch PVC pipe + fittings @ 112 cfm (one of the two headers)

Pipe area = 0.087 ft2

Velocity= 1284 ft/min

	No.	Equiv. Length
4 inch PVC-single header (112 scfm):	NA	142 ft
4 inch 90s in single header:	3	30
2 inch 45's in GAC train (112 scfm)	4	20
2 inch valves in GAC train (112 scfm)	1	1
4 inch 45:	1	5
		198

Friction Loss= 0.01 in. water per ft of tubing (see attached chart)

Loss=	1.98 in. water

Head Loss Calculations for Grant Hardware SVE System (Page 2 of 2) 6/25/2007

4 inch PVC pipe + fittings @ 200 cfm (in treatment trailer)

Pipe area = 0.087 ft2

Velocity= 2293 ft/min

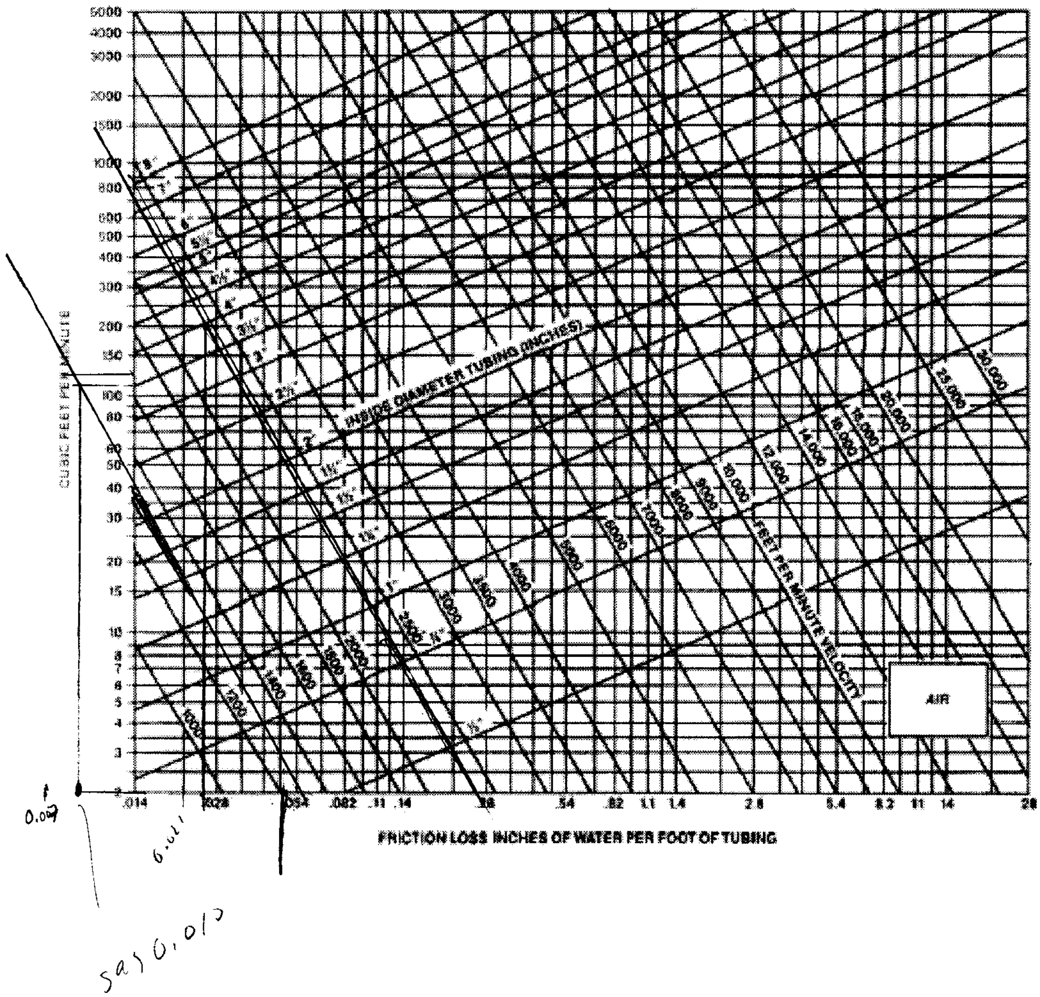
	No.	Equiv. Length	In. Water
4 inch PVC:	NA	142 ft	
4 inch 90s:	12	120	
4 inch valves:	1	1	
		263	
Moisture Separator	1	NA	1.0
Air filters/blower silencer			1.0
GAC units - 2 in series @ 200 cfm each (1 train)			2.6

