FEBRUARY 2005
SITE ASSESSMENT REPORT ADDENDUM

Former American Beryllium Company
1600 Tallevast Road
Tallevast, Florida

LOCKHEED MARTIN

Tetra Tech
Environmental Engineers & Scientists
TC-11665-01/February 2005

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Acronyms

ABC	American Beryllium Company
AF	Arcadia Formation
AST	Aboveground Storage Tank
ASTM	American Society of Testing and Materials
ATSDR	Agency For Toxic Substances Disease Registry
CA	Contamination Assessment
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CDR	Contamination Discovery Report
COC	Contaminants of Concern
DCA	Dichloroethane
DCE	Dichloroethene
DNAPL	Dense Non-Aqueous Phase Liquid
DPT	Direct Push Technology
DW	Deep Well
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FAC	Florida Administrative Code
FAS	Floridan Aquifer System
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
FL-PRO	Florida Petroleum Range Organics
FS	Florida Statutes
GCTL	Groundwater Cleanup Target Level
GVP	Gas Vapor Probe
HA	Hand Auger
IAS	Intermediate Aquifer System
IAS/CU	Intermediate Aquifer System/Confining Unit
LTG	Leachability to Groundwater
MRL	Minimal Risk Level
MW	Monitoring Well
NSF	National Science Foundation
OVA	Organic Vapor Analyzer
PAHs	Polynuclear Aromatic Hydrocarbons
PCAR	Preliminary Contamination Assessment Report
PCE	Tetrachloroethene
PRF	Peace River Formation
PSI	Preliminary Site Investigation
PVC	Polyvinyl chloride
RCRA	Resource Recovery and Conservation Act
RE	Residential Exposure

RS	Rotosonic
SAPA	Site Assessment Plan Addendum
SARA	Site Assessment Report Addendum
SAS	Surficial Aquifer System
SCS	Soil Gas Sample
SCTL	Soil Cleanup Target Level
SIS	Site Investigation Section
SOP	Standard Operating Procedure
SWFWMD	Southwest Florida Water Management District
TAL	Target Analyte List
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbons
TRPH	Total Recoverable Petroleum Hydrocarbons
UCL	Upper Confidence Limit
USD	Undifferentiated Surficial Deposits
USGS	United Stated Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VP	Vibra-Push

Executive Summary

Tetra Tech, Inc. conducted a site assessment at the former American Beryllium Company (ABC) site located at 1600 Tallevast Road, in Tallevast, Florida. The site assessment was conducted to evaluate the nature and extent of soil and groundwater contamination at the former ABC site and in the surrounding area. This Site Assessment Report Addendum (SARA) was prepared to document the field activities conducted at the site between November 1, 2004 and January 21, 2005, and summarize the results of the investigation.

Site Assessment Objectives

- Evaluate the nature and extent of volatile organic compound (VOC) impacted groundwater in the Surficial Aquifer System (SAS) and Intermediate Aquifer System (IAS)
- Evaluate the nature and extent of VOC and metals impacted soil on site
- Evaluate the nature and extent of metals impacted soil at select locations off site
- Evaluate the nature and extent of VOC concentrations in soil gas on site and near the site
- Characterize hydrostratigraphy of IAS

Site Assessment Activities

- Reviewed available historical documents to identify potential sources and receptors for contaminants in the site vicinity, identified public and private potable water supply wells, located nearby surface water bodies, and determined surface hydrology and drainage
- Collected 48 soil samples from 16 on-site locations for fixed-base laboratory analysis
- Collected 390 soil samples from 14 off-site locations for fixed-base laboratory analysis
- Collected soil gas samples from 11 on-site locations and two off-site locations

- Collected discrete groundwater samples at 5-foot intervals from 114 locations within the SAS using a Vibra Push direct push rig equipped with the Waterloo Profiler sampling system
- Collected discrete groundwater samples at select intervals from 23 locations within the IAS using a rotosonic rig and packer testing system
- Performed source area characterization for DNAPL using the Flute system
- Installed 53 monitoring wells in SAS
- Installed 24 monitoring wells in the IAS
- Collected groundwater samples from 19 existing and 77 new monitoring wells for fixed-base laboratory analysis for VOCs and 1,4-dioxane
- Completed an aquifer characterization program to evaluate the movement of groundwater in the SAS and IAS at the site.
- Conducted over 300 pumping tests to characterize hydraulic conductivity in discrete intervals in the IAS
- Collected synoptic water level measurements from all on-site and off-site monitoring wells

Conclusions

- Groundwater occurs in four defined hydrogeolgic systems at the site; the Upper SAS (USAS), Lower SAS (SAS), IAS and the Floridan Aquifer System(FAS). Extensive characterization was performed in the USAS, LSAS and IAS, but not in the FAS during this investigation.
- Four relatively permeable units were identified by the hydraulic testing program
  - ➢ USAS sands approximately 0 to 30 feet bgs
  - ➢ LSAS sandy gravel approximately 35 to 45 feet bgs
  - ➢ Clayey gravel in the IAS approximately 90 to 100 feet bgs
  - ➢ “Salt and pepper” sand in the IAS approximately 140 to 150 feet bgs
- The majority of the IAS, including the Venice Clay and fine grained mudstone/wackestone units in the Arcadia Formation, has very low permeability.

- Concentrations of COCs in on-site soil samples slightly exceeded soil cleanup target levels (SCTLs) specified in Chapter 62-770, Florida Administrative Code (FAC) for the following compounds:
    - Arsenic
    - Beryllium
    - Copper
    - Benzo(a)pyrene
    - Dibenzo(a,h)anthracene
    - Tetrachloroethane
- Concentrations of COCs in off-site soil samples slightly exceeded SCTLs for the following compounds:
    - Arsenic
    - Benzo(a)pyrene
    - Dibenzo(a,h)anthracene
    - Lead
- No DNAPL was observed at the site
- Concentrations of COCs in groundwater samples collected from the permanent monitoring wells exceed GCTLs specified in Chapter 62-777, FAC in the SAS and IAS for the following compounds:
    - Trichloroethene
    - Tetrachloroethene
    - 1,1-dichloroethene
    - 1,1-dichloroethane
    - Cis 1,2-dichloroehtene
    - 1,4-dioxane
- There are no exposure pathways to human receptors via surface water or supply wells

Recommendations

Based upon the hydrogeological and chemical data presented in this SARA and the requirements of Chapter 62-780, FAC, it is recommended that a Remedial Action Plan (RAP) be prepared to address contaminated soil and groundwater at the site. Additional assessment activities are currently being conducted to further delineate the horizontal extent of groundwater contamination in the SAS and IAS. The results of this additional assessment will be submitted to the Florida Department of Environmental Protection (FDEP) as a supplemental letter report.

1.0 Introduction

On behalf of Lockheed Martin Corporation (Lockheed), Tetra Tech, Inc. has prepared this SARA for the former ABC site located at 1600 Tallevast Road in Tallevast, Florida. In October 2004, Tetra Tech prepared and the FDEP approved a SAPA to further evaluate the nature and extent of COCs in the subsurface soil and groundwater on site and in the vicinity of the former ABC facility. The primary objectives of the SARA are to summarize environmental investigations conducted at the ABC facility prior to approval of the SAPA, to describe the work performed and results generated during SAPA implementation, and to provide recommendations for a future course of action at the site.

These assessment activities were conducted as part of the requirements detailed in Consent Order No. 04-1328 and were conducted to comply with the applicable sections of Chapter 62-780, Florida Administrative Code (FAC) and Section 376.30701 of the Florida Statutes (FS). The version of Chapter 62-780, FAC dated July 16, 2004 was attached to the Consent Order.

1.1 SITE LOCATION

The Tallevast community, where the former ABC facility is located, is situated between the cities of Sarasota and Bradenton, Florida in southern Manatee County as shown on Figure 1-1. The community is a blend of single-family residential homes and churches, light commercial and industrial development, and heavy manufacturing as illustrated on Figure 1-2. The site is located in the northwest quarter of Section 31, Township 35 South, Range 18 East in the Bradenton, Florida United States Geological Survey (USGS) 7 ½-minute quadrangle, as shown on Figure 1-3. The former ABC property is zoned heavy manufacturing by Manatee County (Tetra Tech, 1997).

1.2 SITE DESCRIPTION AND HISTORICAL OPERATIONS

The subject site is slightly larger than five acres and is located at 1600 Tallevast Road. It is bounded by Tallevast Road to the north; 17th Street Court East to the east; a golf course, undeveloped, and residential areas to the south; and an abandoned industrial facility to the west.

Five primary buildings (designated Buildings 1 through 5) covering a total surface area of approximately 66,335 square ft are located in the central portion of the property. Surface cover consists of a landscaped storm water retention pond surrounded by grass on the west side of the site, asphalt-paved parking areas south of the retention pond and south and east of the buildings, and a grass area in the southeastern portion of the site adjoining the asphalt surface. A concrete swale is located in the driveway between the main buildings (Buildings 1 and 2) to the west and Buildings 3, 4, and 5 to the east. The swale is a pathway for storm water and slopes to a grass area at the southern end of the paved parking area. The pond located on the west side of the property was reportedly constructed in approximately 1960 and supports various wildlife, including fish and birds. During periods of heavy rainfall, this pond serves as a groundwater recharge area. A site map is provided as Figure 1-1.

Underground utilities and other man-made subsurface features underlying the site and surrounding community are illustrated on Figure 1-2.

From 1962 until 1996, the property was owned by the Loral Corporation, the parent company of ABC. The facility was operated by ABC as an ultra-precision machine parts manufacturing plant, where metals were milled, lathed, and drilled into various components. Some of the components were finished by electroplating, anodizing, and ultrasonic cleaning. Chemicals used and wastes generated at the facility included oils, fuels, solvents, acids, and metals. Operations were discontinued on September 27, 1996.

During its period of operation, the most conspicuous areas of environmental concern at the ABC facility were an Underground Storage Tank/Aboveground Storage Tank (UST/AST) area near the southeast corner of Building 1, an area on the east and northeast side of Building 5 where five sumps were located, and a hazardous materials storage yard in the southeast corner of Building 5. In the UST/AST area, there were two 1500-gallon fuel oil ASTs, a 1000-gallon AST used for solvent storage, and a 550-gallon gasoline UST.

The property is currently owned by BECSD, LLC and operates as Wire Pro Inc. (WPI). WPI is a privately owned connector and cable assembly manufacturing organization that offers a wide range of commercial, industrial, and military products. These products include cable harnesses and assemblies, connectors, and board-level components. The buildings, landscaping, and surface features of the property are essentially the same today as they were when Lockheed purchased the property in 1996.

1.3 SURROUNDING PROPERTIES

Properties adjoining the subject site and other properties in the site vicinity are illustrated on Figure 1-2. The most conspicuous features in the vicinity are the Sarasota-Bradenton International Airport to the southwest of the site, a golf course/driving range adjoining the site to the south, an abandoned industrial facility (formerly Spindrift and Wellcraft) adjoining the site to the west, a Citgo station approximately 500 feet northwest of the site, and a north-south spur of the Seminole Gulf railroad which intersects Tallevast Road approximately 200 feet east of the site. Aside from these features, surrounding properties are primarily single-family residences. Several small churches and the Tallevast Community Center are also nearby.

1.3.1 Potential Offsite Sources of Contamination

Properties that represent current or past potential off-site sources of contamination include the former Wellcraft/Spindrift facility adjoining the site to the west, the Citgo station northwest of the site at the corner of Tallevast Road, a former auto parts salvage yard south of the site where the golf course is currently located, and the Sarasota/Bradenton airport to the southwest.

The former Wellcraft/Spindrift facility has been out of service since the early 1990s. The FDEP Facility ID Number for this facility is 419400942. Historical operations at the facility included metal plating, electronics manufacturing, and fiberglass boat building. An environmental assessment was performed at the site in 1993 and 1994 and was focused on a 500-gallon fuel oil AST which was removed in October 1993. After removal of the AST, approximately 25 tons of excessively contaminated soil (fuel oil constituents) was removed and seven monitoring wells were subsequently installed in and around the former AST location to assess groundwater quality. Low PAH concentrations were reported near the source, but no exceedances were reported. During the assessment, the direction of groundwater flow at the site was determined to be to the west, away from the former ABC facility. FDEP issued a Site Rehabilitation Completion Order for the site on February 7, 1996, approving No Further Action.

1.4 TOPOGRAPHIC SETTING

The former ABC facility is located on a gently sloping plain at an elevation of approximately 30 feet above mean sea level (msl). The site is inland approximately 1.5 miles east of Sarasota Bay and approximately 5.75 miles from the Gulf of Mexico. The ground surface immediately around the former ABC site has very low relief and slopes gently in a radial pattern from the site to off-site locations. The ground surface declines from approximately 30 feet above msl at the site to 25 feet above msl to the west near the intersection of Tallevast Road and 15th Street East. Further west, surface elevations decrease to approximately 15 feet above msl just north of the Sarasota-Bradenton Airport. The elevation contours show a very gentle slope from approximately 30 feet above msl at the site to 25 feet above msl approximately 2000 feet north, northeast, southeast, and southwest of the site. Approximately six small surface water bodies are depicted on the Bradenton 7 ½ minute quadrangle within a one half mile radius of the site.

1.5 REGIONAL GEOLOGY AND HYDROGEOLOGY

In January 1995, Southwest Florida Water Management District (SWFWMD) published a report entitled "ROMP TR-7 Oneco Monitor Well Site, Manatee County, Florida," describing drilling and testing of a well completed to a depth of 1,715 feet bgs at a site located approximately 2 ½ miles north of the former ABC facility in southwestern Manatee County. Information presented in the following discussion was derived, in large part, from data provided in the SWFWMD report.

From the surface downward, sediments underlying southern Manatee County consist of:

undifferentiated surficial deposits (Pliocene to Recent);
the Peace River Formation (PRF) and Arcadia Formation (AF) (undifferentiated) (Miocene);
the Tampa Member of the AF and Suwannee Limestone (Oligocene); and
a thick sequence of marine carbonates, including the Ocala Limestone and Avon Park Formation (Eocene).

The surficial deposits consist predominantly of quartz sand and are generally less than 40 feet thick in the region. They unconformably overlie deposits of the PRF, which, in the study area, consists of a clay known as the Venice Clay. The contact between the Venice Clay and the underlying undifferentiated AF was reported at a depth of 48 feet bgs by SWFWMD (1995). Undifferentiated Arcadia deposits consist predominantly of clayey calcilutites and phosphatic/quartz sand calcilutites and calcarenites with intercalated thin clay beds. These deposits extend to a depth of approximately 332 feet bgs (SWFWMD, 1995). The underlying Tampa Member of the AF consists primarily of quartz sandy moldic limestone and dolomitic limestone, and is the uppermost unit of a thick sequence of marine carbonates comprising the Florida platform.

From a hydrogeological standpoint, three aquifer systems, consisting of, from top to bottom, the SAS, the intermediate aquifer system/confining unit (IAS/CU), and the Floridan aquifer system (FAS), are recognized in southwest Florida. The FAS is subdivided into an Upper and Lower section separated by a confining unit.

The SAS is comprised of undifferentiated surficial deposits. The IAS/CU includes all water-yielding units and confining units between the overlying SAS and the underlying FAS, and is composed of sand, phosphate, silt, clay, and carbonate, and various combinations of these. Individual units within the IAS/CU have a wide range of thicknesses. The Upper FAS consists of the Tampa Member of the AF, the Suwannee and Ocala Limestones, and the upper part of the Avon Park Limestone. Water within the SAS is present under unconfined conditions, whereas water in the IAS/CU and FAS is present under confined (in places artesian) conditions.

Transmissivity values of the SAS in south-central Manatee County have been calculated at 1,000 to 2,000 ft^2/d, although in western and coastal Manatee County, the transmissivity may be as high as 7,000 ft^2/d, which is a function of the coarser nature of the sand interbedded with shelly limestones and shell fragments (SWFWMD, January 1995).

Based on regional hydrogeologic studies conducted by the SWFWMD, leakance of the uppermost intermediate confining beds near the western coast of Manatee County is about $7x10^{-6}$ feet per day per foot [(ft/d)/ft]. These clays overlie the water-yielding units of the IAS/CU, which consist of moderately transmissive moldic beds of phosphatic / quartz-sandy calcilutites and calcarenites, and unconsolidated sands within the lower AF. The direction of groundwater flow within the IAS/CU is generally westward. Transmissivity in the IAS/CU has been reported to range from 700 to 1500 ft^2/d. Well yield has been reported at 10 gallons per minute (gpm) at shallower portions of the aquifer and 45 to 50 gpm at deeper portions of the aquifer (SWFWMD, January 1995).

1.6 PREVIOUS SITE INVESTIGATIONS AND INTERIM REMEDIAL ACTIONS

Shortly after acquiring the property from the Loral Corporation on November 24, 1996, Lockheed authorized Tetra Tech to perform a Phase I ESA at the facility. Following is a summary of assessment activities which transpired from completion of the ESA to approval of the SAPA.

1.6.1 Phase I Environmental Site Assessment (Tetra Tech, February 7, 1997)

A Phase I Environmental Site Assessment was conducted at the ABC site in January 1997. During the ESA, 21 potential sources of contamination were identified at the ABC facility.

1.6.2 Preliminary Site Investigation (August 1997 to January 2000)

Beginning in August 1997, Lockheed performed a voluntary Preliminary Site Investigation (PSI) in advance of an anticipated property sale, collecting soil samples for laboratory analysis from the 21 potential contaminant sources identified during the ESA. Soil analytical results were documented in a PSI Report dated October 20, 1997. Initially, beryllium was identified in the Building 5 sump area and arsenic in the evaporation pond at concentrations exceeding their respective FDEP SCTLs. In October, 1999, however, due to a pending land sale, the soil analytical data were evaluated against FDEP's updated (August 1999) guidelines. The evaluation indicated that Total Petroleum Hydrocarbon (TPH) concentrations exceeded criteria for direct industrial exposure in soil samples collected adjacent to four sumps located within Building 5. As a result, the sumps were removed and an excavation was completed to remove TRPH contaminated soil surrounding the sumps. In addition, groundwater samples were collected at and near the former sump locations, and additional soil samples were collected from the sidewalls and bottoms of the sump excavations. These tasks were completed in early January 2000.

1.6.3 Phase I ESA, Law Engineering and Environmental Services, Inc. , December 1999 to January 2000

Law Engineering, working on behalf of WPI, performed a Phase I ESA at the subject site prior to WPI's purchase of the property from Lockheed. Results are documented in a Phase I ESA Report (Law, 2000).

1.6.4 Initiation of Dialogue with FDEP

On January 28, 2000, Lockheed sent a copy of Law's Phase I ESA and a Contamination Notification Form summarizing findings of the PSI to FDEP. FDEP responded in a letter dated June 7, 2000 requesting that a Contamination Discovery Report (CDR) be prepared within 30 days, a Contamination Assessment Plan (CAP) detailing a strategy for assessing the extent of contamination be submitted, and a comprehensive contamination assessment be performed to assess the nature and extent of solvent and metal detections at the site.

1.6.5 Contamination Discovery Report (Tetra Tech, July 7, 2000)

The CDR was submitted to FDEP with an attached copy of the PSI Report on July 7, 2000. These documents included a description of sump and soil removal activities and analytical data reported on soil and groundwater samples collected before and after the removal action. Results indicated that TRPH concentrations in soil samples collected from the bottoms and sidewalls of the four excavations where the sumps were formerly located exceeded industrial SCTLs and that three solvent compounds [trichloroethene (TCE), tetrachloroethene (PCE), and 1,1-dichloroethene (DCE)] and two metals (beryllium and chromium) were present in shallow groundwater samples at concentrations exceeding FDEP GCTLs. TRPH concentrations in the groundwater samples were below GCTLs.

After reviewing the CDR and PSI Report, FDEP responded to Lockheed in a letter dated August 24, 2000 and requested that a CAP be submitted within 30 days. The CAP was submitted on September 25, 2000, and following several modifications requested by FDEP, approved in January 2001.

1.6.6 Contamination Assessment (February, 2001)

The initial Contamination Assessment (CA) was performed in February 2001 and was conducted according to procedures described in the approved CAP. The original Contamination Assessment Report (CAR) was submitted to FDEP on April 30, 2001. The initial CA was confined to the subject site. Fourteen soil borings were completed in the sump area around Building 5. Soil samples were collected for laboratory analysis at depths of 3 feet and 6ft bgs from the borings. TPH, beryllium, and chromium were identified at concentrations exceeding regulatory criteria in at least one of the samples analyzed. Ten VOC compounds, including chlorinated solvents and petroleum hydrocarbons, were identified in the soil samples, but no exceedances were reported. Soil samples were also composited from 0 to 1 feet bgs and from 1 to 2 feet bgs at four locations in and around the former evaporation pond to determine the extent of arsenic previously reported in that area. Arsenic was only detected in one of the eight samples and no exceedances were reported.

Fourteen groundwater monitoring wells (10 temporary wells designated TT-HP and 4 permanent wells designated TT-MW) were installed and sampled to evaluate the extent of VOCs, TPH, and metals in groundwater at the former sump area and the area down gradient (southeast) of Building 5. The permanent wells were designated MW-1 through MW-4. VOCs (specifically chlorinated solvents), beryllium, and chromium were detected in groundwater samples at values exceeding GCTLs at the Building 5 sump area. Beryllium and chromium were only identified in the immediate vicinity of the former sumps. However, chlorinated VOCs were reported in virtually all of the groundwater samples, including those collected near the southeastern, northern, and northeastern property boundaries, implying off-site migration of these constituents. In addition to previously reported solvents (TCE, PCE, and 1,1-DCE), vinyl chloride and 1,1-dichloroethane (DCA) were also identified at concentrations exceeding GCTLs.

1.6.7 Source Removal Action , September 2001

A source removal action was conducted in September 2001 to remove soil with elevated COC concentrations in the Building 5 sump area. The remedial excavation encompassed an approximate surface area of 2,400 square feet and extended to a depth of 5 feet bgs. A total of 538 tons of impacted soil was excavated and 14 confirmation soil samples were collected from the excavation. No beryllium, chromium, or VOC exceedances were reported in the confirmation samples. However, TPH exceedances were reported in a thin lens of inaccessible soil underlying Building 4. The residual impacted soil beneath Building 4 could not be excavated. Details of the soil removal action are presented in an Initial Remedial Action Report (Tetra Tech, December 12, 2001).

1.6.8 Supplemental Groundwater Assessment, December 2001-January 2002

In December 2001, additional temporary monitoring wells were installed and sampled both on site and off site to assess the extent of VOCs in groundwater. The wells were completed at two depth intervals, 10 and 20 feet bgs. The 10-ft wells were screened 4 to 10 feet bgs and the 20-ft wells were screened 15-20 feet bgs. A total of 23 groundwater samples was collected for analysis. All groundwater samples were analyzed for VOCs and select samples were analyzed for TPH, beryllium and chromium.

VOCs were detected in each of the 23 groundwater samples that were collected both on site and off site. Of the VOCs detected, 1,1-DCA and TCE were reported at the highest frequency and concentrations. Higher concentrations were reported at 20 feet than at 10 feet bgs.

Based on analytical data, the upgradient extent of 1,1-DCA and TCE west of Buildings 1 and 2, and the downgradient extent of TCE south of the Building 5 former sump area required additional delineation. The data also showed that the extent of TCE off site (northeast and east of the property boundary) had not been defined. Based on these results, further assessment of groundwater was recommended to delineate the extent of TCE.

TPH and beryllium were not detected in any of the groundwater samples analyzed. Chromium was detected in five of six samples analyzed, but none of the reported concentrations exceeded the GCTL. Based on these results, no further groundwater investigation of TPH or metals was warranted.

In response to an FDEP letter dated August 27, 2001, a permanent monitoring well (DW-1) was installed southeast of the Building 5 sump area in January 2002 to evaluate the presence of VOCs in the deeper IAS/CU. The well was installed to a total depth of 92 feet bgs with a 10-ft screen at the base (i.e., 82 to 92 feet bgs). As required by FDEP, the well was dual cased with a 6-inch diameter surface casing set to a depth of 44 feet bgs to prevent potential cross-contamination from the upper water-bearing zones. A groundwater sample collected from DW-1 contained several VOC compounds normally associated with chlorinated tap water, but no chlorinated solvents were identified.

1.6.9 <u>Delineation Investigation (December 2002 through March 2003)</u>

A delineation investigation was conducted from December 2002 through March 2003 to define the extent of chlorinated VOCs in groundwater as mandated by analytical results reported during the preceding (December 2001) sampling event. The delineation investigation was conducted in accordance with Tetra Tech's approved Contamination Assessment Plan Addendum #2 (CAPA), dated September 13, 2002, and FDEP's guidelines outlined in Corrective Actions for Contamination Site Cases.

A two-phased approach was used to delineate the extent of the VOC plume. During Phase 1, groundwater grab samples were collected at 16 new locations more distant from the suspected source area(s) than locations previously investigated. As in previous investigations, samples were collected from depths of 10 and 20 feet bgs. At some new locations, temporary monitoring wells were installed to collect groundwater grab samples, and at other locations, samples were collected from stainless steel screen point samplers using Direct Push Technology (DPT). Temporary wells and DPT screen point locations were designated "TT-HP". Samples were also collected from select locations previously sampled, including seven existing 20-ft deep temporary wells and one existing 20-ft permanent well on site (MW-4). Samples collected during Phase I were analyzed by an on-site mobile laboratory.

Based on results of the Phase I analyses, 19 permanent monitoring wells were installed at 12 discrete locations during the Phase II delineation (February 2003). Three single 20-ft deep wells [TT-MW10 (MW-10), MW-11, and MW-12)] were installed on site in and downgradient of the suspected source area(s); two single 10-ft deep wells (MW-5 and MW-6) were installed on site between the pond and Buildings 1 and 2, upgradient (west) of the source area(s); two well pairs [MW-7 (S and D) and MW-8 (S and D)] were installed on site to the south of Building 2 near the southern property boundary, upgradient (south) of the source area(s); and 5 well pairs [MW-9 (S and D), and MW-13 through MW-16 (S and D)], intended to be point-of-compliance wells, were installed off site at the inferred plume boundary, either crossgradient or downgradient of the source area(s). Each well pair consisted of a 10-ft deep well screened 4 to 10 feet bgs ("S" well) and a 20-ft deep well screened 15 to 20 feet bgs ("D" well).

Following installation and development, groundwater samples were collected from the 19 new wells and from three existing on-site wells, including DW-1, and analyzed for chlorinated VOCs by a certified fixed-base laboratory.

1.6.10 Contamination Assessment Report (Tetra Tech, May 2003)

Analytical results reported on groundwater samples collected during the delineation investigation discussed in the preceding section are documented in a CAR submitted by Tetra Tech on May 23, 2003. No GCTL exceedances were reported in samples collected from 10 feet bgs ("S" wells) during either phase of the assessment. However, in samples collected from 20 feet bgs ("D" wells), concentrations exceeding GCTLs were reported for the five chlorinated VOCs which had been previously identified at elevated levels (PCE, TCE, 1,1-DCA, 1,1-DCE, and vinyl chloride). Of these, TCE and 1,1-DCA were reported most frequently and at highest concentrations.

Laboratory analytical results from permanent monitoring wells installed and sampled during Phase II of the investigation indicated that various chlorinated VOCs were detected in the on-site 20-ft deep wells (MW-10, -11, and -12), at concentrations that exceeded their respective GCTLs.

Concentrations of chlorinated VOCs in the upgradient or point-of-compliance wells situated near or outside the inferred plume boundary were either non-detect or contained some trace detections below action levels. TCE was reported at a concentration of 1.9 µg/L in the sample collected from deep well DW-1 screened in the IAS/CU. No chlorinated VOCs were identified in samples originally collected from this well immediately after its installation in January 2002.

A groundwater elevation contour map, generated from depth-to-water measurements obtained during the delineation investigation, showed radial flow from the south central portion of the ABC property outward to the northwest, north, northeast, east, and southeast. This flow pattern was attributed, in part, to potential mounding of groundwater in this part of the site due to frequent irrigation of the golf course adjoining the site to the south and southwest.

1.6.11 *Post-CAR Monitoring*

Tetra Tech conducted three monitoring events at the site after the CAR was submitted and approved. The monitoring events were performed in September and December 2003 and March 2004. During each event, groundwater samples were collected from 26 of the SAS monitoring wells and analyzed for VOCs and total metals. In addition, depth-to-water was measured and samples were field-analyzed for select natural attenuation parameters at each well location.

Little change in COC concentrations was observed in the 10 to 20 feet bgs zone between the time of the delineation investigation and the third sampling event During the sampling events, exceedances were still reported in the on-site plume core wells, MW-10, -11, and -12. Despite some chlorinated VOC detections in the perimeter wells, concentrations remained virtually unchanged from previous sampling events and no exceedances were reported.

As in previous assessments, groundwater elevations were consistently higher in the southwestern and south central portion of the site with components of flow extending radially to the northwest, north, northeast, east, and southeast.

1.6.12 Residential Well Sampling and Geophysical Logging, May through July 2004

In November 2003, Lockheed held a community outreach meeting with the residents of the Tallevast community. During this meeting, local residents informed Lockheed and FDEP that numerous private potable and irrigation wells existed near the former ABC facility and some wells were still being used by residents within the Tallevast community. Additionally, residents indicated that fill material originating from the ABC facility had been distributed to several properties to fill in low areas.

Based on the information provided by the residents, composite soil samples were collected from properties reported to have accepted fill from the ABC site in the past. With the exception of arsenic in one sample, concentrations of COCs were below SCTLs in all samples.

In May and July 2004, groundwater samples were collected by Tetra Tech personnel from 29 private wells identified in the surrounding community. Information stating location, casing depth (if applicable), and total depth of these private wells is presented in Table 1-1.

The samples collected in May and July 2004 were submitted to a fixed-base laboratory for analysis of VOCs. Concentrations exceeding GCTLs were reported for at least one targeted constituent in 17 of the 29 well samples. The largest number of exceedances (8) and, generally, the highest concentrations were reported in a sample collected from a 26-ft deep irrigation well located on a property adjoining the ABC facility to the north and east at the corner of Tallevast Road and 17th Street Court East. TCE was reported at a concentration of 5400 micrograms per liter (µg/L) in this well.

In June and July 2004, geophysical logging (including natural gamma, induction, and caliper logging) was performed on 22 residential wells in the site vicinity by Technos, Inc. of Miami, Florida under subcontract to Tetra Tech.

The purpose of the geophysical study was to determine construction details of the residential wells and to improve understanding of subsurface lithology by correlating high- and low-response zones on the logs.

The logs revealed that all but two of the wells were constructed with driven steel casing. The other two were constructed with driven polyvinyl chloride (PVC). In one well, steel casing extended to 63 feet bgs. The other casing depths ranged from 28 to 40 feet bgs. There was no indication of screened intervals in any of the wells. Open hole conditions were present below the casings. Total depths ranged from 26.2 feet bgs to 233.1 feet bgs. Technos concluded that the steel-cased wells were in poor and deteriorating condition, that some wells were being fully or partially recharged through corrosion holes in the casing, and that the well construction observed precludes the use of bentonite seals. No bentonite seals were identified within the natural gamma logs.

Subsurface stratigraphic information derived from the geophysical logs appreciably expanded knowledge of lithology subjacent to the site and surrounding area. A northwest-to-southeast cross-section was generated from geophysical log interpretations and from soil descriptions obtained during installation of deep monitoring well DW-1 on the ABC property. This cross-section was presented in the SAPA. Information shown on that cross-section has been incorporated into an expanded compilation of subsurface information obtained during the recently-completed post-SAPA investigation. Updated lithologic profiles and a comprehensive discussion of site stratigraphy based on recent and historic subsurface investigations are presented below in Section 3.1.

1.6.13 FDEP Site Investigation Section (SIS) Report, July 2004

At the request of the FDEP Southwest District office, The Site Investigation Section (SIS) of FDEP conducted a Preliminary CA of the ABC site and surrounding Tallevast Community in June 2004 and issued its report (SIS Report Number 2004-01) in July 2004. To complete the assessment, SIS:

- Collected 20 electric conductivity logs (ECLs) and two continuous sediment cores by DPT until refusal (average depth 30 feet bgs ±) to assist in determining thickness and lithologic composition of the SAS;
- Collected 39 groundwater grab samples from the SAS, mostly near its base, using DPT screen point samplers. Samples were collected adjacent to many existing Tetra Tech monitoring wells, select irrigations wells, and potential source areas both on and off site and analyzed for VOCs;
- Collected groundwater samples from all existing Tetra Tech monitoring wells except the MW-15 pair (presumably destroyed) and from seven select irrigation wells in the Tallevast community for VOC analysis;
- Surveyed top-of-casing elevations tying in Tetra Tech monitoring well elevations with those of select monitoring wells on the former Spindrift facility and the active Citgo station, and obtained two sets of depth-to-water measurements from the surveyed wells to evaluate flow patterns in the SAS;
- Collected 129 soil samples from private properties in the Tallevast community that reportedly accepted fill material from the former ABC site; samples were analyzed for VOCs, SVOCs, TRPH, and metals (including mercury); and
- Surveyed coordinates of all sample collection data points using a Trimble Geo XT GPS system.

The ECLs and sediment cores indicated that the SAS has an average depth of approximately 30 feet in the area under investigation. In their study, SIS encountered groundwater 3 to 5 feet bgs. Their data supported the premise that groundwater in the SAS flows radially outward from the south central portion of the site near MW-7 and MW-8, with predominant flow directions toward the northwest, north, northeast, east, and southeast.

Laboratory analyses reported on samples collected by SIS from the Tetra Tech monitoring wells were comparable to those previously reported by Tetra Tech. However, results of screen point samples collected from the base of the SAS revealed a larger plume with higher concentrations of chlorinated VOCs than observed at 20 feet bgs during the assessment conducted by Tetra Tech. Plume dimensions were extended to the south and east after incorporating the SIS screen point sample data.

One or more chlorinated VOC exceedances were reported in five of the seven off-site irrigation wells sampled by SIS. Results were comparable to those previously reported by Tetra Tech.

Three metals, three SVOC compounds, and TRPH were identified at concentrations exceeding residential SCTLs in the off-site soil samples collected by SIS. Following is a list of these analytes with number of exceedances in parentheses reported out of 129 samples analyzed: arsenic (19), barium (1), lead (1), benzo(a)pyrene (18), benzo(b)fluoranthene (1), dibenzo(a,h)anthracene (1), and TRPH (2). A proposal to increase the arsenic residential SCTL from 0.8 milligrams per kilogram (mg/kg) to 2.1 mg/kg is currently under consideration. If approved, the number of arsenic exceedances reported in these soil samples will be revised from 19 to 4.

In conclusion, SIS stated that the former ABC facility was the source of chlorinated VOCs in the SAS based primarily upon a reported TCE concentration of 29,000 µg/L (35,0000 µg/L in duplicate) in a screen point sample collected at the base of the SAS adjacent to the former sump locations near Building 5. Judgment on the source of chlorinated VOCs identified in the IAS/CU (off-site private wells) was withheld pending further investigation. However, several factors, including similarity of chemical character and presence of targeted constituents in the IAS/CU hydraulically downgradient of the former ABC facility, suggested a common source area for COCs identified in the two aquifer systems.

Preliminary data showed a downward hydraulic gradient in the area, suggesting recharge of the IAS/CU from the overlying SAS. In addition to the downward hydraulic gradient, the open hole construction of the nearby private supply wells provides additional potential migration pathways between the SAS and IAS/CU. The primary objectives of the field work completed between November 2004 and January 2005, as stated in the SAPA, were to determine the areal and vertical extent of contamination within the IAS/CU and to assess aquifer characteristics which, when more fully understood, will aid in developing a remedial strategy in the impacted area.

1.7 WELL INVENTORY

A water supply well inventory was conducted in the Tallevast community surrounding the former ABC site to identify any potable water supply wells and irrigation wells within ¼ mile radius of the site. Thirty-six wells were identified during the inventory, 17 potable water supply wells, 17 irrigation wells and two wells of unknown purpose. After identifying the wells, geophysical logging was conducted in July 2004 on accessible wells to determine construction details. Wells that were accessible ranged in depth from 26 feet bgs to 233 feet bgs. Casing diameters, where known, ranged from two inches to eight inches. An irrigation well is located on the golf course southwest of the site. According to the golf course operator, this well is 400 feet in depth. In addition to the field reconnaissance, an EDR database search was also conducted to identify any municipal supply wells within ½ mile of the site. The database search revealed no municipal supply wells within ½ mile of the site. Water supply wells identified in the Tallevast community surrounding the former ABC facility are listed in Table 1-1. Their locations are shown on Figure 1-5.

