Final Remedy Completion Report

Chloroform Release Area at Former Building 028J

Prepared for:
Hitachi Global Storage Technologies, Inc.
San Jose, California

Prepared by:
ENVIRON International Corporation
Emeryville, California

Date:
November 17, 2008

Project Number:
03-11903E

Prepared by:

ENVIRON International Corporation
6001 Shellmound Street, Suite 700
Emeryville, California 94608
Tel. (510) 655-7400

In accordance with Title 22, 66270.11(d), I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

//original signed by//

Anne Wooster Gates, P.E.
Senior Manager
ENVIRON International Corporation

REGISTERED PROFESSIONAL ENGINEER
ANNE WOOSTER
No. C 043195
Exp. 3/31/2010
CIVIL
STATE OF CALIFORNIA

Prepared for:

Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, Building 109
San Jose, California 95193
Tel. (408) 717-6646

//original signed by//

Michael L. Hall
Director WW Real Estate Site Operations
Hitachi Global Storage Technologies, Inc.

Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

API	American Petroleum Institute
ASTM	American Society for Testing and Materials
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CalEPA	California Environmental Protection Agency
CAO	Corrective Action Objectives
cc	cubic centimeter
CCR	Current Conditions Report
CFR	Code of Federal Regulations
cm	centimeters
CMS	Corrective Measures Study
COC	Chain-of-Custody
COPC	Chemical of Potential Concern
CPT	Cone Penetrometer Test
DCA	Dichloroethane
DCE	Dichloroethene
DFA	Difluoroethane
DJPA	David J. Powers & Associates
DOT	Department of Transportation
DRE	Drewelow Remediation Equipment, Inc.
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
EPC	Exposure Point Concentrations
ESA	Environmental Site Assessment
foc	fraction of organic carbon
g	gram
GAC	granular activated carbon
GPA	General Plan Amendment
GST	Global Storage Technologies
HHRA	Human Health Risk Assessment
HI	Hazard Index
IBM	International Business Machines
kg	kilogram
L	Liter
MCL	maximum contaminant level
µg	microgram

List of Acronyms (continued)

msl	mean sea level
NAPL	Nonaqueous Phase Liquid
NCP	National Contingency Plan
OMMP	Operations, Maintenance, and Monitoring Plan
PCE	Tetrachloroethene
PD	Planned Development
RBTC	Risk-Based Target Concentration
R&D	Research and Development
RG	Remedial Goal
RWQCB-SF	Regional Water Quality Control Board – San Francisco Bay Region
SCVWD	Santa Clara Valley Water District
s	seconds
SB	Soil Boring
SI/SP	Soil Inspection and Sampling Plan
SVE	Soil Vapor Extraction
TCA	Trichloroethane
TCE	Trichloroethene
TTHM	Total Trihalomethane
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WV	Waste Vault

1 INTRODUCTION

ENVIRON International Corporation (ENVIRON) has prepared this Final Remedy Completion Report for the Chloroform Release Area on behalf of Hitachi Global Storage Technologies, Inc. (Hitachi GST). This report documents the remediation and monitoring activities that have been completed to address chloroform in the subsurface near former Building 028J located at 5600 Cottle Road, San Jose, California ("the Site"). The former Building 028J area is located within the Redevelopment Property of the Hitachi GST facility at 5600 Cottle Road in San Jose, California ("the Site").

This report includes background information with respect to groundwater, soil gas and soil remediation in the vicinity of former Building 028J, discusses the attainment of Corrective Action Objectives (CAOs) and of system shutdown criteria, and presents projected future groundwater conditions and estimated human health risks. The work described herein, where applicable, has been performed in accordance with the *Corrective Measures Study Report, Chloroform Release Area at Former Building 028J* prepared by ENVIRON in August 2007 (the "CMS Report for the Chloroform Release Area").

As required by the November 2007 Corrective Action Consent Agreement for the chloroform release area between the California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control (DTSC) and Hitachi GST (Docket HWCA: 82-07/08-012) (the "Chloroform Consent Agreement"), this report documents the completion of remediation activities in the vicinity of the former Building 028J area consistent with the CMS Report for the Chloroform Release Area and demonstrates that residual concentrations of chloroform will not adversely affect current and/or future on-site populations.

The extent and mass of chloroform in the shallow groundwater in the A-Aquifer and in the overlying vadose zone soils have been substantially reduced by the implementation of remediation activities in the area of former Building 028J and the CAOs set forth in the CMS Report have been sustainably achieved.

1.1 Overview of the Redevelopment Property

In June 2005, David J. Powers & Associates (DJPA) prepared an Environmental Impact Report (EIR) for the proposed General Plan Amendment (GPA) and Planned Development (PD) Zoning on the approximately 321-acre Hitachi GST Site. The City of San Jose Planning Commission certified the Final EIR on June 6, 2005 (City of San Jose 2005a, 2005b). The Site, which is currently owned by Hitachi GST, was formerly owned and operated by International Business Machines Corporation (IBM). The location of the Site and surrounding area are shown on Figures 1 and 2. The Site layout is shown on Figure 3.