Friction Loss= 0.026 in. water per ft of tubing (see attached chart)

Loss= 11.44 in. water

Total Estimated Friction Loss: 15 inches water
Vacuum to be supplied (based on pilot): 63 inches water

Estimated Total Vacuum Required: 78 inches water



0.0065
× 3
0.0195

0.01
.026

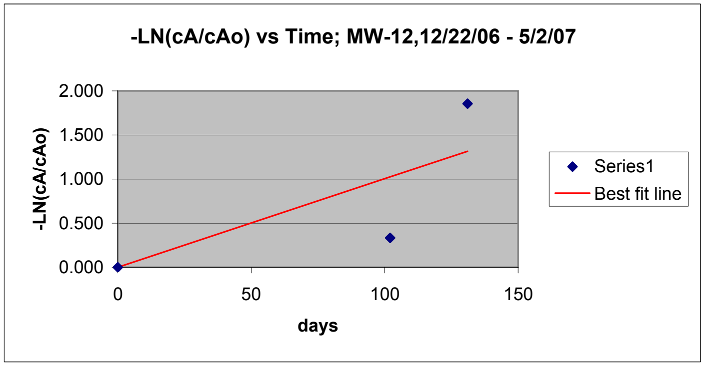
4 | .026
.0065

Summary of Degradation Rates for Grant Hardware SRC Pilot Test

Well ID	Contam.	Degradation Rate "k" 1/day	1/2 Life (days)	Start Date	End Date	Comments
MW-25	TCE	0.0320	22	12/22/2006	6/7/2007	Calculated solving directly for k in first rate equation; using two data points available
MW-25	cDCE	0.0116	60	4/2/2007	1/3/2008	Plotted -ln C/Co vs time; regression to get slope = k_1
MW-25	VC	0.0110	63	7/6/2007	1/3/2008	Used 1st order eqn for concentration of daughter; emperical testing of "k_2" values to best fit data (used k_1 value given above for C-DCE)
MW-19	TCE	0.0327	21	12/22/2006	5/2/2007	Plotted -ln (cA/Cao) vs t; used regression analysis to get k (slope of best fit line); three data points available; R squared = 0.964
MW-19	TCE	0.0300	23	10/9/2007	1/3/2008	Plotted -ln (cA/Cao) vs t; used regression analysis to get k (slope of best fit line); five data points available; better fit (R squared = 0.99)
MW-19	cDCE	0.042	17	10/9/2007	1/3/2008	Used 1st order eqn for concentration of daughter; emperical testing of "k_2" values to best fit data
						(used k_1 value of 0/0300 given above for TCE)
MW-12	TCE	0.0100	69	12/22/2006	5/2/2007	Plotted -ln (cA/Cao) vs t; used regression analysis to get k (slope of best fit line); three data points available; R squared = 0.80
MW-12	TCE	0.0422	16	8/22/2007	12/1/2007	Plotted -ln (cA/Cao) vs t; used regression analysis to get k (slope of best fit line); four data points available; better fit (R squared = 0.99)
MW-12	cDCE	0.0200	35	10/9/2007	12/1/2007	Used 1st order eqn for concentration of daughter; emperical testing of "k_2" values to best fit data
						(used k_1 value of 0.0422 given above for TCE). Note: tried data from 8/22 - 12/1/07 but could not get good fit.
MW-18	TCE	0.0188	37	12/22/2006	5/2/2007	Plotted -ln (cA/Cao) vs t; used regression analysis to get k (slope of best fit line); three data points available; R squared = 0.81
MW-18	TCE	0.1432	5	11/1/2007	1/3/2008	Plotted -ln (cA/Cao) vs t; used regression analysis to get k (slope of best fit line); three data points available; R squared = 0.92
MW-18	cDCE	0.0340	20	11/1/2007	1/3/2008	Used 1st order eqn for concentration of daughter; emperical testing of "k_2" values to best fit data
						(used k_1 value of 0.1432 given above for TCE).

MW-12 Data Analysis - TCE Rate Calculation

Date	TCE Molar Conc	cA/cAo	-LN(cA/Cao)	Time days	Calc. Regress. line, =kt
12/22/2006	5.10E-07	1.0000	0.000	0	0.000
4/3/2007	3.65E-07	0.7157	0.335	102	1.025
5/2/2007	7.99E-08	0.1567	1.854	131	1.316
8/22/2007	5.51E-07	1.0000	0.000	0	0
10/9/2007	7.04E-08	0.1278	2.058	48	2.026
11/1/2007	2.25E-08	0.0408	3.198	71	2.997
12/1/2007	9.06E-09	0.0164	4.108	101	4.264