In addition, it was reported by a former ABC employee that a 6-inch diameter, approximately 400-feet deep well was once located on the former ABC site. Geophysical methods, including ground penetrating radar and electromagnetic sensing were be used to attempt to locate this well. In addition, historical aerial photographs were reviewed and a records search was conducted at the Manatee County Building Department to attempt to locate any site plans that might show the location of the reported well.

The geophysical surveying, aerial photograph review and records search did not provide any indication of the location of the alleged well. A copy of the geophysical surveyors report is provided in Appendix A.

2.0 Investigative Methodology

2.1 QUALITY ASSURANCE

Field methods used to conduct this Site Assessment and the organizational format for data presentation used in this SARA are in accordance with those described in Chapter 62-780 F.A.C. This site assessment was conducted in accordance with the FDEP's SOPs for Field Activities (DEP-SOP-001/01) (FDEP, 2002). Equipment used to advance the soil borings, install monitoring wells, and collect soil or groundwater samples was decontaminated prior to and following each use according to the FDEP SOP. Groundwater generated during well development and sampling was containerized in roll-off boxes or Baker Tanks and staged for proper disposal pending laboratory analysis. Organic vapor concentrations were measured with a PhotoVac Micro-FID organic vapor analyzer (OVA) equipped with a flame ionization detector (FID). Prior to each day's activities, the OVA FID was field calibrated with 100 parts per million (ppm) methane in air span gas in accordance with the manufacturer's directions.

Soil and groundwater samples collected for fixed-base laboratory analysis were collected in containers provided by the laboratory. Where appropriate, sample containers were pre-preserved as specified in DEP-SOP-001/01. As part of the groundwater sampling event, quality control samples (e.g., equipment blanks and trip blanks) were prepared and submitted to the laboratory as required by DEP SOP 001/01. Sampling activities were documented in site-specific field logbooks, and samples were transmitted under chain-of-custody protocols to the laboratory.

2.2 SOIL ASSESSMENT

2.2.1 <u>On-Site Soil Sampling</u>

Soil samples were collected from 16 select locations on the former ABC property during the assessment to determine if elevated COC concentrations are still present on site and to develop a chemical signature for comparison with results of off-site soil samples. At each sampling location, grab samples were collected from depths of 0 to 6 inches, 6 to 12 inches, and 12 to 24 inches below grade. A total of 48 samples was collected. Sampling locations are illustrated on Figure 2-1.

Soil samples were collected using a decontaminated stainless steel hand auger assembly and transferred to containers provided by the laboratory. After collection, samples were placed in a cooler on ice, and following proper chain-of-custody, shipped via overnight courier to US Biosystems in Boca Raton, Florida. The samples were analyzed for VOCs by EPA Method 8260, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8310, TRPH by FL-PRO, and Target Analyte List (TAL) metals by EPA Method 6010B.

2.2.2 ***Off-Site Soil Sampling***

Soil samples were collected from 14 off-site locations where residential SCTL exceedances were reported by FDEP in their Preliminary CAR (July 2004). The off-site soil sample locations are shown on Figure 2-2. At each sampling point, one soil sample was collected adjacent to the original location and four "stepout" samples were collected 20 feet from the original sample in a grid pattern around the original location. Grab samples were collected from depths of 0 to 6 inches, 6 to 12 inches, and 12 to 24 inches below grade at each location. A total of 390 soil samples was collected for analysis.

The soil samples were collected using a decontaminated stainless steel hand auger and placed in a cooler on ice and shipped via overnight courier, following proper chain-of-custody procedures, to US Biosystems in Boca Raton, Florida for analysis. Samples collected from a 5-point array were analyzed only for the constituent or constituents reported at concentrations exceeding residential SCTLs at the original sampling point, as reported by SIS.

2.2.3 ***Soil Gas Sampling and Analytical Methods***

Soil gas samples were collected at locations on the former ABC facility and at two off-site location to evaluate the potential migration of targeted chlorinated VOCs from groundwater into the vadose zone. The objective of this investigation was to delineate the extent of any potential chlorinated VOC vapor plume and to evaluate the potential for chlorinated VOC vapor intrusion in on-site buildings and residences near the former ABC facility.

Samples were also collected in the vadose zone at five locations on site for the following parameters: TOC, VOCs in soil, VOCs in soil gas, VOCs in groundwater at the top of the water table, and grain size. As specified in the SAPA, this data was collected to calculate risk factors using the Johnson-Ettinger model if the soil gas results exceeded screening criteria.

Tetra Tech collected soil gas samples at a total of 14 locations in November 2004. The locations were estimated to have the highest potential for subsurface vapors based on the results of on-site sampling and analyses and orientation to the contaminant plume. Figure 2-3 illustrates the sampling locations.

Soil vapor samples were collected in accordance with standard operating procedures developed by the EPA Environmental Response Team (EPA, 2004). Prior to collecting samples, all locations were screened for the potential presence of underground utilities.

Samples were collected using a Gas Vapor Probe (GVP) kit with Retract-A-Tip rented from AMS Inc. The GVP kit included an asphalt and concrete drill for access through pavement. An extendable tile probe was inserted into the hole in the pavement to check for obstructions. A Bosch 11245 electric rotary drive hammer was then used to insert a hollow 5/8-inch diameter stainless steel soil gas vapor probe equipped with Teflon tubing connected to a Retract-A-Tip to an approximate sampling depth of 2 feet below ground surface. After insertion, the probe was either pulled or jacked upward to expose the tip. The pavement hole was sealed to the probe with a circular bead of modeling clay. The probe was then placed in a 2-ft square chamber made of plastic sheeting and 2x4 lumber containing a balloon filled with Helium. The Teflon tubing was connected to the sample canister and the Helium balloon was popped in the chamber.

Soil gas samples were collected in 1 liter SUMMA canisters. To collect the sample, a clean SUMMA canister was attached to the Teflon® tubing and the valve on the canister's flow controller opened to allow soil gas to be drawn into the canister under its vacuum. Soil gas samples were collected at the laboratory-set, regulator-controlled, low flow rate of 100 ml/min for approximately 15 to 20 minutes.

Collected samples were submitted to STL Laboratories in Burlington, KY for analysis using EPA Method TO-15 and for the tracer gas, helium.

2.3 GROUNDWATER ASSESSMENT

2.3.1 Strategy

A multi-faceted approach employing various methodologies was used to assess groundwater quality, determine the nature and extent of the dissolved contaminant plume(s), and develop a subsurface profile of the SAS and IAS/CU in the impacted area. The various methodologies used for the assessment included:

- installation of four borings into the basal IAS/CU to depths ranging from 297 to 335 feet bgs using rotosonic drilling techniques;
- vertical profiling of contaminant concentrations in the SAS using a Vibra-Push (VP) direct push testing (DPT) rig equipped with a Waterloo Profiler discrete interval sampling system in association with quick turnaround mobile laboratory analyses;
- source area characterization aimed primarily at establishing the presence or absence of DNAPLs and identifying source zones of groundwater contamination in support of a focused remedial strategy; and
- Coring, groundwater grab sampling, hydraulic conductivity testing, and monitoring well installation in shallower (less than 300 feet bgs) water-bearing zones of the IAS/CU at select locations using rotosonic drilling methods.

Following is a discussion of the methodologies employed during the investigation and key factors discovered along the way which influenced or altered the plan(s) of action as stated in the SAPA.

2.3.2 Deep Coring and Testing Program

Continuous 4-inch diameter cores were collected from the four deep IAS/CU borings using rotosonic drilling methods as described and illustrated on Figure 2-4. Override casings were installed during coring to reduce the potential for contaminant drag-down and allow for discrete interval testing. Coring was performed by sequentially driving a 4-inch diameter core barrel followed by a 6-inch diameter casing in increments of 10 feet. After advancing to 30 feet bgs, a 5-ft core barrel was used, and coring/casing penetration proceeded in 5-ft increments until the first significant clay was encountered. At the first significant clay, (typically 40 to 43 feet bgs), an 8-inch diameter override casing was installed a minimum of 3 feet into the clay. After setting the override casing, advancement of the core barrel and inner casing proceeded in 10 ft increments to 300 feet bgs. Deep core locations are depicted on Figure 2-5.

Hydraulic conductivity (packer-pump) tests were performed during the incremental advance of the deep cores and are discussed below in Section 2.6.2. At the end of each packer-pump test, pumping was reduced to a very low rate and, if there was adequate yield, groundwater grab samples were collected and submitted to the mobile laboratory for analysis of PCE, TCE, 1,1-DCE, cis-1,2-DCE, and 1,1-DCA by EPA Method 8260. Results of the analyses are discussed in Section 3.6.2. For quality assurance purposes, split samples were collected from 10 percent of the sample locations and shipped via overnight courier to a fixed-base laboratory for confirmation/verification of the mobile laboratory results. None of the grab samples analyzed from the four deep cores contained a VOC concentration exceeding 1 percent of its aqueous solubility, therefore there was no need for installation of additional override casing during the deep coring program.

2.3.3 *__Surficial Aquifer System__*

A two-phased approach was used to assess groundwater quality in the SAS. As in previous investigations, refusal was encountered at depths averaging 30 feet bgs across the site. The unit causing refusal was a thin (usually less than one foot), indurated dolomite-rich bed, referred to hereafter as the “hard zone” or “hard streak”. For this investigation, it was determined that this key bed did not mark the contact between the SAS and Venice Clay, but was an internal component of the SAS. It was further observed that a pronounced hydraulic head difference existed between saturated sediments overlying the hard zone compared to those underlying it. Therefore, the decision was made to subdivide the SAS into zones designated as the USAS, above the hard zone, and LSAS, below the hard zone. It should be emphasized that the criteria for dividing the SAS into upper and lower zones was not merely the presence of the hard zone, but more importantly, the pronounced difference in hydraulic head between the two zones.

Typically, the hard streak was encountered at shallower depths (i.e., less than 30 feet) north of the site than in the area to the south. The base of the LSAS, as determined by the field geologists, ranged from 37 to 55 feet bgs, but was most commonly established at approximately 40 feet bgs, or, on average, approximately 10 feet below the hard zone.

2.3.3.1 Preliminary Assessment Methods in USAS

During the preliminary assessment, groundwater grab samples were collected from the USAS using a Vibra-Push (VP) rig equipped with a Waterloo Groundwater Profiler system. Samples were collected at 114 locations and submitted to an on-site mobile laboratory for analysis. Based on groundwater analytical data obtained during this phase, a network of permanent monitoring wells was subsequently installed in the USAS using conventional hollow stem auger drilling methods. SAS sample locations are shown on Figure 2-6.

The VP rig combines a percussion hammer with high frequency vibration and static push. The combination of all three functions increases the depth capability of the VP rig while retaining the advantages of DPT (high penetration rate and minimal IDW). To prevent vertical smear and/or drag down of VOCs, a dual tube sampling system known as the Enviro-Core was used. The Enviro-Core system is a patented dual-tube or “cased” direct push sampling system developed by Precision Sampling Inc. Enviro-Core uses a small-diameter drive casing to prevent the probe hole from collapsing between sampling runs, thereby minimizing the potential for cross-contamination.

During the VP investigation, groundwater samples were collected using the Waterloo Groundwater Profiler system. This system consists of a cone-shaped stainless steel bit attached to the end of the VP drill rods. Near the bottom of the conical bit, four circular sampling ports approximately ½ inch in diameter are equally spaced in a radial array. Stainless steel screens line the interior of the sampling ports. Teflon tubing is fed through the drill string and attached to the sampling bit and formation water is pumped to the surface through the sampling ports of the bit and Teflon tubing. This system allows for discrete sampling at any desired depth from the same borehole and also allows for grouting upon tube retraction at the completion of each boring.

Groundwater samples were collected by VP at 5-ft vertical intervals beginning at 5 feet bgs and continuing to refusal at the 114 locations investigated. Surface locations were selected to aid in defining the edges of the VOC contaminant plume in the USAS and to evaluate groundwater quality in the shallow aquifer near the off-site residential wells where elevated concentrations of chlorinated VOCs were previously identified.

Groundwater samples collected by VP above the hard zone were analyzed for the five COCs by the mobile laboratory using EPA Method 8260. Split samples were collected from 10 percent of the locations and shipped via overnight courier to U.S. Biosystems for fixed base laboratory analysis for confirmation of the mobile laboratory results.

2.3.3.2 Preliminary Assessment Methods in LSAS

Since groundwater grab samples could not be collected between the hard zone and the top of the Venice Clay by VP methods due to refusal, permanent monitoring well samples were used for preliminary assessment of the LSAS. Permanent LSAS wells were initially installed on site at five source area locations near Building 5 and in the parking lot south and east of Building 5. Subsequently, 15 additional "stepout wells" were installed in a radial array more distant from the source area in order to assess contaminant distribution and lateral extent in the LSAS. Samples were collected immediately after installation and development of these wells and analyzed by the mobile laboratory. Samples collected from these permanent wells and select samples collected during the rotosonic drilling from discrete intervals between the hard zone and Venice Clay were used for preliminary assessment of LSAS groundwater quality.

2.3.4 Monitoring Well Installation, Construction and Development

Seventy-seven permanent monitoring wells were installed during the additional assessment activities at the former ABC facility and surrounding area after preliminary testing and screening was completed. Screened intervals of monitoring wells were determined after reviewing data obtained from the preliminary assessment/vertical profiling. Wells installed in the SAS were completed with 5-ft screened sections. Screened sections of wells drilled to intermediate depths in the IAS/CU were 10 feet in length with the exception of one well which was constructed with a 20-ft screen. A laterally extensive stratum (the Salt and Pepper sand) that consistently yielded water during coring/testing activities was identified in the IAS/CU between 135 and 160 feet bgs; thus, most of the IAS/CU wells were screened within this interval. Wells placed in the deep zone of the IAS/CU were completed with 20-ft screens. Monitoring well locations are shown on Figure 2-7.

Some SAS wells were installed using hollow stem auger drilling methods and others were installed using rotosonic drilling techniques. All IAS/CU wells were installed by rotosonic methods. Wells other than the deep IAS/CU wells were constructed with 2-inch inside diameter (ID) Schedule (SCH) 40, flush-joint PVC riser and 0.01-inch factory slotted well screen. The deep IAS/CU wells were constructed with SCH 80 PVC screen and riser. Each section of casing and screen was National Sanitation Foundation (NSF) approved. After attaining total depth, wells were installed through the augers (hollow stem auger wells) or through the casing (rotosonic wells).

Clean silica sand filter pack of U.S. Standard Sieve Size Number 20/30 was installed in the annular space around each well screen. Ideally, sand packs were poured from the bottom of the boring to approximately 2 feet above the top of the well screens and a minimum 2-ft thick 30/65 fine sand seal was installed above the sand pack. Type I Portland cement/bentonite grout was pumped into the remaining annulus from bottom to top using a tremie pipe. The depths of backfill materials were monitored during the well installation process by means of a weighted fiberglass tape to assure accuracy of placement of the desired construction materials. Monitoring wells installed in the IAS/CU using rotosonic methods were constructed and grouted through retrievable casings.

Eight-inch diameter manholes equipped with steel covers were installed at the surface around the 2-inch wells. Manholes were constructed of a 22-gauge water-resistant steel welded box with a 3/8-inch thick steel lid. A 2-ft x 2-ft x 6-inch thick concrete apron was constructed around each manhole. Manholes were completed 2 inches above grade and the aprons were tapered to be flush with the surrounding surface at the edges to facilitate stormwater runoff away from the well.

Expandable gasket caps with keyed alike locks were affixed to the top of each PVC well for security.

Monitoring wells were developed no sooner than 24 hours after installation to remove fine material surrounding the screened interval. Wells were developed using a submersible pump. Field parameters pH, temperature, specific conductance, and turbidity were measured periodically during development. Wells were developed until field parameters stabilized and purge water was visibly free of sand.

After installation, the top of the PVC riser pipe of each well was surveyed by a surveyor licensed in the State of Florida (Barrett Surveying) to within 0.01 foot vertical accuracy relative to a known USGS benchmark.

2.3.5 Source Area Characterization

Vertical profiling of groundwater quality in the SAS, as described in the section above, was performed at 13 locations in the source area on site. Data reported in the FDEP Preliminary CAR (July 2004) indicated that TCE was detected in the source area at a concentration of 35,000 µg/L, suggesting the potential presence of DNAPL. The objective of the source area investigation was to pinpoint areas of highest VOC concentrations and/or DNAPL presence in order to facilitate future remediation.

Permanent SAS monitoring wells were completed at eight of the 13 VP locations in and around the source zone. In addition to groundwater sampling at 5-ft vertical intervals to the base of the SAS, continuous cores were retrieved via VP at five locations in the parking lot area on the eastern portion of the site (inferred source area) and visually inspected for contamination. Cores were screened for contaminant vapors using a FID, photographed, logged, and inspected for DNAPL using the Flute method and other visual means. No DNAPL was visually observed or detected by the Flute test.

2.3.6 ***Fixed-Base Groundwater Sample Collection and Analytical Methods***

Groundwater samples were collected from all newly installed monitoring wells as well as all existing monitoring wells in accordance with FDEP's SOPs for Field Activities (DEP-SOP-001/01, January 2002). Purging and sampling was accomplished by the low flow quiescent purging and sampling technique, using a peristaltic pump and dedicated pre-cleaned Teflon tubing. The screened interval of each well sampled was fully submerged, hence a minimum one volume of the pump, associated tubing, and flow cell was pumped from each well, as required by the FDEP's SOPs. After removal of this initial quantity, purging was continued and field parameters pH, specific conductance, dissolved oxygen, temperature, and oxidation/reduction potential were measured periodically (minimum 3-minute intervals) using a Horiba U-22 water quality meter. Turbidity was measured using a LaMotte 2020 turbidimeter. Purging was considered complete when three consecutive measurements were within the following limits:

- Temperature ± 0.2 degrees C
- pH ± 0.2 Standard Units
- Specific conductivity ± 5 percent of previous reading(s)
- Dissolved oxygen not greater than 20 percent of saturation at field measured temperature
- Turbidity less than or equal to 20 Nephelometric Turbidity Units (NTUs).

After collection, samples were placed in a cooler on ice and sent via overnight courier to STL Laboratories for analysis of trichloroethene, tetrachloroethene, 1,1-dichloroethene 1,1-dichloroethane, and cis 1,2-dichloroehtene by EPA Method 8260; and 1,4-dioxane by EPA Method 8270. Trip blanks were included with each sample shipment.

2.4 STRATIGRAPHIC AND HYDROGEOLOGIC CHARACTERIZATION

Field investigations were conducted to characterize site hydrogeology between November 10, 2004 and January 12, 2005. Major components of the field work included: (1) continuous coring using rotosonic methods at numerous locations to delineate geologic materials to a depth of 300 feet bgs in the site area; (2) detailed characterization of the hydraulic conductivity of geologic media throughout the site area by performing approximately 300 discrete-interval pump tests; (3) geophysical logging in the four deepest boreholes; and (4) conduct of water-level surveys at monitoring wells to delineate hydraulic head contours and infer groundwater flow directions in the SAS and IAS (see Section 2.3.7). All work was completed in general accordance with the SAPA (TT 2004x).

2.4.1 Lithologic Logging

Lithologic logs were prepared by a qualified geologist for each boring completed during the IAS/CU and deep coring program. The logging was done using American Society for Testing and Materials (ASTM) standard procedures and techniques. Properties such as color, odor, moisture, grain size, grading, consistency, plasticity, HCl reaction, and bedding structure were noted. Carbonate rocks and unconsolidated media were classified according to the system developed by Dunham (1962). Information on the Dunham classification system and the criteria used for logging core samples are provided in Appendix B.

2.4.2 Discrete -Interval Pump Testing Program Methods

Pumping tests were conducted to characterize geologic formation transmissivity (and hydraulic conductivity) in multiple, discrete, vertical intervals during installation of all 22 IAS boreholes. These tests were conducted in general accord with procedures outlined in the SAPA and refined to account for different equipment used by different drilling contractors and lessons learned from work at the first core hole (RS-1). Detailed procedures for these tests are described in Figure 2-4 and Table 2-1. Locations of the core holes where discrete-interval pump tests were performed are shown on Figure 2-5.

The pumping tests typically involved a three-step process: (1) monitoring the baseline water-level trend prior to pumping; (2) pumping groundwater from the test interval for at least 15 minutes; and (3) monitoring water-level recovery after cessation of pumping for at least 5 minutes. As described in Table 2-1, the tests were highly monitored to facilitate data analysis. Hydraulic heads in the test interval were typically recorded every 20 seconds and pumping rates were recorded every few minutes. These tests were conducted continuously in 10-ft intervals (except for use of 5-ft intervals near the transition between the upper SAS, lower SAS, and Venice Clay) in the four deep coreholes (RS-1, RS-2/22, RS-3, and RS-18). The remaining IAS boreholes were tested in intervals that were judged, based on core inspection by the site geologist, to have a potential transmissivity greater than 0.2 feet^2/d. Thus, certain intervals that appeared incapable of transmitting a significant rate of groundwater (e.g., clay or mudstone zones lacking permeable features) were not tested. The discrete-interval pump tests were analyzed using Papadopulos and Cooper (1967) aquifer test analysis method to account for wellbore storage.

2.4.3 <u>Geophysical Logging</u>

After installation of monitoring wells, geophysical logging was conducted in the four deep IAS/CU monitoring wells by Technos of Miami, Florida. The geophysical logging methods employed included natural gamma, induction, gamma-gamma, and neutron-neutron methods.

2.4.4 <u>Hydraulic Head Survey</u>

Depth-to-water was measured from the top-of-casings of the newly-installed permanent monitoring wells and from pre-existing monitoring wells on January 21, 2004. Depth-to-water measurements were subtracted from the surveyed top-of-casing elevations at each well, and the resultant groundwater elevations were used to generate groundwater elevation contour (potentiometric) maps.

2.5 IDW MANAGEMENT

All investigation-derived waste (soil cuttings, drilling fluid, development water, purge water, etc.) generated during this field investigation was containerized for proper disposal. Solids were placed in a roll-off boxes and liquids were placed in a tanker. Representative solid and liquid samples were collected for laboratory analysis to determine whether they contained materials classified as RCRA hazardous wastes.

All non-contaminated disposable wastes such as bags, washed gloves, and material scrap, were kept separate from other wastes. This material was bagged or otherwise contained and disposed of in a dumpster or other appropriate location.

3.0 Site Assessment Results

3.1 SITE STRATIGRAPHY

Copies of the detailed geologic logs that were prepared by qualified geologists for each boring completed during the IAS/CU and deep coring program are provided in Appendix B. Detailed photographs of core retrieved from the four deepest boreholes are presented in Appendix C. A library of core photographs, containing more than 5000 high-resolution digital images (with file names indicating borehole number and sample depth) is provided on the DVD that accompanies this report (Appendix D). The following discussion of site geology is based on detailed review of site-specific and regional geologic information including the results of geophysical logging of deep IAS wells.

3.1.1 Geologic Setting

For the purpose of this study, the regional geology has been divided into three main lithostratigraphic units, as shown on the stratigraphic column in Table 3-1, including Undifferentiated Surficial Deposits (USD), the Peace River Formation (PRF), and the Arcadia Formation (AF). These formations are composed of laterally continuous and correlated subunits with interstitial generalized subunits that are difficult to correlate laterally. The extensive subunits are identified in Table 3-1 under the heading of Lithology. Depth and thickness information for each formation and subunit at each IAS coring location are listed in Tables 3-2, and 3-3, respectively. Select photographs of lithologic units are shown in Figure 3-1.

The strata comprise two hydrogeologic systems known as the SAS, which includes the USAS and LSAS subunits, and the IAS. The USAS is an unconfined surficial aquifer. The LSAS, however, appears to be confined by the 'hard streak' (see Table 3-1 and Figure 3-1) that separates the USAS from the LSAS. The upper portion of IAS is a confining unit composed of the PRF, which is known locally as the Venice Clay. Beneath the PRF, the IAS lies solely within the AF and is a confined throughout the study area. The PRF and AF form the Hawthorn Group in this region.

3.1.2 *Surficial Aquifer System*

The undifferentiated surficial deposits of the USAS include a series of siliclastic unconsolidated sand units of Pleistocene to recent age. These sands range from fine to medium grained, are predominantly sub-rounded to rounded in grain shape, and contain 0 to 20 percent combined clay and silt content. The sands are predominantly quartz with trace amounts of black phosphorite (phosphatic sand). The observable interstitial porosity of the sand is moderate to high (20-40%) and varies with changes in grain size and clay/silt content. The thickness of the USAS (Table 3-3) ranges from 21 feet at the most northerly IAS borehole location (RS-20) to 47.5 feet at the most southerly IAS borehole (RS-9). This change in unit thickness is due to the apparent structural dip towards the south.

Beneath the USAS are a thin layer of indurated fossiliferous carbonate (the hard streak) and clayey gravel, which form the LSAS. There is a significant decrease in siliclastic material at the hard streak and a commensurate increase in pelagic carbonate material. Due to the techniques of coring, the hard streak is commonly brecciated and identified as a carbonate gravel unit in the field. Thus, the upper portion of this gravel (~1.5 feet) is considered to be the hard streak and the continuation of the unit is permeable clayey gravel. The lower carbonates of the LSAS produce a pronounced natural gamma peak that is believed proportional to phosphorite (carbonate hydroxyl flourapatite) content of the unit. The presence of the phosphate gives a characteristic high response to the natural gamma tool due to the associated presence of uranium. Magnesium, manganese, strontium, lead, sodium, uranium, cesium, yttrium and other rare earths may substitute for calcium within the apatite mineral structure, which is the most common component of phosphate deposits (Pettijohn, 1975). Results of geophysical logging of the four deep IAS wells recently installed at the site are discussed in Section 3.3. The LSAS overlies a series of bedded clays (the Venice Clay of the PRF) that form a confining unit beneath the SAS.

3.1.3 *Peace River Formation (Venice Clay) of the Intermediate Aquifer System*

The upper contact of the PRF is a sharp boundary between the LSAS gravels and the Venice Clay (Figure 3-1). This clay is predominantly siliclastic (but variably carbonate) clay with a distinctive greenish-gray appearance. The bedded clays of the PRF are interbedded locally with minor silt and sand and a distinctive gravel unit (the Lower PRF Gravel) in the mid-portion of the PRF. The

Lower PRF Gravel unit also produces a pronounced natural gamma peak that is believed to be proportional to its phosphorite content. Beneath this unit is the continuation of the Venice Clay to a depth ranging from 55 to 78 feet bgs (Tables 3-2); again, the observed variation of depth related to the apparent structural dip to the South.

The Venice Clay and associated coarser grained fractions of the PRF range in thickness from 30 feet (RS-10) to 48 feet (RS-4) (Table 3-3). The variable logged thickness of this unit is attributed to the lack of a distinctive underlying contact at its base and apparent structural dip. The PRF overlies the upper portion of the AF where there is a gradational change from the relative siliclastic rich units of the PRF to the predominantly carbonate rich calcilutites of the upper AF. The contact between the PRF and AF was defined by an increase in carbonate content, color change, increase in phosphorite content, and the use of natural gamma geophysical logs.

3.1.4 Arcadia Formation of the Intermediate Aquifer System

The AF comprises of a series of extensive carbonate units. These units vary in carbonate content, both in the amount of carbonate material present and the proportion of calcitic to dolomitic material. The AF is composed mainly of calcilutite mudstones (Figure 3-1) with variable amounts of calcarenite and calcirudite, wackestone, and packstones. Eight subunits have been identified in the AF as part of the hydrogeologic investigation at the Tallevast site. The depth of contacts between units and their observed thicknesses are listed in Tables 3-2 and 3-3, respectively.

The uppermost zone (IAS Clay/Sand Zone 1) is a subunit which comprises of a series of predominant calcilutite mudstones characterized by low permeability. This subunit is encountered at approximately 70 feet bgs and is typically 35 feet thick. The calcilutites are predominantly clay and silt, with variable minor sand and phosphatic gravel, which has a relatively low natural gamma signature. The IAS Clay/Sand Zone 1 subunits overlie an extensively correlated calcirudite packstone, which ranges in depth from 92 to 113 feet bgs (Table 3-1).

The calcirudite packstone (Upper AF Gravels) is a unit or range of units that are significantly more permeable than surround clay/sand units in the IAS, particularly in the eastern portion of the site (i.e., at boreholes RS-10, RS-11, RS-13, RS-14). The Upper AF Gravels are present approximately 100 feet bgs and are typically 10 feet thick. This subunit of the AF includes one or two clayey gravel layers (Figure 3-1) that are composed of carbonate fragments (as large as 4 cm in diameter) set in a carbonate mud matrix. These gravels are typically light gray in color and very wet. There is a anomalous natural gamma peak associated with these carbonate gravels, which is believed to result from a high content of phosphatic limestone fragments. The Upper AF Gravels overlie another relatively low permeable zone designated the IAS Clay/Sand Zone 2.

The IAS Clay/Sand Zone 2 is a subunit of predominantly calcilutite mudstones with low permeability. IAS Clay/Sand Zone 3 is encountered at approximately 115 feet bgs and is typically 30 feet thick. The unit has a slight increase in sand content in comparison with the IAS Clay/Sand Zone 1. The IAS Clay/Sand Zone 2 overlies a more permeable layer of calcarenitic material referred to as the Upper AF S&P Sands.

The Upper AF S&P Sand is a subunit that is characterized by distinct increases in sand content (30 to 80 percent) and dark phosphatic sand grains, which (with mixed with clear quartz sand) render a ‘salt and pepper’ appearance (Figure 3-1). The top of the S&P Sand is approximately 145 feet bgs and the unit is typically 10 feet thick. These calcarenites, due to their phosphatic content, produce moderate peaks on natural gamma geophysical logs, and can be correlated across the study area based on appearance and gamma logging. This unit is more permeable than the finer-grained sediments in the AF, but not as permeable as the Upper AF Gravels in the eastern portion of the site area. Most of the IAS boreholes penetrated to the base of the S&P Sand. The Upper AF S&P Sand overlies a relatively less permeable zone designated the IAS Clay/Sand Zone 3.

IAS Clay/Sand Zone 3 consists of poorly-permeable calcilutite mudstones that extend between approximately 155 and 175 feet bgs. A thin sequence of somewhat more permeable calcirudite packstone designated Lower AF Gravel underlies IAS Clay/Sand Zone 3. The Lower AF Gravel is composed of clayey gravel in carbonate mud matrix. It exhibits a high natural gamma peak apparently associated with phosphorite in limestone fragments. IAS Clay/Sand Zone 4 represents a thick sequence of predominantly calcilutite mudstones that extend between from approximately 180 to 280 feet bgs. Near the bottom of the four deep boreholes (RS-1, RS-2/22, RS-3, and RS-18), a Lower AF Sand subunit that contains 30 to 90 percent sand was encountered between approximately 280 and 290 feet bgs. The calcarenite wackestones and packstones of the Lower

AF Sand can be correlated across the study area, in part by their moderate gamma signature. The Lower AF sands are the lowermost unit fully-penetrated during the study; they are underlain by calcilutite mudstone.

3.2 DISCRETE-INTERVAL PUMPING TESTS

As described in Section 2.4, discrete-interval pumping tests were conducted to characterize geologic formation transmissivity (and hydraulic conductivity) in multiple, discrete, vertical intervals during installation of all 22 IAS boreholes. Locations of the core holes where discrete-interval pump tests were performed are shown on Figure 2-4.

The discrete-interval pump tests were analyzed using the Papadopulos and Cooper (1967) aquifer test analysis method (for drawdown induced by pumping in a large diameter well) as implemented in the aquifer test analysis program AQTESOLV™ to account for wellbore storage and variable pumping rates. It was important to account for wellbore storage in the analysis, particularly for the many tests performed in low-permeability sediments, because the volume of water pumped from inside the well was significant when compared to that extracted from the formation. Due to a variety of factors, including low formation yield and submersible pump limitations, many of the tests were characterized by changing pumping rates. Thus, it was also important to account the effect of variable pumping rate on time-drawdown and recovery data generated by many of the discrete-interval tests. Example results of discrete-interval pump tests are shown on Figure 3-2.

Field forms completed to document individual test pumping rates, physical configuration, and other parameters identified in Table 2-1 are provided in Appendix E. AQTESOLV program files that document pumping rates, time-drawdown data, and other parameters used to compute discrete-interval transmissivity values are included in Appendix F. A compilation of results for approximately 300 discrete-interval pumping tests showing determined transmissivity values, key input parameters, and the comparison between observed and computed time-drawdown and recovery water-level data associated with each test analysis are provided in Appendix G. Examples of test results and analyses are shown for relatively permeable and tight intervals in Figure 3-3.

A main goal of these tests was to determine interval transmissivity. Hydraulic conductivity was estimated by dividing the determined transmissivity value by the test interval thickness. It was not possible to reliably estimate formation storage coefficient (S) based on pumping well data. As noted by Papadopulos and Cooper (1967, p.244):

> "The determination of T [transmissivity] is not so sensitive as to the choice of the type curve to be matched. Whereas the determined value of S [storage coefficient] will change by an order of magnitude when the data plot is moved from one type curve to another, that of T will change only slightly. From a knowledge of geologic conditions and other considerations one can, ordinarily estimate S within an order of magnitude and thereby eliminate some of the doubt as to what value of alpha is to be used for matching the data plot."

The type curve parameter is α, where $\alpha = r_w^2 S / r_c^2$, r_w is the radius of the open hole in the test interval, and r_c is the radius of the well casing where hydraulic head changes occur during the test. Storage coefficient values were generally specified at 0.0001 for intervals below 40 feet bgs; higher storage coefficient values (e.g., 0.01 to 0.001) were input for tests in the SAS. A best-fit value of r_c was frequently observed to diverge slightly from the effective radius calculated (including consideration for displacement by downhole objects such as tubing) based on the test configuration. Due to the relative insensitivity of the transmissivity determination to the value of α chosen for the analysis, this divergence is not believed to have significantly affected test interpretation. This conclusion is also supported by extensive sensitivity analysis performed using the AQTESOLV program for tests performed at the site.

Several factors were evaluated during test analysis due to their potential for interfering with determination of a valid estimate of test interval transmissivity. These factors included potential packer leakage, skin effects due to drilling, well screen clogging, pre-pumping hydraulic head trends, variable pumping rate, etc. Reasonable efforts were made to account for these non-idealities. In certain cases, a decision was made not to interpret test data due to unresolvable complications.

We also note that pumping tests, including those analyzed using solutions that account for wellbore storage, are incapable of determining formation transmissivity if essentially all of the extracted water is derived from wellbore storage. As evidenced by data plots in Appendix G, this phenomenon occurred during many tests in low-permeability intervals at the site. The values of transmissivity and hydraulic conductivity interpreted for these tests represent upper limits of possible interval transmissivity (as the matched transmissivity was ‘tweaked’ higher until it clearly deviated from observed data) and a value just less than the ‘too high’ value was chosen as the solution match value.

A plot of calculated horizontal hydraulic conductivity values as a function of depth below ground surface and hydrostratigraphic unit tested is presented in Figure 3-3. The discrete-interval test data are summarized statistically in Table 3-4. Finally, a plot showing the relationship between calculated horizontal hydraulic conductivity as a function of depth, geology, and approximate geographic position is provided in Figure 3-4. A hydrogeologic cross section shown discrete-interval groundwater screening results is provided on Figure 3-5. The results provide evidence that: (1) the USAS and LSAS and the Upper AF Gravels are the most permeable hydrostratigraphic units at the site; (2) the Upper AF Gravels are particularly permeable in the eastern and northeastern portion of the site; (3) the S&P Sands in the middle of the IAS have moderate, but lower permeability; and (4) substantial sequences of the Venice Clay and fine-grained sediments in the IAS have very low permeability. Vertical hydraulic conductivity of layered fine-grained sediments is typically much less than horizontal hydraulic conductivity.

Given the large number of tests, and the fact that the tests were performed in undeveloped wells with turbid water under transient conditions, we caution that the results of many individual tests are approximate only. Nevertheless, results of the discrete-interval testing program provide an excellent three-dimensional characterization of the transmissive nature of the SAS and IAS in the site area.