Hitachi GST has moved its research and development (R&D) and administrative office operations to a different location in San Jose (3403 Yerba Buena Road). A portion of the Hitachi GST Site has been rezoned and will be sold and redeveloped into a mixed residential, commercial, and recreational open space area. In addition, Hitachi GST has built several

General Plan streets which will be dedicated for public right-of-way to the City of San Jose. For the purposes of this report, the portion of land to be redeveloped is hereafter referred to as "the Redevelopment Property". The Redevelopment Property is approximately 143 acres.

Hitachi GST plans to continue industrial operations (developing and manufacturing of computer storage devices) on the remaining portion of the Site, termed "the Core Area". All manufacturing-related activities previously located on the Redevelopment Property have been moved to the Core Area under the redevelopment plan. The Core Area is also shown on Figure 3.

1.2 Background on Environmental Investigations at the Redevelopment Property

As part of the EIR, ENVIRON prepared a screening human health risk assessment (Screening HHRA) to evaluate the potential impacts on human health from site-related chemicals detected within the Redevelopment Area. The overall objective of the Screening HHRA was to identify potential areas within the Redevelopment Area needing further investigation and/or mitigation prior to redevelopment. To accomplish this objective, the following steps were completed in the Screening HHRA: 1) determine the nature of historical operations and chemical use; 2) compile and collect data regarding soil, soil gas and groundwater conditions to determine the site-specific chemicals of potential concern (COPCs); 3) develop risk-based target concentrations (RBTCs) for the COPCs within the Redevelopment Area; and 4) compare the RBTCs to collected data and determine which areas within the Redevelopment Area required further investigation or mitigation measures. The RBTCs correspond to the level that would pose a *de minimis* health risk to future on-site populations. Historical investigations conducted in the Building 028J area were summarized in the Screening HHRA, along with the historical detections of chloroform and other volatile compounds in the subsurface with a potential for subsurface contamination remaining in the area.

ENVIRON followed the Screening HHRA with a Current Conditions Report (CCR) (ENVIRON 2005a), which addressed the environmental condition of the Redevelopment Property. The final CCR consists of the Draft CCR and the written response to comments received from the DTSC on the report (DTSC 2006).

From 2005 to 2007, ENVIRON conducted additional evaluation/investigation needed to fill data gaps identified in the Screening HHRA/CCR as outlined in the Soil Inspection/Sampling Plan (SI/SP) (ENVIRON 2005b) and its associated attachments.

In addition to the SI/SP, ENVIRON prepared and submitted a CMS Report for the Redevelopment Property (ENVIRON 2006). The CMS Report for the Redevelopment Property addressed the presence of chemicals in soil that may be encountered during building demolition and/or earthwork activities within the Redevelopment Property and/or discovered during implementation of the SI/SP. The CMS Report for the Redevelopment Property included residential remedial goals (RGs) for soil which were either the residential RBTC or background concentrations.

Implementation of investigations conducted as part of the SI/SP and the CMS Report for the Redevelopment Property were documented in the Final Remedy Completion Report for the Site (ENVIRON 2007a). In the Final Remedy Completion Report for the Site, the RBTCs were updated based on site-specific soil properties collected during investigations in 2007. Data presented in the report contained herein have been compared to these updated RBTCs.

On November 26, 2007, DTSC approved the Final Remedy Completion Report for the Site and determined that corrective action was complete for the entire Redevelopment Property, except for the chloroform in the Chloroform Release Area in the vicinity of former Building 028J.

1.3 Background on Environmental Investigation Activities Related to Chloroform in the Former Building 028J Area

The presence of chloroform had been detected in early environmental investigations of the Redevelopment Property, but was not the subject of focused investigation until late in 2006. During implementation of the SI/SP, chloroform was further delineated in soil, soil gas, and groundwater in the vicinity of the former Building 028J area; and determined to be present at levels exceeding the residential RBTCs. The results of these investigations were presented in detail in the SI/SP Attachment III Completion Report (ENVIRON 2007b). In addition, ENVIRON conducted additional investigations in support of preparation of a CMS Report for the Chloroform Release Area (ENVIRON 2007c). The CMS Report for the Chloroform Release Area identified 2-PHASE™ Extraction as the selected corrective action for remediating chloroform in the former Building 028J area. The CMS Report for the Chloroform Release Area summarizes all of ENVIRON's former Building 028J area investigations conducted prior to implementation of 2-PHASE™ Extraction.

The CMS Report for the Chloroform Release Area was approved by DTSC on November 26, 2007. Hitachi GST's commitment to perform the work outlined in the CMS Report for the Chloroform Release Area was embodied in a November 2007 Corrective Action Consent Agreement for the chloroform release area between DTSC and Hitachi GST (Docket HWCA: 82-07/08-012) (the "Chloroform Consent Agreement"). Implementation of 2-PHASE™ Extraction in the former Building 028J area began in June 2007 and ended in August 2008.

1.4 Report Organization

This report is divided into 10 sections as follows:

Section 1.0 – Introduction: describes the purpose and scope of this report and outlines the report organization.

Section 2.0 – Site Background: presents an overview of the Site and the former Building 028J area in particular, discusses the surrounding area, and describes characteristic features of the Site including topography and geology/hydrogeology.

Section 3.0 – Corrective Action Objectives: identifies the specific CAOs for the former Building 028J area.

Section 4.0 - Pre-Remediation Subsurface Conditions: presents data collected previously and discusses the investigation in general with emphasis on the conditions in the subsurface of the former Building 028J area prior to implementation of corrective action.