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.77966497
R Square	0.60787746
Adjusted R Square	0.10787746
Standard Error	0.61861531
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.186494	1.18649405	3.100446436	0.328812779
Residual	2	0.76537	0.3826849		
Total	3	1.951864			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 95.0%*	*Jpper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	0.01004704	0.003726	2.69647419	0.114408156	-0.005984616	0.026079	-0.005985	0.026079

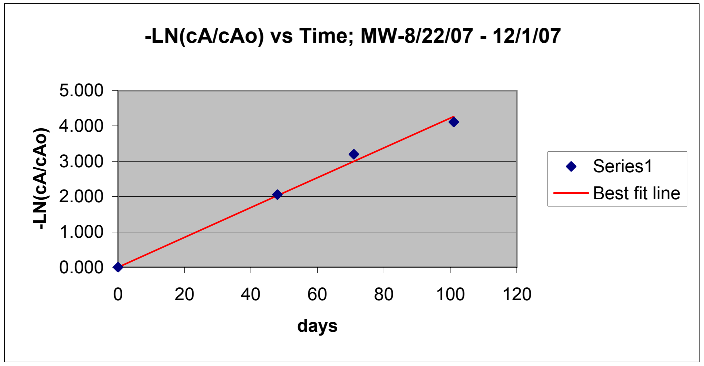
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.99650847
R Square	0.99302914
Adjusted R Square	0.65969581
Standard Error	0.14792618
Observations	4

ANOVA

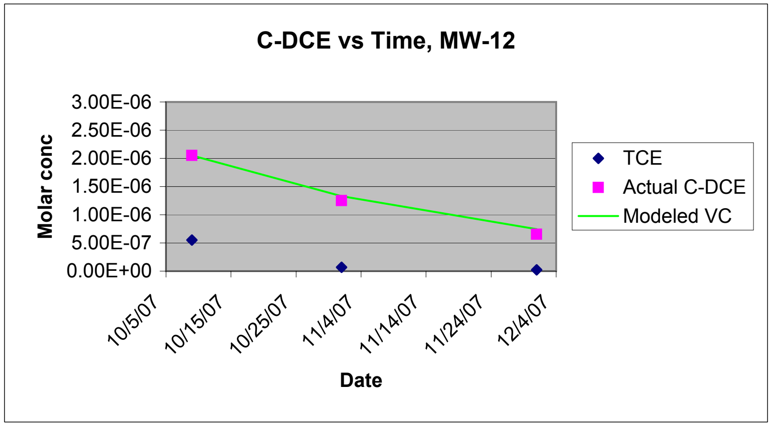
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	9.351623	9.35162283	427.3629653	0.00233175
Residual	3	0.065646	0.02188216		
Total	4	9.417269			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 95.0%*	*Jpper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	0.04221646	0.001117	37.802962	4.07193E-05	0.03866246	0.04577	0.038662	0.04577



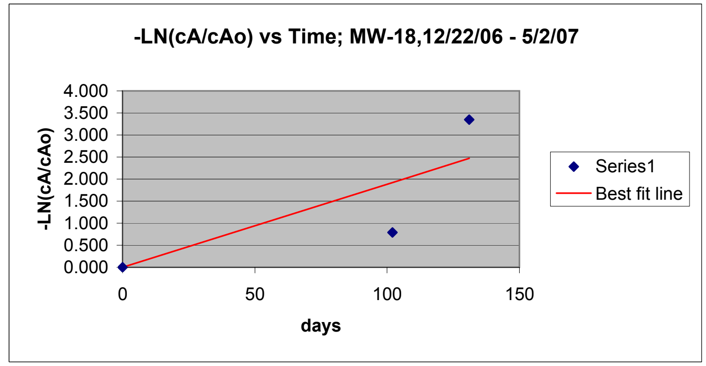
MW-12: Calculation of k2 for C-DCE degradation: Trial 2

Date	Time, days	Actual TCE molar conc	Actual C-DCE Conc	Calc. C-DCE	k1	Assumed k2
10/9/2007	0	7.04E-08	2.05E-06	2.05E-06	0.0422	0.02
11/1/2007	23	2.25E-08	1.25E-06	1.33E-06	0.0422	
12/1/2007	53	9.06E-09	6.56E-07	7.42E-07	0.0422	



MW-18 Data Analysis - TCE Rate Calculation

Date	TCE Molar Conc	cA/cAo	-LN(cA/Cao)	Time days	Calc. Regress. line, =kt
12/22/2006	4.11E-07	1.0000	0.000	0	0.000
4/3/2007	1.87E-07	0.4550	0.787	102	1.922
5/2/2007	1.44E-08	0.0350	3.351	131	2.468
11/1/2007	2.33E-07	1.0000	0.000	0	0
12/1/2007	4.90E-08	0.2103	1.559	30	4.298
1/3/2008	7.61E-12	0.0000	10.329	63	9.025



SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.8145589
R Square	0.6635062
Adjusted R Square	0.1635062
Standard Error	1.016529
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	4.075092	4.0750918	3.943646	0.296977647
Residual	2	2.066662	1.03333113		
Total	3	6.141754			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	0.018841	0.006123	3.07725339	0.091361	-0.007502732	0.045185	-0.0075	0.045185

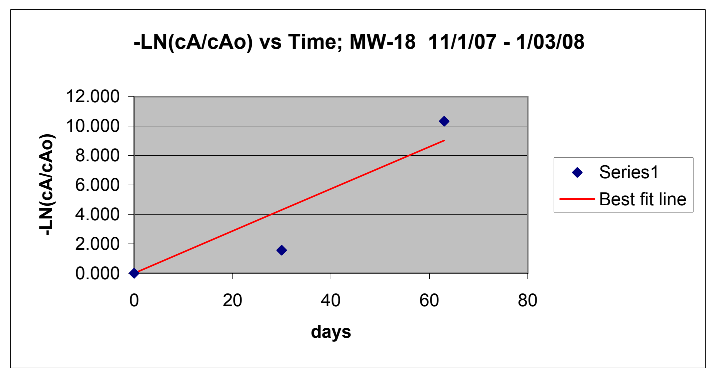
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9228455
R Square	0.8516438
Adjusted R Square	0.3516438
Standard Error	2.1447748
Observations	3

ANOVA

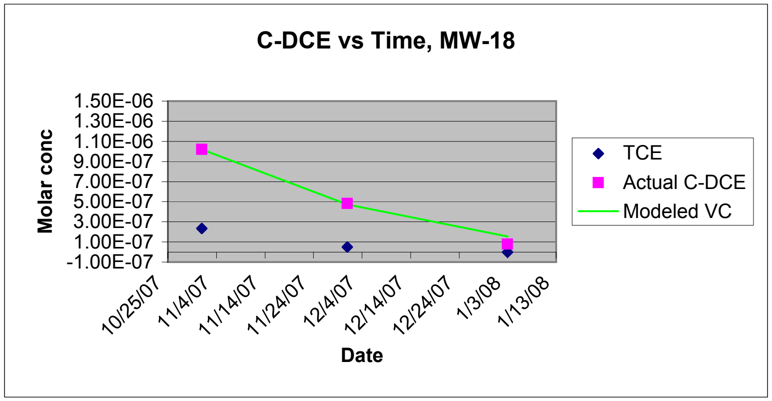
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	52.81358	52.8135833	11.48107	0.182697228
Residual	2	9.200118	4.60005878		
Total	3	62.0137			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	0.1432582	0.030737	4.66077146	0.043082	0.011007411	0.275509	0.011007	0.275509



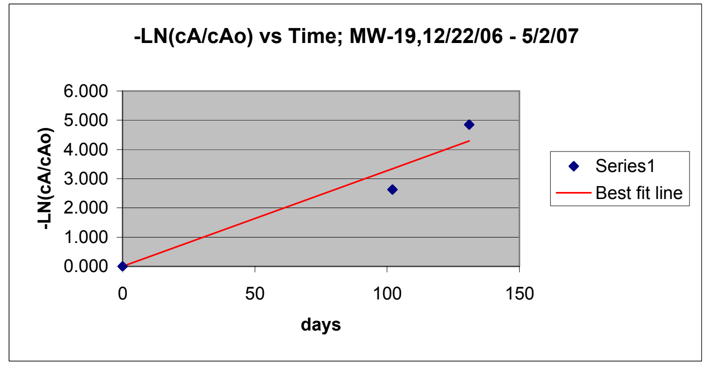
MW-18: Calculation of k2 for C-DCE degradation: Trial 1

Date	Time, days	Actual TCE molar conc	Actual C-DCE Conc	Calc. C-DCE conc	k1	Emperical k2
11/1/2007	0	2.33E-07	1.02E-06	1.02E-06	0.1432	0.034
12/1/2007	30	4.90E-08	4.81E-07	4.74E-07	0.1432	
1/3/2008	63	7.61E-12	7.87E-08	1.56E-07	0.1432	