3.3 GEOPHYSICAL LOGGING OF THE DEEP IAS WELLS

Geophysical logging was conducted in the four 300-foot deep IAS/CU monitoring wells on December 28 and 29, 2004 by Technos, Inc. of Miami, Florida. Four geophysical logging methods were used to aid in the interpretation of subsurface conditions in the study area, including: (1) natural gamma to identify variations in clay content and presence of phosphatic materials; (2) induction to identify variations in bulk conductivity; (3) gamma-gamma to identify relative variations in density; and (4) neutron-neutron to identify variations in porosity. Geophyiscal logging procedures and resulting geophysical logs are provided in Appendix H

(Technos report). As noted in Section 3.1, interpretation of the natural gamma log was particularly useful for identifying layers rich in phosphatic material and helping correlate strata across the site area.

3.4 HYDRAULIC HEAD SURVEY

Depth-to-water was measured from the top-of-casings of all newly-installed and pre-existing monitoring wells on January 21, 2005. These measurements were subtracted from the surveyed top-of-casing elevations at each well, and the resultant groundwater elevations were used to generate groundwater elevation contour (potentiometric surface) maps. Measured groundwater elevations are listed in Table 3-5 and are posted and contoured for the USAS, LSAS, and IAS aquifers in Figures 3-6, 3-7, and 3-8, respectively.

Due to the expedited nature of the project, it was not possible to allow more than one to two weeks of water level recovery from installation and sampling activities prior to conducting the water-level survey. Therefore, lingering effects, if any, of well installation, development, purging or sampling may have impacted the results of the recent 'snapshot' measurement of hydraulic heads at the site. Additionally, groundwater elevations measured on a single day may not be representative of hydraulic gradients over time and should be interpreted with caution. A series of water level survey events over a long-term monitoring period is necessary to define the temporal and spatial pattern of groundwater flow.

Interpretations of groundwater flow directions based on hydraulic heads measured in the site area in January 2005 presented below are considered preliminary and subject to revision based on acquisition of additional data.

Groundwater in the USAS is unconfined with the water table occurring 2 to 4 feet bgs. As shown on Figure 3-6, the USAS groundwater levels measured on January 21, 2005 are mounded in the vicinity of the site parking lot, extending south-southwest to encompass MW-35, located in the adjacent golf course driving range. Groundwater flow in the USAS appears to radiate away from this mound in all directions, with the exception of in the immediate vicinity of MW-20, which has the highest measured groundwater elevation of all USAS wells and is located on the elevated railroad right-of-way.

Groundwater in the LSAS is confined by the hard streak with elevations 5 to 12 feet bgs, the deeper elevations occurring to the northeast of the site. Groundwater levels measured in the LSAS on January 21, 2005 appear to be mounded in the vicinity of MW-87, which is located in the golf course driving range (Figure 3-7). Groundwater flow in the LSAS appears to radiate away from this mound in all directions. The majority of the LSAS monitoring well network is located north of this mound and the predominant direction of groundwater flow over the site area is inferred to be toward to north-northeast as depicted on Figure 3-7. The apparent groundwater high within the golf course may be the result of irrigation.

Groundwater in the IAS occurs under confined conditions with water levels 10 to 16 feet bgs. Hydraulic heads measured in all 25 IAS monitoring wells surveyed in the site area on January 21, 2005 are posted on Figure 3-8. The potentiometric surface of groundwater in the ‘Salt and Pepper’ Sand unit, which is present between approximately 140 and 150 feet bgs, is contoured in Figure 3-8 based on measurements from the 15 wells screened in this unit. As shown, the potentiometric surface of this IAS layer appears to be mounded between MW-59, MW-58, and MW-57 in the western portion of the site and in adjacent areas to the north and northeast. Groundwater is inferred to flow predominantly to the west away from the mound axis.

A strong downward hydraulic gradient exists between the USAS and LSAS. A more gentle downward gradient exists in the immediate site area between the LSAS and the IAS.

3.5 CALCULATION OF GROUNDWATER VELOCITY

Groundwater velocity depends on, and is sensitive to, the spatial distribution of formation hydraulic conductivity, hydraulic gradients, and effective porosity. Calculation of groundwater velocity can be made by measurement of chemical tracer (or contaminant) transport over time, mathematical models that account for the various aspects of subsurface complexity, and, most simply, by using Darcy’s Law accounting for effective porosity where $V = K\ i\ /\ n$, V is groundwater velocity (length/time), K is hydraulic conductivity (length/time), i is hydraulic gradient (length/length), and n is effective porosity (volume/volume).

Calculations of horizontal and vertical groundwater velocity based on hydraulic gradients measured in January 2005, hydraulic conductivity values derived from the discrete-interval pumping tests, and estimates of effective porosity are given in Tables 3-6 and 3-7, respectively. The maximum values listed for horizontal groundwater velocity in Table 3-6 are considered overestimates of actual groundwater velocity at the site. However, groundwater velocity in the more permeable sections of a particular formation will be greater than the mean or median values.

3.6 MONITORING WELL INSTALLATION, CONSTRUCTION AND DEVELOPMENT

3.6.1 Surficial Aquifer System Monitoring Wells

Fifty-three permanent monitoring wells were installed in the SAS. Thirty-three of these wells were completed in the USAS and 20 were completed in the LSAS. Nested pairs consisting of adjacent wells installed in both zones of the SAS were installed at 11 of these locations. Monitoring well construction details are summarized on Table 3-8. Monitoring construction diagrams are provided in Appendix I. Monitoring well development logs are provided in Appendix J.

3.6.2 Intermediate Aquifer System Monitoring Wells

Deep monitoring wells were installed to depths of approximately 300 feet bgs near the base of the IAS/CU at four locations (RS-1, RS-3, RS-18, and RS-22). Intermediate depth monitoring wells were installed at 19 locations. At location RS-6, two monitoring wells were installed, one screened 77 to 87 feet bgs and the other screened 135 to 145 feet bgs. Well screen intervals were determined based upon results of coring, packer tests, and mobile laboratory analyses. Monitoring construction diagrams are provided in Appendix I. Monitoring well development logs are provided in Appendix J.

After installation and development, groundwater samples were collected from the deep wells for fixed-base laboratory analysis of VOCs by EPA Method 8260, and 1,4-dioxane by EPA Method 8270, following proper FDEP sampling protocol.

3.7 SOIL ANALYTICAL RESULTS

3.7.1 On Site Soil Assessment

Soil samples were collected on site in accordance with the methodology and analytical list detailed in Section 2.4.1. The sample locations were labeled HA001 through HA016, and three samples were collected from the intervals 0 to 0.5 feet bgs, 0.5 to 1 feet bgs, and 1 to 2 feet bgs. Thus, a total of 48 samples was collected. The laboratory analytical reports for soil samples are provided in Appendix K. Table 3-9 displays those instances where a SCTL was exceeded for either the residential exposure (RE) criteria or the leachability-to-groundwater (LTG) criteria as indicated in 62-777, FAC Table II. Figure 3-9 displays the on-site sample locations that exceeded SCTLs. Each of the following paragraphs details the specific compound that exceeded an SCTL with information on specific locations and depths.

Arsenic concentrations exceeded only the lower of the two criteria (i.e., the RE criteria) at five locations: HA002, HA003, HA005, HA006, HA007, and HA013. The LTG criterion was not exceeded for this metal at any of the on-site sample locations. The locations where arsenic did exceed an SCTL are scattered across the site. This data indicates this metal is likely ubiquitous across the site at concentrations exceeding the RE criteria. Generally, this metal was only detected in the upper foot of soil on site; however, the sample location HA005 exhibited arsenic concentrations that exceeded the applicable SCTL from 0 to 2 feet bgs.

Beryllium concentrations exceeded the higher of the two criteria (namely, the LTG criteria) at only two locations: HA006 and HA007. None of the other on-site sample locations exhibited concentrations that exceeded the applicable beryllium SCTLs. These two locations occupy the upper half of the northeast quadrant of the site. This metal only exceeded the LTG criteria in the upper 0.5 feet at HA006; however, it exceeded the same criteria in the upper interval (0 to 0.5 feet bgs) and lower interval (1 to 2 feet bgs) that were sampled at HA007.

Copper exceeded only the lower of the two criteria (i.e., the RE criteria) at two locations: HA006 and HA007. The LTG criterion was not exceeded for this metal at any of the on-site sample locations. The locations where copper exceeded the RE criterion coincide with the beryllium locations that exceeded an SCTL. The HA006 sample that exceeded the criterion came from the 0.5 to 1 foot bgs interval while the other sample from HA007 came from the 1 to 2 foot bgs interval.

Benzo(a)pyrene, a common PAH, exceeded only the lower of the two standards under consideration (i.e., the RE criterion). The LTG criterion was not exceeded for this PAH at any of the on-site sample locations. The following locations exhibited data that exceeded the RE criterion: HA002, HA004, HA005, HA006, HA007, HA008, HA009, HA010, HA011, HA012, HA013, HA015, and HA016. This PAH is commonly associated with paved roads and parking lots and it appears that each location is either under or near such a feature on-site. The data also indicate the samples that exceeded the criterion only came from the upper 1 foot of soil.

Dibenzo(a,h)anthracene, another PAH, only exceeded the RE criterion. The LTG criterion was not exceeded by this PAH at any of the on-site locations. The following locations exhibited data that exceeded the RE criterion: HA002, HA006, and HA010. Those locations are perimeter locations for the west, north, and east sides, respectively, of the site. Also, the depth of the samples that exceeded the RE criterion for this compound came from only the upper 0.5 feet of soil.

Tetrachloroethene was the only chlorinated solvent, that exceeded an SCTL, and it only occurred in one of the 48 samples collected. Specifically, the LTG criterion was exceeded at location HA016 at a depth of 0 to 0.5 feet bgs. This location is in the parking lot in the southwest quadrant of the site.

3.7.2 ***Off Site Soil Assessment***

The FDEP's SIS PCAR (July 2004) identified 14 addresses each of which had one or more locations identified with a soil sample that exceeded one or more SCTLs. Soil samples were collected off site in accordance with the methodology detailed in Section 2.4.2, and were analyzed only for those compounds identified in the FDEP's SIS PCAR (2004) for a specific location that exceeded an SCTL.

The data for each sample and specific analyte were compiled in Table 3-10 for comparison to the RE and LTG SCTLs specific to each compound of concern as prescribed by 62-777, FAC Table II. Figure 3-10 shows the off-site sample locations that exceeded SCTLs. LTG SCTLs were not exceeded for any of the off-site sample locations. The RE SCTLs were not exceeded at any locations for the following compounds: barium, benzo(b)fluoranthene, and TPH. Arsenic exceeded RE SCTLs at 58 locations. Benzo(a)pyrene exceeded RE SCTLs at 30 locations. Dibenzo(a,h)anthracene exceeded RE SCTLs at five locations. Lead exceeded RE SCTLs at one location.

3.7.2.1 95% Upper Confidence Limit Evaluation

Laboratory analytical results for the off-site soil samples were evaluated to determine if exposure concentrations across the site exceed SCTLs. Based on an initial review of the data, it was determined that arsenic, lead, and benzo[a]pyrene were the primary constituents of concern. Residential exposure point concentrations for these constituents were calculated for various exposure units across the site. The exposure point concentrations are represented by the 95 percent upper confidence limit of the arithmetic mean (UCL). Because of the uncertainty and variability associated with any data set, a UCL is used to represent the mean concentration. The 95 percent UCL is the concentration below which the mean would fall 95 percent of the time if the site was randomly sampled several times. The UCLs were calculated using FL-UCL, software developed for the FDEP to calculate UCLs.

Samples across the site were collected at various depths to two feet below ground surface. The samples were primarily collected at several areas across the site in groups of five boring locations. Because residential exposure is being evaluated, an exposure unit (i.e., the area to which a potential receptor would be exposed) is defined by an area of approximately 0.25 acres. Each group of five boring locations would approximately define a residential exposure unit of 0.25 acres. In some instances, there may be two groups of five boring locations that are proximate;

therefore, these two sets of data were combined to increase the size of the data set for that exposure unit. In other instances, there is an individual boring location that was combined with the group of five boring locations to increase the size of that data set. Obviously, increasing the size of the data set provides a better approximation of the exposure concentration.

The FL-UCL software was used to calculate the UCLs. FDEP requires that FL-UCL be used to calculate UCLs. However, for this software to calculate UCLs, there are specific requirements associated with the data set. First, FDEP and the software require that a minimum of 10 data points exist to calculate the UCL. Second, at least seven of the total number of concentration values must be above detection limits. If less than seven detected values are available for a data set, a bounding method is used to calculate the UCL. If the total number of concentration values or the total number of detected concentrations does not meet these requirements, the maximum concentration must be used to represent the exposure concentration.

FDEP also requires that an appropriate method be used to calculate the UCL. There are several statistical procedures available to calculate a UCL. The best choice depends upon the nature of the data such as the number of samples, the frequency of detection, and the skewness of the data. FL-UCL makes a recommendation based upon the nature of the data. These recommendations were used to represent the exposure concentration for each exposure unit.

The results of the statistical analysis are presented in Table 3-11. Each exposure unit is defined by the samples used in the calculation of the UCL. The table presents the recommended UCL concentration for each exposure unit, the statistical basis of that value (i.e., the FL-UCL recommendation), and the frequency of detection within that exposure unit. Arsenic concentrations in all exposure units except one exceed the residential FDEP SCTL of 0.8 mg/kg; however, of the 30 exposure units evaluated, only 13 exposure units exceed the draft residential FDEP SCTL of 2.1 mg/kg. No exposure unit exceeds the EPA Region IV residential value for arsenic of 23 mg/kg. Five exposure units exceeded the industrial FDEP SCTL of 3.7 mg/kg; however, none exceeded the draft industrial FDEP SCTL of 12 mg/kg.

Lead was analyzed in samples from a limited number of exposure units. Lead concentrations in all exposure units were less than the residential FDEP SCTL of 400 mg/kg. Benzo[a]pyrene was also analyzed in a limited number of exposure units. Of the 19 exposure units evaluated, benzo[a]pyrene concentrations exceeded the residential FDEP SCTL of 0.1 mg/kg in 14 of those exposure units. Benzo[a]pyrene concentrations exceeded the industrial FDEP SCTL of 0.5 mg/kg in seven exposure units; benzo[a]pyrene concentrations exceeded the draft industrial FDEP SCTL of 0.7 mg/kg in 4 exposure units.

3.7.3 <u>Soil Gas Survey Results</u>

The laboratory analytical results for soil gas were reviewed to identify positive VOC detections in each sample. Table 3-12 illustrate all positively detected compounds from the TO-15 analyses. As previously discussed, an error in field notation led to the absence of a sample designated SGS-12. A total of 14 samples (which includes one duplicate) was collected. Samples are therefore designated as SGS-01 through SGS-11, SGS-13, SGS-14, and SGS-DUP.

It should be noted that elevated concentrations of acetone and isopropyl alcohol in some samples required that the affected samples be re-analyzed following dilution. These results are identified by the footnote “dl”.

In addition to the VOCs, the analytical data was also reviewed to ascertain whether helium was detected in any of the samples. Helium was used as a tracer gas to identify whether ambient (atmospheric) air was infiltrating the soil gas samples. A review of the analytical data shows that all analyses for helium were reported as below detection limits. This indicates that the soil vapor sampling train was adequately sealed at the ground surface and prevented atmospheric infiltration. This implies that the results of the soil gas sampling are reflective of conditions within the sampled vadose zone and not of ambient air. Copies of the laboratory analytical reports for soil gas samples are provided in Appendix L.

3.7.3.1 Data Interpretation

In accordance with Section 3.6.3 of the SAPA the results of the soil gas sampling are compared to applicable Occupational Safety and Health Administration Permissible Exposure Limits (PELs).

The use of PELs as an action level is considered conservative as no attenuation factors are applied to any detected soil vapor concentration, and it is unlikely that individuals would be exposed to an eight-hour time-weighted average of concentrations detected in soil gas. The results of the soil vapor sampling are also compared to the Agency For Toxic Substances Disease Registry's (ATSDR's) Minimal Risk Levels (MRLs). The ATSDR MRLs used were for the inhalation route of exposure. They were referenced from the ATSDR MRL table dated December 2004. Compounds marked as NA either had no MRL or the available MRL was for another route of exposure such as ingestion. If multiple MRLs were available for a given compound, for conservativeness the lowest MRL was used which typically corresponded to the chronic MRL value. The results are also compared to Johnson and Ettinger Model output to evaluate the potential for compromised indoor air quality based on detected soil gas concentrations. Specifically, the analytical results are compared to values found in Table3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α) found in the USEPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils (USEPA, 2002). These Johnson and Ettinger screening values were selected for use as they are conservative, yet incorporate some consideration of site-specific soil conditions that might affect the migration of subsurface vapors, as compared to the default values that provide no site-specific considerations. The selection of the appropriate Johnson and Ettinger screening values is a multi-step process. First, a vapor attenuation factor (α) is selected from Figure 3a in the Draft guidance based on the soil type and depth to contamination. Based on the sandy nature of the soil at the former American Beryllium Company, the most conservative (least amount of attenuation) value was selected (2.0E-03). This value was then applied to Table3c-SG: (Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors). This table was used as the Johnson and Ettinger screening values included in it are based on the most conservative risk level of 1.0E-06. The applicable screening level was identified by finding the value corresponding to the specific chemical and the selected attenuation factor. Table 3-12 shows the results of the comparisons between the detected analytes and the screening values.

A review of the analytical data and the comparisons to applicable PELs, MRLs and Johnson and Ettinger screening values indicated the following:

All detected soil gas analyte concentrations were less than the applicable Johnson and Ettinger screening values typically by several orders of magnitude.

All detected soil gas analyte concentrations were less than the applicable OSHA PELs typically by several orders of magnitude.

Only benzene in soil gas sample SGS-05 had a concentration (4.2 ppb) that slightly exceeded the applicable ATSDR MRL of 4.0 ppb. All other detected soil gas analytes concentrations were well below their corresponding ATSDR MRLs.

The results of the comparisons indicate that the potential for subsurface vapor intrusion leading to elevated indoor air concentrations at the former ABC site appears unlikely.

3.7.3.2 Comparison of Soil Gas Results to VOC Concentrations in Upper Water Table

To evaluate the potential contribution of VOCs within shallow groundwater to detected soil gas concentrations, a comparison was performed between the soil gas results and the results of sampling from the top of shallow groundwater. This comparison was performed as the shallow groundwater would be the most-likely source for any subsurface vapors that might affect indoor air. As previously discussed, five samples collected from the top of shallow groundwater were colocated with soil gas sample locations. The colocated soil gas and groundwater samples are: SGS-01 and JES-01C; SGS-03 and JES-05H; SGS-06 and JES-04H; SGS-07 and JES-01C; and, SGS-11 and JES-03H. Table 3-13 illustrates the results of the comparison between analytes detected in soil gas and those detected in colocated ground water samples. It should be noted that the analytical methods for soil gas and groundwater are different. Consequently, soil gas analytes which are present in gaseous states are not typically analyzed for in groundwater. A review of this comparison indicates the following:

No correlation between analytes detected in soil gas samples and those detected in top of shallow ground water samples were found. No analyte detected in soil gas was detected in the shallow groundwater, and no analyte detected in the shallow groundwater was detected in the soil gas.

The only analytes detected in the shallow groundwater were chloroform and chloromethane which are typically associated with disinfection by-products in drinking water.

The results of the analysis indicate that the top of shallow groundwater does not appear to be serving as a source of chlorinated VOCs within soil gas. Due to the shallow depth and proximity to building foundations, the top of the shallow groundwater would be presumed to be the most likely source of VOCs for potential vapor intrusion. However, the absence of VOCs except for chloroform and chloromethane indicate that it does not appear to be serving in this capacity.

3.8 GROUNDWATER ANALYTICAL RESULTS

3.8.1 Source Area Characterization – DNAPL Assessment

DNAPL was not identified in core samples examined in the source area (VP-7, VP-8, VP-12, VP-13, and VP-14). Results of chlorinated VOC analyses in the source area are incorporated into the discussions that follow.

3.8.2 Upper Surficial Aquifer System

3.8.2.1 Preliminary Mobile Laboratory Results

Samples were collected from the USAS from vibra push boring locations and rotosonic boring locations. In general, constituents reported most frequently at concentrations exceeding GCTLs were, in order, TCE, 1,1-DCE, 1,1-DCA, PCE, and cis-1,2-DCE. Concentrations exceeding 1000 µg/L were reported for TCE at 7 locations, and for 1,1-DCE, 1,1-DCA, and PCE at one location each. The majority of the higher concentrations were reported on samples collected between 25 and 30 feet bgs, except for a sample containing 1200 µg/L 1,1-DCA which was collected at depth of 38 feet bgs. TCE values exceeding 1000 µg/L were confined to the source area (VP-3, VP-7, VP-13 and VP-14) and its immediate surroundings to the northeast (VP-77 and VP-78) and southeast (VP-15).

TCE concentrations were highest in and around the source area (VP-3, VP-7, VP-13, VP-14, VP-15, VP-77, and VP-78). In general, 1,1-DCE and 1.1-DCA concentrations were higher than TCE concentrations in the south, west, and southeastern portions of the study area. PCE concentrations were reported at high levels in VP-34 (1400 µg/L at 28 feet bgs) in the railroad right-of-way southeast of the site and VP-43 (490 µg/L at 25 feet bgs) and VP-44 (300 µg/L at 25 feet bgs) further to the east and southeast. PCE was also identified in the source area and at some VP locations south of the site in the northeastern portion of the golf course and adjacent residential areas. Except for these locations, PCE concentrations were generally lower than those of TCE, 1,1-DCE, and 1,1-DCA. The highest cis-1,2-DCE concentration reported was 710 µg/L at 25 feet bgs in a sample collected from the source area boring, VP-7. Less than twenty (20) exceedances were reported for cis-1,2-DCE.

The mobile laboratory analytical results for the SAS are depicted on Figure 3-11 and summarized in Table 3-14. The laboratory analytical reports for mobile laboratory analysis are provided in Appendix M. Groundwater sampling logs and low flow purge sheets compiled during purging and sampling of the wells are provided in Appendix N.

As discussed in Section 2.5, split samples were collected from 10 percent of the groundwater samples analyzed by the mobile laboratory for quality assurance purposes. Split samples were sent to a fixed-base laboratory (U.S. Biosystems) for VOC analyses. Forty (40) VP samples and two RS samples from the USAS were split. A comparison of the data indicates good correlation between values reported by the two laboratories. The fixed base laboratory reports for the split samples are provided in Appendix O.

3.8.2.2 Fixed-Base Laboratory Results

Groundwater samples collected from permanent monitoring wells installed in the USAS after completion of the VP sampling program were sent to STL Laboratories for analysis for the five target COCs (trichloroethene, tetrachloroethene, 1,1-dichloroethene, 1,1-dichloroethane, cis 1,2-dichloroehtene) by EPA Method 8260 and 1,4-dioxane by EPA Method 8270. Samples were also collected from all existing monitoring wells installed in the SAS during previous investigations (MW-03 through MW-18S). The fixed base laboratory analytical results for the USAS are depicted on Figure 3-12 and summarized on Table 3-15. The laboratory analytical report is provided in Appendix O.

TCE was detected above laboratory detection limits in samples collected from 32 monitoring wells completed within the USAS. TCE concentrations exceeded the GCTLs in samples collected from 19 USAS monitoring wells. PCE was detected above laboratory detection limits in samples collected from 15 monitoring wells completed within the USAS. PCE concentrations exceeded the GCTLs in samples collected from 13 USAS monitoring wells. The monitoring wells with TCE and PCE exceedances were located in and around the source area and in the southeastern portion of the study area, east of the railroad tracks and south of Tallevast Road; and in the southwestern portion of the study area, on the golf course. One TCE exceedance was also noted to the north of the site in MW-67. TCE and PCE concentrations in the USAS were highest in samples collected from monitoring wells in and around the source area.

1,1-DCE was detected above laboratory detection limits in samples collected from 23 monitoring wells completed within the USAS. 1,1-DCE concentrations exceeded the GCTLs in samples collected from 13 USAS monitoring wells. 1,1-DCA was detected above laboratory detection limits in samples collected from 28 monitoring wells completed within the USAS. 1,1-DCA concentrations exceeded the GCTLs in samples collected from six USAS monitoring wells. The monitoring wells with 1,1-DCE, and 1,1-DCA exceedances were located in and around the source area, and to the southeast and southwest of the site. The highest concentrations were noted in the southwestern portion of the study area, on the golf course, and in one location in the southeastern portion of the study area (MW-27).

Cis-1,2-DCE was detected above laboratory detection limits in samples collected from 22 monitoring wells completed within the USAS. Cis-1,2-DCE concentrations exceeded the GCTLs in samples collected from two USAS monitoring wells, both located on site in the source area.

1,4-dioxane was detected above laboratory detection limits in samples collected from 24 monitoring wells completed within the USAS. 1,4-dioxane concentrations exceeded the GCTLs in samples collected from 21 USAS monitoring wells. The monitoring wells with exceedances of 1,4-dioxane were located in and around the source area and the northwest, southwest and southeast of the site. The highest concentrations were noted in the southwestern portion of the study area, on the golf course, and in one location in the southeastern portion of the study area

(MW-27). Concentrations of 1,4-dioxane also exceeded GCTLs in samples collected from perimeter monitoring wells MW-69, MW-47, MW-95, and MW-73.

The horizontal extent of the target COCs in the USAS based on the fixed base laboratory results is very similar to the distribution based on the mobile laboratory results with one exception (VP-71). The mobile laboratory results for VP-71 indicate that the only exceedance was 1,1-DCE (33.5 µg/L) in the sample collected from the 25-ft bgs interval. No exceedances were reported in the sample collected from 28 feet bgs. In the sample collected from the permanent well installed at this location (MW-67, screened 24 to 29 feet bgs), three exceedances were reported: 1,1-DCA, 74 µg/L; 1,1-DCE, 120 µg/L; and TCE, 14 µg/L.

3.8.3 <u>Lower Surficial Aquifer System</u>

3.8.3.1 Preliminary Mobile Laboratory Results

Groundwater samples were collected for mobile laboratory analysis from permanent monitoring wells installed within the LSAS and from select intervals of the rotosonic testing program as discussed in Section 2.5.3.2 above. The highest concentrations of COCs in the LSAS were observed to the south and southwest of the former ABC facility.

In the source area, TCE concentrations were approximately one order of magnitude higher in the USAS (above the hard streak) than in the LSAS (below the hard streak). For example, at VP-7 (LSAS well MW-37) located near the former sump area, TCE was reported at a concentration of 8200 µg/L in the USAS (25 feet bgs) and at 620 µg/L in the LSAS (35 to 40 feet bgs). There were some exceptions to this trend, specifically, at the VP-99/MW-87 pair, concentrations of COCs were significantly higher in the LSAS (MW-87) than in the USAS (VP-99). The mobile laboratory results for the SAS are depicted on Figure 3-11.

The hard zone was commonly encountered at depths slightly greater than 40 feet bgs in the residential area at the southern end of the study area, the deepest occurrence of this unit observed during the investigation. Samples collected from the southernmost LSAS well, MW-85 (VP-19), had reported concentrations of 1,1-DCE and TCE slightly exceeding GCTLs. Concentrations from the USAS sample collected at this same location immediately above the hard zone (42 feet bgs) were comparable to those of the LSAS values except for higher 1,1-DCA levels.

3.8.3.2 Fixed-Base Laboratory Results

Groundwater samples were collected from the LSAS monitoring wells and sent to the fixed-base laboratory (STL) for analysis for the target COCs (trichloroethene, tetrachloroethene, 1,1-dichloroethene, 1,1-dichloroethane, cis 1,2-dichloroehtene) by EPA Method 8260, and 1,4-dioxane by EPA Method 8270. The laboratory analytical results for the LSAS are depicted on Figure 3-13 and summarized on Table 3-15. The laboratory analytical report is provided in Appendix O.

TCE was detected above laboratory detection limits in samples collected from 15 monitoring wells completed within the LSAS. TCE concentrations exceeded the GCTLs in samples collected from 12 LSAS monitoring wells. The TCE exceedances were located in and around the source area and in LSAS monitoring wells installed to the north, northeast, east, south, and southeast of the site. TCE concentrations in the LSAS were highest in samples collected from monitoring wells in and around the source area.

PCE was detected above laboratory detection limits in samples collected from five monitoring wells completed within the LSAS. PCE concentrations exceeded the GCTLs in samples collected from two LSAS monitoring wells. One PCE exceedance in the LSAS was located on the site (MW-80) and one was located off site (MW-87) on the golf course.

1,1-DCE was detected above laboratory detection limits in samples collected from 14 monitoring wells completed within the LSAS. 1,1-DCE concentrations exceeded the GCTLs in samples collected from 11 USAS monitoring wells. 1,1-DCA was detected above laboratory detection limits in samples collected from 12 monitoring wells completed within the LSAS. The 1,1-DCE exceedances were located on site and to the south and southwest of the site, however, the highest concentrations occurred to the south and southwest of the site.

Concentrations of 1,1-DCA were below GCTLs in all LSAS monitoring wells except MW-39 and MW-78, located to the south of the site, and MW-87, located on the golf course.

Cis-1,2-DCE was detected above laboratory detection limits in samples collected from 14 monitoring wells completed within the LSAS. Cis-1,2-DCE concentrations exceeded the GCTLs in samples collected from two LSAS monitoring wells, both located on site in the source area.

1,4-dioxane was detected above laboratory detection limits in samples collected from 16 monitoring wells completed within the LSAS. 1,4-dioxane concentrations exceeded the GCTLs in samples collected from 13 USAS monitoring wells. The LSAS monitoring wells with exceedances of 1,4-dioxane were located in and around the source area and to the north, northeast, east, south and southwest of the site. Concentrations of 1,4-dioxane in the LSAS were highest in the source area. However, high levels of 1,4-dioxane were also noted in the LSAS monitoring wells installed in the southwestern portion of the study area on the golf course.

The horizontal extent of the target COCs in the LSAS based on the fixed base laboratory results is very similar to the distribution based on the mobile laboratory results. As with the mobile laboratory results, at locations where SAS well pairs were installed, the concentrations of COCs were typically higher in the USAS than in the LSAS. As with the mobile laboratory results, there were some exceptions to this trend. Specifically, in the source area and the southern half of the site, 1,4-dioxane was reported at higher concentrations in the LSAS than the USAS. The highest 1,4-dioxane concentration reported was 580 µg/L in LSAS well MW-33 located in the source area on site. At this same location in the USAS (MW-32), the concentration of 1,4-dioxane was 6.5 µg/L.

3.8.4 <u>Intermediate Aquifer System</u>

3.8.4.1 Mobile Laboratory Results

Samples were collected from the IAS from rotosonic boring locations. Results of the deep core samples (RS-1, RS-3, RS-18, and RS-22) will be discussed first, followed by a discussion of the other IAS locations. The mobile laboratory analytical results for the IAS are depicted on Figure 3-

14 and summarized in Table 3-16. The laboratory analytical reports for mobile laboratory analysis are provided in Appendix M.

3.8.4.1.1 Deep Coring Locations

The deep core sample nearest the source area is RS-1 located north of Building 3. At this location, at least one exceedance was reported from each interval sampled from 8 feet bgs to total depth (298 feet bgs). Of the five COCs, TCE was reported most frequently at highest concentrations and 1,1-DCE was reported second most frequently. Commonly, TCE was the only exceedance reported in sampling intervals with low levels of contamination.

Proceeding downward, a notable increase in concentrations of COCs began at 98-108 feet bgs (510 µg/L TCE, 53 µg/L 1,1-DCE) and continued to 138 feet bgs. The highest concentrations (900 µg/L TCE, 98 µg/L 1,1-DCE) occurred between 118 and 138 feet bgs. A secondary spike (370 µg/L TCE) occurred 158 to 178 feet bgs. In the next sample collected (218 to 228 feet bgs), the only exceedance reported was TCE at a concentration of 25 µg/L. The TCE concentration in the sample collected at the bottom of the boring (278 to 298 feet bgs) barely exceeded the GCTL of 3 µg/L. 1,1-DCA was identified at a concentration of 87 µg/L in the 128 to 138 bgs sample, exceeding the GCTL of 70 µg/L. This was the only exceedance other than those of TCE and 1,1-DCE reported in samples collected from RS-1.

Deep core RS-3 was drilled in the northeast sector along 19th Street East approximately 900 feet northeast of the site. TCE was the only constituent identified at concentrations exceeding the GCTL in IAS samples collected at this location. Rare detections were reported for the other constituents. Results faintly echoed those of RS-1 in that highest concentrations were reported between 98 and 138 feet bgs. The highest TCE concentration reported at RS-3 was 29.7 µg/L 98 to 108 feet bgs. TCE was identified in every sample analyzed. The deepest interval where an exceedance was reported was 218 to 228 feet bgs (3.3 µg/L). All exceedances deeper than 138 feet bgs were single-digit values.

Samples collected from the deep core drilled in the southern portion of the site near the end of 17th Street Court East were labeled "RS-2" from 10 feet bgs to 200 feet bgs and "RS-22" from 196 to 256 feet bgs, because a broken drill bit at 200 feet bgs (RS-2) necessitated excavation of a new boring (RS-22) for collection of samples below 200 feet bgs. No exceedances were reported in the IAS at this location. 1,1-DCE 1,1-DCA, and cis-1,2-DCE were identified at trace concentrations less than GCTLs (maximum 5.8 µg/L 1,1-DCA) in three samples collected between 206 feet bgs and 246 feet bgs.

No target COCs were detected in IAS samples collected from RS-18 located on 16th Street East approximately 800 feet northwest of the source area.

3.8.4.1.2 Other IAS Coring Locations

Rotosonic coring, hydraulic testing, and groundwater grab sampling was performed at 18 additional, shallower locations in the IAS.

Four 1,1-DCE exceedances and one TCE exceedance were reported in IAS samples collected from the seven additional RS locations southwest, south, southeast, and east of the site. All were low level exceedances, the highest being 24.6 µg/L 1,1-DCE in a sample collected 106 to 116 feet bgs in RS-11 (located south of Tallevast Road east of the site). Low level exceedances were also reported at RS-11 for 1,1-DCE (19.4 µg/L) and TCE (5.8 µg/L) at 56 to 66 feet bgs, interpreted to be within the Venice Clay. 1,1-DCE was also reported at 10.2 µg/L 100 to 110 feet bgs in RS-12 due east of the site along Tallevast Road. The other 1,1-DCE exceedances in this area (RS-6 and RS-8) were reported in samples collected from shallower depths in the IAS between 56 and 86 feet bgs. No exceedances were reported in RS-7, RS-9, or RS-10. Deepest intervals sampled in this area of the site ranged from 126-136 feet bgs (RS-6) to 167-177 feet bgs (RS-9).

Three additional locations (RS-13, RS-14, and RS-15) were investigated by rotosonic procedures northeast of the site in the vicinity of deep core RS-3. At RS-15, located on the railroad right-of-way west of RS-3, samples were collected to a depth of 156 feet bgs and no detections were reported. At the other two locations, RS-14 and RS-13, situated north and east of RS-3, respectively, results were similar to those of RS-3. At RS-14 where samples were collected to a depth of 257 feet bgs, TCE was identified at a concentration of 140 µg/L at 87 to 97 feet bgs, but was only identified at 2 other sampling intervals below this, 117 to 127 feet bgs (5.8 µg/L) and 217 to 227 feet bgs (3.8 µg/L). At RS-13, samples were collected to a depth of 276 feet bgs. TCE was detected at all sampled intervals between 96 feet bgs and 206 feet bgs, but all reported concentrations were single-digit values no greater than 4.8 µg/L. There were some detections of other constituents at RS-13 and RS-14, but no exceedances.

Four additional locations were investigated by rotosonic methods, two north of the site (RS-16 and RS-21) and two northwest of the site (RS-19 and RS-20). No exceedances were reported at these locations.

As discussed in Section 2.5, split samples were collected from 10 percent of the groundwater samples analyzed by the mobile laboratory for quality assurance purposes. Split samples were sent to a fixed-base laboratory (U.S. Biosystems) for VOC analyses. A comparison of the data indicates good correlation between values reported by the two laboratories. The fixed base laboratory reports for the split samples are provided in Appendix O.

3.8.4.2 Fixed-Base Laboratory Results

Groundwater samples were collected from the IAS monitoring wells and sent to the fixed-base laboratory (STL) for analysis for the target COCs (trichloroethene, tetrachloroethene, 1,1-dichloroethene, 1,1-dichloroethane, cis 1,2-dichloroehtene) by EPA Method 8260, and 1,4-dioxane by EPA Method 8270. The fixed base laboratory analytical results for the IAS monitoring well locations are depicted on Figure 3-15 and summarized on Table 3-17. The laboratory analytical report is provided in Appendix O.