Section 5.0 – Summary of Remediation Activities: summarizes the operations and monitoring of the 2-PHASE™ Extraction System.

Section 6.0 – Post Remediation Subsurface Conditions: describes the subsurface conditions in the former Building 028J area following operation of the 2-PHASE™ Extraction System.

Section 7.0 – Attainment of CAOs and System Shutdown Criteria: demonstrates that operation of the remediation system has resulted in attainment of CAOs and has satisfied the system shutdown criteria.

Section 8.0 – Summary and Conclusions: presents conclusions regarding the completion of remediation activities and schedule for demobilization of remediation equipment.

Section 9.0 – System Shutdown and Demobilization: describes the activities that will be undertaken to remove and dismantle the remediation system and wells.

Section 10.0 - References: includes the references cited in this report.

Supporting information is provided in the appendices as follows:

Appendix A: Potentiometric Maps - Former Building 028J Area May 2007 to October 2008
Appendix B: 2-PHASE™ Extraction System Performance Data
Appendix C: Human Health Risk Evaluation – Pro UCL Calculations
Appendix D: Chloroform Mass Estimates
Appendix E: Estimated Future Groundwater Conditions
Appendix F: Estimated Time to Reach Chloroform Drinking Water Goal in A-Aquifer
Appendix G: Laboratory Analytical Reports

2 SITE BACKGROUND

This section provides relevant information regarding the Site, and more specifically, the former Building 028J area. This section includes a discussion of the Site history, areas surrounding the Site, future land use, groundwater use, topography, geology and hydrogeology. A complete history including a summary of all environmental investigations conducted in the former Building 028J area is contained in the CMS Report for the Chloroform Release Area.

2.1 Site History

The Site is located at 5600 Cottle Road in San Jose, Santa Clara County, California (Figures 1 and 2). The Site is approximately 321 acres. Prior to 1955, the Site was agricultural land, primarily tree orchards, with associated residences. In 1955, IBM purchased the Site. The Storage Technology Division of IBM owned and operated the Site from 1955 through 2002. IBM designed, developed, and manufactured computer storage devices, including hard disk drives, read/write heads, and disk storage media at the Site. On or about January 1, 2003, Hitachi GST, a new company formed as a result of a strategic combination of IBM and Hitachi’s storage technology businesses, bought the Site.

Approximately 30 buildings were present on the Site prior to commencement of redevelopment activities in August 2006. On-site buildings were used for a range of activities, including manufacturing, testing, assembly, research, development, wastewater treatment, reverse osmosis/deionized water production, utilities, chemical storage, other storage, security, offices, and cafeteria. Exterior areas of the Site primarily consisted of landscaped areas, orchards, sidewalks, water fountains, asphalt parking lots, and paved private roads. As discussed below, Hitachi GST will continue industrial operations (developing and manufacturing of computer storage devices) on the Core Area.

In the early 1980s, chlorinated hydrocarbons were detected in soil beneath an on-site underground tank farm. Site-wide investigations showed that VOCs, primarily Freon 113, trichloroethene (TCE), 1,1,1-trichloroethane (TCA) and 1,1-dichloroethene (1,1-DCE) were present in groundwater beneath and downgradient of the Site. Subsequently, the Site has undergone extensive remedial action including the remediation of solvent-impacted soil and extraction and treatment of on-site and off-site groundwater. Under an order from the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SF) (Order No. R2-2002-0082 – Final Site Cleanup Requirements, as amended by Order No. R2-2007-0004), IBM is obligated to remediate the groundwater (RWQCB-SF 2002, 2007). The location and approximate extent of the IBM VOC-plume with respect to former Building 028J and the Redevelopment Area is shown in Figure 3.

As part of the Screening HHRA, ENVIRON obtained from Hitachi GST all of the available soil analytical data for borings located on the Redevelopment Property. ENVIRON obtained the soil data summarized in the 1987 Comprehensive Plan (K/J/C/1987) and several additional soil investigation reports. This information was used by ENVIRON in the Screening HHRA/CCR to identify potential areas needing further investigation prior to redevelopment.

Between October 2004 and April 2007, ENVIRON conducted soil, soil gas, and groundwater investigations on the Redevelopment Property. The investigations were conducted primarily to implement the SI/SP (ENVIRON 2005b), which investigated data gaps that were identified in the Screening HHRA/CCR (ENVIRON 2005a). Some investigations were also conducted in accordance with the CMS Report for the Redevelopment Property (ENVIRON 2006), as well as on behalf of the future developer of the Redevelopment Property for due diligence purposes.

A Completion Report was prepared for each SI/SP Attachment (ENVIRON 2007d through I). These Completion Reports summarized the inspections/investigations conducted as part of each Attachment (including implementation of the CMS Report for the Redevelopment Property) and included supporting information such as photographs, tank closure reports, laboratory analytical data, truck logs, Straight Bills of Lading, and hazardous waste manifests associated with the off-haul of impacted soils and liquids.

As documented in the Final Remedy Completion Report for the Site (ENVIRON 2007a), extensive soil, soil gas and groundwater investigations have been conducted on the Redevelopment Property. As of the Final Remedy Completion Report, no further action was required within the Redevelopment Area with the exception of the chloroform remediation in the Building 028J area. IBM will continue its remediation of Site-wide groundwater on the Redevelopment Property under the oversight of the RWQCB-SF.