MW-19 Data Analysis - TCE Rate Calculation

Date	TCE Molar Conc	cA/cAo	-LN(cA/Cao)	Time days	Calc. Regress. line, =kt
12/22/2006	5.78E-08	1.0000	0.000	0	0
4/3/2007	4.19E-09	0.0725	2.624	102	3.340
5/2/2007	4.54E-10	0.0079	4.847	131	4.289
10/9/2007	3.98E-08	1.0000	0.000	0	0
11/1/2007	2.12E-08	0.5335	0.628	23	0.691
12/1/2007	8.45E-09	0.2122	1.550	53	1.593
1/3/2008	2.88E-09	0.0723	2.627	86	2.584



SUMMARY OUTPUT- 12/22/06 - 5/2/07

Regression Statistics	
Multiple R	0.964426
R Square	0.9301176
Adjusted R Square	0.4301176
Standard Error	0.6413357
Observations	3

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	10.94891	10.9489075	26.61951	0.121878854
Residual	2	0.822623	0.41131142		
Total	3	11.77153			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	0.0327432	0.003863	8.47646205	0.013634	0.016122734	0.049364	0.016123	0.049364

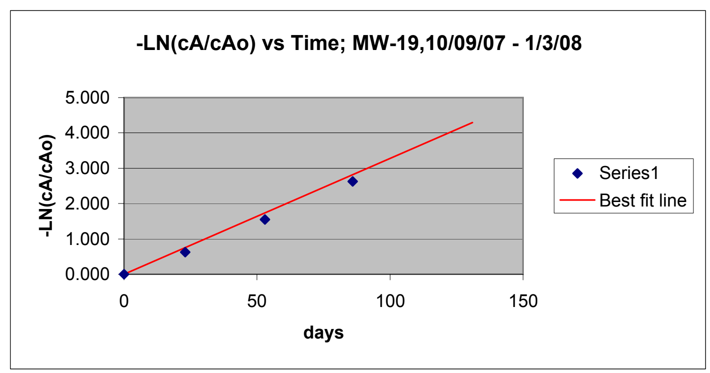
SUMMARY OUTPUT: 10/9/07 - 1/3/08

Regression Statistics	
Multiple R	0.9990314
R Square	0.9980637
Adjusted R Square	0.6647304
Standard Error	0.050341
Observations	4

ANOVA

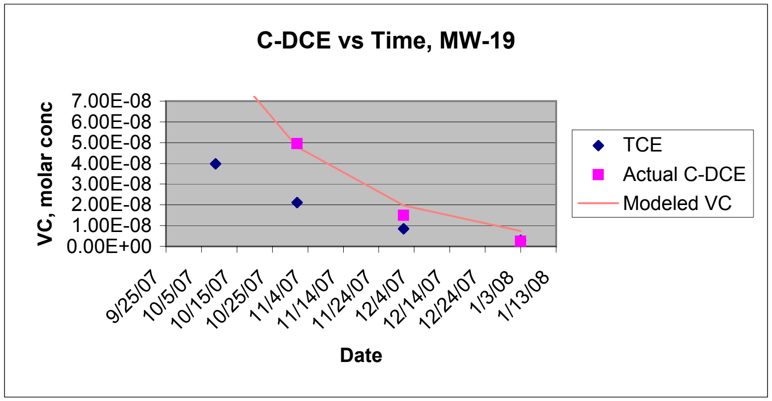
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3.918793	3.91879276	1546.354	0.000646056
Residual	3	0.007603	0.00253421		
Total	4	3.926395			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	0.0300494	0.000486	61.8437047	9.31E-06	0.028503105	0.031596	0.028503	0.031596



MW-19: Calculation of k2 for C-DCE degradation

Date	Time, days	Actual TCE molar conc	Actual C-DCE Conc	Calc. C-DCE conc	k1	Emperical k2
10/9/2007	0	3.98E-08	9.42E-08	9.42E-08	0.03	0.042
11/1/2007	23	2.12E-08	4.95E-08	4.79E-08	0.03	
12/1/2007	53	8.45E-09	1.50E-08	1.97E-08	0.03	
1/3/2008	86	2.88E-09	2.48E-09	7.40E-09	0.03	



MW-25 TCE Degradation Rate Calculation

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.959077674
R Square	0.919829984
Adjusted R Square	-1.5
Standard Error	0.26687805
Observations	1

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	1.634373453	0.544791	22.94698274	#NUM!
Residual	2	0.142447787	0.071224		
Total	5	1.77682124			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept							1.25057E-96	-1.25057E-96
X Variable 1							-4.16588E+51	4.16588E+51
X Variable 2	0	#N/A	0	1	-1.45038E+16	1.45038E+16	-1.45038E+16	1.45038E+16
X Variable 3	0.031835146	0.001127242	28.24162	0.001251426	0.02698501	0.036685282	0.02698501	0.036685282