3.8.4.2.1 Deep IAS Monitoring Wells

No exceedances were reported in samples collected from the four monitoring wells installed in the basal portion of the IAS (MW-19, MW-22, MW-31, and MW-46).

3.8.4.2.2 Other IAS Monitoring Wells

The only exceedance reported in the monitoring wells installed to intermediate depths in the IAS was 12 µg/L 1,1-DCE in the sample collected from monitoring well MW-44 installed at the location of RS-8, located approximately 250 feet south of the former ABC facility in the residential area bordering the golf course.

4.0 Conclusions and Recommendations

4.1 SOIL

4.1.1 On-Site Soil

Concentrations of COCs in on-site soil samples exceeded SCTLs at 13 locations. With exception of beryllium and copper exceedances at two locations in the northeast portion of the site (HA-006 and HA-007), and a tetrachloroethene exceedance at one location near the source area (HA-016), all of the exceedances were PAHs and arsenic at concentrations that are common in any developed area.

4.1.2 Off-Site Soil

Concentrations of COCs in off-site soil samples exceeded SCTLs at 75 locations. The COCs that exceeded SCTLs were arsenic, benzo(a)pyrene, dibenzo(a,h)anthracene, and lead. With the exception of an arsenic concentration of 26 mg/kg at HA-080, and a lead concentration of 570 mg/kg at HA-136, the majority of the exceedances were low levels that are common in any developed area.

A 95% UCL analysis of the laboratory analytical results from the off-site soil samples collected during this investigation. Based on this analysis, arsenic concentrations in all exposure units except one exceed the residential FDEP SCTL of 0.8 mg/kg; however, of the 30 exposure units evaluated, only 13 exposure units exceed the draft residential FDEP SCTL of 2.1 mg/kg. No exposure unit exceeds the EPA Region IV residential value for arsenic of 23 mg/kg. Five exposure units exceeded the industrial FDEP SCTL of 3.7 mg/kg; however, none exceeded the draft industrial FDEP SCTL of 12 mg/kg.

Lead was analyzed in samples from a limited number of exposure units. Lead concentrations in all exposure units were less than the residential FDEP SCTL of 400 mg/kg. Benzo[a]pyrene was also analyzed in a limited number of exposure units. Of the 19 exposure units evaluated, benzo[a]pyrene concentrations exceeded the residential FDEP SCTL of 0.1 mg/kg in 14 of those exposure units. Benzo[a]pyrene concentrations exceeded the industrial FDEP SCTL of 0.5 mg/kg in 7 exposure units; benzo[a]pyrene concentrations exceeded the draft industrial FDEP SCTL of 0.7 mg/kg in 4 exposure units.

4.1.3 Soil Gas Sampling

Soil gas analytical data indicated the following:

- All detected soil gas analyte concentrations were less than the applicable Johnson and Ettinger screening values typically by several orders of magnitude.
- All detected soil gas analyte concentrations were less than the applicable OSHA PELs typically by several orders of magnitude.
- Only benzene in soil gas sample SGS-05 had a concentration (4.2 ppb) that slightly exceeded the applicable ATSDR MRL of 4.0 ppb. All other detected soil gas analytes concentrations were well below their corresponding ATSDR MRLs.

The results of the comparisons indicate that the potential for subsurface vapor intrusion leading to elevated indoor air concentrations at the former ABC facility appears unlikely.

4.2 GROUNDWATER

Groundwater occurs in four defined hydrogeolgic systems at the site; the USAS, LSAS, IAS and the FAS. Extensive characterization was performed in the USAS, LSAS and IAS, but not in the FAS during this investigation.

Four relatively permeable units were identified by the hydraulic testing program: USAS sands approximately 0 to 30 feet bgs, LSAS sandy gravel approximately 35 to 45 feet bgs, clayey gravel in the IAS approximately 90 to 100 feet bgs, and “Salt and Pepper” sand in the IAS approximately 140 to 150 feet bgs. The majority of the IAS, including the Venice Clay and fine grained mudstone/wackestone units in the Arcadia Formation, has very low permeability.

Groundwater in the USAS is unconfined with the water table occurring 2 to 4 feet bgs. Flow in the USAS appears to radiate away from the site in all directions with the strongest component of flow to the north and northeast. Groundwater in the LSAS is confined by the hard streak with groundwater elevations from 5 to 12 feet bgs. Groundwater flow in the LSAS occurs predominantly from the southwest to the northeast across the site area. Groundwater in the IAS is inferred to flow to the west away from the site. A strong downward hydraulic gradient exists between the USAS and LSAS. A more gentle downward gradient exists in the immediate site area between the LSAS and the IAS.

Groundwater quality in the SAS and IAS was assessed in two phases: a preliminary grab sampling phase using VP or rotosonic (RS) methods for sample collection; and a followup phase involving analysis of groundwater samples collected from a network of permanent monitoring wells. Seventy-seven monitoring wells were installed at select locations based on results of the preliminary VP/RS sampling and analysis program, and 26 monitoring wells were in existence before the current investigation commenced. The COCs targeted by the investigation were TCE, PCE, 1,1-DCE, cis-1,2-DCE, and 1,1-DCA and 1,4-dioxane. Analysis of 1,4-dioxane was only performed on samples collected from the permanent wells during the second phase of assessment.

Significant findings of the groundwater investigation were as follows:

4.2.1 Surficial Aquifer System

- A water-table mound is present at the site and groundwater flow in the USAS appears to radiate from the site to adjacent areas, with the strongest gradient towards the north and northeast. he hydraulic gradient, or inferred direction of groundwater movement , underlying the site vicinity is to the *state direction of flow within each unit or if it was the same in both U and LSAS, state the direction(s).*
- COCs reported in the SAS at concentrations exceeding GCTLs, were TCE, PCE, 1,1-DCE, 1,1-DCA, cis-1,2-DCE, and 1,4-dioxane.
- No DNAPL was identified in the source area. Of the COCs, TCE was generally reported at highest concentrations in and around the source area, the maximum being 8200 µg/L in a VP grab sample. TCE was also the analyte detected most often north

and northeast of the source, but in most areas south of the source area, 1,1-DCE and 1,1-DCA were the most frequently reported COCs.

- The concentrations of COCs are typically higher in the USAS than in the LSAS.
- The current monitoring well network defines the VOC limit of the SAS plume in all directions except southwest along the western boundary of the golf course.
- 1,4-dioxane exceedances in the SAS apparently cover a larger area than VOC exceedances, and concentrations of 1,4-dioxane are commonly higher in the LSAS than the USAS. The extent of 1,4-dioxane, especially in the LSAS, has not been adequately defined in the southwest, south, and southeast portions of the study area. Low level 1,4-dioxane exceedances were reported in the distant northwest sector of the study area.

4.2.2 Intermediate Aquifer System

- Mobile laboratory results indicate that concentrations of target COCs in the deep core installed in the source area (RS-1) exceeded GCTLs in every interval from 8 feet bgs to the total depth of 298 feet bgs. The highest concentrations were reported in the 118 to 128-ft bgs interval and the 128 to 138-ft bgs interval.
- At IAS boring locations northeast of the site (RS-3, RS-13, RS-14, RS-15), TCE was identified at concentrations slightly exceeding the GCTL to depths greater than 200 feet bgs.
- At IAS boring locations southeast and east of the site, (RS-11 and RS-12), 1,1-DCE concentrations slightly above the GCTL were reported in grab samples collected between 100 and 116 feet bgs at RS-11 and RS-12.
- The most transmissive zones of the IAS occurred between 120 and 160 feet bgs. Other than the deep wells, most IAS wells were screened between 135 and 155 feet bgs.
- Only one exceedance was reported in the 22 wells installed in the IAS, 12 µg/L 1,1-DCE in MW-44, a 152-ft deep well installed approximately 500 feet south of the source area.
- 1,4-dioxane was not detected in any samples collected from IAS wells.

4.3 RECOMMENDATIONS

Based upon the hydrogeological and chemical data presented in this SARA and the requirements of Chapter 62-780, FAC, it is recommended that a Remedial Action Plan (RAP) be prepared to address contaminated soil and groundwater at the site. Additional assessment activities are currently being conducted to further delineate the horizontal extent of groundwater contamination in the SAS and IAS. The results of this additional assessment will be submitted to the Florida Department of Environmental Protection (FDEP) as a supplemental letter report.

5.0 References

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5. FDEP (Florida Department of Environmental Protection) Site Investigation Section, 2004. Preliminary Contamination Assessment Report, Tallevast Community, SIS Report Number 2004-01

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15. Tetra Tech, Inc., Initial Remedial Action Report, Former American Beryllium Company, December 12, 2001.

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Table 1-1

Water Supply Well Inventory[1]
Site Assessment Report Addendum
Former American Beryllium Company
Tallevast, Florida

Address	Property Owner	Well Usage[1]	Casing Diameter[2]	Depth of Casing[2]	Casing Material[2]	Depth to Water[2]	Total Depth[2]
1611 Tallevast Road	Unknown	Unknown	NA	NA	NA	NA	NA
1808 Tallevast Road	Unknown	Unknown	NA	NA	NA	NA	NA
7819 17th Street East	Wesley, Elizabeth	Irrigation	NA	NA	NA	NA	NA
7813 17th Street Court East	Smith, Ervin	Irrigation	NA	NA	NA	NA	NA
7716 17th Street Court East	Davis, Lizzie	Irrigation	3	30	Steel	14.1	30
7624 16th Street East	Sloan, Eugene	Irrigation	2	30	Steel	13.21	90.8
7623 17th Street East	Moore, James	Irrigation	NA	NA	NA	NA	NA
7620 16th Street East	Mazon, Dorothy	Irrigation	NA	NA	NA	NA	NA
7619 17th Street East	Rowe, Ernestine	Irrigation	1.5	NA	Steel	NA	NA
7603 19th Street East	Sloan, Louise	Irrigation	4	31	PVC	14.6	96.4
7600 19th Street East	Wesley, Michael	Irrigation	NA	NA	NA	NA	NA
1864 Tallevast Road	Ward, Laura	Irrigation	4	38	Steel	15.1	127
1812 Tallevast Road	Ward, Laura	Irrigation	NA	NA	NA	NA	NA
1712 Tallevast Road	Pitts, Wyman	Irrigation	2	26	Steel	14.5	26
1710/1714 76th Avenue Drive East	Bryant, Fred	Irrigation	2	32	Steel	16.4	64
1709 76th Avenue Drive East	Bryant, Carter	Irrigation	NA	NA	NA	NA	NA
1615 Tallevast Road	Ward, Clifford	Irrigation	4	38	Steel	15.3	122
1507 Tallevast Road	Unknown	Irrigation	2	30	Steel	11.9	84
7624 19th Street East	McKnight, Loretta	Domestic	4	32	Steel	16.3	114
7621 16th Street East	Peterson, Milton	Domestic	4	37	Steel	15.81	233
7619 18th Street East	Bryant, Frank	Domestic	2	37	Steel	16.24	105.6
7616 16th Street East	Washington, Wanda	Domestic	3	35	Steel	NA	97
7615 18th Street East	Brown, Sylvester	Domestic	3	28	Steel	15.64	69
7611 18th Street East	Davis, Abram	Domestic	3	67	Steel	15.3	102.2
7609 18th Street East	McKnight, Earnest	Domestic	6	29	Steel	15.3	153
7609 16th Street East	Church of the Living	Domestic	4	30	PVC	15.55	129.5
7604/7608 16th Street East	Robinson, Willie	Domestic	2	30	Steel	NA	74.5
7603 18th Street East	McKnight, Earnest	Domestic	NA	NA	NA	NA	NA
7519 18th Street East	Sims, Essie Mae	Domestic	4	29	Steel	17.41	170.6
7515 18th Street East	Carmichael, Tony	Domestic	2	24	Steel	15.1	24
2003 Tallevast Road	Granderson, Lillian	Domestic	4	34	Steel	12.33	144
1955 Tallevast Road	Heathington, Clif	Domestic	NA	NA	NA	NA	NA
1911 Tallevast Road	Black, Daisey	Domestic	NA	NA	NA	NA	NA
1811 Tallevast Road	Bryant, Joseph	Domestic	2	31	Steel	15.12	77.5
1804 Tallevast Road	Williams, Delores	Domestic	8	40	Steel	15.74	282
Golf Course	SMAA	Irrigation	4	400	NA	NA	NA

1 - Well inventory based on information obtained from Manatee County Environmental Management, FOCUS, and field reconnaissance

2 - Information obtained from field reconnaissance and geophysical logging of well

NA - Information not available

SMAA - Sarasota-Manatee Airport Authority

Table 2-1. Description of Discrete-Interval Pumping Test Methods (see Figure 2-4).

	Pumping Tests Using Inflatable Packers	**Pumping Tests Not Using Temporary Wells / Packers (Open Hole)**
Purpose	To collect a screening-level quality, groundwater sample for VOC analysis by the mobile lab from discrete 10-ft open intervals (5-ft in certain intervals) and to record pumping rates, water-level drawdown levels and recovery levels, borehole geometry, and other test conditions for subsequent calculation of interval transmissivity and conductivity.	
Aquifer Test Equipment	• Temporary well from above ground surface to the bottom of 10-LF open hole (below 6-in temporary casing); • 2-in dia. x 10 LF stainless steel (SS) screen; • 2-in SS riser or drill rods used as risers; • Inflatable packer around the temporary well (2- to 4- ft above the screen) with a gas pressure delivery system; • Submersible electric purge / sample pump (Grundfos Redi-Flo2®) with variable speed controller; • Solinst Levelogger® (set to 20-second continuous water level collection interval) with 300 LF cable and direct read Solinst Leveloader® direct reader.	• Submersible electric purge pump (Grundfos 3-in) with discharge throttle valve; • Submersible electric purge / sample pump (Grundfos Redi-Flo2) with variable speed controller; • Solinst Levelogger (set to 20-second continuous water level collection interval) with 300 LF cable and direct read Solinst Leveloader direct reader.
Field Documentation	• Solinst Levelogger memory; • Pump Test Field Forms; • Papadopulos-Cooper (1967) aquifer test solutions for 15-minute purging / 5-minute recovery from 2-in and 2.5-in ID wells inside a 6-in casing, extending down into a 10 ft long 5-in or 7-in diameter borehole.	• Solinst Levelogger memory; • Pump Test Field Forms; • Papadopulos-Cooper (1967) aquifer test solutions for 15-minute purging from a 6-in casing with a 5-in or 7-in ID borehole.
Test Intervals	*300 ft Borings:* The Geologist conducted a pumping test at each 10-ft interval (5-ft intervals in the Surficial Aquifer System / Intermediate Aquifer System transition zone). A groundwater grab sample was collected (after at least 15 minutes of borehole purging) from each interval with a field-estimated yield greater than 0.25 gpm or a transmissivity greater than 0.2 ft^2/d, with a minimum of one sample per 30 LF (with 10% of the samples QA/QC duplicates sent to a fixed- based lab). *Minimum 100-ft Depth Borings:* The Geologist observed the retrieved core and only conducted a pumping test at intervals that had a reasonable probability of producing a sustained yield greater than 0.25 gpm with a minimum of one sample per 30 LF. If a test was performed, a groundwater grab sample was collected from each interval with a transmissivity greater than 0.2 ft^2/d (determined by comparing pumping rate and drawdown data to prepared test solutions), with a minimum of one sample per 30 LF (with 10% of the samples QA/QC duplicates sent to a fixed- based lab).	
Borehole Configuration	The 4-in ID core barrel was advanced 10 LF into undisturbed strata from the bottom of the 6-in ID temporary casing (typically without water injection). The barrel was then removed and the core sample extruded for the Geologist to log. The borehole would typically have a 10-ft deep, by 5-in diameter open hole (less any slough) below a 6-in steel casing to the surface. If the core DID appear capable of transmitting more than ¼ gpm (had potential water bearing zones), then a temporary well with inflatable packer (detailed above) was installed, and a pumping test was conducted (guidance detailed below). If the core DID NOT appear capable of transmitting more than ¼ gpm, then the 6-in casing was advanced to total depth, the hole flushed with potable water, and the process repeated for the next 10-ft, 4-in core sample, as detailed in this section.	
Temporary Well Set Up	The drillers installed a 2-in SS temporary well and packer for all intervals to be aquifer tested. The well was lowered to TD (or as deep as practical through any slough). The well riser was composed of either 2-in ID SS or 2.5-in ID/3.5-in OD drill rod. The packer was inflated. The Geologist recorded pertinent set-up data on the field form.	No temporary well required. No packer required.

Table 2-1. Description of Discrete-Interval Pumping Test Methods (see Figure 2-4).

	Pumping Tests Using Inflatable Packers	**Pumping Tests Not Using Temporary Wells / Packers (Open Hole)**
Equipment Set Up	The Geologist typically connected the pre-programmed Levelogger to the Redi-Flo pump discharge tubing with zip ties near the top of pump. The pump and Levelogger (w/cable) were lowered down the 2-in temporary well into the conductive portion of the open-hole (to promote quick flushing of less turbid formation water through the pump, reducing particulate damage to the pump, and increasing aquifer sample representativeness). The tubing was secured to impede Levelogger slippage. After all equipment was installed, the Levelogger was allowed to record 5 minutes of water level trend data. The Geologist recorded pertinent set-up information on the field form, including: • depth of the pump intake, • depth to the Levelogger, • discharge tubing length and diameter, • presence/absence of a pump check valve, • depth to water inside the 2-in well (0.01ft), • depth to water in the 2-in to 6-in annulus, • Leveloader measurements as soon as practical AFTER EVERY handheld water level recording.	The Geologist typically lowered the pre-programmed Levelogger to the top of the open interval and secured it from slippage. The 3-in Grundfos pump was then lowered to a point above the Levelogger (usually at least 50 ft below the top of the water column). After all equipment was installed, the Levelogger was allowed to record 5 minutes of water level trend data. The Geologist recorded pertinent set-up information on the field form, including: • depth of the pump intake, • depth to the Levelogger, • discharge tubing length and diameter, • presence/absence of a pump check valve, • depth to water in the borehole (0.01ft), • Leveloader measurements as soon as practical AFTER EVERY handheld water level recording.
Pumping Test Data Collection	At least one handheld water level measurement was usually recorded inside the 2-in well and in the 2-in to 6-in annulus during the 5-min trend period, 15-minute minimum purging interval, and 5-minute recovery portions of the pump test. Pumping was typically conducted for 15 minutes after the first discharge was noted. The flow volumes and purge times were recorded on the field form as practical, typically at pump start and stop, change in flow rate, and every 1 to 2 gallons. After 15.0 minutes, the pump was stopped and the duration of backflow through the pump discharge tube into the well was noted. The well was then allowed to recharge for at least 5 minutes. Packer leakage, if any, was noted by collecting water level measurement in the annulus, as necessary. The Levelogger and Leveloader recorded water-level measurements (typically) every 20 seconds during the entire test period.	At least one handheld water level measurement was usually made during the 5-min trend period, 15-minute minimum purging interval, and 5-minute recovery portions of the pump test. Pumping was typically conducted for 15 minutes after the first discharge was noted. The flow volumes and purge times were recorded on the field form as practical, typically at pump start and stop, change in flow rate, and every 1 to 2 gallons. After 15.0 minutes, the pump was stopped and the duration of backflow through the pump discharge tube into the well, if any, was noted. The well was then allowed to recharge for at least 5 minutes. The Levelogger and Leveloader recorded water-level measurements (typically) every 20 seconds during the entire test period.
GW Sample Collection	A goal of the GW sample program was to collect a representative screening-level sample of the aquifer interval being tested in a timely manner, and have chemical results provided by the on-site lab within the hour to facilitate drilling decisions. After the recharge test was completed, the Geologist used the pumping information collected and the criteria detailed above to determine if a groundwater sample would be collected. If a sample was indicated, the Redi-Flo2 pump would be restarted and at least two discharge tubing volumes	Same, except the following was done to collect a GW sample: (1) remove the 3-in Grundfos pump (and Levelogger, if necessary); (2) Install the Redi-Flow2 ® pump to the top of the open interval; (3) reinstall the Levelogger within the water column and record approximate depth.

Table 2-1. Description of Discrete-Interval Pumping Test Methods (see Figure 2-4).

	Pumping Tests Using Inflatable Packers	**Pumping Tests Not Using Temporary Wells / Packers (Open Hole)**
	would be purged at typical rates of ¼ to ½ gpm. The GW sample was typically collected at a water level drawdown equilibrium, or water level rise. As soon as representative aquifer water was being purged (field judgment), the pump rate was typically reduced to 250 ml/min and the sample collected with minimal turbulence. Water clarity and odor, if any, were also noted. Samples were rushed to a mobile lab for analysis. The Geologist used his experience and all field observations to qualify the sample representativeness of the aquifer water as GOOD, *FAIR*, or *POOR*.	
Alternative GW Sample Collection for Transmissive Zones Only	An alternative method to produce a more representative sample was to collect it immediately after an extended duration pump test (prior to the recover test) if near equilibrium drawdown was noted at the end of the 15-minutes of pumping. After up to 40 minutes of pumping (final duration based on field judgment), the flow rate was reduced to 250 ml/min and the sample immediately collected. The pump was then shut down and the 5-minute recovery test was conducted after sample collection.	

Table 3-1. Stratigraphic Column at the former ABC Beryllium Company site in Tallevast, Florida.

SYSTEM	SERIES	LITHO-STRATIGRAPHIC UNIT		HYDRO-STRATIGRAPHIC UNIT	LITHOLOGY	DEPTH OF UNIT BOUNDARY (feet bls)
QUATERNARY	PLEISTOCENE	UNDIFFERENTIATED SURFICIAL DEPOSITS (USD)		SURFICIAL AQUIFER SYSTEM	The **Upper SAS** (USAS) is a series of undifferentiated (unconsolidated) sands with variable clay content and shell fragments. The sands are fine to medium and sub rounded to rounded. The basal section of the SAS (LSAS) is represented by indurated moldic carbonate **("Hard Streak")** and gravel unit **("Lower SAS Gravels")** of carbonate material. The contact at the base of the SAS is a sharp contact with the confining unit, interbedded clays of the Peace River Formation.	0 25-53
TERTIARY	PLIOCENE	HAWTHORN GROUP	PEACE RIVER FORMATION	IAS CONFINING UNIT	The IAS confining unit includes a clay unit **("Venice clay"),** which is horizontally interbedded with minor sands and clayey gravels throughout. There is a distinctive, correlated clayey gravel unit within the PRF **("Lower PRF Gravels")**, which carries a distinctive natural gamma spike believed to result from a high phosphatic content (carbonate hydroxyl fluorapaptite or Francolite). There is a transitional contact with the underlying Arcadia formation	55-86
			ARCADIA FORMATION	INTERMEDIATE AQUIFER SYSTEM	**IAS SAND AND CLAY ZONE 1** - The top of the Arcadia Formation (AF) is comprised of a series of inter-bedded carbonate (calcitic/dolomitic) calcilutite, calcarenite and calcirudites. The Dunham classification system was applied to these units.	92.5-121
					UPPER AF GRAVELS - Beneath the upper AF, a lateral correlation can be made of a calcirudite/calcilutite (clayey gravel/gravelly clay) unit ranging from 92'-127' in the surveyed area. The unit produced significant groundwater yields, and is associated with a distinctive natural gamma spike which is believed to result from a high phosphatic content (carbonate fluorapaptite or Francolite)	101-133
					IAS SAND AND CLAY ZONE 2 - The top of the Arcadia Formation (AF) is comprised of a series of inter-bedded carbonate (calcitic/dolomitic) calcilutite, calcarenite and calcirudites. The Dunham classification system was applied to these units.	130-151
					UPPER AF S & P SANDS - Located in the middle of the AF is a laterally continuous sand unit which is quartz rich and has a high/moderate phosphatic content. Due to the colorless quartz and black phosphatic sand, the unit has a "salt & pepper" appearance. This "salt & pepper" (S & P) sand unit is fine to medium and has varying silt and clay content ranging from poorly graded to clayey sands.	141-163
					IAS SAND AND CLAY ZONE 3 - The top of the Arcadia Formation (AF) is comprised of a series of inter-bedded carbonate (calcitic/dolomitic) calcilutite, calcarenite and calcirudites. The Dunham classification system was applied to these units.	170-179
					LOWER AF GRAVELS - Beneath the sands of the S & P zone, a lateral correlation can be made of a calcirudite/calcilutite (clayey gravel/gravelly clay) unit ranging from 163'-180' in the surveyed area. This unit carries a distinctive natural gamma spike which is believed to result from a high phosphatic content (carbonate fluorapaptite or Francolite)	168-180
					IAS SAND AND CLAY ZONE 4 - The top of the Arcadia Formation (AF) is comprised of a series of inter-bedded carbonate (calcitic/dolomitic) calcilutite, calcarenite and calcirudites. The Dunham classification system was applied to these units.	278-290
					LOWER AF SANDS - Located at the base of the AF, is a laterally continuous sand unit which is quartz rich and appears to have a high phosphatic content. The sand unit is fine to medium and has varying silt and clay content ranging from poorly sorted to clayey sands.	287-296

Table 3-2. Depth to the Base of Strata Encountered (in feet) in IAS Boreholes at the Former ABC Site in Tallevast, Florida.

Formation	Boring ID	RS-1	RS-2	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8	RS-9	RS-10	RS-11	RS-12	RS-13	RS-14	RS-15	RS-16	RS-17	RS-18	RS-19	RS-20	RS-21	RS-22
	MW ID	**TT-MW-19-IAS**	**TT-MW-23-IAS**	**TT-MW-46-IAS**	**TT-MW-57-IAS**	**TT-MW-58-IAS**	**TT-MW-56-IAS**	**TT-MW-34-IAS**	**TT-MW-44-IAS**	**TT-MW-55-IAS**	**TT-MW-54-IAS**	**TT-MW-53-IAS**	**TT-MW-52-IAS**	**TT-MW-51-IAS**	**TT-MW-50-IAS**	**TT-MW-49-IAS**	**TT-MW-45-IAS**	**TT-MW-59-IAS**	**TT-MW-31-IAS**	**TT-MW-61-IAS**	**TT-MW-60-IAS**	**TT-MW-21-IAS**	**TT-MW-22-IAS**
	Total Depth	298	205	300	146	150	156	155.5	152	177	155.5	166	160	276	257	156	160	150	335	145	155	145	297
Undifferentiated Surficial Deposits	**SAS sands**	27	42	26	25	28	31.5	30	30.5	47.5	35	26	27.5	26	22	22	28	24	24	25	21	23	42
	Hard Streak	28.5	43.5	27.5	26.5	29.5	33	31.5	32	49	36	27.5	29	27	23.5	23.5	29.5	25.5	25.5	26.5	22.5	24.5	43.5
	Lower SAS Gravels	32.5	50	27.5	34.5	31	36	36.5	40	53	45.5	32	30	27	27	28.5	29.5	27.5	27.5	29.5	25	25	50
Peace River Formation	**Upper Venice Clay**	44	55	36.5	42.5	43	46	NA**	47.5	64	52.5	40	43.5	36	34	35.5	38	43.5	43.5	35	39.1	32.5	55
	Lower PRF Gravels	47	58	43	45	45	47	NA**	48.5	67	55	42	46	40	38	36.5	40	45	45	38	41	35	58
	Venice Clay	68	78	58	75	62	62	64	67.5	86	69.5	69.5	65	63	55.5	61.5	64.5	65	65	69	59	55	78
Arcadia Formation	**IAS Clay/Sand Z1**	100.5	113	95.5	95	100	106.5	107	106	121	115	109	100	96	88.5	96	100	98.5	98.5	102	105	92.5	113
	Upper AF Gravels	108	124	105.5	101	110	113.5	112	116	133	126.5	116.5	110	116	102	103	110	114.5	114.5	115	115	106.5	124
	IAS Clay/Sand Z2	138	151.5	138	138	140	145	142	142	151	130	142.5	143	149	137	NA	140	145	145	133	139	133.5	151.5
	Upper AF S & P Sands	150	160	147.5	145	150	154.5	145	146	163	155	153.5	157	157	147	NA	150	156.5	156.5	141.5	154	145	160
	IAS Clay/Sand Z3	171	177	163	NA	NA	NA	NA	NA	NA	NA	NA	NA	176	170	NA	160	NA	179	NA	NA	NA	177
	Lower AF Gravels	173.5	180	168	NA	NA	NA	NA	NA	NA	NA	NA	NA	179	177	NA	NA	NA	180	NA	NA	NA	180
	IAS Clay/Sand Z4	278	NA	278	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	285	NA	NA	NA	289.5
	Lower AF Sands	288	NA	287.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	298.5	NA	NA	NA	296

Note: NA indicates that a depth value is not available because the unit was not fully penetrated by a boring or the available log detail was insufficient to determine thickness.

Table 3-3. Thickness of Strata Encountered (in feet) in IAS Boreholes at the Former ABC Site in Tallevast, Florida.

Formation	Boring ID	RS-1	RS-2	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8	RS-9	RS-10	RS-11	RS-12	RS-13	RS-14	RS-15	RS-16	RS-17	RS-18	RS-19	RS-20	RS-21	RS-22
	MW ID	TT-MW-19-IAS	TT-MW-23-IAS	TT-MW-46-IAS	TT-MW-57-IAS	TT-MW-58-IAS	TT-MW-56-IAS	TT-MW-34-IAS	TT-MW-44-IAS	TT-MW-55-IAS	TT-MW-54-IAS	TT-MW-53-IAS	TT-MW-52-IAS	TT-MW-51-IAS	TT-MW-50-IAS	TT-MW-49-IAS	TT-MW-45-IAS	TT-MW-59-IAS	TT-MW-31-IAS	TT-MW-61-IAS	TT-MW-60-IAS	TT-MW-21-IAS	TT-MW-22-IAS
	Total Borehole Depth	298	205	300	146	150	156	155.5	152	177	155.5	166	160	276	257	156	160	150	335	145	155	145	297
Undifferentiated Surficial Deposits	Upper SAS Sands	27.5	42	26	25	28	31.5	30	30.5	47.5	35	29	27.5	26	22	22	28	24	24	25	21	23	42
	Hard Streak	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1	1.5	1.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Lower SAS Gravels	4	6.5	0	8	1.5	3	5	8	4	9.5	4.5	1	0	3.5	5	0	2	2	3	2.5	0.5	6.5
Peace River Formation	Upper Venice Clay	11.5	5	9	8	12	10	NA	7.5	11	7	8	13.5	9	7	7	8.5	16	16	5.5	14.1	7.5	5
	Lower PRF Gravels	3	3	6.5	2.5	2	1	NA	1	3	2.5	2	2.5	4	4	1	2	1.5	1.5	3	1.5	2.5	3
	Venice Clay	21	20	15	30	17	15	27.5	19	19	14.5	27.5	19	23	17.5	25	24.5	20	20	31	18	20	20
Arcadia Formation	IAS Clay/Sand Z1	32.5	35	37.5	20	38	44.5	43	38.5	35	45.5	39.5	35	33	33	34.5	35.5	33.5	33.5	33	46	37.5	35
	Upper AF Gravels	7.5	11	10	6	10	7	5	10	12	12	7.5	10	20	13.5	7	10	16	16	13	10	14	11
	IAS Clay/Sand Z2	30	27.5	32.5	37	30	31.5	30	26	18	3	26	33	33	35	NA	30	30.5	30.5	18	24	27	27.5
	Upper AF S & P Sands	12	8.5	9.5	7	10	9.5	13	10	12	25	11	14	8	10	NA	10	11.5	11.5	8.5	15	11.5	8.5
	IAS Clay/Sand Z3	21	17	15.5	1	NA	1	NA	NA	14	1	9	3	19	23	NA	10	NA	22.5	3	1	NA	17
	Lower AF Gravels	2.5	3	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	7	NA	NA	NA	1	NA	NA	NA	3
	IAS Clay/Sand Z4	104.5	25	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	97	80	NA	NA	NA	105	NA	NA	NA	109.5
	Lower AF Sands	10	NA	9.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.5	NA	NA	NA	6

Note: NA indicates that a thickness value is not available because the unit was not fully penetrated by a boring or the available log detail was insufficient to determine thickness.

Table 3-4. Statistics of Horizontal Hydraulic Conductivity (Kh) Values Derived from Discrete-Interval Pump Tests.

Unit	# of Kh Estimates based on Discrete-Interval Pump Tests	Geometric Mean (ft/d)	Geometric Mean (cm/sec)	Median (ft/d)	Minimum (ft/d)	Maximum (ft/d)
Upper SAS Sands	20	8.10E-01	2.86E-04	2.42E+00	2.67E-05	9.80E+00
Mixed Upper SAS and Lower SAS	7	1.18E+00	4.17E-04	2.18E+00	4.66E-02	4.03E+00
Lower SAS	5	9.66E-01	3.41E-04	9.51E-01	1.65E-01	6.91E+00
Venice Clay	29	2.20E-02	7.77E-06	1.64E-02	2.67E-05	1.22E+01
Venice Clay and Lower PRF Gravels	10	4.15E-01	1.46E-04	4.22E-01	1.57E-02	2.35E+01
IAS Clay/Sand Z1	44	3.32E-02	1.17E-05	4.34E-02	2.67E-05	3.89E+01
Upper AF Gravels	12	1.00E+00	3.53E-04	1.49E+00	2.22E-02	2.23E+02
Upper AF Gravels and IAS Clay/Sand Z1 or Z2	10	6.09E-01	2.15E-04	1.22E+00	1.52E-02	4.00E+01
IAS Clay/Sand Z2	32	2.95E-02	1.04E-05	3.81E-02	2.67E-05	5.57E+00
S&P Sands	10	2.62E-01	9.23E-05	3.39E-01	1.20E-02	1.50E+00
S&P Sands with IAS Clay/Sand Z2 or Z3	10	3.01E-01	1.06E-04	2.76E-01	3.91E-02	1.23E+00
IAS Clay/Sand Z3	7	1.61E-01	5.67E-05	2.70E-01	6.97E-03	1.07E+00
IAS Clay/Sand Z4	52	8.13E-02	2.87E-05	7.47E-02	6.44E-04	2.01E+01

Note: Kh values were calculated by dividing transmissivity estimates determined from pump test analysis by the thickness of each test interval.
As indicated above, certain pump tests "interrogated" more than one hydrostratigraphic unit.