2.2 Former Building 028J History

Former Building 028J, an approximately 2,000-square foot building, was located west of former Building 028 (see Figure 3). Former Building 028J was located outside and southwest of the chlorinated hydrocarbon impacted groundwater area discussed above (see Figure 3). Former Building 028J was constructed in 1971 by IBM as the chemical and chemical waste storage area for former Building 028. According to Hitachi GST personnel, drums of solvents and cylinders of compressed gases were stored in former Building 028J from 1971 until approximately 1989. According to a map of former Building 028J dated 1984, the building was divided into two main chemical storage areas: “solvent storage area” and “user organics”. During ENVIRON’s Site visit, conducted as part of the Phase I Environmental Site Assessments (ESAs) prepared by ENVIRON in 2003 and 2004, ENVIRON observed cracks within the concrete floor leading to drains in the former solvent storage area in former Building 028J, although at the time of the ENVIRON Site visit the cracks and drains appeared to have been sealed. Subsequent to 1989, former Building 028J was vacant for several years before it was used as a staging area by IBM and Hitachi GST for the Site’s landscaping contractor.

According to IBM documents reviewed, IBM operated an underground spill containment tank without secondary containment. This buried tank was located east of former Building 028J and was removed in early 1982. In July 1982, an investigation was conducted to characterize the chemical content of soil and groundwater beneath the spill containment tank. Two borings were drilled to a maximum depth of 43.5 feet below ground surface (bgs). Soil and groundwater samples were analyzed for 13 organic compounds, which represent all the chemicals that may have been in the tank during the period of its use. Freon 113, TCA, TCE, tetrachloroethene (PCE), chloroform, carbon tetrachloride, and acetone were detected in unsaturated soils and in groundwater. Ethyl amyl ketone, petroleum naphtha, kerosene, isopropyl alcohol, isophorone, and xylene were not detected above their respective detection limits. Freon 113 was detected up to 23 micrograms per kilogram (μg/kg); TCA was detected up to 71 μg/kg; TCE was detected up to 40 μg/kg; PCE was detected up to 80 μg/kg; chloroform was detected up to 1,600 μg/kg; carbon tetrachloride was detected up to 6.7 μg/kg; and acetone was detected up to 5,100 μg/kg in unsaturated soils.

Industrial wastewater from former Building 028 was collected in waste vault 03 (WV-03), which was located on the southeastern side of former Building 028J. The industrial wastewater was pumped from a series of underground pipes in concrete trenches to the on-site wastewater treatment plant (Building 110) on the Core Area. WV-03 and associated pipes were removed in 1989.

Former Building 028J was demolished in September 2006 as part of redevelopment activities. In April 2007 buried utilities in the former Building 028J area were removed as part of the demolition of former Building 028.

2.3 Surrounding Area

The Site is located in a mixed industrial, commercial and residential area near the intersections of Monterey Highway, Blossom Hill Road, and United States Route 101, approximately seven miles southeast of downtown San Jose. Figure 2 shows the immediate Site vicinity, which includes the following:

- Cottle Road is located to the west, with a shopping center, other commercial buildings, a hospital/medical center, and a medium-high density residential area beyond.
- Former IBM Building 025 (formerly part of the Site), which was transferred by IBM to Lowe's in June 2008, is located to the northwest. The building was destroyed by fire in April 2008. This parcel is the proposed location of a future Lowe's Store and other retail.
- Parcel O-6 (formerly part of the Site) is located to the northeast. Hitachi GST transferred ownership of Parcel O-6, which is approximately 11 acres, to the City of San Jose in November 2005. The City is currently constructing a police station on this property.
- Southern Pacific Railroad and Caltrain right-of-way, the Blossom Hill Caltrain Station, and Monterey Highway are located to the north, with medium to medium-low density residential and a commercial shopping area beyond.
- Highway 85 and the Cottle Road Light Rail Station are located to the south, with a hospital/medical center, library, and single-family residential area beyond.

2.4 Groundwater Use

In the RWQCB-SF Order No. R2-2002-0082 (Final Site Cleanup Requirements) issued to IBM, the Regional Board required a deed restriction to be recorded against the Redevelopment Property which prohibited the use of shallow groundwater as a source of drinking water. Hitachi GST recorded such a deed restriction, signed by the Regional Board, against the Redevelopment Property in 2004.[1] As noted below in Section 2.6.3, the yield of the A-Aquifer is too low to serve as a practical water supply and there is no known historical use of shallow groundwater at the Site.

2.5 Topography

Based on a review of the United States Geological Survey (USGS) topographic map for the Santa Teresa Hills and California quadrangle, ground surface elevations at the Site range from approximately 195 feet above mean sea level (msl) in the eastern portion of the Site to about 187 feet to the west near Cottle Road. The Site is situated on flat terrain, and the surrounding area is gradually sloped to the north.

2.6 Geology and Hydrogeology

Numerous investigations have been conducted to characterize the geology and hydrogeology beneath the Site and in the surrounding area. The following sections summarize the information from these investigations.

2.6.1 Regional Geology

The Site is located within the Santa Teresa Basin in the southern end of the Santa Clara Valley. To the north and east are the Yerba Buena Hills and to the south and west are the Santa Teresa Hills. A geologic study was conducted on the Santa Teresa Basin, where the Site is located, and the San Jose Plain, which is located downgradient of the Santa Teresa Basin. Edenvale Gap is the geographic boundary and hydraulic connection between the Santa Teresa Basin and the San Jose Plain.