Time, days	Calc. -LN	Actual LN
102	3.25	3.55
132	4.20	3.97
168	5.35	5.35

MW-25 C-DCE Degradation Rate Calculation

SUMMARY OUTPUT

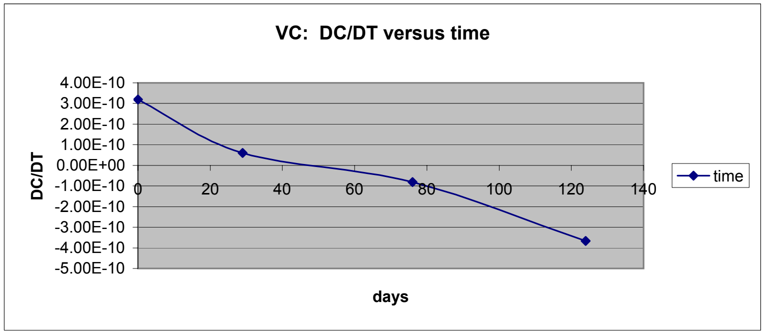
Regression Statistics	
Multiple R	0.965338521
R Square	0.931878461
Adjusted R Square	-1.14285714
Standard Error	0.248843989
Observations	1

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	8	5.929624184	0.741203	95.75751341	#NUM!
Residual	7	0.433463316	0.061923		
Total	15	6.3630875			

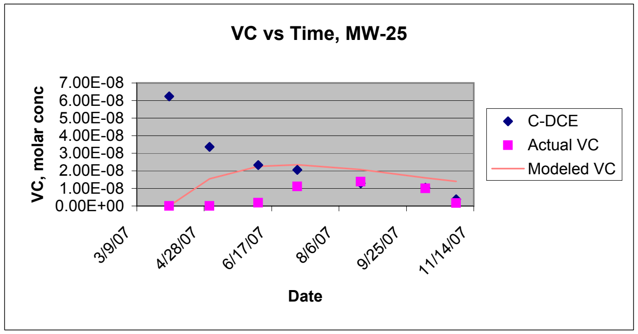
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.000488282	0.000488282	1	0.350616662	-0.00066632	0.001642884	-0.00066632	0.001642884
X Variable 1							0	0
X Variable 2							0	0
X Variable 3							0	0
X Variable 4							-1.6658E-276	4.1071E-276
X Variable 5							1.77455E-90	-1.77455E-90
X Variable 6							1.0542E+196	1.0542E+196
X Variable 7	0	#N/A	0	1	-2.4927E+196	2.4927E+196	-2.4927E+196	2.4927E+196
X Variable 8	0.011561486	0.000496558	23.28325	6.84121E-08	0.010387313	0.012735658	0.010387313	0.012735658

Time, days	30	66	95	142	190	213	243	276
Calc. -LN	0.35	0.76	1.10	1.64	2.20	2.46	2.81	3.19
Actual LN	0.62	0.99	1.11	1.58	1.8	2.81	2.9	3.06

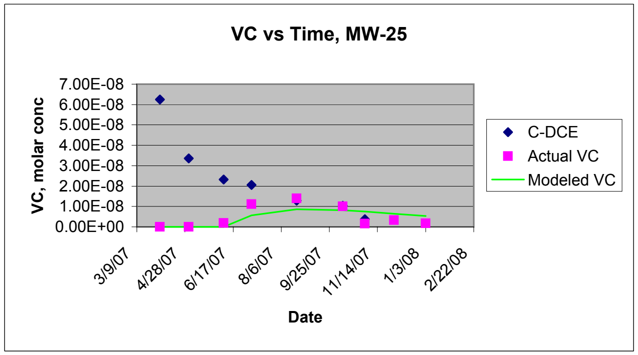


This is how I ultimately got k2 - used the soln for cb and plugged in k2 to fit the data best.

Date	Time, days	Actual C-DCE molar conc	Actual VC Conc	Calc. VC conc	k1	Emperical k2
4/2/2007	0	6.24E-08	1.60E-11	0	0.01156149	0.011
5/2/2007	30	3.36E-08	1.60E-11	1.54284E-08	0.01156149	
6/7/2007	66	2.32E-08	1.84E-09	2.26157E-08	0.01156149	
7/6/2007	95	2.05E-08	1.11E-08	2.34723E-08	0.01156149	
8/22/2007	142	1.29E-08	1.39E-08	2.06513E-08	0.01156149	
10/9/2007	190	1.03E-08	1.00E-08	1.6083E-08	0.01156149	
11/1/2007	213	3.74E-09	1.58E-09	1.39116E-08	0.01156149	