Table 3-5

Groundwater Elevation Data
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Monitoring Well Identification (TT-MW-)	Total Depth (ft bgs)	Aquifer System	Screened Interval Depth (ft bgs)	Top-of-Casing Elevation (ft msl)	January 21, 2005	
					Depth to Water Below Top--of-Casing (ft)	Groundwater Elevation (ft msl)
4	18.87	USAS	4-19	31.32	3.92	27.40
5	10.32	USAS	4-10	31.99	4.45	27.538
6	10.25	USAS	4-10	31.70	4.41	27.29
7D	19.96	USAS	15-20	31.30	3.11	28.19
7S	9.99	USAS	4-10	31.13	3.03	28.1
8D	18.60	USAS	15-20	30.83	3.00	27.83
8S	10.47	USAS	4-10	30.79	2.93	27.86
9D	20.00	USAS	15-20	30.04	2.98	27.06
9S	10.00	USAS	4-10	30.08	3.10	26.98
10	20.21	USAS	15-20	31.58	4.11	27.47
11	19.43	USAS	15-20	31.67	3.97	27.7
12	20.36	USAS	15-20	30.90	3.62	27.28
13D	19.85	USAS	15-20	30.49	3.73	26.76
13S	9.97	USAS	4-10	30.62	3.52	27.1
14D	19.89	USAS	15-20	29.56	2.69	26.87
14S	9.76	USAS	4-10	29.53	2.73	26.8
15D	18.71	USAS	15-20	29.90	2.20	27.7
15S	9.80	USAS	4-10	30.02	3.07	26.95
16D	18.26	USAS	15-20	27.44	1.90	25.54
16S	9.73	USAS	4-10	27.05	2.00	25.05
17D	19.00	USAS	15-20	29.91	3.24	26.67
17S	9.30	USAS	4-10	30.04	3.09	26.95
18D	18.83	USAS	15-20	27.85	2.31	25.54
18S	9.59	USAS	4-10	27.87	2.24	25.63
20	39.70	USAS	30-40	31.10	1.50	29.60
24	34.93	USAS	30.5-35.5	30.85	4.73	26.12
25	43.38	USAS	36.4-43.4	30.42	3.27	27.15
26	23.72	USAS	21.5-26.5	27.57	2.77	24.80
27	34.58	USAS	30-35	27.88	2.09	25.79
28	29.69	USAS	25.30	28.63	2.21	26.42
29	29.83	USAS	25-30	28.54	2.52	26.02
30	28.47	USAS	23.5-28.5	30.28	8.57	21.71
32	30.17	USAS	24.5-29.5	31.83	2.83	29.00
35	30.39	USAS	25-30	30.71	1.91	28.80
36	27.85	USAS	23-28	32.52	4.15	28.37
38	27.98	USAS	23-28	31.98	3.73	28.25
40	27.75	USAS	23-28	32.06	3.87	28.19
42	26.97	USAS	23-28	32.30	4.11	28.19
47	26.81	USAS	22-27	30.24	3.35	26.89
62	22.11	USAS	18-23	28.15	2.28	25.87

Table 3-5

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Monitoring Well Identification (TT-MW-)	Total Depth (ft bgs)	Aquifer System	Screened Interval Depth (ft bgs)	Top-of-Casing Elevation (ft msl)	January 21, 2005	
					Depth to Water Below Top--of-Casing (ft)	Groundwater Elevation (ft msl)
63	30.64	USAS	25-30	28.18	2.19	25.99
64	30.98	USAS	25.30	28.20	2.25	25.95
65	22.75	USAS	19-24	29.56	2.35	27.21
66	22.72	USAS	18.5-23.5	30.00	2.93	27.07
67	28.31	USAS	24-29	31.60	3.84	27.76
69	28.45	USAS	23-28	27.78	3.29	24.49
70	27.41	USAS	23-29	32.74	4.38	28.36
71	28.28	USAS	24-29	32.05	3.94	28.11
72	28.77	USAS	23.5-28.5	31.83	3.32	28.51
73	26.84	USAS	22-27	26.89	2.20	24.69
74	33.34	USAS	27.5-32.5	28.79	1.77	27.02
75	43.95	USAS	39.5-44.5	32.27	4.47	27.80
76	27.79	USAS	23-28	31.67	3.65	28.02
82	41.63	LSAS	36.5-41.5	28.13	4.18	23.95
89	32.80	USAS	27-32	30.30	2.78	27.52
90	30.05	USAS	25.5-30.5	28.79	1.79	27.00
94	29.36	USAS	19.5-24.5	NS	4.33	NS
95	27.69	USAS	19.5-24.5	NS	4.30	NS
33	41.90	LSAS	35.5-40.5	31.83	10.40	21.43
37	40.55	LSAS	35.5-40.5	32.42	11.16	21.26
39	40.42	LSAS	35.5-40.5	32.02	10.00	22.02
41	40.97	LSAS	35.5-40.5	32.07	10.72	21.35
43	40.15	LSAS	35.5-40.5	32.29	16.97	15.32
48	38.45	LSAS	33.5-38.5	31.22	11.30	19.92
68	41.41	LSAS	35.5-40.5	29.42	10.86	18.56
77	37.84	LSAS	36-41	30.54	6.74	23.80
78	40.10	LSAS	36-41	31.17	6.30	24.87
79	40.41	LSAS	36-41	30.91	9.31	21.60
80	41.57	LSAS	36-41	31.83	9.31	22.52
81	41.09	LSAS	36-41	31.83	12.21	19.62
84	41.65	LSAS	35.5-40.5	31.98	9.30	22.68
85	54.70	LSAS	50-55	30.41	5.08	25.33
86	35.62	LSAS	30-35	29.52	11.56	17.96
87	41.55	LSAS	36-41	31.12	4.61	26.51
91	38.91	LSAS	32.5-37.5	28.47	8.45	20.02
92	37.95	LSAS	32.5-37.5	28.16	11.03	17.13
93	37.49	LSAS	32.5-37.5	28.52	12.36	16.16
DW-1	89.40	IAS	82-92	31.06	12.97	18.09
21	148.80	IAS	135-145	29.69	13.88	15.81

Table 3-5

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Monitoring Well Identification (TT-MW-)	Total Depth (ft bgs)	Aquifer System	Screened Interval Depth (ft bgs)	Top-of-Casing Elevation (ft msl)	January 21, 2005	
					Depth to Water Below Top--of-Casing (ft)	Groundwater Elevation (ft msl)
23	171.91	IAS	152-172	29.56	13.53	16.03
34	157.72	IAS	145-155	30.79	14.85	15.94
44	150.25	IAS	142-152	31.74	15.45	16.29
45	162.79	IAS	150-160	31.39	14.78	16.61
49	153.22	IAS	146-156	30.17	13.55	16.62
50	252.35	IAS	245-255	28.41	11.89	16.52
51	271.75	IAS	261.6-271.6	27.63	11.38	16.25
52	156.44	IAS	147-157	27.93	11.68	16.25
53	150.06	IAS	141-151	28.60	12.18	16.42
54	155.79	IAS	145-155	27.70	11.61	16.09
55	138.63	IAS	127-137	30.86	14.42	16.44
56	157.88	IAS	145-155	28.18	13.37	14.81
57	149.14	IAS	136-146	31.18	14.61	16.57
58	152.71	IAS	140-150	32.08	15.21	16.87
59	157.73	IAS	140-150	29.29	12.44	16.85
60	158.45	IAS	145-155	29.13	13.00	16.13
61	147.97	IAS	135.145	28.37	13.52	14.85
83	112	IAS	102-112	26.33	10.24	16.09
88	87	IAS	76-86	28.16	11.54	16.62
19	302.00	IAS	277.5-297.5	32.08	15.78	16.30
22	294.15	IAS	277-297	29.55	13.96	15.59
31	213.41	IAS	275-295	29.32	13.42	15.90
46	299.70	IAS	280-300	28.14	11.49	16.65

Notes:
ft bgs = feet below ground surface
ft msl = feet mean sea level

Table 3-6. Horizontal Groundwater Velocity Calculations based on Hydraulic Gradients Estimated from January 2005 Water-Level Measurements, Hydraulic Conductivity based on Discrete Interval Pumping Tests, and Estimates of Effective Porosity.

Hydrostratigraphic Unit	Velocity Calculated from - to	Interval is Encountered (typically) between:	Horizontal Hydraulic Conductivity (ft/d)	Effective Porosity	Hydraulic Gradient	Calculated Horizontal Groundwater Velocity (ft/yr)
Hydraulic Conductivity Values = Geometric Mean Values Given in Table 3-4						
Upper SAS	from Site to NE	5 to 30 ft bls	8.10E-01	0.25	0.004	4.7
Upper SAS	from Site to N	5 to 30 ft bls	8.10E-01	0.25	0.004	4.7
Upper SAS	from Site to W	5 to 30 ft bls	8.10E-01	0.25	0.004	4.7
Lower SAS	from east side of Site to North	30 to 35 ft bls	9.70E-01	0.2	0.004	7.1
Lower SAS	from west side of Site to North	30 to 35 ft bls	9.70E-01	0.2	0.008	14.2
IAS - Upper AF Clayey Gravels	from site to southeast	95 to 105 ft bls	1.00E+00	0.2	0.000625	1.1
IAS - Upper AF Clayey Gravels	from west edge of site to west	95 to 105 ft bls	1.00E+00	0.2	0.004	7.3
IAS - S&P Sands	from site to southeast	140 to 150 ft bls	2.60E-02	0.2	0.000625	0.0
IAS - S&P Sands	from west edge of site to west	140 to 150 ft bls	2.60E-02	0.2	0.004	0.2
Hydraulic Conductivity Values = Median Values Given in Table 3-4						
Upper SAS	from Site to NE	5 to 30 ft bls	2.42E+00	0.25	0.004	14.1
Upper SAS	from Site to N	5 to 30 ft bls	2.42E+00	0.25	0.004	14.1
Upper SAS	from Site to W	5 to 30 ft bls	2.42E+00	0.25	0.004	14.1
Lower SAS	from east side of Site to North	30 to 35 ft bls	9.51E-01	0.2	0.004	6.9
Lower SAS	from west side of Site to North	30 to 35 ft bls	9.51E-01	0.2	0.008	13.9
IAS - Upper AF Clayey Gravels	from site to southeast	95 to 105 ft bls	1.49E+00	0.2	0.000625	1.7
IAS - Upper AF Clayey Gravels	from west edge of site to west	95 to 105 ft bls	1.49E+00	0.2	0.004	10.9
IAS - S&P Sands	from site to southeast	140 to 150 ft bls	3.39E-01	0.2	0.000625	0.4
IAS - S&P Sands	from west edge of site to west	140 to 150 ft bls	3.39E-01	0.2	0.004	2.5
Hydraulic Conductivity Values = Maximum Values Given in Table 3-4						
Upper SAS	from Site to NE	5 to 30 ft bls	9.80E+00	0.25	0.004	57.2
Upper SAS	from Site to N	5 to 30 ft bls	9.80E+00	0.25	0.004	57.2
Upper SAS	from Site to W	5 to 30 ft bls	9.80E+00	0.25	0.004	57.2
Lower SAS	from east side of Site to North	30 to 35 ft bls	6.90E+00	0.2	0.004	50.4
Lower SAS	from west side of Site to North	30 to 35 ft bls	6.90E+00	0.2	0.008	100.7
IAS - Upper AF Clayey Gravels	from site to southeast	95 to 105 ft bls	2.23E+02	0.2	0.000625	254.4
IAS - Upper AF Clayey Gravels	from west edge of site to west	95 to 105 ft bls	2.23E+02	0.2	0.004	1627.9
IAS - S&P Sands	from site to southeast	140 to 150 ft bls	1.23E+00	0.2	0.000625	1.4
IAS - S&P Sands	from west edge of site to west	140 to 150 ft bls	1.23E+00	0.2	0.004	9.0

Table 3-7. Downward Groundwater Velocity Calculations from the Lower Surficial Aquifer System to the Upper Arcadia Formation Gravels based on Hydraulic Gradients Estimated from January 2005 Water-Level Measurements, Hydraulic Conductivity from Discrete Interval Pumping Tests, and Estimates of Effective Porosity.

Downward Velocity Calculated from : to	Vertical Hydraulic Conductivity, K' (ft/d)	Comment on K' Value	Effective Porosity	Downward Hydraulic Gradient*	Calculated Downward Groundwater Velocity (ft/yr)
Lower SAS to Upper AF Gravels in the IAS	2.20E-02	geometric mean of horizontal K in Venice Clay	0.2	0.1	4.0
Lower SAS to Upper AF Gravels in the IAS	2.20E-03	0.1 X geometric mean of horizontal K in Venice Clay	0.2	0.1	0.4
Lower SAS to Upper AF Gravels in the IAS	3.32E-02	geometric mean of horizontal K in IAS Clay/Sand Zone 1	0.25	0.1	4.8
Lower SAS to Upper AF Gravels in the IAS	2.23E-03	0.1 X geometric mean of horizontal K in IAS Clay/Sand Zone 1	0.2	0.1	0.4
Lower SAS to Upper AF Gravels in the IAS	1.64E-02	median of horizontal K in Venice Clay	0.2	0.1	3.0
Lower SAS to Upper AF Gravels in the IAS	1.64E-03	0.1 X median of horizontal K in Venice Clay	0.2	0.1	0.3
Lower SAS to Upper AF Gravels in the IAS	4.32E-02	median of horizontal K in IAS Clay/Sand Zone 1	0.2	0.1	7.9
Lower SAS to Upper AF Gravels in the IAS	4.32E-03	0.1 X median of horizontal K in IAS Clay/Sand Zone 1	0.2	0.1	0.8

* Hydraulic Gradient Assumptions: Hydraulic head drop of 5.5 feet over an aquitard thickness of 55 feet

Table 3-8

Monitoring Well Construction Details
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Boring/ Core Identification	Monitoring Well Identification (TT-MW-)	Aquifer System	Well Completion Date	Well Construction Material	Total Depth (ft bgs)	Well Screen Interval (ft bgs)
VP-38	20	USAS	12/1/2004	2" SCH 40 PVC	40	35-40
VP-21	24	USAS	12/17/2004	2" SCH 40 PVC	36.5	30.5-35.5
VP-19	25	USAS	12/17/2004	2" SCH 40 PVC	43.4	36.4-43.4
VP-46	26	USAS	12/18/2004	2" SCH 40 PVC	26.5	21.5-26.5
VP-44	27	USAS	12/17/2004	2" SCH 40 PVC	35	30-35
VP-45	28	USAS	12/17/2004	2" SCH 40 PVC	29.63	25-30
VP-61	29	USAS	12/17/2004	2" SCH 40 PVC	29.41	25-30
VP-83	30	USAS	12/15/2004	2" SCH 40 PVC	27.8	23.5-28.5
VP-12	32	USAS	12/18/2004	2" SCH 40 PVC	29.4	24.5-29.5
VP-99	35	USAS	12/16/2004	2" SCH 40 PVC	30.5	25-30
VP-7	36	USAS	1/8/2005	2" SCH 40 PVC	28	23-28
VP-13	38	USAS	1/8/2005	2" SCH 40 PVC	28	23-28
VP-14	40	USAS	1/8/2005	2" SCH 40 PVC	28	23-28
VP-8	42	USAS	12/21/2004	2" SCH 40 PVC	28.5	23-28
VP-98	47	USAS	12/20/2004	2" SCH 40 PVC	35	22-27
VP-54	62	USAS	1/5/2005	2" SCH 40 PVC	23	18-23
VP-53	63	USAS	1/3/2005	2" SCH 40 PVC	30	25-30
VP-49	64	USAS	1/3/2005	2" SCH 40 PVC	30	25.30
VP-60	65	USAS	1/3/2005	2" SCH 40 PVC	24	19-24
VP-59	66	USAS	1/4/2005	2" SCH 40 PVC	23.5	18.5-23.5
VP-71	67	USAS	1/4/2005	2" SCH 40 PVC	29	24-29
VP-86	69	USAS	1/4/2005	2" SCH 40 PVC	27.74	23-28
VP-79	70	USAS	12/29/2004	2" SCH 40 PVC	29	23-29
VP-77	71	USAS	12/29/2004	2" SCH 40 PVC	29.5	24-29
VP-6	72	USAS	12/19/2004	2" SCH 40 PVC	29	23.5-28.5
VP-102	73	USAS	1/4/2005	2" SCH 40 PVC	27.4	22-27
VP-30	74	USAS	1/4/2005	2" SCH 40 PVC	33	27.5-32.5
VP-23	75	USAS	1/3/2005	2" SCH 40 PVC	45	39.5-44.5
VP-15	76	USAS	1/4/2005	2" SCH 40 PVC	28	23-28
VP-59	89	USAS	1/11/2005	2" SCH 40 PVC	32	27-32
VP-58	90	USAS	1/17/2005	2" SCH 40 PVC	30.05	25.5-30.5
VP-113	94	USAS	1/19/2005	2" SCH 40 PVC	29.36	24.5-29.5
NA	95	USAS	1/19/2005	2" SCH 40 PVC	27.69	23-28
VP-12	33	LSAS	12/18/2004	2" SCH 40 PVC	40.9	35.5-40.5
VP-7	37	LSAS	12/19/2004	2" SCH 40 PVC	41	35.5-40.5
VP-13	39	LSAS	12/19/2004	2" SCH 40 PVC	41	35.5-40.5
VP-14	41	LSAS	12/21/2004	2" SCH 40 PVC	41.5	35.5-40.5
VP-8	43	LSAS	12/21/2004	2" SCH 40 PVC	41	35.5-40.5
VP-91	48	LSAS	12/20/2004	2" SCH 40 PVC	42	33.5-38.5
VP-89	68	LSAS	1/3/2005	2" SCH 40 PVC	41	35.5-40.5
NA	77	LSAS	1/5/2005	2" SCH 40 PVC	41	36-41
VP-20	78	LSAS	1/6/2005	2" SCH 40 PVC	41	36-41
VP-63	79	LSAS	1/7/2005	2" SCH 40 PVC	41	36-41

Table 3-8

Monitoring Well Construction Details
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Boring/ Core Identification	Monitoring Well Identification (TT-MW-)	Aquifer System	Well Completion Date	Well Construction Material	Total Depth (ft bgs)	Well Screen Interval (ft bgs)
VP-6	80	LSAS	1/8/2005	2" SCH 40 PVC	41	36-41
VP-75	81	LSAS	1/7/2005	2" SCH 40 PVC	41	36-41
VP-30	82	LSAS	1/11/2005	2" SCH 40 PVC	42	37-42
VP-1	84	LSAS	1/11/2005	2" SCH 40 PVC	41	35.5-40.5
VP-19	85	LSAS	1/11/2005	2" SCH 40 PVC	55	50-55
VP-73	86	LSAS	1/11/2005	2" SCH 40 PVC	37.3	30-35
VP-99	87	LSAS	1/11/2005	2" SCH 40 PVC	41	36-41
VP-61	91	LSAS	1/17/2005	2" SCH 40 PVC	38.91	32.5-37.5
VP-53	92	LSAS	1/17/2005	2" SCH 40 PVC	37.95	32.5-37.5
VP-55	93	LSAS	1/18/2005	2" SCH 40 PVC	37.49	32.5-37.5
RS-1	19	IAS	11/22/2004	2" SCH 80 PVC	298	277.5-297.5
RS-21	21	IAS	12/4/2004	2" SCH 40 PVC	145	135-145
RS-22	22	IAS	12/17/2004	2" SCH 80 PVC	297	277-297
RS-2	23	IAS	12/6/2004	2" SCH 40 PVC	205	152-172
RS-18	31	IAS	12/15/2004	2" SCH 80 PVC	335	275-295
RS-7	34	IAS	12/20/2004	2" SCH 40 PVC	155.5	145-155
RS-8	44	IAS	12/19/2004	2" SCH 40 PVC	152	142-152
RS-16	45	IAS	1/3/2005	2" SCH 40 PVC	160	150-160
RS-3	46	IAS	12/21/2004	2" SCH 80 PVC	297	280-300
RS-15	49	IAS	1/3/2005	2" SCH 40 PVC	156	146-156
RS-14	50	IAS	1/11/2005	2" SCH 40 PVC	257	245-255
RS-13	51	IAS	1/11/2005	2" SCH 40 PVC	276	261.6-271.6
RS-12	52	IAS	1/7/2005	2" SCH 40 PVC	160	147-157
RS-11	53	IAS	1/7/2005	2" SCH 40 PVC	166	141-151
RS-10	54	IAS	12/30/2004	2" SCH 40 PVC	155.5	145-155
RS-9	55	IAS	1/8/2005	2" SCH 40 PVC	177	127-137
RS-6	56	IAS	1/10/2005	2" SCH 40 PVC	145	145-155
RS-4	57	IAS	1/9/2005	2" SCH 40 PVC	146	136-146
RS-5	58	IAS	12/17/2004	2" SCH 40 PVC	150	140-150
RS-17	59	IAS	1/4/2005	2" SCH 40 PVC	150	140-150
RS-20	60	IAS	1/7/2005	2" SCH 40 PVC	155	145-155
RS-19	61	IAS	1/11/2005	2" SCH 40 PVC	145	135-145
RS-23	83	IAS	1/11/2005	2" SCH 40 PVC	112	102-112
RS-6	88	IAS	1/10/2005	2" SCH 40 PVC	87	76-86

NA - Not associated with a VP or RS location

Table 3-9

Fixed Base Laboratory Results for On-Site Soil Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	HA-001	HA-001	HA-001	HA-002	HA-002	HA-002	HA-003	HA-003	HA-003	HA-004	HA-004
Depth Top (feet)	0	0.5	1	0	0.5	1	0	0.5	1	0	0.5
Depth Bottom (feet)	0.5	1	2	0.5	1	2	0.5	1	2	0.5	1
Sample Date	20041110	20041110	20041110	20041110	20041110	20041110	20041110	20041110	20041110	20041111	20041111
PAHs (mg/kg)											
1-Methylnaphthalene	0.14 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.11 U	0.11 U
2-Methylnaphthalene	0.28 U	0.23 U	0.22 U	0.23 U	0.21 U	0.22 U	0.24 U	0.22 U	0.27 U	0.22 U	0.22 U
Acenaphthene	0.14 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.11 U	0.11 U
Acenaphthylene	0.14 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.11 U	0.11 U
Anthracene	0.14 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.11 U	0.11 U
Benzo(A)Anthracene	0.14 U	0.11 U	0.11 U	0.52	0.15	0.11 U	0.12 U	0.11 U	0.14 U	0.32	0.11 U
Benzo(A)Pyrene	0.083 U	0.068 U	0.065 U	0.6	0.17	0.067 U	0.071 U	0.065 U	0.081 U	0.37	0.066 U
Benzo(B)Fluoranthene	0.14 U	0.11 U	0.11 U	0.98	0.27	0.11 U	0.12 U	0.11 U	0.14 U	0.65	0.11 U
Benzo(G,H,I)Perylene	0.14 U	0.11 U	0.11 U	0.43	0.12	0.11 U	0.12 U	0.11 U	0.14 U	0.26	0.11 U
Benzo(K)Fluoranthene	0.14 U	0.11 U	0.11 U	0.34	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.18	0.11 U
Chrysene	0.14 U	0.11 U	0.11 U	0.75	0.19	0.11 U	0.12 U	0.11 U	0.14 U	0.53	0.11 U
Dibenzo(A,H)Anthracene	0.083 U	0.068 U	0.065 U	0.14	0.064 U	0.067 U	0.071 U	0.065 U	0.081 U	0.079	0.066 U
Fluoranthene	0.14 U	0.11 U	0.11 U	0.94	0.27	0.11 U	0.12 U	0.11 U	0.14 U	1	0.11 U
Fluorene	0.14 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.11 U	0.11 U
Indeno(1,2,3-Cd)Pyrene	0.14 U	0.11 U	0.11 U	0.41	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.23	0.11 U
Naphthalene	0.14 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.11 U	0.11 U
Phenanthrene	0.14 U	0.11 U	0.11 U	0.3	0.11 U	0.11 U	0.12 U	0.11 U	0.14 U	0.38	0.11 U
Pyrene	0.14 U	0.11 U	0.11 U	1.1	0.31	0.11 U	0.12 U	0.11 U	0.14 U	0.71	0.11 U
VOCs (mg/kg)											
1,1-Dichloroethane	0.0066 U	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0056 U	0.0058 U	0.0049 U	0.0065 U	0.0049 U	0.0052 U
1,1-Dichloroethene	0.0066 U	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0056 U	0.0058 U	0.0049 U	0.0065 U	0.0049 U	0.0052 U
Acetone	0.066 U	0.056 U	0.072	0.052 U	0.046 U	0.056 U	0.058 U	0.049 U	0.065 U	0.049 U	0.052 U
Cis-1,2-Dichloroethene	0.0066 U	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0056 U	0.0058 U	0.0049 U	0.0065 U	0.0049 U	0.0052 U
Tetrachloroethene	0.0066 U	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0056 U	0.0058 U	0.0049 U	0.0065 U	0.0049 U	0.0052 U
Total Xylenes	0.0066 U	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0056 U	0.0058 U	0.0049 U	0.0065 U	0.0049 U	0.0052 U
Trichloroethene	0.0066 U	0.0056 U	0.0051 U	0.0052 U	0.0046 U	0.0056 U	0.0058 U	0.0049 U	0.0065 U	0.0049 U	0.0052 U
SVOCs (mg/kg)											
Total Petroleum Hydrocarbons	86	23 U	22 U	23 U	21 U	22 U	24 U	22 U	27 U	22 U	22 U
Metals (mg/kg)											
Arsenic	0.69 U	0.57 U	0.54 U	0.85	0.53 U	0.56 U	1.3	0.65	0.68 U	0.76	0.55 U
Barium	17	4.7	2.9	11	1.7	2.2	9.2	3.9	1.5	10	2
Beryllium	3.3	3.6	1.1 U	2.7	1.1 U	1.1 U	2.5	1.1 U	1.4 U	1.1 U	1.1 U
Cadmium	2.8	1.1 U	1.1 U	1.3	1.1 U	1.1 U	1.2 U	1.1 U	1.4 U	1.1 U	1.1 U
Chromium	31	7.3	4.5	18	2.7	3.4	14	5.4	1.9	3.5	1.1 U
Copper	50	13	5.6	68	5.1	6.7	45	15	3.9	1.1 U	1.6
Lead	38	6.9	6.6	24	1.7	5	14	4.4	2.6	1.6	4.3

Table 3-9

Fixed-Base Laboratory Results for On-Site Soil Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	HA-004	HA-005	HA-005	HA-005	HA-006	HA-006	HA-006	HA-007	HA-007	HA-007	HA-008
Depth Top (feet)	1.5	0	0.5	1.5	0	0.5	1.5	0	0.5	1	0
Depth Bottom (feet)	2	0.5	1	2	0.5	1	2	0.5	1	2	0.5
Sample Date	20041111	20041111	20041111	20041111	20041112	20041112	20041112	20041109	20041109	20041109	20041112
PAHs (mg/kg)											
1-Methylnaphthalene	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
2-Methylnaphthalene	0.23 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.21 U	0.22 U	0.22 U	0.21 U	0.21 U
Acenaphthene	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Acenaphthylene	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Anthracene	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Benzo(A)Anthracene	0.12 U	0.37	0.11 U	0.11 U	0.33	0.13	0.11 U	0.24	0.16	0.11 U	0.17
Benzo(A)Pyrene	0.07 U	0.4	0.067 U	0.067 U	0.35	0.16	0.063 U	0.35	0.22	0.064 U	0.2
Benzo(B)Fluoranthene	0.12 U	0.6	0.11 U	0.11 U	0.48	0.26	0.11 U	0.51	0.33	0.11 U	0.32
Benzo(G,H,I)Perylene	0.12 U	0.3	0.11 U	0.11 U	0.31	0.15	0.11 U	0.3	0.18	0.11 U	0.16
Benzo(K)Fluoranthene	0.12 U	0.19	0.11 U	0.11 U	0.27	0.12	0.11 U	0.21	0.13	0.11 U	0.13
Chrysene	0.12 U	0.47	0.11 U	0.11 U	0.37	0.19	0.11 U	0.39	0.25	0.11 U	0.28
Dibenzo(A,H)Anthracene	0.07 U	0.096	0.067 U	0.067 U	0.19	0.065 U	0.063 U	0.092	0.066 U	0.064 U	0.063 U
Fluoranthene	0.12 U	0.89	0.11 U	0.11 U	0.66	0.34	0.11 U	0.65	0.38	0.11 U	0.57
Fluorene	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Indeno(1,2,3-Cd)Pyrene	0.12 U	0.24	0.11 U	0.11 U	0.28	0.12	0.11 U	0.28	0.16	0.11 U	0.15
Naphthalene	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Phenanthrene	0.12 U	0.26	0.11 U	0.11 U	0.23	0.11	0.11 U	0.32	0.18	0.11 U	0.45
Pyrene	0.12 U	0.66	0.11 U	0.11 U	0.49	0.28	0.11 U	0.73	0.45	0.11 U	0.51
VOCs (mg/kg)											
1,1-Dichloroethane	0.0056 U	0.0048 U	0.0051 U	0.005 U	0.0059 U	0.0059 U	0.0053 U	0.0054 U	0.0051 U	0.0049 U	0.0046 U
1,1-Dichloroethene	0.0056 U	0.0048 U	0.0051 U	0.005 U	0.0059 U	0.0059 U	0.0053 U	0.0054 U	0.0051 U	0.0049 U	0.0046 U
Acetone	0.056 U	0.048 U	0.051 U	0.05 U	0.059 U	0.059 U	0.053 U	0.054 U	0.051 U	0.049 U	0.046 U
Cis-1,2-Dichloroethene	0.0056 U	0.0048 U	0.0051 U	0.005 U	0.0059 U	0.0059 U	0.0053 U	0.0054 U	0.0051 U	0.0049 U	0.0046 U
Tetrachloroethene	0.0056 U	0.0048 U	0.0051 U	0.005 U	0.0059 U	0.0059 U	0.0053 U	0.0054 U	0.0051 U	0.0049 U	0.0046 U
Total Xylenes	0.0056 U	0.0048 U	0.0051 U	0.005 U	0.0059 U	0.0059 U	0.0053 U	0.0054 U	0.0051 U	0.0049 U	0.0046 U
Trichloroethene	0.0056 U	0.0048 U	0.0051 U	0.005 U	0.0059 U	0.0059 U	0.0053 U	0.0054 U	0.0051 U	0.0049 U	0.0046 U
SVOCs (mg/kg)											
Total Petroleum Hydrocarbons	23 U	22 U	22 U	22 U	130	22 U	21 U	22 U	22 U	21 U	21 U
Metals (mg/kg)											
Arsenic	0.58 U	1.1	5.5	2	4	0.71	0.53 U	1.1	11	0.53 U	0.53 U
Barium	1.2 U	18	15	11	81	23	4	12	33	12	1.2
Beryllium	1.2 U	12	1.1 U	1.1 U	99	25	1.2	89	21	88	1.1 U
Cadmium	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	2	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Chromium	1.2 U	8.8	15	16	20	42	2	53	20	5.5	1.1 U
Copper	1.2 U	1.1 U	2.1	1.6	34	120	6	25	26	610	5.3 U
Lead	1.2 U	3	2.7	2.9	56	47	7.9	28	62	18	1.2

Table 3-9

Fixed-Base Laboratory Results for On-Site Soil Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	HA-008	HA-008	HA-009	HA-009	HA-009	HA-010	HA-010	HA-010	HA-011	HA-011	HA-011
Depth Top (feet)	0.5	1.5	0	0.5	1	0	0.5	1	0	0.5	1
Depth Bottom (feet)	1	2	0.5	1	2	0.5	1	2	0.5	1	2
Sample Date	20041112	20041112	20041110	20041110	20041110	20041110	20041110	20041110	20041111	20041111	20041111
PAHs (mg/kg)											
1-Methylnaphthalene	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U
2-Methylnaphthalene	0.21 U	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.24 U
Acenaphthene	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U
Acenaphthylene	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U
Anthracene	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.13
Benzo(A)Anthracene	0.11 U	0.11 U	0.19	0.11 U	0.11 U	0.43	0.11 U	0.11 U	0.33	0.11 U	0.12 U
Benzo(A)Pyrene	0.064 U	0.065 U	0.16	0.064 U	0.066 U	0.49	0.064 U	0.066 U	0.38	0.086	0.071 U
Benzo(B)Fluoranthene	0.11 U	0.11 U	0.29	0.11 U	0.11 U	0.77	0.11 U	0.11 U	0.57	0.15	0.12 U
Benzo(G,H,I)Perylene	0.11 U	0.11 U	0.13	0.11 U	0.11 U	0.34	0.11 U	0.11 U	0.28	0.11 U	0.12 U
Benzo(K)Fluoranthene	0.11 U	0.11 U	0.1	0.11 U	0.11 U	0.29	0.11 U	0.11 U	0.24	0.11 U	0.12 U
Chrysene	0.11 U	0.11 U	0.24	0.11 U	0.11 U	0.69	0.11 U	0.11 U	0.57	0.14	0.12 U
Dibenzo(A,H)Anthracene	0.064 U	0.065 U	0.062 U	0.064 U	0.066 U	0.13	0.064 U	0.066 U	0.094	0.064 U	0.071 U
Fluoranthene	0.11 U	0.11 U	0.65	0.23	0.11 U	1.4	0.11 U	0.11 U	0.72	0.19	0.13
Fluorene	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U
Indeno(1,2,3-Cd)Pyrene	0.11 U	0.11 U	0.11	0.11 U	0.11 U	0.32	0.11 U	0.11 U	0.26	0.11 U	0.12 U
Naphthalene	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.12 U
Phenanthrene	0.11 U	0.11 U	0.62	0.26	0.11 U	0.72	0.11 U	0.11 U	0.41	0.11 U	0.12 U
Pyrene	0.11 U	0.11 U	0.49	0.18	0.11 U	1	0.11 U	0.11 U	0.9	0.2	0.12 U
VOCs (mg/kg)											
1,1-Dichloroethane	0.0053 U	0.005 U	0.0057 U	0.0043 U	0.0055 U	0.0051 U	0.005 U	0.0054 U	0.0051 U	0.0053 U	0.0055 U
1,1-Dichloroethene	0.0053 U	0.005 U	0.0057 U	0.0043 U	0.0055 U	0.0051 U	0.005 U	0.0054 U	0.0051 U	0.0053 U	0.0055 U
Acetone	0.053 U	0.05 U	0.057 U	0.049	0.055 U	0.051 U	0.05 U	0.054 U	0.051 U	0.053 U	0.055 U
Cis-1,2-Dichloroethene	0.0053 U	0.005 U	0.0057 U	0.0043 U	0.0055 U	0.0051 U	0.005 U	0.0054 U	0.0051 U	0.0053 U	0.0055 U
Tetrachloroethene	0.0053 U	0.005 U	0.0057 U	0.0043 U	0.0055 U	0.0051 U	0.005 U	0.0054 U	0.0051 U	0.0053 U	0.0055 U
Total Xylenes	0.0053 U	0.005 U	0.0057 U	0.0043 U	0.0055 U	0.0051 U	0.005 U	0.0054 U	0.0051 U	0.0053 U	0.0055 U
Trichloroethene	0.0053 U	0.005 U	0.0057 U	0.0043 U	0.0055 U	0.0051 U	0.005 U	0.0054 U	0.0051 U	0.0053 U	0.0055 U
SVOCs (mg/kg)											
Total Petroleum Hydrocarbons	21 U	22 U	36	22	22 U	27	47	22 U	21 U	21 U	24 U
Metals (mg/kg)											
Arsenic	0.53 U	0.54 U	0.52 U	0.53 U	0.55 U	0.53 U	0.63	0.55 U	0.53 U	0.53 U	0.59 U
Barium	2.4	1.2	2.2	3.7	1.1 U	2.9	5.5	2	4.4	1.1 U	14
Beryllium	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U
Cadmium	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U
Chromium	1.7	1.1 U	1 U	1.5	1.1 U	1.2	2.3	1.1 U	1.3	1.1 U	2
Copper	5.3 U	5.4 U	1.1	6.8	1.1 U	1.1 U	9.6	2.7	2.2	1.3	1.2 U
Lead	2.7	1.1 U	1.6	5.7	1.1 U	6.1	12	2.3	11	1.1 U	1.9

Table 3-9

Fixed-Base Laboratory Results for On-Site Soil Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	HA-012	HA-012	HA-012	HA-013	HA-013	HA-013	HA-014	HA-014	HA-014	HA-015	HA-015
Depth Top (feet)	0	0.5	1	0	0.5	1	0	0.5	1	0	0.5
Depth Bottom (feet)	0.5	1	2	0.5	1	2	0.5	1	2	0.5	1
Sample Date	20041111	20041111	20041111	20041111	20041111	20041111	20041110	20041110	20041110	20041111	20041111
PAHs (mg/kg)											
1-Methylnaphthalene	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
2-Methylnaphthalene	0.21 U	0.22 U	0.24 U	0.22 U	0.21 U	0.22 U	0.22 U	0.21 U	0.22 U	0.22 U	0.21 U
Acenaphthene	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Acenaphthylene	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Anthracene	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Benzo(A)Anthracene	0.46	0.11 U	0.12 U	0.17	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.17	0.16
Benzo(A)Pyrene	0.53	0.067	0.071 U	0.2	0.063 U	0.065 U	0.066	0.064 U	0.065 U	0.16	0.15
Benzo(B)Fluoranthene	0.9	0.11 U	0.12 U	0.31	0.11 U	0.11 U	0.12	0.11 U	0.11 U	0.25	0.24
Benzo(G,H,I)Perylene	0.4	0.11 U	0.12 U	0.14	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11	0.11 U
Benzo(K)Fluoranthene	0.32	0.11 U	0.12 U	0.12	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Chrysene	0.81	0.11 U	0.12 U	0.24	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.23	0.21
Dibenzo(A,H)Anthracene	0.13	0.067 U	0.071 U	0.065 U	0.063 U	0.065 U	0.066 U	0.064 U	0.065 U	0.065 U	0.064 U
Fluoranthene	1.1	0.11 U	0.12 U	0.37	0.11 U	0.11 U	0.13	0.11 U	0.11 U	0.49	0.47
Fluorene	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Indeno(1,2,3-Cd)Pyrene	0.38	0.11 U	0.12 U	0.13	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11	0.11 U
Naphthalene	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Phenanthrene	0.53	0.11 U	0.12 U	0.26	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.36	0.44
Pyrene	1.3	0.13	0.12 U	0.49	0.11 U	0.11 U	0.14	0.11 U	0.11 U	0.47	0.52
VOCs (mg/kg)											
1,1-Dichloroethane	0.0052 U	0.0056 U	0.0052 U	0.0054 U	0.0052 U	0.0053 U	0.0048 U	0.0064 U	0.005 U	0.006 U	0.0053 U
1,1-Dichloroethene	0.0052 U	0.0056 U	0.0052 U	0.0054 U	0.0052 U	0.0053 U	0.0048 U	0.0064 U	0.005 U	0.006 U	0.0053 U
Acetone	0.052 U	0.056 U	0.052 U	0.054 U	0.052 U	0.053 U	0.048 U	0.064 U	0.05 U	0.064	0.053 U
Cis-1,2-Dichloroethene	0.0052 U	0.0056 U	0.0052 U	0.0054 U	0.0052 U	0.0053 U	0.0048 U	0.0064 U	0.005 U	0.006 U	0.0053 U
Tetrachloroethene	0.0052 U	0.0056 U	0.0052 U	0.0054 U	0.0052 U	0.0053 U	0.0048 U	0.0064 U	0.005 U	0.006 U	0.0053 U
Total Xylenes	0.0052 U	0.0056 U	0.0052 U	0.0054 U	0.0052 U	0.0053 U	0.0048 U	0.0064 U	0.005 U	0.006 U	0.0053 U
Trichloroethene	0.0052 U	0.0056 U	0.0052 U	0.0054 U	0.0052 U	0.0053 U	0.0048 U	0.0064 U	0.005 U	0.006 U	0.0053 U
SVOCs (mg/kg)											
Total Petroleum Hydrocarbons	21 U	22 U	24 U	22 U	21 U	22 U	22 U	21 U	22 U	22 U	21 U
Metals (mg/kg)											
Arsenic	0.53 U	0.56 U	0.6 U	2.4	0.53 U	0.54 U	0.55 U	0.53 U	0.54 U	0.54 U	0.53 U
Barium	1.4	1.1 U	4	18	5.2	3	4	2.1	1.2	7.5	1.3
Beryllium	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	19	3	1.1 U	1.1 U	1.1 U
Cadmium	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Chromium	1.1 U	1.1 U	2.7	5.3	1.1 U	1.1 U	4.2	1.3	1.1 U	1.5	1.1 U
Copper	1.1 U	1.1 U	1.2 U	4.3	1.6	1.1 U	14	1.5	1.1 U	5.4 U	5.3 U
Lead	1.2	1.1 U	2	6.2	4	1.5	5.8	4	1.1	21	4.1