The geology in the Santa Teresa Basin consists of alluvium extending below the ground surface to bedrock, which is present at depths ranging up to approximately 400 feet. The alluvium is about 140 feet thick at Coyote Narrows, 350 feet thick at Edenvale Gap, and may be more than 400 feet thick in the center of the basin. Most of the bedrock consists of consolidated sandstones, shales, cherts, serpentinite, and ultrabasic rocks. The region is tectonically active and faults are common in the bedrock. The Valley within the vicinity of the Site is delineated by the Silver Creek Block of the Diablo Range to the Northeast and New Almaden Block of the Santa Cruz mountains to the Southwest. Additionally, an outlier of the Sierra Azul Block can be found immediately south of the Site. Two major fault systems, the San Andreas and the

---

[1] Covenant and Environmental Restriction on Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California" recorded on September 15, 2004 in the County of Santa Clara, Instrument #18001806.

Calaveras, extend laterally alongside the Valley. However, compared with the overlying alluvium, the bedrock can be considered impermeable. No significant bedrock aquifers are known within the basin.

2.6.2 Site Hydrogeology

Exploratory borings on the Site reveal alluvial deposits of clays and silts interbedded with sand and gravel layers (aquifers). The alluvium generally contains more than five silty-clay layers, which vary from a few feet to more than 30 feet in thickness separating more than six aquifers.

Fill materials at the Site are of variable thickness and properties. Moderately compacted fill ranging from depths of 1 to 18 feet have been encountered on-site. Beginning at the ground surface (or underlying surficial fill), there is a layer of medium plasticity clay that extends to a depth of about 5 to 10 feet bgs. Underlying deposits down to the aquifers (described below) vary across the Site, but primarily consist of additional clays and silts.

The aquifers are referred to as A, B, C, D, E, F, and G aquifers, with the A-Aquifer being the shallowest. The general depths of these aquifers below ground surface are as follows: A occurs between 20 to 50 feet; B lies between 50 and 95 feet; C is between 90 and 125 feet; D is between 140 and 160 feet; E is between 170 and 205 feet; F is between 230 and 260 feet; and G is between 270 and 275 feet. In some locations, the individual aquifers merge. All of these aquifer zones are hydraulically interconnected to some degree.

Groundwater measurements indicate that depths to shallow groundwater are currently approximately 30 feet or deeper, however, historically the recorded groundwater has been as shallow as 17 feet. This groundwater lowering is attributed to additional groundwater extraction in the Basin, including on-Site groundwater extraction by IBM for treatment.

Groundwater flow directions in aquifer zones vary across the Site. Groundwater flow directions in the A-Aquifer zone varies from south to northwest, while groundwater flow directions in the deeper aquifer zones are generally to the northwest.

2.6.3 Hydrogeology in the Former Building 028J Area

Local subsurface conditions in the vicinity of the former Building 028J area have been evaluated using data and information from: 1) eight cone penetrometer test (CPT) soundings (CPT-1 through CPT-8) in April 2007; 2) 15 groundwater wells (EW-1 through EW-15) installed to approximately 38 feet bgs in April and May 2007; 3) eight soil borings drilled in April 2008 to depths between 40 and 44 feet bgs; and 4) three wells installed in March 2008 (EW-16) and May 2008 (EW-17 and EW-18).

In general, the Site is underlain by fill over natural alluvial deposits. The upper 10 feet of soil consists of clayey silts, silty fine sands, and sandy silts. These shallow soils contain residual concrete fragments and related construction debris from the demolition activities conducted in 2006 and early 2007. Observed natural soils below the fill consist of silty clays, clayey silts, and sandy silts to the top of the A-Aquifer unit, which was encountered at depths ranging from 30 to 34 feet bgs.

The A-Aquifer[2] consists of a thin (two to four feet) layer of silty fine sand to fine sand with silt. This aquifer grades to finer soils at the east and southeast of the former Building 028J area. Groundwater elevations in the A-Aquifer vary seasonally, with the lowest period of water in the summer and early fall, and the highest water levels in spring, following the rainy season. The water table over much of the year in the A-Aquifer exhibits a relatively flat potentiometric surface in the former Building 028J area, with some slope to the southwest in the spring, potentially reflecting regional recharge to the north and east by local water management agencies. Post remediation measurements of elevation in September and October 2008 show a relatively flat gradient with a slight slope to east and south, respectively. Potentiometric maps for the Building 028J area before, during and after operation of the extraction system are provided in Appendix A.

Based on physical testing results, the horizontal hydraulic conductivities for the A-Aquifer range from 10^{-3} centimeters per second (cm/s) (at the center of the former Building 028J area in the vicinity of EW-10) to 10^{-6} cm/s (at the southeast area of the area in the vicinity of EW-15). These test results, considered along with boring logs and CPT soundings, suggest that the A-Aquifer is a relatively heterogeneous, but primarily fine-grained silty unit with low to moderate permeability.

The A-Aquifer is underlain by a silty clay unit ranging from six to eight feet in thickness. This fine-grained confining layer is called the A/B Aquitard because it separates the A-Aquifer from the thicker and more transmissive B-Aquifer below. Vertical hydraulic conductivities collected in Spring 2007 from the A/B Aquitard ranged from 10^{-6} cm/s to 10^{-7} cm/s.