Date	Time, days	Actual C-DCE molar conc	Actual VC Conc	Calc. VC conc	k1	Emperical k2
4/2/2007		6.24E-08	1.60E-11	0	0.01156149	0.011
5/2/2007		3.36E-08	1.60E-11	0	0.01156149	
6/7/2007	0	2.32E-08	1.84E-09	0	0.01156149	
7/6/2007	29	2.05E-08	1.11E-08	5.60788E-09	0.01156149	
8/22/2007	76	1.29E-08	1.39E-08	8.64978E-09	0.01156149	
10/9/2007	124	1.03E-08	1.00E-08	8.21358E-09	0.01156149	
11/1/2007	147	3.74E-09	1.58E-09	7.51268E-09	0.01156149	
12/1/2007	177		3.28E-09	6.4498E-09	0.01156149	
1/3/2008	210		1.70E-09	5.27484E-09	0.01156149	
1/3/2009	576			2.33961E-10	0.01156149	
10/3/2009	849			1.59407E-11	0.01156149	



Former Grant Hardware Facility Feasibility Study Report Comments; Site No. 344031

Comment Resolution Form

Response to NYSDEC Division of Environmental Remediation Comments/Remarks Related to the April 2009 Revised Feasibility Study – Former Grant Hardware (ID: 344031) ; 10 July 2009 Letter		
No.	NYSDEC Comment	Response
1	Despite the fact that the groundwater concentrations of arsenic, cadmium and selenium were all below the Class GA groundwater standards, the soil concentrations of these inorganic compounds still exceed the 6 NYCRR Part 375 Soil Cleanup Objectives for Unrestricted Use. Even though DEC agreed that these inorganic compounds do not warrant any cleanup actions, the inorganic compounds should still be included in Table 1. An explanation in the text can be written up to justify the reason(s) for leaving the contaminant as-is.	Information regarding the presence of arsenic, cadmium, and selenium at concentrations above the NYSDEC SCOs has been included on the revised Table 1. An explanation justifying the reason(s) for leaving the contaminant "as-is" is provided on page 3.
2	Consistent with Comment (1), a figure for soil inorganic exceedances should be included in the Report.	This figure is provided in the final FS document as figures 4.
3	At the end of Tables 1, 2 and 3, the footnotes for SCG should reference 6 NYCRR Part 375 Soil Cleanup Objectives for Unrestricted Use.	The footnote has been updated to include the requested reference.
4	The State is still of the opinion that a full depth delineation of the clean/contaminated groundwater interface should be done prior to remedial action. It is inadequate to construct wells specifically for the purpose of injecting SRC™ compounds, and then using those same set of wells to delineate the clean/contaminated groundwater interface. This delineation work, done via invasive or non-invasive means, would be required as part of the remedial design workplan.	Neither Geovation nor Gussack Realty have previously received correspondence from the NYSDEC requesting or requiring additional "full depth" delineation of clean/contaminated water beyond that already completed at the site. There are fourteen existing overburden wells and fifteen existing bedrock wells installed at this site to delineate overburden and bedrock groundwater quality and flow direction. At six locations these wells are installed as couplets to evaluate the vertical component of groundwater flow. Additional delineation of impacted groundwater in bedrock is not required. Detailed soil sampling of shallow and deeper soil (see figures 3A and 3B of Final FS Report) show a very

		small area (approximately 30 ft. by 130 ft.) where contaminants entered bedrock. In this area, there are two existing groundwater monitoring wells and two existing groundwater treatment wells. The treatment wells were installed for and utilized in the pilot-scale bioremediation project in 2007 and with NYSDEC approval continue to be used on an ongoing basis for groundwater treatment. Delineation of impacted groundwater "prior to remedial action" is no longer possible as pilot-scale and additional ongoing remediation has already achieved significant positive results in this key area. The bioremediation program proposed in the FS document and that implemented during the pilot project utilized separate wells for SRC delivery and groundwater monitoring. At no time was it either, performed or proposed, to use the same set of wells to deliver SRC and delineate/monitor the extent of impacted groundwater. SRC product has never been deployed in either of the monitoring wells (MW-12 and MW-18) which exist in the small area where contaminants entered bedrock. Shallow bedrock monitoring well MW-12 is installed approximately 12ft. to 32ft. into bedrock, while deeper bedrock well MW-18 is installed approximately 37ft. to 47ft. into bedrock. The total depth of MW-18 is 64.5 ft. below the ground surface. The most recent round of groundwater monitoring in these wells conducted in May 2009 reports that the total VOC contaminants in shallow bedrock monitoring well MW-12 are approximately 67,000 ug/l while the total VOCs in deeper bedrock monitoring well MW-18 are approximately 140 ug/l. This recent sampling, which is