Table 3-9

Fixed-Base Laboratory Results for On-Site Soil Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	HA-015	HA-016	HA-016	HA-016
Depth Top (feet)	1.5	0	0.5	1
Depth Bottom (feet)	2	0.5	1	2
Sample Date	20041111	20041111	20041111	20041111
PAHs (mg/kg)				
1-Methylnaphthalene	0.11 U	0.12 U	0.11 U	0.11 U
2-Methylnaphthalene	0.21 U	0.23 U	0.22 U	0.22 U
Acenaphthene	0.11 U	0.12 U	0.11 U	0.11 U
Acenaphthylene	0.11 U	0.12 U	0.11 U	0.11 U
Anthracene	0.11 U	0.12 U	0.11 U	0.11 U
Benzo(A)Anthracene	0.11 U	0.26	0.11 U	0.11 U
Benzo(A)Pyrene	0.063 U	0.29	0.065 U	0.067 U
Benzo(B)Fluoranthene	0.11 U	0.43	0.11 U	0.11 U
Benzo(G,H,I)Perylene	0.11 U	0.23	0.11 U	0.11 U
Benzo(K)Fluoranthene	0.11 U	0.17	0.11 U	0.11 U
Chrysene	0.11 U	0.4	0.11 U	0.11 U
Dibenzo(A,H)Anthracene	0.063 U	0.088	0.065 U	0.067 U
Fluoranthene	0.11 U	0.74	0.11 U	0.11 U
Fluorene	0.11 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-Cd)Pyrene	0.11 U	0.21	0.11 U	0.11 U
Naphthalene	0.11 U	0.12 U	0.11 U	0.11 U
Phenanthrene	0.11 U	0.27	0.11 U	0.11 U
Pyrene	0.11 U	0.51	0.11 U	0.11 U
VOCs (mg/kg)				
1,1-Dichloroethane	0.0053 U	0.0057 U	0.0053 U	0.0049 U
1,1-Dichloroethene	0.0053 U	0.0057 U	0.0053 U	0.0049 U
Acetone	0.053 U	0.057 U	0.053 U	0.049 U
Cis-1,2-Dichloroethene	0.0053 U	0.0057 U	0.0053 U	0.0049 U
Tetrachloroethene	0.0053 U	0.052	0.026	0.024
Total Xylenes	0.0053 U	0.0057 U	0.0053 U	0.0049 U
Trichloroethene	0.0053 U	0.0057 U	0.0053 U	0.0049 U
SVOCs (mg/kg)				
Total Petroleum Hydrocarbons	21 U	28	22 U	22 U
Metals (mg/kg)				
Arsenic	0.53 U	0.58 U	0.54 U	0.56 U
Barium	1.1 U	21	33	51
Beryllium	1.1 U	1.2 U	1.1 U	1.1 U
Cadmium	1.1 U	1.2 U	1.1 U	1.1 U
Chromium	1.1 U	2.7	1.2	1.1 U
Copper	5.3 U	7.1	3.2	1.6
Lead	1.1 U	31	10	63

Table 3-10

Fixed Base Soil Analytical Results
1507 Tallevast Road
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida
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Location	Sample ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Benzo(a)pyrene Concentration (mg/kg)
HA-082	HA082L-06	0	0.5	20041217	0.066 U
HA-082	HA082L-12	0.5	1	20041217	0.067 U
HA-082	HA082L-24	1	2	20041217	0.069 U
HA-083	HA083L-06	0	0.5	20041217	0.066 U
HA-083	HA083L-12	0.5	1	20041217	0.074 U
HA-083	HA083L-24	1	2	20041217	0.074 U
HA-084	HA084L-06	0	0.5	20041217	0.064 U
HA-084	HA084L-12	0.5	1	20041217	0.065 U
HA-084	HA084L-24	1	2	20041217	0.076 U
HA-085	HA085L-06	0	0.5	20041217	0.072 U
HA-085	HA085L-12	0.5	1	20041217	0.064 U
HA-085	HA085L-24	1	2	20041217	0.071 U
HA-086	HA086L-06	0	0.5	20041217	0.067 U
HA-086	HA086L-12	0.5	1	20041217	0.064 U
HA-086	HA086L-24	1	2	20041217	0.076 U

Table 3-10

Fixed Base Soil Analytical Results
1511 Tallevast Road
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida
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Location	Sample ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)
HA-072	HA072L-06	0	0.5	20041217	1.1
HA-072	HA072L-12	0.5	1	20041217	1.3
HA-072	HA072L-24	1	2	20041217	0.53 U
HA-073	HA073L-06	0	0.5	20041217	1.4
HA-073	HA073L-12	0.5	1	20041217	1.8
HA-073	HA073L-24	1	2	20041217	0.55 U
HA-074	HA074L-06	0	0.5	20041217	0.75
HA-074	HA074L-12	0.5	1	20041217	0.9
HA-074	HA074L-26	2	2	20041217	0.53 U
HA-075	HA075L-06	0	0.5	20041217	0.65
HA-075	HA075L-12	0.5	1	20041217	0.56
HA-075	HA075L-24	1.5	2	20041217	0.53 U
HA-076	HA076L-06	0	0.5	20041217	1
HA-076	HA076L-12	0.5	1	20041217	0.97
HA-076	HA076L-24	1.5	2	20041217	0.53 U
HA-077	HA077L-06	0	0.5	20041218	6.2
HA-077	HA077L-12	0.5	1	20041218	1.3
HA-077	HA077L-24	1.5	2	20041218	0.74
HA-078	HA078L-06	0	0.5	20041218	1.9
HA-078	HA078L-12	0.5	1	20041218	3.7
HA-078	HA078L-24	1.5	2	20041218	0.56 U
HA-079	HA079L-06	0	0.5	20041218	4.3
HA-079	HA079L-12	0.5	1	20041218	1.6
HA-079	HA079L-24	1.5	2	20041218	0.66
HA-080	HA080L-06	0	0.5	20041218	26
HA-080	HA080L-12	0.5	1	20041218	0.53 U
HA-080	HA080L-24	1.5	2	20041218	1.3
HA-081	HA081L-06	0	0.5	20041218	0.53 U
HA-081	HA081L-12	0.5	1	20041218	0.54 U
HA-081	HA081L-24	1.5	2	20041218	0.6 U

Table 3-10

Fixed Base Soil Analytical Results
1703 Tallevast - Mt. Tabor Church
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Benzo(a)pyrene Concentration (mg/kg)
HA-022	HA022L-06	0	0.5	20041129	0.067 U
HA-022	HA022L-12	0.5	1	20041129	0.065 U
HA-022	HA022L-24	1.5	2	20041129	0.065 U
HA-023	HA023L-06	0	0.5	20041129	0.065 U
HA-023	HA023L-12	0.5	1	20041129	0.064 U
HA-023	HA023L-24	1.5	2	20041129	0.07 U
HA-024	HA024L-06	0	0.5	20041129	0.065 U
HA-024	HA024L-12	0.5	1	20041129	0.064 U
HA-024	HA024L-24	1.5	2	20041129	0.063 U
HA-025	HA025L-06	0	0.5	20041129	0.063 U
HA-025	HA025L-12	0.5	1	20041129	0.062 U
HA-025	HA025L-24	1.5	2	20041129	0.078 U
HA-026	HA026L-06	0	0.5	20041129	0.067 U
HA-026	HA026L-12	0.5	1	20041129	0.064 U
HA-026	HA026L-24	1.5	2	20041129	0.064 U
HA-027	HA027L-06	0	0.5	20041129	0.14
HA-027	HA027L-12	0.5	1	20041129	0.065 U
HA-027	HA027L-24	1.5	2	20041129	0.067 U
HA-028	HA028L-06	0	0.5	20041129	0.065 U
HA-028	HA028L-12	0.5	1	20041129	0.39
HA-028	HA028L-24	1.5	2	20041129	0.065 U
HA-029	HA029L-06	0	0.5	20041129	0.12
HA-029	HA029L-12	0.5	1	20041129	0.066 U
HA-029	HA029L-24	1.5	2	20041129	0.065 U
HA-030	HA030L-06	0	0.5	20041130	0.11
HA-030	HA030L-12	0.5	1	20041130	0.071 U
HA-030	HA030L-24	1.5	2	20041130	0.077 U
HA-031	HA031L-06	0	0.5	20041130	0.097
HA-031	HA031L-12	0.5	1	20041130	0.066 U
HA-031	HA031L-24	1.5	2	20041130	0.065 U

Table 3-10

Fixed Base Soil Analytical Results
1709 76th Avenue East
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Top Depth	Bottom Depth (feet)	Sample Date (feet)	Sample_ID	Arsenic Concentration (mg/kg)	Barium Concentration (mg/kg)
HA-087	0	0.5	20041214	HA087L-06	1.5	17
HA-087	0.5	1	20041214	HA087L-12	0.53 U	7
HA-087	1	2	20041214	HA087L-24	0.59 U	7.3
HA-088	0	0.5	20041214	HA088L-06	0.58 U	10
HA-088	0.5	1	20041214	HA088L-12	8.6	26
HA-088	1	2	20041214	HA088L-24	0.6 U	4.8
HA-089	0	0.5	20041214	HA089L-06	0.54 U	4.9
HA-089	0.5	1	20041214	HA089L-12	0.53 U	4.3
HA-089	1	2	20041214	HA089L-24	0.59 U	29
HA-090	0	0.5	20041214	HA090L-06	1.1	32
HA-090	0.5	1	20041214	HA090L-12	0.54 U	14
HA-090	1	2	20041214	HA090L-24	1.3	4.3
HA-091	0	0.5	20041214	HA091L-06	0.6	14
HA-091	0.5	1	20041214	HA091L-12	0.54 U	16
HA-091	1	2	20041214	HA091L-24	0.54 U	1.5
HA-092	0	0.5	20041214	HA092L-06	1.2	
HA-092	0.5	1	20041214	HA092L-12	0.98	
HA-092	1	2	20041214	HA092L-24	0.77	
HA-093	0	0.5	20041214	HA093L-06	1.3	
HA-093	0.5	1	20041214	HA093L-12	0.6	
HA-093	1	2	20041214	HA093L-24	0.54 U	
HA-094	0	0.5	20041214	HA094L-06	1	
HA-094	0.5	1	20041214	HA094L-12	0.91	
HA-094	1	2	20041214	HA094L-24	0.54	
HA-095	0	0.5	20041214	HA095L-06	1.2	
HA-095	0.5	1	20041214	HA095L-12	0.89	
HA-095	1	2	20041214	HA095L-24	1.3	
HA-096	0	0.5	20041214	HA096L-06	0.64	
HA-096	0.5	1	20041214	HA096L-12	0.52 U	
HA-096	1	2	20041214	HA096L-24	0.53 U	

Table 3-10

Fixed Base Soil Analytical Results
1711 Tallevast Road
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)
HA-047	HA047L-06	0	0.5	20041215	0.8	0.063 U
HA-047	HA047L-12	0.5	1	20041215	0.6	0.063 U
HA-047	HA047L-24	1	2	20041215	0.64	0.065 U
HA-048	HA048L-06	0	0.5	20041215	0.99	0.063 U
HA-048	HA048L-12	0.5	1	20041215	0.64	0.063 U
HA-048	HA048L-24	1	2	20041215	0.52 U	0.063 U
HA-049	HA049L-06	0	0.5	20041215	0.52 U	0.063 U
HA-049	HA049L-12	0.5	1	20041215	0.53 U	0.064 U
HA-049	HA049L-24	1	2	20041215	0.52 U	0.063 U
HA-050	HA050L-06	0	0.5	20041215	0.96	0.065 U
HA-050	HA050L-12	0.5	1	20041215	0.53 U	0.063 U
HA-050	HA050L-24	1	2	20041215	0.54 U	0.065 U
HA-051	HA051L-06	0	0.5	20041215	0.66	0.062 U
HA-051	HA051L-12	0.5	1	20041215	0.61	0.063 U
HA-051	HA051L-24	1	2	20041215	0.52 U	0.063 U

Table 3-10

Fixed Base Soil Analytical Results
1712 Tallevast Road
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)	Benzo(b)fluoranthene Concentration (mg/kg)
HA-097	HA097L-06	0	0.5	20041214	NA	0.1	NA
HA-097	HA097L-12	0.5	1	20041214	NA	0.063 U	NA
HA-097	HA097L-24	1	2	20041214	NA	0.065 U	NA
HA-098	HA098L-06	0	0.5	20041214	NA	0.065 U	NA
HA-098	HA098L-12	0.5	1	20041214	NA	0.063 U	NA
HA-098	HA098L-24	1	2	20041214	NA	0.063 U	NA
HA-099	HA099L-06	0	0.5	20041214	NA	0.077 U	NA
HA-099	HA099L-12	0.5	1	20041214	NA	0.07 U	NA
HA-099	HA099L-24	1	2	20041214	NA	0.065 U	NA
HA-100	HA100L-06	0	0.5	20041214	NA	0.08	NA
HA-100	HA100L-12	0.5	1	20041214	NA	0.073 U	NA
HA-100	HA100L-24	1	2	20041214	NA	0.069 U	NA
HA-101	HA101L-06	0	0.5	20041214	NA	0.076 U	NA
HA-101	HA101L-12	0.5	1	20041214	NA	0.063 U	NA
HA-101	HA101L-24	1	2	20041214	NA	0.07 U	NA
HA-102	HA102L-06	0	0.5	20041214	0.61	0.097	0.2
HA-102	HA102L-12	0.5	1	20041214	0.55 U	0.066 U	0.11 U
HA-102	HA102L-24	1	2	20041214	0.54 U	0.065 U	0.11 U
HA-103	HA103L-06	0	0.5	20041214	0.56	0.065 U	0.12
HA-103	HA103L-12	0.5	1	20041214	0.53 U	0.064 U	0.11 U
HA-103	HA103L-24	1	2	20041214	0.57 U	0.069 U	0.11 U
HA-104	HA104L-06	0	0.5	20041214	0.54 U	0.065 U	0.11 U
HA-104	HA104L-12	0.5	1	20041214	0.52 U	0.062 U	0.1 U
HA-104	HA104L-24	1	2	20041214	0.54 U	0.065 U	0.11 U
HA-105	HA105L-06	0	0.5	20041214	0.53 U	0.064 U	0.11 U
HA-105	HA105L-12	0.5	1	20041214	0.52 U	0.062 U	0.1 U
HA-105	HA105L-24	1	2	20041214	0.55 U	0.066 U	0.11 U
HA-106	HA106L-06	0	0.5	20041214	0.54 U	0.065 U	0.11 U
HA-106	HA106L-12	0.5	1	20041214	0.53 U	0.063 U	0.11 U
HA-106	HA106L-24	1	2	20041214	0.53 U	0.063 U	0.11 U

Table 3-10

Fixed Base Soil Analytical Results
1715 Tallevast Road
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)
HA-017	HA017L-06	0	0.5	20041119	1.4
HA-017	HA017L-12	0.5	1	20041119	0.57 U
HA-017	HA017L-24	1.5	2	20041119	0.57 U
HA-018	HA018L-06	0	0.5	20041119	3.2
HA-018	HA018L-12	0.5	1	20041119	0.6
HA-018	HA018L-24	1.5	2	20041119	0.55 U
HA-019	HA019L-06	0	0.5	20041119	0.59 U
HA-019	HA019L-12	0.5	1	20041119	0.58 U
HA-019	HA019L-24	1.5	2	20041119	0.55 U
HA-020	HA020L-06	0	0.5	20041119	0.57 U
HA-020	HA020L-12	0.5	1	20041119	0.57 U
HA-020	HA020L-24	1.5	2	20041119	0.54 U
HA-021	HA021L-06	0	0.5	20041119	0.55 U
HA-021	HA021L-12	0.5	1	20041119	0.57 U
HA-021	HA021L-24	1.5	2	20041119	0.58 U

Table 3-10

Fixed Base Soil Analytical Results
1807 Tallevast - Bryant Chapel
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida
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Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)
HA-032	HA032L-06	0	0.5	20041130	1.2	NA
HA-032	HA032L-12	0.5	1	20041130	0.51 U	NA
HA-032	HA032L-24	1.5	2	20041130	0.54 U	NA
HA-033	HA033L-06	0	0.5	20041130	0.53	NA
HA-033	HA033L-12	0.5	1	20041130	0.51 U	NA
HA-033	HA033L-24	1.5	2	20041130	0.53 U	NA
HA-034	HA034L-06	0	0.5	20041130	0.55	NA
HA-034	HA034L-12	0.5	1	20041130	0.53 U	NA
HA-034	HA034L-24	1.5	2	20041130	0.53 U	NA
HA-035	HA035L-06	0	0.5	20041130	0.53 U	NA
HA-035	HA035L-12	0.5	1	20041130	0.54 U	NA
HA-035	HA035L-24	1.5	2	20041130	0.54 U	NA
HA-036	HA036L-06	0	0.5	20041130	0.57 U	NA
HA-036	HA036L-12	0.5	1	20041130	0.55 U	NA
HA-036	HA036L-24	1.5	2	20041130	0.55 U	NA
HA-037	HA037L-06	0	0.5	20041130	0.98	NA
HA-037	HA037L-12	0.5	1	20041130	0.63	NA
HA-037	HA037L-24	1.5	2	20041130	0.54 U	NA
HA-038	HA038L-06	0	0.5	20041130	0.51 U	NA
HA-038	HA038L-12	0.5	1	20041130	0.52 U	NA
HA-038	HA038L-24	1.5	2	20041130	0.54 U	NA
HA-039	HA039L-06	0	0.5	20041130	0.58	NA
HA-039	HA039L-12	0.5	1	20041130	2	NA
HA-039	HA039L-24	1.5	2	20041130	0.54 U	NA
HA-040	HA040L-06	0	0.5	20041130	0.57	NA
HA-040	HA040L-12	0.5	1	20041130	0.65	NA
HA-040	HA040L-24	1.5	2	20041130	0.54 U	NA
HA-041	HA041L-06	0	0.5	20041130	0.65	NA
HA-041	HA041L-12	0.5	1	20041130	0.53	NA
HA-041	HA041L-24	1.5	2	20041130	0.53 U	NA
HA-042	HA042L-06	0	0.5	20041130	0.1	0.065 U
HA-042	HA042L-12	0.5	1	20041130	0.54 U	0.065 U
HA-042	HA042L-24	1.5	2	20041130	0.59 U	0.071 U
HA-043	HA043L-06	0	0.5	20041130	0.8	0.065 U
HA-043	HA043L-12	0.5	1	20041130	0.53 U	0.064 U
HA-043	HA043L-24	1.5	2	20041130	0.56 U	0.067 U
HA-044	HA044L-06	0	0.5	20041130	0.68	0.066 U
HA-044	HA044L-12	0.5	1	20041130	0.54 U	0.065 U
HA-044	HA044L-24	1.5	2	20041130	0.6 U	0.071 U
HA-045	HA045L-06	0	0.5	20041130	1.3	2.1
HA-045	HA045L-12	0.5	1	20041130	0.86	0.1
HA-045	HA045L-24	1.5	2	20041130	0.55 U	0.066 U
HA-046	HA046L-06	0	0.5	20041130	0.54 U	0.065 U
HA-046	HA046L-12	0.5	1	20041130	1.5	0.065 U
HA-046	HA046L-24	1.5	2	20041130	0.54 U	0.065 U

Table 3-10

Fixed Base Soil Analytical Results
7607 16th Street Court E.
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)	Dibenzo(a,h)anthracene Concentration (mg/kg)
HA-052	HA052L-06	0	0.5	20041204	0.53 U		
HA-052	HA052L-12	0.5	1	20041204	Refusal	0.063 U	0.063 U
HA-052	HA052L-24	1.5	2	20041204	Refusal	0.067 U	0.067 U
HA-053	HA053L-06	0	0.5	20041204		0.064 U	0.064 U
HA-053	HA053L-12	0.5	1	20041204		0.063 U	0.063 U
HA-053	HA053L-24	1.5	2	20041204		0.067 U	0.067 U
HA-054	HA054L-06	0	0.5	20041204		0.065 U	0.065 U
HA-054	HA054L-12	0.5	1	20041204		0.064 U	0.064 U
HA-054	HA054L-24	1.5	2	20041204		0.066 U	0.066 U
HA-055	HA055L-06	0	0.5	20041204		0.42	0.078
HA-055	HA055L-12	0.5	1	20041204	0.64		
HA-055	HA055L-24	1.5	2	20041204	0.56 U		
HA-056	HA056L-06	0	0.5	20041204	1.3		
HA-056	HA056L-12	0.5	1	20041204	0.91		
HA-056	HA056L-24	1.5	2	20041204	0.55 U		

Table 3-10

Fixed Base Soil Analytical Results
7624 16th Street Court E.
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)
HA-057	HA057L-06	0	0.5	20041215	0.85	NA
HA-057	HA057L-12	0.5	1	20041215	0.52 U	NA
HA-057	HA057L-24	1	2	20041215	0.56 U	NA
HA-058	HA058L-06	0	0.5	20041215	10	NA
HA-058	HA058L-12	0.5	1	20041215	3.4	NA
HA-058	HA058L-24	1	2	20041215	0.53 U	NA
HA-059	HA059L-06	0	0.5	20041215	2.2	NA
HA-059	HA059L-12	0.5	1	20041215	0.53 U	NA
HA-059	HA059L-24	1	2	20041215	0.54 U	NA
HA-060	HA060L-06	0	0.5	20041215	0.71	NA
HA-060	HA060L-12	0.5	1	20041215	0.96	NA
HA-060	HA060L-24	1	2	20041215	0.53 U	NA
HA-061	HA061L-06	0	0.5	20041215	0.53 U	NA
HA-061	HA061L-12	0.5	1	20041215	1.2	NA
HA-061	HA061L-24	1	2	20041215	0.54 U	NA
HA-062	HA062L-06	0	0.5	20041215	0.63	0.066 U
HA-062	HA062L-12	0.5	1	20041215	0.76	0.23
HA-062	HA062L-24	1	2	20041215	1.3	0.22
HA-063	HA063L-06	0	0.5	20041215	1	0.46
HA-063	HA063L-12	0.5	1	20041215	0.99	0.95
HA-063	HA063L-24	1	2	20041215	1.1	0.46
HA-064	HA064L-06	0	0.5	20041215	0.58	0.46
HA-064	HA064L-12	0.5	1	20041215	0.97	0.063 U
HA-064	HA064L-24	1	2	20041215	0.66	0.065 U
HA-065	HA065L-06	0	0.5	20041215	0.59	0.061 U
HA-065	HA065L-12	0.5	1	20041215	0.69	0.063 U
HA-065	HA065L-24	1	2	20041215	0.52 U	0.09
HA-066	HA066L-06	0	0.5	20041215	0.83	0.55
HA-066	HA066L-12	0.5	1	20041215	1.7	0.87
HA-066	HA066L-24	1	2	20041215	0.53 U	0.063 U
HA-067	HA067L-06	0	0.5	20041215	NA	0.4
HA-067	HA067L-12	0.5	1	20041215	NA	0.14
HA-067	HA067L-24	1	2	20041215	NA	0.063 U
HA-068	HA068L-06	0	0.5	20041215	NA	0.077
HA-068	HA068L-12	0.5	1	20041215	NA	0.22
HA-068	HA068L-24	1	2	20041215	NA	0.074
HA-069	HA069L-06	0	0.5	20041215	NA	0.38
HA-069	HA069L-12	0.5	1	20041215	NA	0.095
HA-069	HA069L-24	1	2	20041215	NA	1.7
HA-070	HA070L-06	0	0.5	20041215	NA	0.063 U
HA-070	HA070L-12	0.5	1	20041215	NA	0.19
HA-070	HA070L-24	1	2	20041215	NA	0.081 U
HA-071	HA071L-06	0	0.5	20041215	NA	0.13
HA-071	HA071L-12	0.5	1	20041215	NA	0.065
HA-071	HA071L-24	1	2	20041215	NA	0.069 U

Table 3-10

Fixed Base Soil Analytical Results
7716 17th Street Court E.
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida
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Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)	Dibenzo(a,h)anthracene Concentration (mg/kg)
HA-107	HA107L-06	0	0.5	20041205	0.53 U	0.063 U	0.063 U
HA-107	HA107L-12	0.5	1	20041205	0.53 U	0.064 U	0.064 U
HA-107	HA107L-24	1.5	2	20041205	0.54 U	0.065 U	0.065 U
HA-108	HA108L-06	0	0.5	20041205	2.8	0.21	0.079 U
HA-108	HA108L-12	0.5	1	20041205	0.52 U	0.063 U	0.063 U
HA-108	HA108L-24	1.5	2	20041205	3	0.079 U	0.079 U
HA-109	HA109L-06	0	0.5	20041205	1	0.44	0.066 U
HA-109	HA109L-12	0.5	1	20041205	0.8	0.11	0.063 U
HA-109	HA109L-24	1.5	2	20041205	0.54 U	0.065 U	0.065 U
HA-110	HA110L-06	0	0.5	20041205	1	0.077	0.062 U
HA-110	HA110L-12	0.5	1	20041205	1.1	0.062 U	0.062 U
HA-110	HA110L-24	1.5	2	20041205	0.53 U	0.063 U	0.063 U
HA-111	HA111L-06	0	0.5	20041205	0.7 U	0.085 U	0.085 U
HA-111	HA111L-12	0.5	1	20041205	0.68	0.065 U	0.065 U
HA-111	HA111L-24	1.5	2	20041205	0.55 U	0.066 U	0.066 U
HA-112	HA112L-06	0	0.5	20041206	2.6	0.32	0.066
HA-112	HA112L-12	0.5	1	20041206	1.3	0.22	0.064
HA-112	HA112L-24	1.5	2	20041206	0.57 U	0.068 U	0.068 U
HA-113	HA113L-06	0	0.5	20041206	1.4	2.1	0.41
HA-113	HA113L-12	0.5	1	20041206	0.52 U	0.95	0.19
HA-113	HA113L-24	1.5	2	20041206	0.54 U	0.27	0.065 U
HA-114	HA114L-06	0	0.5	20041206	4.9	0.16	0.065 U
HA-114	HA114L-12	0.5	1	20041206	3.6	0.26	0.12
HA-114	HA114L-24	1.5	2	20041206	0.52 U	0.074	0.063 U
HA-115	HA115L-06	0	0.5	20041206	0.52 U	0.063 U	0.063 U
HA-115	HA115L-12	0.5	1	20041206	0.52 U	0.063 U	0.063 U
HA-115	HA115L-24	1.5	2	20041206	0.53 U	0.064 U	0.064 U
HA-116	HA116L-06	0	0.5	20041206	0.68	0.12	0.065 U
HA-116	HA116L-12	0.5	1	20041206	0.54	0.064 U	0.064 U
HA-116	HA116L-24	1.5	2	20041206	0.55 U	0.066 U	0.066 U
HA-147	HA147L-06	0	0.5	20041206	NA	0.074 U	NA
HA-147	HA147L-12	0.5	1	20041206	NA	0.065 U	NA
HA-147	HA147L-24	1.5	2	20041206	NA	0.072 U	NA
HA-148	HA148L-06	0	0.5	20041206	NA	1.2	NA
HA-148	HA148L-12	0.5	1	20041206	NA	3.9	NA
HA-148	HA148L-24	1.5	2	20041206	NA	0.4	NA
HA-149	HA149L-06	0	0.5	20041206	NA	0.29	NA
HA-149	HA149L-12	0.5	1	20041206	NA	0.088	NA
HA-149	HA149L-24	1.5	2	20041206	NA	0.11	NA
HA-150	HA150L-06	0	0.5	20041206	NA	0.15	NA
HA-150	HA150L-12	0.5	1	20041206	NA	0.08 U	NA
HA-150	HA150L-24	1.5	2	20041206	NA	0.069 U	NA
HA-151	HA151L-06	0	0.5	20041206	NA	0.081	NA
HA-151	HA151L-12	0.5	1	20041206	NA	0.064 U	NA
HA-151	HA151L-24	1.5	2	20041206	NA	0.069 U	NA

Table 3-10

Fixed Base Soil Analytical Results
7727 77th Street East-Tallevast Community Center
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)
HA-117	HA117L-06	0	0.5	20041203	1.4
HA-117	HA117L-12	0.5	1	20041203	0.85
HA-117	HA117L-24	1.5	2	20041203	0.52 U
HA-118	HA118L-06	0	0.5	20041203	0.99
HA-118	HA118L-12	0.5	1	20041203	0.93
HA-118	HA118L-24	1.5	2	20041203	0.52 U
HA-119	HA119L-06	0	0.5	20041203	3.2
HA-119	HA119L-12	0.5	1	20041203	1.3
HA-119	HA119L-24	1.5	2	20041203	0.52 U
HA-120	HA120L-06	0	0.5	20041204	4.9
HA-120	HA120L-12	0.5	1	20041204	0.63
HA-120	HA120L-24	1.5	2	20041204	0.55 U
HA-121	HA121L-06	0	0.5	20041204	1.2
HA-121	HA121L-12	0.5	1	20041204	0.53 U
HA-121	HA121L-24	1.5	2	20041204	0.53 U
HA-122	HA122L-06	0	0.5	20041203	0.76
HA-122	HA122L-24	1.5	2	20041203	0.63 U
HA-123	HA123L-06	0	0.5	20041203	0.66
HA-123	HA123L-12	0.5	1	20041203	0.54 U
HA-123	HA123L-24	1.5	2	20041203	0.53 U
HA-124	HA124L-06	0	0.5	20041203	2.1
HA-124	HA124L-12	0.5	1	20041203	0.52 U
HA-124	HA124L-24	1.5	2	20041203	0.53 U
HA-125	HA125L-06	0	0.5	20041203	1.9
HA-125	HA125L-12	0.5	1	20041203	0.87
HA-125	HA125L-24	1.5	2	20041203	0.53 U
HA-126	HA126L-06	0	0.5	20041203	2
HA-126	HA126L-12	0.5	1	20041203	1.4
HA-126	HA126L-24	1.5	2	20041203	0.95
HA-127	HA127L-06	0	0.5	20041202	0.81
HA-127	HA127L-12	0.5	1	20041202	0.62
HA-127	HA127L-24	1.5	2	20041202	0.52 U
HA-128	HA128L-06	0	0.5	20041202	0.76
HA-128	HA128L-12	0.5	1	20041202	0.53 U
HA-128	HA128L-24	1.5	2	20041202	0.56 U
HA-129	HA129L-06	0	0.5	20041202	0.53 U
HA-129	HA129L-12	0.5	1	20041202	9.9
HA-129	HA129L-24	1.5	0.5	20041202	0.53 U
HA-130	HA130L-06	0	0.5	20041202	0.54
HA-130	HA130L-12	0.5	1	20041202	0.93
HA-130	HA130L-24	1.5	2	20041202	0.52 U
HA-131	HA131L-06	0	0.5	20041203	0.64 U
HA-131	HA131L-12	0.5	1	20041203	0.53 U
HA-131	HA131L-24	1.5	2	20041203	0.54 U

Table 3-10

Fixed Base Soil Analytical Results
7830 78th Street
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida
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Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Arsenic Concentration (mg/kg)	Lead Concentration (mg/kg)	Total Petroleum Hydrocarbons Concentration (mg/kg)
HA-132	HA132L-06	0	0.5	20041207	NA	47 C7	30
HA-132	HA132L-12	0.5	2	20041207	NA	15	22 U
HA-132	HA132L-24	1.5	2	20041207	NA	1.1 U	22 U
HA-133	HA133L-06	0	0.5	20041207	NA	220	36
HA-133	HA133L-12	0.5	1	20041207	NA	200	23 U
HA-133	HA133L-24	1.5	2	20041207	NA	220	23 U
HA-134	HA134L-06	0	0.5	20041207	NA	40	22 U
HA-134	HA134L-12	0.5	1	20041207	NA	41	230 U
HA-134	HA134L-24	1.5	2	20041207	NA	1.5	23 U
HA-135	HA135L-06	0	0.5	20041207	NA	240	25
HA-135	HA135L-12	0.5	1	20041207	NA	31	31
HA-135	HA135L-24	1.5	2	20041207	NA	1.5	26 U
HA-136	HA136L-06	0	0.5	20041207	NA	160	74
HA-136	HA136L-12	0.5	1	20041207	NA	85	32
HA-136	HA136L-24	1.5	2	20041207	NA	570	57
HA-137	HA137L-06	0	0.5	20041207	2.9	NA	NA
HA-137	HA137L-12	0.5	1	20041207	0.53 U	NA	NA
HA-137	HA137L-24	1.5	2	20041207	0.58 U	NA	NA
HA-138	HA138L-06	0	0.5	20041207	3.9	NA	NA
HA-138	HA138L-12	0.5	1	20041207	0.64 U	NA	NA
HA-138	HA138L-24	1.5	2	20041207	0.53 U	NA	NA
HA-139	HA139L-06	0	0.5	20041207	3	NA	NA
HA-139	HA139L-12	0.5	1	20041207	2.2	NA	NA
HA-139	HA139L-24	1.5	2	20041207	0.63 U	NA	NA
HA-140	HA140L-06	0	0.5	20041207	2.8	NA	NA
HA-140	HA140L-12	0.5	1	20041207	0.68	NA	NA
HA-140	HA140L-24	1.5	2	20041207	0.53 U	NA	NA
HA-141	HA141L-06	0	0.5	20041207	0.9	NA	NA
HA-141	HA141L-12	0.5	1	20041207	0.54 U	NA	NA
HA-141	HA141L-24	1.5	2	20041207	0.56 U	NA	NA

Table 3-10

Fixed Base Soil Analytical Results
Culvert Location
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Location	Sample_ID	Top Depth (feet)	Bottom Depth (feet)	Sample Date	Benzo(a)pyrene Concentration (mg/kg)	Dibenzo(a,h)anthracene Concentration (mg/kg)
HA-142	HA142L-06	0	0.5	20041205	0.45	0.11
HA-142	HA142L-12	0.5	1	20041205	0.14	0.066 U
HA-142	HA142L-24	1.5	2	20041205	0.073 U	0.073 U
HA-143	HA143L-06	0	0.5	20041205	0.065 U	0.065 U
HA-143	HA143L-12	0.5	1	20041205	0.075 U	0.075 U
HA-143	HA143L-24	1.5	2	20041205	0.071 U	0.071 U
HA-144	HA144L-06	0	0.5	20041205	0.16	0.063 U
HA-144	HA144L-12	0.5	1	20041205	0.064 U	0.064 U
HA-144	HA144L-24	1.5	2	20041205	0.071 U	0.071 U
HA-145	HA145L-06	0	0.5	20041205	1	0.26
HA-145	HA145L-12	0.5	1	20041205	0.064 U	0.064 U
HA-145	HA145L-24	1.5	2	20041205	0.087	0.071 U
HA-146	HA146L-06	0	0.5	20041205	0.52	0.12
HA-146	HA146L-12	0.5	1	20041205	0.2	0.065 U
HA-146	HA146L-24	1.5	2	20041205	0.48	0.093