In the former Building 028J area, the B-Aquifer was found to consist of a 12 to 18 feet thick interval of coarse-grained sediments ranging from sand to gravelly sand, the top of which was encountered between 40 and 44 feet bgs. The top of the deeper C-Aquifer sand was encountered at an approximate depth of 98 feet bgs. Soils between the base of the B-Aquifer and the C-Aquifer consisted of silty clay to clayey silt.

---

[2] Although characterized as an “aquifer” for the purposes of this remediation program, the A-Aquifer in fact produces too little water (due to both a lower permeability and a small seasonal saturated thickness) to serve as a practical source of water supply to wells.

3 CORRECTIVE ACTION OBJECTIVES

The purpose of this Section is to identify the goals, objectives, and the scope of the corrective action. As presented on page 26 of the CMS for the Chloroform Release Area**, the overall CAO for the former Building 028J area is to prevent exposure of future on-site populations to elevated concentrations of chloroform in soil, soil gas, and groundwater** (ENVIRON 2007c).

3.1 Specific Correction Action Objectives

The specific CAOs for the former Building 028J area are as follows:

- To the extent practicable, remediate chloroform-contaminated soil and soil gas in the vicinity of the former Building 028J area to levels at or below the site-specific residential RBTCs developed as part of the Final Remedy Completion Report for the Redevelopment Property (ENVIRON 2007a); and
- To the extent practicable, remediate chloroform-contaminated groundwater in the vicinity of the former Building 028J area to levels below the site-specific residential RBTCs developed as part of the Final Remedy Completion Report for the Redevelopment Property (ENVIRON 2007a) and below the RWQCB-SF Cleanup Standard for chloroform of 80 µg/L specified for the Site in Order No. R2-2002-0082 – Final Site Cleanup Requirements, as amended by Order No. R2-2007-0004.

The RBTCs are discussed in detail in the Final Remedy Completion Report for the Redevelopment Property (ENVIRON 2007a). RBTCs represent the concentration of a chemical that can remain in soil, soil gas and groundwater, and still be protective of human health for unrestricted land use. The methodology used to develop the RBTCs is consistent with CalEPA, RWQCB-SF, and the United States Environmental Protection Agency (USEPA) risk assessment guidance.

The proposed land use for the Redevelopment Property is residential, commercial, and open space (or park) use. Based on this proposed future land use, populations that could potentially be exposed to chemicals remaining in Site media include residents (children and adults), commercial workers, and park visitors (children and adults). Additional populations on the Redevelopment Property could include short-term construction/maintenance workers during redevelopment or other short-term maintenance activities. RBTCs were calculated for each of these populations for all chemicals detected in groundwater (migration of vapors into ambient or indoor air), soil gas (migration of vapors into ambient or indoor air) and soil (ingestion, dermal contact, and inhalation of vapors or windblown dust). The full list of site-specific RBTCs is presented in the Final Remedy Completion Report for the Redevelopment Property (ENVIRON 2007a). It should be noted that the RBTCs for chloroform in groundwater under a residential land use scenario (380 µg/L) is based on potential vapor migration into a home. The RWQCB-SF Cleanup Standard for chloroform in the A-Aquifer (80 µg/L) is USEPA's Maximum Contaminant Level (MCL) for drinking water. Since 2004 and as discussed above, the ingestion and dermal exposure pathways to groundwater beneath the Site have been made incomplete (i.e., have been fully and effectively prevented) by the recordation of an environmental covenant by Hitachi GST that prohibits the extraction and use of shallow groundwater from beneath the Site and the fact that the immediately surrounding area is serviced by municipal water systems.

The National Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] § 300) is commonly cited as the basis for target cancer risk and noncancer hazard levels. According to the NCP, lifetime incremental cancer risks posed by a site should not exceed one in a million (1 x 10^{-6}) to one hundred in a million (1 x 10^{-4}), and noncarcinogenic chemicals should not be present at levels expected to cause adverse health effects (i.e., Hazard Index [HI] greater than one). The RBTCs calculated as part of the HHRA/CCR correspond to a cancer risk of 1 x 10^{-6}. For noncancer health hazards, a target hazard index of one is identified. Individual chemical exposures that yield a hazard index of less than one are not expected to result in adverse noncancer health effects (USEPA 1989a).

3.2 2-PHASE™ Extraction System Shutdown Criteria

In Section 7.10 of the CMS for the Chloroform Release Area, the following basis for shutdown of the remediation system was presented:

> “Based on experience, VOC concentrations in soil and groundwater typically decline rapidly in the first several months of operation of a 2-PHASE™ Extraction system, monitored by the change in concentration in the extracted vapor. Generally, in a time-frame of 12 months or less of operation, the concentrations in extracted vapor reach a steady state or asymptotic level with no further significant drop in concentrations in soil and groundwater. In some cases, asymptotic conditions occur before cleanup goals have been reached.
>
> In general, permanent system shutdown and post-remedial monitoring will be initiated once one, or all, of the following has occurred: soil gas and groundwater concentrations of VOCs meet CAOs, steady-state residual concentrations of VOCs have been determined not to pose a significant threat to future occupants, and/or mass removal rates during continuous and pulsed modes no longer justify continued operation of the extraction system. For the latter case, an alternate remedial approach may be warranted.”