		consistent with the previous eight rounds of sampling conducted over the past year, shows that deeper bedrock is significantly less impacted than is the shallow bedrock. Furthermore, the bioremediation treatment method proposed in the FS was in-part selected because it can address uncertainty in impacted groundwater delineation. The treatment method selected is primarily a source area treatment project combined with two bio-barriers installed to protect the Hackensack River. The basis of a source area treatment project is to remediate the source area which contributes to groundwater impacts; thereby reducing and eliminating the future formation of impacted ground water. This has already been achieved in-part in the source area as demonstrated in the recent groundwater sampling results provided above. The hydraulic head is greater in shallow bedrock well MW-12 relative to deeper bedrock well MW-18 indicating a downward component to groundwater flow, which is consistent with this area's location near the top of a topographic high. The groundwater contamination created in the overburden and/or shallow bedrock (MW-12) flows outward and downward into the deeper bedrock (MW-18) and this was reflected in the data obtained from these two wells prior to remediation efforts when the contaminant concentrations were very similar in the two wells. The data collected over the last year is very different and shows that the contaminants dissolving into groundwater in the shallow bedrock are being degraded prior to their downward migration to the deeper bedrock (MW-18) and very low levels of contaminants are now discharging from the deeper bedrock. Based on the groundwater elevation data plotted on contour

		maps (FS Figure 5), regardless of a more thorough delineation of the clean/impacted groundwater interface in the deeper bedrock, impacted groundwater originating from the source area migrates toward the Hackensack River and will be treated by the bio-barriers. The proposed bioremediation program reduces and eliminates the migration of impacted groundwater from the source area and treats impacted ground water previously released (including impacted groundwater in deeper bedrock)as it upwells and passes through the biobarriers, negating the necessity for a comprehensive delineation of impacted groundwater in deeper bedrock.
5	According the Comment Resolution Form, it is mentioned that the pilot study showed that both dissolved and adsorbed phase contaminants could be degraded in-place by the use of SRC™ compounds. However, there was no mention on the reasoning that would be used to space the injection wells. If no effective distance for the TCE to ethene transformation is given, what is the radius of influence (ROI) of these SRC™ wells? Some studies to measure the density of the target microbe populations radially from an injection well would be needed to find out the ROI. These types of information would be a critical component in the remedial design work plan if bioremediation is selected as the proposed remedy.	The well spacing proposed in the FS for biobarrier wells is approximately 30 ft. in the Phase II biobarrier and ranges from less than 30 ft. to 60 ft. in the riverside biobarrier. This well spacing was based on proposed ROIs of 15ft. on the plateau and (up to) 30 ft. adjacent to the river. The greater ROI adjacent to the riverside was based on boring logs which show a coarser aquifer media to be present in that area. The concept of ROI is not directly applicable to delivery wells or SRC treatment. The radius of influence of each well can, to a large degree, be controlled by specifying the volume of product delivered, the concentration of the product, and the frequency with which the product is delivered. This control over the ROI demonstrates that well spacing is not a critical component of system design. In addition, the application of SRC to the subsurface only sets up the correct biogeochemical conditions required in groundwater to enable contaminant degradation. This ground water with low dissolved oxygen and very low redox potential

		can then diffuse and migrate to enhance bioremediation at a distance from the well. At other sites the effects of SRC treatment have been observed more than one hundred fifty feet down gradient of a delivery well and this distance has been observed to continue to increase relative to the duration of the bioremediation treatment program. The ROI can also be evaluated based on data collected during and subsequent to the pilot study. As discussed above, SRC was added to groundwater in the source area through two delivery wells over a period of approximately 25 months. Groundwater monitoring well MW-11 is located outside the source area at a distance of three hundred fifty feet from the delivery wells. Based on water table elevation data and groundwater contour diagrams (Figure 5 – Final FS), monitoring well MW-11 is positioned cross gradient from the delivery wells. Review of the concentration of total VOCs in MW-11 prior to the pilot study (8/06 – 1,521 ug/l) compared to the most recent data collected from this well (1/09 – 314 ug/l) indicates that the pilot project and subsequent remedial activities have reduced the total contaminants in this well by more than seventy nine percent. It stands to reason therefore, that monitoring well MW-11 is within the ROI of the source area treatment wells located at a distance of 350 ft. away. By this standard, the 15 ft. to 30 ft. ROI proposed in the Final FS is very conservative and more than adequate.
End		