Table 3-11

Exposure Point Concentrations Calculated With FLUCL
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Samples	Arsenic			Lead			Benzo(a)pyrene		
	FOD	Conc.	Basis	FOD	Conc.	Basis	FOD	Conc.	Basis
72 - 76	10/15	1.16	95% H-UCL	--	--	--	--	--	--
77 - 81	10/15	9.37	95% Chebyshev (MVUE) UCL	--	--	--	--	--	--
(72 - 76) + (77 - 81)	20/30	5.85	Chebyshev (Mean, Std)	--	--	--	--	--	--
82 - 86	--	--	--	--	--	--	0/10	0.76 U	Maximum Nondetected
(77 - 81) + (82 - 86)	10/15	9.37	95% Chebyshev (MVUE) UCL	--	--	--	0/10	0.76 U	Maximum Nondetected
62 - 66	13/15	1.03	95% H-UCL	--	--	--	9/15	0.428	Student's-t
67 - 71	--	--	--	--	--	--	11/15	0.718	Chebyshev (Mean, Std)
(62 - 66) + (67 - 71)	13/15	1.03	95% H-UCL	--	--	--	20/30	0.566	Chebyshev (Mean, Std)
57 - 61	5/10	6.17	Bounding (Max)	--	--	--	--	--	--
52 - 56	3/5	1.30	Maximum	--	--	--	1/9	0.420	Maximum
27 - 31	--	--	--	--	--	--	5/15	0.226	Bounding (Max)
22 - 26 + 6	2/3	4	Maximum	3/3	56	Maximum	2/18	0.350	Maximum
47 - 51	8/15	0.815	Chebyshev (Mean, Std)	--	--	--	0/15	0.065 U	Maximum Nondetected
17 - 21	3/15	1.91	Bounding (Max)	--	--	--	--	--	--
92 - 96	12/15	1.19	Chebyshev (Mean, Std)	--	--	--	--	--	--
87 - 91	5/15	3.80	Bounding (Max)	--	--	--	--	--	--
(87 - 91) + (92 - 96)	17/30	2.21	Chebyshev (Mean, Std)	--	--	--	--	--	--
32 - 36	3/15	1.20	Maximum	--	--	--	--	--	--
37 - 41	8/15	1.12	Chebyshev (Mean, Std)	--	--	--	--	--	--
(32 - 36) + (37 - 41)	11/30	0.869	Chebyshev (Mean, Std)	--	--	--	--	--	--
42 - 46	6/15	1.41	Bounding (Max)	--	--	--	2/15	2.10	Maximum
97 - 101 + 7	3/3	11	Maximum	3/3	62	Maximum	4/18	0.210	Bounding (Max)
102 - 106	2/15	0.610	Maximum	--	--	--	1/15	0.097	Maximum
(97 - 101 + 7) + (102 - 106)	4/18	3.68	Bounding (Max)	3/3	62	Maximum	5/33	0.172	Bounding (Max)
142 - 146 + 11	--	--	--	--	--	--	8/15	0.632	95% Chebyshev (MVUE) UCL
147 - 151 + 12	0/3	0.6 U	Maximum Nondetected	2/3	2	Maximum	10/18	1.35	Chebyshev (Mean, Std)
107 - 111 + 13	8/18	1.86	Chebyshev (Mean, Std)	3/3	6.2	Maximum	5/18	0.235	Bounding (Max)
112 - 116	7/15	2.84	95% H-UCL	--	--	--	9/16	0.887	95% Chebyshev (MVUE) UCL
(107 - 111 +13) + (147 - 151 + 112) + (112 - 116)	8/24	1.55	Chebyshev (Mean, Std)	5/6	6.2	Maximum	25/54	0.576	Chebyshev (Mean, Std)
127 - 131 + 14	6/18	3.65	Bounding (Max)	3/3	5.8	Maximum	1/3	0.066	Maximum
117 - 121	9/15	2.27	95% H-UCL	--	--	--	--	--	--
122 - 126	8/14	1.69	Chebyshev (Mean, Std)	--	--	--	--	--	--
(117 - 121) + (122 - 126)	17/29	1.50	95% H-UCL	--	--	--	--	--	--
132 - 136	--	--	--	14/15	296	Chebyshev (Mean, Std)	--	--	--
137 - 141	7/15	2.74	Chebyshev (Mean, Std)	--	--	--	--	--	--
(132 - 136) + (137 - 141)	7/15	2.74	Chebyshev (Mean, Std)	14/15	296	Chebyshev (Mean, Std)	--	--	--

Table 3-12
Fixed-Based Laboratory Results for Soil Gas Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Parameter- Units ppbv	**Target Soil Gas Concentration[1] (ppbv)** a **= 2 x 10^{-3} Risk Level = 1 x 10^{-6}**	**OSHA PEL ppbv**	**ATSDR MRL ppbv**	**Sample SGSO1**			**Sample SGSO2**			**Sample SGSDUP Duplicate of SGS02**		
				conc	**dilution**	**pql**	**conc**	**dilution**	**pql**	**conc**	**dilution**	**pql**
1,1,1-Trichloroethane	200000	350000	700	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	610	25000[2]	NA	1.1	1.00	0.5	0.98	1.00	0.5	1	1.00	0.5
1,2-Dichlorotetrafluoroethane	NA	1000000	NA	ND	ND	ND	16	1.00	0.5	0.62	1.00	0.5
1,3-Butadiene	2	1000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	8700	NA	NA	7.2	1.00	0.5	6	1.00	0.5	6.8	1.00	0.5
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	NA	NA	NA	0.84	1.00	0.5	0.77	1.00	0.5	0.82	1.00	0.5
Acetone	74000	1000000	13000	20	1.00	5	9.5	1.00	5	7.6	1.00	5
Benzene	49	1000	4	0.89	1.00	0.5	ND	ND	ND	ND	ND	ND
Carbon Disulfide	110000	20000	300	0.75	1.00	0.5	ND	ND	ND	ND	ND	ND
Chloroform	11	50000	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	NA	300000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	20000	1000000	NA	ND	ND	ND	2.7	1.00	0.5	ND	ND	ND
Ethylbenzene	250	100000	1000	0.58	1.00	0.5	ND	ND	ND	ND	ND	ND
Freon TF	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropyl Alcohol	NA	400000	NA	12	1.00	5	8.8	1.00	5	5.5	1.00	5
Methyl Butyl Ketone	NA	100000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	170000	200000	NA	5.5	1.00	0.5	13	1.00	0.5	9.1	1.00	0.5
Methyl Isobutyl Ketone	9800	100000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Heptane	NA	500000	NA	0.57	1.00	0.5	ND	ND	ND	ND	ND	ND
n-Hexane	28000	500000	600	0.86	1.00	0.5	0.66	1.00	0.5	ND	ND	ND
Styrene	120000	100000	60	0.51	1.00	0.5	1	1.00	0.5	0.94	1.00	0.5
Tetrachloroethene	60	100000	40	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	NA	200000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	53000	200000	80	2.2	1.00	0.5	1.7	1.00	0.5	1.3	1.00	0.5
Trichloroethene	2.1	100000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (m,p)	810000	100000	NA	1.4	1.00	0.5	1.3	1.00	0.5	1.2	1.00	0.5
Xylene (o)	810000	100000	NA	0.75	1.00	0.5	0.66	1.00	0.5	0.65	1.00	0.5
Xylene (total)	NA	NA	100	2.3	1.00	0.5	2.1	1.00	0.5	2	1.00	0.5

Notes:

[1] From Table3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limit ATSDR MRL - Agency For Toxic Substances Disease Registry Minimal Risk Levels

[2] National Institute for Occupational Safety and Health Recommended Exposure Limit

conc - concentration
pql - practical quantitation limit
ppbv - parts per billion volume
NA - not available
ND - not detected

Table 3-12
Fixed-Based Laboratory Results for Soil Gas Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Parameter- Units ppbv	Target Soil Gas Concentration[1] (ppbv) a = 2 x 10^{-3} Risk Level = 1 x 10^{-6}	OSHA PEL ppbv	ATSDR MRL ppbv	Sample SGSO3			Sample SGSO4			Sample SGSO5		
				conc	dilution	pql	conc	dilution	pql	conc	dilution	pql
1,1,1-Trichloroethane	200000	350000	700	ND	ND	ND	1.3	1.00	0.5	0.64	1.00	0.5
1,2,4-Trimethylbenzene	610	25000[2]	NA	1.9	1.00	0.5	0.63	1.00	0.5	ND	ND	ND
1,2-Dichlorotetrafluoroethane	NA	1000000	NA	ND	ND	ND	8.3	1.00	0.5	ND	ND	ND
1,3-Butadiene	2	1000	NA	ND	ND	ND	0.52	1.00	0.5	ND	ND	ND
1,3-Dichlorobenzene	8700	NA	NA	12	1.00	0.5	3.5	1.00	0.5	4.2	1.00	0.5
2,2,4-Trimethylpentane	NA	NA	NA	14	1.00	0.5	ND	ND	ND	3.6	1.00	0.5
4-Ethyltoluene	NA	NA	NA	1.6	1.00	0.5	ND	ND	ND	ND	ND	ND
Acetone	74000	1000000	13000	110	1.00	5	28	1.00	5	99	1.00	5
Benzene	49	1000	4	7.9	1.00	0.5	1	1.00	0.5	4.2	1.00	0.5
Carbon Disulfide	110000	20000	300	1.7	1.00	0.5	0.88	1.00	0.5	2	1.00	0.5
Chloroform	11	50000	20	ND	ND	ND	ND	ND	ND	1	1.00	0.5
Cyclohexane	NA	300000	NA	1.4	1.00	0.5	ND	ND	ND	0.91	1.00	0.5
Dichlorodifluoromethane	20000	1000000	NA	ND	ND	ND	1.7	1.00	0.5	ND	ND	ND
Ethylbenzene	250	100000	1000	1.6	1.00	0.5	ND	ND	ND	ND	ND	ND
Freon TF	NA	NA	NA	ND	ND	ND	0.65	1.00	0.5	ND	ND	ND
Isopropyl Alcohol	NA	400000	NA	34	1.00	5	19	1.00	5	29	1.00	5
Methyl Butyl Ketone	NA	100000	NA	1.6	1.00	0.5	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	170000	200000	NA	13	1.00	0.5	6.3	1.00	0.5	16	1.00	0.5
Methyl Isobutyl Ketone	9800	100000	NA	1.3	1.00	0.5	0.51	1.00	0.5	0.61	1.00	0.5
n-Heptane	NA	500000	NA	4.3	1.00	0.5	0.62	1.00	0.5	ND	ND	ND
n-Hexane	28000	500000	600	2.9	1.00	0.5	1.1	1.00	0.5	2.3	1.00	0.5
Styrene	120000	100000	60	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	60	100000	40	ND	ND	ND	5.8	1.00	0.5	2.5	1.00	0.5
Tetrahydrofuran	NA	200000	NA	ND	ND	ND	ND	ND	ND	6.5	1.00	5
Toluene	53000	200000	80	12	1.00	0.5	2.2	1.00	0.5	4.2	1.00	0.5
Trichloroethene	2.1	100000	100	0.7	1.00	0.5	0.59	1.00	0.5	ND	ND	ND
Xylene (m,p)	810000	100000	NA	3.2	1.00	0.5	0.7	1.00	0.5	ND	ND	ND
Xylene (o)	810000	100000	NA	1.9	1.00	0.5	ND	ND	ND	ND	ND	ND
Xylene (total)	NA	NA	100	5.3	1.00	0.5	0.75	1.00	0.5	ND	ND	ND

Notes:

[1] From Table3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limit ATSDR MRL - Agency For Toxic Substances Disease Registry Minimal Risk Levels

[2] National Institute for Occupational Safety and Health Recommended Exposur

conc - concentration pql - practical quantitation limit

ppbv - parts per billion volume NA - not available ND - not detected

Table 3-12
Fixed-Based Laboratory Results for Soil Gas Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Parameter- Units ppbv	**Target Soil Gas Concentration[1] (ppbv) a = 2 x 10^{-3} Risk Level = 1 x 10^{-6}**	**OSHA PEL ppbv**	**ATSDR MRL ppbv**	**Sample SGSO6**			**Sample SGSO7**			**Sample SGSO8**		
				conc	**dilution**	**pql**	**conc**	**dilution**	**pql**	**conc**	**dilution**	**pql**
1,1,1-Trichloroethane	200000	350000	700	0.55	1.00	0.5	1.2	1.00	0.5	ND	ND	ND
1,2,4-Trimethylbenzene	610	25000[2]	NA	0.96	1.00	0.5	ND	ND	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	NA	1000000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Butadiene	2	1000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	8700	NA	NA	5.5	1.00	0.5	1.2	1.00	0.5	ND	ND	ND
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	NA	NA	NA	0.8	1.00	0.5	ND	ND	ND	ND	ND	ND
Acetone	74000	1000000	13000	17	1.00	5	19	1.00	5	ND	ND	ND
Benzene	49	1000	4	1.1	1.00	0.5	0.52	1.00	0.5	ND	ND	ND
Carbon Disulfide	110000	20000	300	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	11	50000	20	0.92	1.00	0.5	1.1	1.00	0.5	ND	ND	ND
Cyclohexane	NA	300000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	20000	1000000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	250	100000	1000	0.74	1.00	0.5	ND	ND	ND	ND	ND	ND
Freon TF	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropyl Alcohol	NA	400000	NA	13	1.00	5	64	1.00	5	5.2	1.00	5
Methyl Butyl Ketone	NA	100000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	170000	200000	NA	3.3	1.00	0.5	12	1.00	0.5	0.83	1.00	0.5
Methyl Isobutyl Ketone	9800	100000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Heptane	NA	500000	NA	0.54	1.00	0.5	ND	ND	ND	ND	ND	ND
n-Hexane	28000	500000	600	0.73	1.00	0.5	0.52	1.00	0.5	ND	ND	ND
Styrene	120000	100000	60	0.66	1.00	0.5	ND	ND	ND	ND	ND	ND
Tetrachloroethene	60	100000	40	4.1	1.00	0.5	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	NA	200000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	53000	200000	80	4.6	1.00	0.5	1.2	1.00	0.5	0.9	1.00	0.5
Trichloroethene	2.1	100000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (m,p)	810000	100000	NA	1.7	1.00	0.5	ND	ND	ND	ND	ND	ND
Xylene (o)	810000	100000	NA	0.86	1.00	0.5	ND	ND	ND	ND	ND	ND
Xylene (total)	NA	NA	100	2.7	1.00	0.5	ND	ND	ND	ND	ND	ND

Notes:

[1] From Table3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limit ATSDR MRL - Agency For Toxic Substances Disease Registry Minimal Risk Levels

[2] National Institute for Occupational Safety and Health Recommended Exposur

conc - concentration pql - practical quantitation limit
ppbv - parts per billion volume NA - not available ND - not detected

Table 3-12
Fixed-Based Laboratory Results for Soil Gas Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Parameter- Units ppbv	**Target Soil Gas Concentration[1] (ppbv) a = 2 x 10^{-3} Risk Level = 1 x 10^{-6}**	**OSHA PEL ppbv**	**ATSDR MRL ppbv**	**Sample SGSO9**			**Sample SGS10**			**Sample SGS11**		
				conc	**dilution**	**pql**	**conc**	**dilution**	**pql**	**conc**	**dilution**	**pql**
1,1,1-Trichloroethane	200000	350000	700	3.6	1.00	0.5	ND	ND	ND	3.8	1.00	0.5
1,2,4-Trimethylbenzene	610	25000[2]	NA	ND	ND	ND	1.3	1.00	0.5	0.97	1.00	0.5
1,2-Dichlorotetrafluoroethane	NA	1000000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Butadiene	2	1000	NA	ND	ND	ND	ND	ND	ND	0.59	1.00	0.5
1,3-Dichlorobenzene	8700	NA	NA	ND	ND	ND	8.6	1.00	0.5	6.5	1.00	0.5
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	0.76	1.00	0.5	ND	ND	ND
4-Ethyltoluene	NA	NA	NA	ND	ND	ND	1.2	1.00	0.5	0.76	1.00	0.5
Acetone	74000	1000000	13000	9.7	1.00	5	17	1.00	5	23	1.00	5
Benzene	49	1000	4	1.1	1.00	0.5	2.6	1.00	0.5	2.1	1.00	0.5
Carbon Disulfide	110000	20000	300	ND	ND	ND	0.67	1.00	0.5	0.52	1.00	0.5
Chloroform	11	50000	20	0.75	1.00	0.5	ND	ND	ND	1.1	1.00	0.5
Cyclohexane	NA	300000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	20000	1000000	NA	ND	ND	ND	0.5	1.00	0.5	ND	ND	ND
Ethylbenzene	250	100000	1000	ND	ND	ND	1.1	1.00	0.5	0.58	1.00	0.5
Freon TF	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropyl Alcohol	NA	400000	NA	5.4	1.00	5	38	1.00	5	10	1.00	5
Methyl Butyl Ketone	NA	100000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	170000	200000	NA	2	1.00	0.5	6.9	1.00	0.5	4.3	1.00	0.5
Methyl Isobutyl Ketone	9800	100000	NA	ND	ND	ND	ND	ND	ND	0.6	1.00	0.5
n-Heptane	NA	500000	NA	ND	ND	ND	0.53	1.00	0.5	0.91	1.00	0.5
n-Hexane	28000	500000	600	0.62	1.00	0.5	0.82	1.00	0.5	1.7	1.00	0.5
Styrene	120000	100000	60	ND	ND	ND	0.96	1.00	0.5	ND	ND	ND
Tetrachloroethene	60	100000	40	ND	ND	ND	ND	ND	ND	0.6	1.00	0.5
Tetrahydrofuran	NA	200000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	53000	200000	80	3.9	1.00	0.5	4.8	1.00	0.5	2.3	1.00	0.5
Trichloroethene	2.1	100000	100	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (m,p)	810000	100000	NA	ND	ND	ND	2.7	1.00	0.5	1.2	1.00	0.5
Xylene (o)	810000	100000	NA	ND	ND	ND	1.3	1.00	0.5	0.69	1.00	0.5
Xylene (total)	NA	NA	100	ND	ND	ND	4.2	1.00	0.5	2	1.00	0.5

Notes:

[1] From Table3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limit ATSDR MRL - Agency For Toxic Substances Disease Registry Minimal Risk Levels

[2] National Institute for Occupational Safety and Health Recommended Exposur

conc - concentration pql - practical quantitation limit
ppbv - parts per billion volume NA - not available ND - not detected

Table 3-12
Fixed-Based Laboratory Results for Soil Gas Samples
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Parameter- Units ppbv	Target Soil Gas Concentration[1] (ppbv) a = 2 x 10^{-3} Risk Level = 1 x 10^{-6}	OSHA PEL ppbv	ATSDR MRL ppbv	Sample SGS13			Sample SGS14		
				conc	dilution	pql	conc	dilution	pql
1,1,1-Trichloroethane	200000	350000	700	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	610	25000[2]	NA	0.79	1.00	0.5	ND	ND	ND
1,2-Dichlorotetrafluoroethane	NA	1000000	NA	ND	ND	ND	ND	ND	ND
1,3-Butadiene	2	1000	NA	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	8700	NA	NA	3.6	1.00	0.5	1.3	1.00	0.5
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	NA	NA	NA	0.53	1.00	0.5	ND	ND	ND
Acetone	74000	1000000	13000	11	1.00	5	18	1.00	5
Benzene	49	1000	4	ND	ND	ND	0.72	1.00	0.5
Carbon Disulfide	110000	20000	300	ND	ND	ND	ND	ND	ND
Chloroform	11	50000	20	2.6	1.00	0.5	ND	ND	ND
Cyclohexane	NA	300000	NA	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	20000	1000000	NA	8.4	1.00	0.5	13	1.00	0.5
Ethylbenzene	250	100000	1000	ND	ND	ND	ND	ND	ND
Freon TF	NA	NA	NA	ND	ND	ND	ND	ND	ND
Isopropyl Alcohol	NA	400000	NA	12	1.00	5	11	1.00	5
Methyl Butyl Ketone	NA	100000	NA	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	170000	200000	NA	21	1.00	0.5	18	1.00	0.5
Methyl Isobutyl Ketone	9800	100000	NA	ND	ND	ND	ND	ND	ND
n-Heptane	NA	500000	NA	ND	ND	ND	ND	ND	ND
n-Hexane	28000	500000	600	0.83	1.00	0.5	0.65	1.00	0.5
Styrene	120000	100000	60	ND	ND	ND	ND	ND	ND
Tetrachloroethene	60	100000	40	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	NA	200000	NA	7.2	1.00	5	ND	ND	ND
Toluene	53000	200000	80	0.95	1.00	0.5	0.56	1.00	0.5
Trichloroethene	2.1	100000	100	ND	ND	ND	ND	ND	ND
Xylene (m,p)	810000	100000	NA	0.68	1.00	0.5	ND	ND	ND
Xylene (o)	810000	100000	NA	ND	ND	ND	ND	ND	ND
Xylene (total)	NA	NA	100	0.7	1.00	0.5	ND	ND	ND

Notes:

[1] From Table3c-SG: Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors (α) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils OSHA PEL - Occupational Safety and Health Administration Permissible Exposure Limit ATSDR MRL - Agency For Toxic Substances Disease Registry Minimal Risk Levels

[2] National Institute for Occupational Safety and Health Recommended Exposur

conc - concentration pql - practical quantitation limit

ppbv - parts per billion volume NA - not available ND - not detected

Table 3-13

Comparison of Soil Gas Results to
Top of Water Table Groundwater Results
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

parameter	**Soil Gas Sample SGSO1 (ppbv)**	**Top of Groundwater Sample JES-01C (ug/L)**
1,2,4-Trimethylbenzene	1.1	BDL
1,3-Dichlorobenzene	7.2	BDL
4-Ethyltoluene	0.84	NA
Acetone	20	BDL
Benzene	0.89	BDL
Carbon Disulfide	0.75	BDL
Chloromethane	BDL	2.7
Ethylbenzene	0.58	BDL
Isopropyl Alcohol	12	NA
Methyl Ethyl Ketone	5.5	BDL
n-Heptane	0.57	NA
n-Hexane	0.86	NA
Styrene	0.51	BDL
Toluene	2.2	BDL
Xylene (m,p)	1.4	NA
Xylene (o)	0.75	NA
Xylene (total)	2.3	BDL

ppbv - parts per billion volume
ug/L - micrograms per liter
BDL - below detection limit
NA - not analyzed

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-001	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-001	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-001	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-001	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-001	25	20041101	1 U	1 U	2	1 U	1 U
VP-002	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-002	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-002	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-002	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-002	25	20041101	3	5	1 U	1 U	1 U
VP-002	30	20041101	2	7	1 U	1 U	1 U
VP-003	5	20041101	9	3	1 U	1 U	1 U
VP-003	10	20041101	4	1 U	1 U	1	1 U
VP-003	15	20041101	4	1	2	4	12
VP-003	20	20041101	48	15	23	3 U	57
VP-003	25	20041101	10 U	13	11	10 U	440
VP-003	30	20041101	40 U	40 U	46 U	40 U	1600
VP-004	5	20041101	1 U	1 U	1 U	1 U	1
VP-004	10	20041101	1 U	1 U	1 U	1 U	5
VP-004	15	20041101	1 U	1 U	1 U	1 U	2
VP-004	20	20041101	1 U	1 U	1 U	1 U	4
VP-004	25	20041101	16	22	2 U	8	23
VP-005	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-005	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-005	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-005	20	20041101	1 U	1 U	1 U	1 U	1
VP-005	25	20041101	1	1 U	1 U	3	1 U
VP-006	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-006	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-006	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-006	20	20041101	1 U	1 U	1 U	2	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

			Parameter				
Sample Location	**Sample Depth (feet bgs)**	**Sample Date**	**1,1-Dichloroehtane ug/l**	**1,1-Dichloroethene ug/l**	**cis-1,2-Dichloroethene ug/l**	**Tethrachloroethene ug/l**	**Trichloroethene**
VP-006	25	20041101	4	1 U	1 U	5	1 U
VP-006	30	20041101	3	3	5	3	29
VP-007	5	20041101	1 U	1 U	1 U	1 U	10
VP-007	10	20041101	1 U	1 U	1 U	1	1 U
VP-007	15	20041101	63 J	7	1 U	7	4
VP-007	20	20041101	130	90	130	20 U	760
VP-007	25	20041101	200 U	200 U	710 U	200 U	8200
VP-008	5	20041101	140 J	6	5	3	11
VP-008	10	20041101	224 J	17	13	6	29
VP-008	15	20041101	86	23	31	20 U	430
VP-008	20	20041101	40 U	40 U	180	40 U	940
VP-008	25	20041101	59	40 U	43	40 U	430
VP-009	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-009	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-009	15	20041101	1 U	1.2	1 U	1 U	1 U
VP-009	20	20041101	1 U	1 U	1 U	1.1	1 U
VP-009	25	20041101	1 U	1 U	1 U	1.3	1 U
VP-009	30	20041101	110	360	5 U	98	97
VP-009	35	20041101	170	780	50 U	74	76
VP-010	5	20041101	1 U	1 U	1 U	1 U	2.2
VP-010	10	20041101	1 U	1 U	1 U	1 U	4.2
VP-010	15	20041101	1 U	1 U	1 U	1 U	1.6
VP-010	20	20041101	1 U	1 U	1 U	1 U	1.5
VP-010	25	20041101	1 U	1 U	1 U	2.1	1 U
VP-010	30	20041101	2.4	2.3	1 U	5.1	3
VP-010	35	20041101	370	250	21	34	40
VP-011	38	20041101	1200	450	180	50 U	50 U
VP-011	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-011	10	20041101	1 U	1 U	1 U	1 U	1.2
VP-011	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-011	20	20041101	1 U	1 U	1 U	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-011	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-011	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-011	35	20041101	260	130	48	10 U	22
VP-012	5	20041101	1 U	2	1 U	1 U	1
VP-012	10	20041101	1 U	2.2	1 U	1 U	1.1
VP-012	15	20041101	1 U	2.1	1 U	1 U	1.2
VP-012	20	20041101	13.7	8	3.4	1	6.1
VP-012	25	20041101	120	320	12	17	320
VP-012	30	20041101	48	120	27	25	330
VP-013	5	20041101	5	2	11	5	8
VP-013	10	20041101	7	3 U	4	53	11
VP-013	15	20041101	23	12	10 U	26	250
VP-013	20	20041101	61	53	5 U	12	180
VP-013	25	20041101	280	200 U	270	200 U	4400
VP-013	28	20041101	140	110	420	100 U	2600
VP-014	5	20041101	1 U	1.1	4.9	2.4	13.7
VP-014	10	20041101	1 U	2.3	2.5	2	38.3
VP-014	15	20041101	6.2	5 U	5 U	10	80
VP-014	20	20041101	14	7.4	2.8	3	42
VP-014	25	20041101	100 U	120	120	230	5800
VP-014	28	20041101	200 U	200 U	270	200 U	7900
VP-015	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-015	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-015	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-015	20	20041101	10	7	5 U	24	54
VP-015	25	20041101	79	40 U	40 U	40 U	800
VP-015	30	20041101	580	400 U	400 U	400 U	6000
VP-016	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-016	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-016	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-016	20	20041101	15	8	7	2	3

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-016	25	20041101	170	88	82	3	25
VP-016	30	20041101	89	33	7	2 U	6
VP-016	32.5	20041101	36	23	2 U	2 U	5
VP-017	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-017	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-017	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-017	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-017	25	20041101	6	2	1	1 U	2
VP-017	30	20041101	180	140	52	5 U	63
VP-017	35	20041101	88	56	59	3 U	9
VP-017	37	20041101	130	85	35	3 U	63
VP-018	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-018	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-018	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-018	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-018	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-018	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-018	35	20041101	25.8	9.6	10.8	1 U	2.1
VP-018	38	20041101	7.5	2.4	4.2	1 U	1 U
VP-019	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-019	10	20041101	2 U	2 U	2 U	2 U	2 U
VP-019	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-019	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-019	30	20041101	1	1 U	1 U	1 U	1 U
VP-019	35	20041101	17	7	3	1 U	2
VP-019	40	20041101	92	22	20	2 U	3
VP-019	42	20041101	160	44	33	2 U	3
VP-020	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-020	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-020	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-020	20	20041101	21.1	16.8	8.7	8.7	12

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-020	25	20041101	220	94	150	10 U	19
VP-020	30	20041101	61.9	17.3	5	1 U	2.5
VP-021	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-021	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-021	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-021	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-021	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-021	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-021	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-022	40	20041101	7	1	2	1 U	1 U
VP-022	45	20041101	100	19	9	1 U	1 U
VP-023	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-023	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-023	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-023	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-023	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-023	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-023	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-024	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-024	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-024	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-024	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-024	25	20041101	2	1 U	1 U	1 U	1 U
VP-024	30	20041101	1 U	1 U	1 U	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-024	35	20041101	27	25	2 U	3	3
VP-024	38	20041101	120	57	8	3 U	3
VP-025	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-025	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-025	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-025	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-025	25	20041101	2	1 U	1 U	1 U	1 U
VP-025	30	20041101	8	4	1 U	4	3
VP-025	35	20041101	270	630	20 U	20 U	39
VP-025	40	20041101	53	65	12	3 U	4
VP-026	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-026	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-026	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-026	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-026	25	20041101	2	1 U	1 U	1 U	1 U
VP-026	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-027	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-027	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-027	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-027	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-027	25	20041101	7	6	1 U	3	7
VP-027	30	20041101	560	1000	40 U	40	100
VP-027	35	20041101	22	50	5 U	5 U	16
VP-028	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-028	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-028	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-028	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-028	25	20041101	2	1 U	1 U	1 U	1 U
VP-028	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-028	35	20041101	140	360	20 U	36	91
VP-029	5	20041101	1 U	1 U	1 U	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-029	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-029	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-029	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-029	25	20041101	210	310	5 U	10	55
VP-029	30	20041101	590	840	10 U	10 U	60
VP-030	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-030	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-030	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-030	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-030	25	20041101	11.6	3	1 U	1 U	1 U
VP-030	30	20041101	260	100	6	2 U	2
VP-030	35	20041101	160	58	8	2 U	2 U
VP-031	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-031	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-031	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-031	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-031	25	20041101	1 U	1 U	1 U	2	3
VP-031	30	20041101	160	470	20 U	54	270
VP-032	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-032	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-032	15	20041101	1 U	1 U	1 U	1 U	2
VP-032	20	20041101	1 U	1 U	1 U	1 U	1
VP-032	25	20041101	4.5	14	1 U	2.4	15
VP-032	30	20041101	26	90	2 U	2 U	58
VP-033	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-033	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-033	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-033	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-033	25	20041101	2.3	5.6	1 U	1 U	20.2
VP-033	30	20041101	13	16.6	11.6	1 U	13.1
VP-034	5	20041101	1 U	1 U	1.9	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-034	10	20041101	1 U	1 U	10.6	22.2	13.5
VP-034	15	20041101	1.8	1 U	2.4	48.9	16.4
VP-034	20	20041101	7	3.4	5.2	45.8	30.6
VP-034	25	20041101	34	42	15	510	980
VP-034	28	20041101	78	150	23	1400	820
VP-035	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-035	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-035	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-035	20	20041101	2.2	1 U	1 U	1 U	1 U
VP-035	25	20041101	22.8	7.9	4.8	1 U	1 U
VP-035	30	20041101	5.4	1.6	1 U	1 U	1 U
VP-035	32	20041101	13.6	9	1 U	1 U	1.9
VP-036	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-036	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-036	20	20041101	2	1 U	1 U	1 U	1 U
VP-036	25	20041101	170	67	110	5 U	21
VP-036	30	20041101	13	9	3	1 U	4
VP-036	35	20041101	23	12	2	1 U	3
VP-036	39	20041101	2	2	1 U	1 U	1
VP-037	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-037	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-037	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-037	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-037	25	20041101	14.8	7.8	5	1 U	3.1
VP-037	30	20041101	74.8	30.8	34.1	1 U	2.3
VP-037	35	20041101	21.4	26.7	2	1 U	2.1
VP-037	40	20041101	2.2	1.9	1 U	1 U	1 U
VP-038	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-038	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-038	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-038	20	20041101	1 U	1 U	1 U	1 U	1 U

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Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
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Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-038	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-038	30	20041101	13.2	5.2	1.8	1 U	1 U
VP-038	35	20041101	9.9	5.9	1.6	1 U	1.2
VP-038	40	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	40	20041101	1 U	1 U	1 U	1 U	1 U
VP-040	44	20041101	1 U	1 U	1 U	1 U	1 U
VP-041	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-041	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-041	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-041	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-041	25	20041101	5	2	1 U	1 U	1 U
VP-041	30	20041101	8	2	1 U	1 U	1 U
VP-041	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-041	40	20041101	7	1	2	1 U	1 U
VP-042	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-042	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-042	15	20041101	2.3	1 U	1 U	1 U	1 U
VP-042	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-042	25	20041101	2.6	1 U	1 U	1 U	1 U
VP-042	30	20041101	7.4	2	1 U	1 U	1 U
VP-042	35	20041101	3.7	1.1	1 U	1 U	1 U
VP-043	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-043	10	20041101	1.2	1 U	4.6	1 U	1 U
VP-043	15	20041101	4.3	1.1	1.7	1 U	1 U

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Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-043	20	20041101	20	6	14	110	25.7
VP-043	25	20041101	48.8	30.5	54.5	490	98.5
VP-043	30	20041101	90.5	62.8	15.4	20.7	27.6
VP-044	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-044	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-044	15	20041101	3.3	2.2	1 U	1 U	1 U
VP-044	20	20041101	100	120	34	140	20
VP-044	25	20041101	180	220	59	300	37
VP-044	30	20041101	84.9	140	6	42.5	26.7
VP-044	35	20041101	6.4	19.9	1.1	22.3	2.9
VP-045	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-045	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-045	15	20041101	1.4	1 U	1 U	1 U	1 U
VP-045	20	20041101	2.6	1.2	1 U	1 U	1 U
VP-045	25	20041101	6.7	5.1	1 U	1 U	2.7
VP-045	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-046	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-046	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-046	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-046	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-046	24.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-047	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-047	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-047	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-047	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-047	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-047	28	20041101	1 U	1 U	1 U	1 U	1 U
VP-048	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-048	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-048	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-048	20	20041101	3.8	2.2	3.5	1 U	1.2

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Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-048	25	20041101	3.3	2.6	2.8	1 U	1 U
VP-048	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-049	5	20041101	1	1 U	1	1 U	2
VP-049	10	20041101	1 U	1 U	1 U	1 U	1
VP-049	15	20041101	1	1 U	3	1 U	2
VP-049	20	20041101	1	1 U	2	1 U	1 U
VP-049	25	20041101	1 U	1 U	1 U	1 U	1
VP-049	30	20041101	1 U	1 U	2	1 U	1 U
VP-050	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-050	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-050	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-050	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-050	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-050	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-050	32	20041101	1 U	1.1 U	1.3	1 U	1 U
VP-051	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-051	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-051	15	20041101	4.9	2	8.8	1 U	1 U
VP-051	20	20041101	5.3	1.9	8.9	1 U	5
VP-051	25	20041101	7.6	3.2	4.8	1 U	7.1
VP-051	30	20041101	1 U	1 U	1 U	1.2	3.2
VP-052	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-052	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-052	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-052	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-052	27	20041101	1 U	1 U	1 U	1 U	1 U
VP-053	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-053	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-053	20	20041101	1 U	1 U	2.2	1 U	1 U
VP-053	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-054	06	20041101	1 U	1 U	1 U	1 U	1 U

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Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-054	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-054	15	20041101	1	1 U	1 U	1 U	1 U
VP-054	20	20041101	1 U	1 U	2	1 U	1 U
VP-054	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-055	5	20041101	1 U	1	1 U	1 U	1 U
VP-055	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-055	15	20041101	1 U	1 U	3.5	1 U	1 U
VP-056	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-056	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-056	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-056	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-056	23	20041101	1 U	1 U	1 U	1 U	1 U
VP-057	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-057	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-057	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-057	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-058	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-058	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-058	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-058	23.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-059	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-059	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-059	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-059	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-059	23.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-060	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-060	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-060	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-060	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-060	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-061	5	20041101	1 U	1 U	3	1 U	1 U