4 PRE-REMEDIATION SUBSURFACE CONDITIONS IN THE FORMER BUILDING 028J AREA

Environmental investigations near the former Building 028J area are discussed in detail in the CMS Report for the Chloroform Release Area. This section presents data collected previously and discusses the investigations in general with emphasis on the conditions in the subsurface of the former Building 028J area prior to implementation of corrective action in June 2007.

The areal extent of chloroform in the former Building 028J area was approximately 0.8 acres in extent. Since November 2005, over 212 discrete soil gas samples have been collected to determine the extent of chloroform in the subsurface and monitor the progress of remediation efforts. These soil gas samples were typically collected between 25 and 50 feet apart at depths of five and 10 feet bgs. Typically, DTSC recommends that soil gas sampling should occur on a 100 foot grid, or a higher density so that there is at least one soil gas sample associated with each potential building location (page 19, DTSC, 2004). Since it is likely that only one building will be constructed in the former Building 028J area in the future, the sampling density at the former Building 028J exceeded the DTSC recommendations by two to four fold. Since September 2006, over 100 soil samples have been collected from over 30 soil borings installed to depths up to 44 feet bgs in the former Building 028J area. Groundwater samples have been collected from 18 wells installed between 20 and 40 feet apart within the chloroform-impacted area in the former Building 028J area. Since May 2007, approximately 160 groundwater samples have been collected from these wells.

4.1 Pre-Remediation Soil and Soil Gas Conditions

Prior to implementation of corrective action, ENVIRON conducted several soil and soil gas investigations in the former Building 028J area to characterize the nature and extent of chemicals in unsaturated soils. These investigations, conducted between November 2005 and March 2007, identified chloroform in excess of the residential RBTCs for soil (8.8 µg/kg assuming daily direct contact) and soil gas (1.1 µg/L at 5 feet bgs and 1.9 µg/L at 10 feet bgs) in the former Building 028J area. The detection of elevated concentrations of chloroform in the soil gas reflects that chloroform was diffusing upward through soils from the underlying shallow groundwater and was also present in the vadose zone soils.

A soil gas survey conducted in November 2005 and step-out soil gas sampling conducted in March 2007 identified concentrations of chloroform in soil gas exceeding the residential RBTCs with detected concentrations ranging from 0.094 to 28 µg/L. Pre-remediation soil gas sampling locations and results for chloroform are shown on Figure 4. Table 4a summarizes the results.

Low concentrations of benzene, toluene, ethylbenzene and xylenes (BTEX) were also detected in these soil gas samples prior to remediation. All concentrations were below the residential RBTCs. The presence of low concentrations of BTEX in soil gas samples is a common occurrence at sites that are in close proximity to freeways and major roadways (such as the

Hitachi GST Site), and likely result from atmospheric washout of airborne BTEX from tail pipe emissions, followed by infiltration.[3] The detections of BTEX in the soil gas samples are not related to the entrainment of ambient air during sampling. This is demonstrated by the fact that the leak detection compound, 1,1 difluoroethane (DFA) was consistently used in all soil gas sampling rounds and rarely detected in these soil gas sampling events, as compared to BTEX constituents which were detected in virtually every soil gas sample.[4] Additional discussion of the detection of BTEX and the use of DFA for leak detection is provided below in Section 6.1.

Soil investigations conducted in September and December 2006 and January 2007 in the former Building 028J area identified concentrations of chloroform in soil slightly above the residential RBTC. Detected concentrations ranged from 5.0 to 31µg/kg, with the majority of exceedences at a depth of greater than 10 feet bgs. The pre-remediation soil sampling locations and results for chloroform are shown on Figure 5.

4.2 Pre-Remediation Groundwater Conditions in A-Aquifer

In January and March 2007, ENVIRON collected grab groundwater samples at depths ranging from 24 to 33 feet bgs in 28 locations. Chloroform was detected in 16 locations at concentrations ranging from 1.8 to 890 µg/L. Samples from two of the locations exceeded the residential RBTC for chloroform of 380 µg/L and samples from seven locations exceeded the goal for drinking water of 80 µg/L. The pre-remediation grab groundwater sampling locations and results for chloroform are shown on Figure 6.

To confirm these results and to further assess groundwater conditions, groundwater wells were installed in the former Building 028J area on April 23 through May 2, 2007. The well field was designed by ENVIRON to accomplish these goals and allow for subsequent use of the wells for extraction of subsurface vapor and groundwater. The well field consisted of 15 groundwater wells (EW-1 through EW-15) installed on approximately 30 to 35-foot centers. The well field completely covered, in areal extent, the groundwater/soil gas plume(s) as characterized during the pre-remediation investigation activities described above. The well field is shown on Figure 7 along with the groundwater elevations measured in May 2007. The installation and construction of the wells are described in detail in the CMS Report for the Chloroform Release Area (ENVIRON 2007c).

The number of groundwater monitoring wells in the remediation area is unusually large, reflecting the dual use of the wells for both monitoring and for remediation by the two phase

---

[3] The effects of atmospheric washout on the concentrations of motor fuel constituents in soil and groundwater has been previously demonstrated by scientific studies conducted by the USGS and the USEPA related to the occurrence of low concentrations of methyl tertiary butyl ether (MTBE) in shallow groundwater in areas remote from any service stations or underground storage tank sources in urban areas.