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Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-061	10	20041101	1 U	1 U	4	1 U	1 U
VP-061	15	20041101	1	1 U	4	1 U	1 U
VP-061	20	20041101	10	4	9	1 U	9
VP-061	25	20041101	17	8	16	3 U	29
VP-061	30	20041101	3	3	5	2 U	9
VP-062	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-062	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-062	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-062	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-062	25	20041101	28.4	17.9	14.1	1 U	200
VP-062	30	20041101	20.1	46.5	39	1 U	200
VP-063	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-063	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-063	15	20041101	1 U	1 U	1 U	1 U	1
VP-063	20	20041101	2 U	2 U	2 U	2 U	2
VP-063	25	20041101	3	2 U	2 U	2 U	23
VP-063	27	20041101	6	4	8	3 U	56
VP-064	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-064	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-064	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-064	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-064	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-065	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-065	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-065	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-065	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-065	24.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-066	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-066	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-066	15	20041101	1 U	1 U	1 U	1 U	1.2
VP-066	20	20041101	1 U	1 U	1 U	1 U	1

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Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-066	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-067	5	20041101	1 U	1 U	1 U	1 U	4
VP-067	10	20041101	1 U	1 U	1 U	1 U	6
VP-067	15	20041101	1 U	1 U	1 U	1 U	7
VP-067	20	20041101	1	1 U	1 U	1 U	4
VP-067	25	20041101	2	1 U	1 U	1 U	3
VP-068	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-068	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-068	15	20041101	3	1 U	3	1 U	2
VP-068	20	20041101	2	1 U	4	1 U	26
VP-068	25	20041101	2 U	2 U	2 U	2 U	13
VP-068	29.5	20041101	28	20 U	44	20 U	620
VP-069	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-069	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-069	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-069	20	20041101	1.1	1.7	3.8	1 U	28.5
VP-069	25	20041101	11.5	11.1	5.4	1 U	43.7
VP-070	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-070	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-070	15	20041101	1 U	1 U	1 U	1 U	1.3
VP-070	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-070	25	20041101	2.6	1.2	1 U	1 U	1 U
VP-071	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-071	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-071	15	20041101	1 U	1 U	1 U	1 U	3.4
VP-071	20	20041101	12.1	13.7	4.4	1 U	8.4
VP-071	25	20041101	49.9	33.5	1 U	1 U	1.2
VP-071	28	20041101	10.8	5.4	1 U	1 U	1 U
VP-072	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-072	21	20041101	3	1.2	1 U	1 U	1 U
VP-072	25	20041101	1 U	1 U	1 U	1 U	1 U

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Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-072	29	20041101	4.2	1.7	1 U	1 U	1 U
VP-073	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-073	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-073	15	20041101	1	1 U	1 U	1 U	1 U
VP-073	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-073	25	20041101	24	22	1 U	1 U	1 U
VP-074	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-074	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-074	15	20041101	13.2	4	1 U	1 U	1 U
VP-074	20	20041101	9.7	3.7	1 U	1 U	1 U
VP-075	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-075	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-075	15	20041101	3	2 U	2 U	2 U	2 U
VP-075	20	20041101	18	21	2 U	2 U	2 U
VP-076	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-076	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-076	15	20041101	2.1	4.8	1 U	1 U	10.2
VP-076	20	20041101	4.9	10.8	1 U	1 U	7.6
VP-076	25	20041101	306	715	1.7	1 U	21.8
VP-076	26.5	20041101	59.9	94	1 U	1 U	2.9
VP-077	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-077	10	20041101	1 U	1 U	48.3	1 U	1 U
VP-077	15	20041101	3.9	1 U	18.3	1 U	7.3
VP-077	20	20041101	9	5.2	18.1	1 U	140
VP-077	25	20041101	13	11	44	10	900
VP-077	28	20041101	100 U	100 U	160	100 U	2900
VP-078	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-078	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-078	15	20041101	3.1	1 U	1.6	1 U	1.2
VP-078	20	20041101	32.3	2.9	5	1 U	89.2
VP-078	25	20041101	37	36	82	10 U	2000

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Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-078	30	20041101	58	110	66	20 U	1100
VP-079	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-079	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-079	15	20041101	2	1 U	3	1 U	6
VP-079	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-079	25	20041101	4.5	9.4	1 U	1 U	1 U
VP-080	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-080	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-080	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-080	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-080	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-080	28	20041101	1 U	1 U	1 U	1 U	1 U
VP-081	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-081	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-081	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-081	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-081	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-081	28	20041101	1 U	1 U	1 U	1 U	1 U
VP-082	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-082	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-082	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-082	20	20041101	2 U	2 U	2 U	2 U	2 U
VP-082	25	20041101	2 U	2 U	2 U	2 U	2
VP-083	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-083	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-083	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-083	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-083	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-083	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-083	39.5-40.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-084	5	20041101	2	1 U	1 U	1 U	1 U

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Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	**Sample Depth (feet bgs)**	**Sample Date**	**Parameter**				
			1,1-Dichloroehtane ug/l	**1,1-Dichloroethene ug/l**	**cis-1,2-Dichloroethene ug/l**	**Tethrachloroethene ug/l**	**Trichloroethene**
VP-084	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-084	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-084	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-084	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-084	29	20041101	1 U	1 U	1 U	1 U	1 U
VP-085	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-085	12	20041101	1 U	1 U	1 U	1 U	1 U
VP-085	17	20041101	1 U	1 U	1 U	1 U	1 U
VP-085	22	20041101	1 U	1 U	1 U	1 U	1 U
VP-085	27	20041101	1	1 U	1 U	1 U	1 U
VP-086	5	20041101	1 U	1 U	1 U	1 U	2
VP-086	10	20041101	1 U	1 U	1 U	1 U	1
VP-086	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-086	20	20041101	1	1 U	1 U	1 U	1
VP-086	25	20041101	2	1 U	1 U	1 U	1
VP-086	27	20041101	1	1 U	1 U	1 U	1 U
VP-087	5	20041101	1	1 U	1 U	1 U	1 U
VP-087	10	20041101	1 U	1 U	1 U	1 U	1
VP-087	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-087	20	20041101	1	1 U	1 U	1 U	1 U
VP-087	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-087	28	20041101	2	1 U	1 U	1 U	1 U
VP-088	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-088	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-088	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-088	20	20041203	1 U	1 U	1 U	1 U	1 U
VP-088	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-088	28	20041101	1 U	1 U	1 U	1 U	1 U
VP-089	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-089	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-089	15	20041101	1 U	1 U	1 U	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-089	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-089	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-090	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-090	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-090	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-090	20	20041101	1.3	1 U	1 U	1 U	1 U
VP-090	25	20041101	2.4	1 U	1 U	1 U	1 U
VP-090	29.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-091	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-091	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-091	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-091	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-091	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-092	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-092	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-092	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-092	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-092	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-093	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-093	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-093	14	20041101	1 U	1 U	1 U	1 U	1 U
VP-093	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-094	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-094	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-094	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-094	20	20041101	4	1 U	1 U	1 U	1 U
VP-094	25	20041101	2	1 U	1 U	1 U	1 U
VP-095	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-095	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-095	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-095	20	20041101	1 U	1 U	1 U	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-095	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-095	27	20041101	1	1 U	1 U	1 U	1 U
VP-096	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-096	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-096	15	20041101	1	1 U	1 U	1 U	1 U
VP-096	20	20041101	1	1 U	1 U	1 U	1 U
VP-096	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-097	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-098	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-098	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-098	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-098	20	20041101	2	1 U	1 U	1 U	1 U
VP-098	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-099	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-099	15	20041101	2.1	2	1 U	1 U	1.7
VP-099	20	20041101	2.2	3.8	1 U	2.4	7.5
VP-099	25	20041101	90.2	150	1.5	29.4	146
VP-099	30	20041101	80	190	5 U	30	280
VP-100	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-100	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-100	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-100	20	20041101	1 U	1 U	1 U	1.1	1.8
VP-100	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-100	30	20041101	2 U	6	2 U	2.6	46
VP-100	35	20041101	13	30	10 U	10 U	140
VP-100	40	20041101	20.2	47.5	13.1	1 U	36.7
VP-101	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-101	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-101	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-101	20	20041101	1 U	1 U	1 U	1 U	1.6
VP-101	25	20041101	59	83	2 U	2 U	40

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroehtane ug/l	**1,1-Dichloroethene ug/l**	**cis-1,2-Dichloroethene ug/l**	**Tethrachloroethene ug/l**	**Trichloroethene**
VP-101	30	20041101	2.2	5.2	1 U	1 U	5.1
VP-102	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-102	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-102	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-102	20	20041101	17.5	18	1 U	1.4	6.4
VP-102	25	20041101	420	630	10 U	10 U	85
VP-102	28	20041101	340	430	10 U	16	24
VP-103	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-103	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-103	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-103	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-103	25	20041101	28.6	4.4	1 U	1 U	1 U
VP-103	30	20041101	1.2	1 U	1 U	1 U	1 U
VP-104	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-104	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-104	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-104	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-104	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-104	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-105	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-105	10	20041101		1 U	1 U	1 U	1 U
VP-105	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-105	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-105	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-105	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-105	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-106	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-106	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-106	15	20041101	4.7	1 U	1 U	1 U	1 U
VP-106	20	20041101	12.4	5.3	1 U	1 U	1 U
VP-106	25	20041101	28.9	14.9	1 U	1 U	1 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Depth (feet bgs)	Sample Date	Parameter 1,1-Dichloroehtane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tethrachloroethene ug/l	Trichloroethene
VP-106	30	20041101	1.7	1.3	1 U	1 U	1 U
VP-106	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-107	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-107	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-107	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-107	20	20041101	24	20	1	1 U	8
VP-107	25	20041101	74	120	12	10 U	59
VP-107	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-107	35	20041101	1 U	4	1 U	1 U	5
VP-108	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-108	5A	20041101	1 U	1 U	1 U	1 U	1 U
VP-108	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-108	20	20041101	1 U	1 U	1 U	1 U	1
VP-108	25	20041101	9.4	9.9	7.2	1 U	16.6
VP-108	27	20041101	14.9	19.3	9.2	1 U	23
VP-109	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-109	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-109	15	20041101	1 U	1 U	1 U	1 U	1 U
VP-109	20	20041101	1 U	1 U	1 U	1 U	1 U
VP-109	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-109	29.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-110	06	20041101	1	1 U	1 U	1 U	1 U
VP-110	10	20041101	7	2	1	1 U	1 U
VP-110	15	20041101	25	21	37	7	9
VP-110	20	20041101	44	51	66	2 U	15
VP-110	25	20041101	28	30	20	1 U	10
VP-110	30	20041101	1	3	1	1 U	1 U
VP-110	34.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-111	5	20041101	1 U	1 U	1 U	1 U	1 U
VP-111	10	20041101	1 U	1 U	1 U	1 U	1 U
VP-111	15	20041101	1 U	1 U	1 U	1 U	2 U

Table 3-14

Mobile Laboratory Results for Groundwater in the Surficial Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company Site
Tallevast, Florida

			Parameter				
Sample Location	**Sample Depth (feet bgs)**	**Sample Date**	**1,1-Dichloroehtane ug/l**	**1,1-Dichloroethene ug/l**	**cis-1,2-Dichloroethene ug/l**	**Tethrachloroethene ug/l**	**Trichloroethene**
VP-111	20	20041101	4.2	3.9	1 U	1 U	12.3
VP-111	25	20041101	5.8	3.8	1.3	1 U	10.7
VP-111	30	20041101	1.6	1.3	1 U	1 U	1
VP-111	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-111	38	20041101	1 U	1 U	1 U	1 U	1 U
VP-112	06	20041101	4	2	1 U	1 U	1 U
VP-112	10	20041101	7	4	1 U	1 U	1 U
VP-112	15	20041101	8	5	1 U	1 U	3
VP-112	20	20041101	27	7	1 U	1 U	6
VP-112	30	20041101	2	1 U	1 U	1 U	1 U
VP-112	35	20041101	1 U	1 U	1 U	1 U	1 U
VP-112	36	20041101	1 U	1 U	1 U	1 U	1 U
VP-113	06	20041101	1 U	1 U	1 U	1 U	1 U
VP-113	10	20041101	1	1 U	1 U	1 U	1 U
VP-113	15	20041101	5	1	1 U	1 U	1 U
VP-113	20	20041101	4	1	1 U	1 U	1 U
VP-113	25	20041101	1 U	1 U	1 U	1 U	1 U
VP-113	30	20041101	1 U	1 U	1 U	1 U	1 U
VP-113	34.5	20041101	1 U	1 U	1 U	1 U	1 U
VP-114	06	20041101	1 U	1 U	1 U	1 U	1 U
VP-114	15	20041101	22.2	28.1	1.3	1 U	10.3
VP-114	20	20041101	130	200	5.3	1 U	42.4
VP-114	25	20041101	43.4	65	3.5	1 U	34.4
VP-114	30	20041101	1 U	1.7	1 U	1 U	1.2
VP-114	35	20041101	1 U	1 U	1 U	1 U	1 U

ug/l - micrograms per liter
U - Result was below laboratory method detection limit

Table 3-15

Fixed-Base Groundwater Analytical Results for Target COCs
Site Assessment Report Addendum
Former American Beryllium Company
Tallevast, Florida

			Parameter											
			1,4-Dioxane		**1,1-Dichloroethane**		**1,1-Dichloroethene**		**cis-1,2-Dichloroethene**		**Tetrachloroethene**		**Trichloroethene**	
Location	**Sample Date**	**Aquifer**	**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**	
TT-MW-03	20050105	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-04D	20041222	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-05S	20041221	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-06D	20041222	USAS	3.2	I	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-06S	20041221	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-07D	20041219	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-07S	20050105	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-08D	20041219	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.35	I
TT-MW-08S	20041219	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-09D	20041220	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	I
TT-MW-09S	20041220	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-10	20050104	USAS	1	U	7.8		0.46	I	0.65	U	12		27	
TT-MW-11D	20041220	USAS	1	U	6.7		0.45	U	3.8		3.7		100	
TT-MW-12D	20041221	USAS	10		4.7		0.45	U	2.2		110		150	
TT-MW-13D	20041222	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-13S	20041222	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-14D	20041220	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-14S	20041220	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-15D	20041221	USAS	1	U	1.3		0.82	I	0.65	U	0.34	U	0.28	U
TT-MW-15S	20050105	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-16S	20050104	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-17D	20041221	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	I
TT-MW-17S	20050104	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-18D	20041221	USAS	1	U	3.1		1.8		8.9		0.34	U	1.3	
TT-MW-18S	20041221	USAS	1	U	0.52	U	0.45	U	1.6		0.34	U	1.2	
TT-MW-20	20050117	USAS	13		4.8		2.8		0.34	I	0.18	U	0.38	I
TT-MW-24	20050111	USAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-25	20050106	USAS	9.8		39		13		3		0.34	U	2.1	
TT-MW-26	20050113	USAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-27	20050106	USAS	390		140		290		10		290		42	
TT-MW-28	20050103	USAS	40		3.2		0.71	I	0.65	U	0.34	U	0.88	I

Table 3-15

Fixed-Base Groundwater Analytical Results for Target COCs
Site Assessment Report Addendum
Former American Beryllium Company
Tallevast, Florida

			Parameter											
			1,4-Dioxane		**1,1-Dichloroethane**		**1,1-Dichloroethene**		**cis-1,2-Dichloroethene**		**Tetrachloroethene**		**Trichloroethene**	
Location	**Sample Date**	**Aquifer**	**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**	
TT-MW-29	20050106	USAS	28		8.5		5.3		6.6		0.34	U	37	
TT-MW-30	20050111	USAS	2.5	U	0.48	I	0.62	I	0.23	I	0.18	U	3.6	
TT-MW-32	20041230	USAS	6.5		87		120		5.9		2.4		65	
TT-MW-35	20050113	USAS	13		20		48		1	I	41		58	
TT-MW-36	20050111	USAS	34		180		440		210		19	I	2600	
TT-MW-38	20050111	USAS	40		61	I	140		52	I	250		2200	
TT-MW-40	20050111	USAS	9.4		6.1	I	11		2.4	I	29		180	
TT-MW-42	20041229	USAS	83		41		70		140		6.5		3700	
TT-MW-47	20050106	USAS	5.4		0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-62	20050120	USAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-63	20050110	USAS	2.5	U	0.18	U	0.36	U	0.71	I	0.18	U	0.53	I
TT-MW-64	20050106	USAS	15		0.94	I	0.45	U	0.65	U	0.34	U	5.5	
TT-MW-65	20050107	USAS	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-66	20050120	USAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-67	20050120	USAS	44		74		120		4.6	I	0.9	U	14	
TT-MW-69	20050111	USAS	5.5		2.1		0.36	U	0.18	U	0.18	U	0.43	I
TT-MW-70	20050111	USAS	3.4	I	1		1.8		0.36	I	0.18	U	0.97	I
TT-MW-71	20050111	USAS	20		11		9.3	I	31		2.6	I	360	
TT-MW-72	20050111	USAS	2.5	U	0.32	I	0.65	I	0.5	I	3.6		4.5	
TT-MW-73	20050106	USAS	300		210		370		0.65	U	29		29	
TT-MW-74	20050117	USAS	230		300		150		11		5	IV	11	V
TT-MW-75	20050107	USAS	41		37		4.5		0.65	U	0.34	U	0.29	I
TT-MW-76	20050111	USAS	32		24	I	23	I	13	I	8.7	I	620	
TT-MW-82	20050117	USAS	180		25		5.6		1		0.18	U	0.11	U
TT-MW-89	20050113	USAS	2.5	U	0.71	I	0.36	U	0.18	U	0.18	U	0.2	I
TT-MW-90	20050119	USAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-94	20050120	USAS	3.8	I	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-95	20050120	USAS	11		0.18	U	0.36	U	0.18	U	0.18	U	0.16	I
TT-MW-33	20041228	LSAS	580		42		140		3.2		0.34	U	17	
TT-MW-37	20050107	LSAS	190		2.4		74		440		0.34	U	2000	
TT-MW-39	20050107	LSAS	150		0.52	U	26		130		0.34	U	360	

Table 3-15

Fixed-Base Groundwater Analytical Results for Target COCs
Site Assessment Report Addendum
Former American Beryllium Company
Tallevast, Florida

			Parameter											
			1,4-Dioxane		**1,1-Dichloroethane**		**1,1-Dichloroethene**		**cis-1,2-Dichloroethene**		**Tetrachloroethene**		**Trichloroethene**	
Location	**Sample Date**	**Aquifer**	**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**	
TT-MW-41	20041228	LSAS	180		10		48		64		0.34	U	81	
TT-MW-43	20041228	LSAS	140		2.8		40		12		0.34	U	26	
TT-MW-48	20050107	LSAS	4	I	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-68	20050107	LSAS	2.7	I	0.52	U	0.45	U	0.65	U	0.34	U	2.4	
TT-MW-77	20050112	LSAS	120		12		9.9		1.8		0.18	U	1	
TT-MW-78	20050110	LSAS	290		320		140		34		2.4	I	13	
TT-MW-79	20050110	LSAS	22		1.8	U	5.9	I	67		1.8	U	310	
TT-MW-80	20050110	LSAS	5		29		280		7.4	I	4.6	I	28	
TT-MW-81	20050111	LSAS	41		2.3		9.6		2.4		0.18	U	22	
TT-MW-84	20050117	LSAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-85	20050117	LSAS	230		82		68		49		1.1	IV	6.9	V
TT-MW-86	20050118	LSAS	2.5	U	0.18	U	0.36	U	0.18	U	0.46	IV	0.64	IV
TT-MW-87	20050119	LSAS	400		460		1700		32	I	150		1000	
TT-MW-91	20050119	LSAS	51		2.3		3.2		5.4		0.18	U	3.5	
TT-MW-92	20050119	LSAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-93	20050120	LSAS	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U

ug/l - micrograms per liter
U - Concentration was below laboratory detection limit
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
V - Compound was detected in the laboratory method blank

Table 3-16

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Sample Location	Sample Interval (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroethane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tetrachloroethene ug/l	Trichloroethene ug/l
RS-01	8-18	20041101	2	2 U	2 U	2 U	3
RS-01	28-33	20041101	36	160	5 U	5 U	28
RS-01	33-38	20041101	3	8	1 U	1 U	5
RS-01	38-43	20041101	12	25	3	1 U	12
RS-01	43-48	20041101	1 U	3	1 U	1 U	3
RS-01	68-78	20041101	5	26	2 U	2 U	2 U
RS-01	98-108	20041101	20 U	53	20 U	20 U	510
RS-01	118-128	20041101	40 U	87	54	40 U	800
RS-01	128-138	20041101	87	98	50 U	50 U	900
RS-01	148-158	20041101	5 U	5 U	5 U	5 U	78
RS-01	158-168	20041101	4.4	15.1	6	1 U	180
RS-01	168-178	20041101	30	29	20 U	20 U	370
RS-01	218-228	20041101	3	3	1 U	1 U	25
RS-01	248-258	20041101	3	2 U	2 U	2 U	23
RS-01	278-298	20041101	1 U	1 U	1 U	1 U	3.2
RS-02	10-20	20041101	1 U	1 U	1 U	1 U	1 U
RS-02	20-30	20041101	1 U	1 U	1 U	1 U	2
RS-02	40-49	20041101	7	5	2 U	2 U	2 U
RS-02	50-60	20041101	3	2	1 U	1 U	1 U
RS-02	100-110	20041101	1 U	1 U	1 U	1 U	1 U
RS-02	110-120	20041101	1 U	1 U	1 U	1 U	1 U
RS-02	140-150	20041101	1 U	1 U	1 U	1 U	1 U
RS-02	150-160	20041101	1 U	1 U	1 U	1 U	1 U
RS-02	160-170	20041101	1 U	1 U	1 U	1 U	1 U
RS-02	190-200	20041101	1 U	1 U	1 U	1 U	1 U
RS-03	248-258	20041101	1 U	1 U	1 U	1 U	1.4
RS-03	8-18	20041101	1 U	1 U	1	1 U	1 U
RS-03	18-28	20041101	1 U	1 U	4	1 U	1
RS-03	28-33	20041101	1 U	1 U	1 U	1 U	2
RS-03	33-38	20041101	1 U	1 U	1 U	1 U	1 U
RS-03	38-43	20041101	1 U	1 U	1 U	1 U	2
RS-03	66-66	20041101	1 U	1 U	1 U	1 U	1 U

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Sample Location	Sample Interval (feet bgs)	Sample Date	Parameter 1,1-Dichloroethane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tetrachloroethene ug/l	Trichloroethene ug/l
RS-03	78-88	20041101	2 U	2 U	2 U	2 U	6.6
RS-03	88-98	20041101	2 U	2 U	2 U	2 U	4.4
RS-03	98-108	20041101	1.5	2.1	6.5	1 U	29.7
RS-03	128-138	20041101	1 U	1 U	1.9	1 U	11.9
RS-03	138-148	20041101	1 U	1 U	1 U	1 U	4.4
RS-03	148-158	20041101	1 U	1 U	1 U	1 U	3.6
RS-03	198-208	20041101	1 U	1 U	1 U	1 U	4.1
RS-03	208-218	20041101	1 U	1 U	1 U	1 U	3.3
RS-03	218-228	20041101	1 U	1 U	1 U	1 U	2.3
RS-03	228-238	20041101	1 U	1 U	1 U	1 U	2.7
RS-03	258-268	20041101	1 U	1 U	1 U	1 U	1.6
RS-04	25-35	20041101	23.8	160	1.9	8.8	6
RS-04	55-65	20041101	1 U	2.2	1 U	1 U	1 U
RS-04	85-95	20041101	1 U	1 U	1 U	1 U	1 U
RS-04	95-105	20041101	5.8	9	1 U	1 U	1.8
RS-04	115-125	20041101	1 U	1 U	1 U	1 U	1 U
RS-04	125-135	20041101	1 U	1 U	1 U	1 U	1 U
RS-04	135-145	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	10-20	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	20-30	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	30-35	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	40-45	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	60-70	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	80-90	20041101	1 U	1 U	1 U	1 U	1 U
RS-05	110-120	20041101	1 U	1 U	1 U	1 U	1 U
RS-06	16-26	20041101	1 U	1 U	1 U	1 U	1 U
RS-06	26-36	20041101	130	59	10 U	10 U	10 U
RS-06	56-66	20041101	1 U	1 U	1 U	1 U	1 U
RS-06	76-86	20041101	41.6	17.2	1.6	1 U	1 U
RS-06	86-96	20041101	3.5	1.8	1 U	1 U	1 U
RS-06	96-106	20041101	1.1	1 U	1 U	1 U	1 U
RS-06	106-116	20041101	1 U	1 U	1 U	1 U	1 U

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Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Interval (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroethane ug/l	**1,1-Dichloroethene ug/l**	**cis-1,2-Dichloroethene ug/l**	**Tetrachloroethene ug/l**	**Trichloroethene ug/l**
RS-06	116-126	20041101	1 U	1 U	1 U	1 U	1 U
RS-06	126-136	20041101	1 U	1 U	1 U	1 U	1 U
RS-07	15-20	20041101	2.7	7.6	1 U	67.1	34.9
RS-07	25-30	20041101	62	130	1 U	43	220
RS-07	35-40	20041101	400	1800	100 U	100 U	220
RS-07	55-65	20041101	1 U	2	1 U	1 U	1.2
RS-07	85-95	20041101	1 U	1 U	1 U	1 U	1.2
RS-07	115-125	20041101	1 U	1 U	1 U	1 U	1 U
RS-07	125-135	20041101	1 U	1 U	1 U	1 U	1 U
RS-08	26-36	20041101	6	10.6	1 U	3.7	3
RS-08	36-46	20041101	52	210	10 U	10 U	10 U
RS-08	46-56	20041101	2	10.4	1 U	1 U	1.6
RS-08	56-66	20041101	1 U	1.1	1 U	1 U	1 U
RS-08	76-86	20041101	1 U	1 U	1 U	1 U	1 U
RS-08	86-96	20041101	1 U	1 U	1 U	1 U	1 U
RS-08	96-106	20041101	1 U	1 U	1 U	1 U	1 U
RS-08	106-116	20041101	1 U	1 U	1 U	1 U	1 U
RS-08	116-126	20041101	1 U	1 U	1 U	1 U	1 U
RS-08	136-146	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	27-37	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	37-47	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	47-57	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	77-87	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	107-117	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	127-137	20041101	2.4	1.2	1 U	1 U	1 U
RS-09	157-167	20041101	1 U	1 U	1 U	1 U	1 U
RS-09	167-177	20041101	1 U	1 U	1 U	1 U	1 U
RS-10	40-45	20041101	1 U	1 U	1 U	2	1 U
RS-10	45-50	20041101	1 U	1 U	1 U	1	1 U
RS-10	50-55	20041101	1 U	1 U	1 U	1 U	1 U
RS-10	65-75	20041101	1 U	1 U	1 U	1 U	1 U
RS-10	95-105	20041101	1 U	1 U	1 U	1 U	1 U

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Sample Location	Sample Interval (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroethane ug/l	**1,1-Dichloroethene ug/l**	**cis-1,2-Dichloroethene ug/l**	**Tetrachloroethene ug/l**	**Trichloroethene ug/l**
RS-10	105-115	20041101	1	3	1 U	1 U	1
RS-10	115-125	20041101	2	3	1 U	1 U	1 U
RS-10	125-135	20041101	1 U	1 U	1 U	1 U	1 U
RS-10	135-145	20041101	1 U	1 U	1 U	1 U	1 U
RS-10	145-155	20041101	1 U	1 U	1 U	1 U	1 U
RS-11	6-16	20041101	1 U	1 U	1 U	1 U	1 U
RS-11	16-26	20041101	1.6	1.4	1 U	1 U	1 U
RS-11	26-36	20041101	2 U	2 U	2 U	2 U	2 U
RS-11	56-66	20041101	6.1	19.4	1.7	1 U	5.8
RS-11	76-86	20041101	1 U	1.1	1 U	1 U	1 U
RS-11	86-96	20041101	1 U	1.1	1 U	1 U	1 U
RS-11	96-106	20041101	1 U	1 U	1 U	1 U	1 U
RS-11	106-116	20041101	13.3	24.6	4.7	1 U	1 U
RS-11	146-156	20041101	1 U	1 U	1 U	1 U	1 U
RS-11	156-166	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	10-20	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	20-30	20041101	6.8	3.6	7.4	1 U	12.3
RS-12	30-40	20041101	1 U	1 U	2.8	1 U	1 U
RS-12	40-50	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	80-90	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	90-100	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	100-110	20041101	6.8	10.1	1.8	1 U	1.1
RS-12	130-140	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	140-150	20041101	1 U	1 U	1 U	1 U	1 U
RS-12	150-160	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	46-56	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	76-86	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	76-86A	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	96-106	20041101	1 U	1 U	1 U	1 U	1.1
RS-13	106-116	20041101	3.2	2.9	1.5	1 U	4.8
RS-13	136-146	20041101	2.8	2.3	1.5	1 U	4
RS-13	146-156	20041101	2.8	2.4	1.4	1 U	4.1

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Tallevast, Florida

			Parameter				
Sample Location	Sample Interval (feet bgs)	Sample Date	1,1-Dichloroethane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tetrachloroethene ug/l	Trichloroethene ug/l
RS-13	146-156A	20041101	2.8	2.4	1.4	1 U	4.1
RS-13	156-166	20041101	1 U	1 U	1 U	1 U	1.7
RS-13	166-176	20041101	1 U	1 U	1 U	1 U	1.3
RS-13	176-186	20041101	1.5	1.7	1	1 U	2.9
RS-13	196-206	20041101	2	1.8	1.2	1 U	3.3
RS-13	236-246	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	246-256	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	256-266	20041101	1 U	1 U	1 U	1 U	1 U
RS-13	266-276	20041101	1 U	1 U	1 U	1 U	1
RS-14	17-27	20041101	1 U	1 U	1	1 U	1 U
RS-14	27-37	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	57-67	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	87-97	20041101	5 U	5 U	26	5 U	140
RS-14	117-127	20041101	1 U	1 U	1.1	1 U	5.8
RS-14	137-147	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	167-177	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	187-197	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	197-207	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	217-227	20050111	1 U	1 U	1 U	1 U	3.8
RS-14	227-237	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	237-247	20041101	1 U	1 U	1 U	1 U	1 U
RS-14	247-257	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	6-16	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	16-26	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	26-31	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	36-46	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	46-56	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	56-66	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	66-76	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	76-86	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	86-96	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	96-106	20041101	1 U	1 U	1 U	1 U	1 U

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Sample Location	Sample Interval (feet bgs)	Sample Date	Parameter 1,1-Dichloroethane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tetrachloroethene ug/l	Trichloroethene ug/l
RS-15	106-116	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	116-126	20041101	1 U	1 U	1 U	1 U	1 U
RS-15	146-156	20041101	1 U	1 U	1 U	1 U	1 U
RS-16	10-20	20041101	1 U	1 U	1 U	1 U	1 U
RS-16	20-30	20041101	6.5	10.2	1 U	1 U	1 U
RS-16	30-35	20041101	1.5	1 U	1 U	1 U	1 U
RS-16	35-40	20041101	5.2	12.2	2.2	1 U	19.3
RS-16	40-45	20041101	9.6	4.1	1 U	1 U	1 U
RS-16	60-70	20041101	1 U	1 U	1 U	1 U	1 U
RS-16	90-100	20041101	1 U	1 U	1 U	1 U	1 U
RS-16	100-110	20041101	1 U	1.4	1 U	1 U	2.6
RS-16	130-140	20041101	1 U	1 U	1 U	1 U	1 U
RS-16	140-150	20041101	1 U	1 U	1 U	1 U	1 U
RS-16	150-160	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	15-20	20041101	2.8	1 U	1 U	1 U	1 U
RS-18	25-30	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	30-35	20041101	1 U	2.3	1.2	1 U	5.6
RS-18	35-45	20041101	1 U	2	1.7	1 U	7.8
RS-18	65-75	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	95-105	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	125-135	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	135-145	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	145-155	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	155-165	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	165-175	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	215-225	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	245-255	20041101	1 U	1 U	1 U	1 U	1 U
RS-18	275-285	20041101	1 U	1 U	1 U	1 U	1 U
RS-19	55-65	20041101	1 U	1 U	1 U	1 U	1 U
RS-19	85-95	20041101	1 U	1 U	1 U	1 U	1 U
RS-19	95-105	20041101	1 U	1 U	1 U	1 U	1 U
RS-19	105-115	20041101	1 U	1 U	1 U	1 U	1 U

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Former American Beryllium Company Site
Tallevast, Florida

Sample Location	Sample Interval (feet bgs)	Sample Date	Parameter				
			1,1-Dichloroethane ug/l	1,1-Dichloroethene ug/l	cis-1,2-Dichloroethene ug/l	Tetrachloroethene ug/l	Trichloroethene ug/l
RS-19	125-135	20041101	1 U	1 U	1 U	1 U	1 U
RS-20	25-35	20041101	1 U	1 U	1 U	1 U	1 U
RS-20	55-65	20041101	1 U	1 U	1 U	1 U	1 U
RS-20	85-95	20041101	1 U	1 U	1 U	1 U	1 U
RS-20	105-115	20041101	1 U	1 U	1 U	1 U	1 U
RS-20	115-125	20041101	1 U	1 U	1 U	1 U	1 U
RS-20	145-155	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	25-30	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	30-35	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	35-45	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	65-75	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	85-95	20041101	4.7	3.8	1 U	1 U	1 U
RS-21	95-105	20041101	6.1	3.5	1 U	1 U	1 U
RS-21	115-125	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	125-135	20041101	1 U	1 U	1 U	1 U	1 U
RS-21	135-145	20041101	1 U	1 U	1 U	1 U	1 U
RS-22	196-206	20041101	1 U	1 U	1 U	1 U	1 U
RS-22	206-216	20041101	3.2	2.2	1 U	1 U	1 U
RS-22	226-236	20041101	4.3	3.8	1.4	1 U	1 U
RS-22	236-246	20041101	5.8	3.8	1.1	1 U	1 U
RS-22	246-256	20041101	1	1 U	1 U	1 U	1 U
RS-23	10-20	20050109	1 U	1 U	1 U	1 U	1 U
RS-23	20-25	20041101	1 U	1 U	1 U	1 U	1 U
RS-23	40-50	20041101	1 U	1 U	1 U	1 U	1 U
RS-23	50-60	20041101	1 U	1 U	1 U	1 U	1 U
RS-23	60-70	20041101	1 U	1 U	1 U	1 U	1 U
RS-23	80-90	20041101	1 U	1 U	1 U	1 U	1 U
RS-23	100-110	20041101	1 U	1 U	1 U	1 U	1 U

ug/l - micrograms per liter
U - Result was below laboratory method detection limit

Table 3-17

Fixed-Base Analytical Results for Groundwater in the Intermediate Aquifer System
Site Assessment Report Addendum
Former American Beryllium Company
Tallevast, Florida

		Parameter											
Location	Sample Date	1,4-Dioxane ug/l		1,1-Dichloroethane ug/l		1,1-Dichloroethene ug/l		cis-1,2-Dichloroethene ug/l		Tetrachloroethene ug/l		Trichloroehtene ug/l	
DW-01	20041220	1	U	0.52	U	0.45	U	0.65	U	0.34	U	0.28	U
TT-MW-19	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.85	I	0.7	I
TT-MW-21	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-22	20050111	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-23	20050111	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-31	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-34	20050113	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.28	I
TT-MW-34	20041219			660		1700		15		43		230	
TT-MW-44	20050112	2.5	U	9.3		12		0.73	I	0.55	I	0.52	I
TT-MW-45	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-46	20050120	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-49	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-50	20050119	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-51	20050120	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-52	20050113	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-53	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-54	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.41	I
TT-MW-55	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-56	20050118	2.5	U	0.18	U	0.36	U	0.18	U	0.46	IV	0.11	U
TT-MW-57	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-58	20050113	2.5	U	0.18	U	0.36	U	0.18	U	0.23	I	0.2	I
TT-MW-59	20050112	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-60	20050113	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-61	20050120	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-83	20050120	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U
TT-MW-88	20050120	2.5	U	0.18	U	0.36	U	0.18	U	0.18	U	0.11	U

ug/l - micrograms per liter
U - Concentration was below laboratory detection limit
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
V - Compound was detected in the laboratory method blank