[4] Per the DTSC Soil Gas Sampling Advisory (DTSC 2003), DFA was sprayed at locations where ambient air could enter the sampling system or where cross contamination might occur immediately before sampling.

extraction system. This high density of wells also helps to ensure that all significant sources of chloroform were identified and that significant sources of chloroform would be removed from the subsurface in an accelerated manner.

On May 7 through 9, 2007 ENVIRON gauged and sampled the groundwater wells in the former Building 028J area in order to confirm previous grab groundwater sampling results and assess baseline groundwater conditions before implementation of a corrective action. Analytical results from this assessment are included in Table 1. The groundwater results for chloroform in May 2007 are also shown on Figure 8.

In May 2007, groundwater concentrations of chloroform in the wells ranged from 2.0 to 920 µg/L with concentrations highest near the northeastern corner of the former Building 028J. Four of the wells (EW-4, EW-5, EW-9, and EW-10) had chloroform concentrations that exceeded the residential RBTC of 380 µg/L. Eight of the 15 wells had chloroform concentrations exceeding the goal for drinking water of 80 µg/L. Other VOCs detected at trace levels below the residential RBTCs and RWQCB-SF Cleanup Standards included 1,1-DCE, 1,1-dichloroethane (1,1-DCA), and 1,1,1-TCA. In general, results from this assessment confirmed the previously detected concentrations and the lateral extent of chloroform in groundwater.

4.3 April 2007 B-Aquifer Groundwater Investigation

On April 17 through 19, 2007 ENVIRON performed CPT soundings in the former Building 028J area to further characterize subsurface conditions. Following the CPT soundings, a Hydropunch® sampler was used to collect grab groundwater samples of the deeper B-Aquifer from five of the CPT locations (CPT-1, CPT-2, CPT-5, CPT-6, and CPT-8). B-Aquifer groundwater sampling results are summarized in Table 2. The results for chloroform in the B-Aquifer are also shown on Figure 9.

Chloroform was detected in two samples in the B-Aquifer at concentrations below 80 µg/L. These detections were at locations CPT-5 and CPT-1 with chloroform concentrations of 34 µg/L and 3.8 µg/L, respectively. Additional VOCs were also less than RWQCB-SF Cleanup Standards for the B-Aquifer including Freon 113, which was detected at all five sample locations at concentrations ranging from 0.53 to 0.82 µg/L and 1,1,1-TCA, which was detected at location CPT-5 at a trace level of 0.55 µg/L. No other VOCs were detected.

Because the VOC concentrations in the B-Aquifer were below the Cleanup Standards, no additional remediation activities were deemed necessary for the B-Aquifer.

4.4 Selection of Remedial Alternatives

Based on the investigation results for the A-Aquifer, ENVIRON prepared a CMS Report for the Chloroform Release Area (ENVIRON 2007c). The CMS Report for the Chloroform Release Area evaluated several different alternatives and remedial technologies. The report identified 2-PHASE™ Extraction as the selected corrective action for remediating chloroform in the former

Building 028J area. As discussed in more detail in the CMS Report for the Chloroform Release Area, 2-PHASE™ Extraction was selected because:

- 2-PHASE™ Extraction can concurrently remediate soil and groundwater. The high Henry's Law constant of chloroform indicates that significant mass transfer will occur from the aqueous phase to the vapor phase during remediation;
- 2-PHASE™ Extraction can expedite remediation by removing contaminated groundwater from the A-Aquifer and increasing flow through soil pore spaces formerly occupied by groundwater; and
- 2-PHASE™ Extraction is more effective than groundwater extraction (also known as, "Pump & Treat") because the low-flow conditions within the A-Aquifer in the former Building 028J area would limit removal rates using conventional Pump & Treat technologies.

Full-scale operation of 2-PHASE™ Extraction in the area began in July 2007 and was discontinued in August 2008.

5 SUMMARY OF REMEDIATION ACTIVITIES

This section summarizes the operation and monitoring of the 2-PHASE™ Extraction system, which was implemented to remediate chloroform in the former Building 028J area.

5.1 Description of 2-PHASE™ Extraction System

2-PHASE™ Extraction is similar to soil vapor extraction (SVE) in that a vacuum is applied to the subsurface, inducing air flow to remove VOCs, such as chloroform. 2-PHASE™ Extraction is far more efficient than conventional SVE in part due to the higher vacuum applied to soil, and in the concurrent dewatering of the groundwater zone. In the process, mass is drawn from multiple sources including:

- Chloroform vapor stripped from soils in the original vadose zone;
- Chloroform vapor stripped from soils in the dewatered section of the aquifer and diffusing across the capillary fringe, a diffusion process enhanced by the vapor pressure gradient created by the soil vacuum;
- Dissolved chloroform in groundwater recovered from the aquifer; and
- Dissolved chloroform in pore water recovered from the aquitard.

During 2-PHASE™ extraction, groundwater and vapors drawn into the well by the vacuum are removed from the well casing through a specifically-sized and positioned suction pipe or “stinger”. The induced vacuum draws vapor into the tip of the stinger at a velocity sufficiently high to entrain water and convey a water/vapor spray up the stinger and to the surface. The vapor and water phases are separated at the surface in a knock-out tank prior to treatment. The extraction of entrained water maintains the wells in a dewatered state, creates an unsaturated zone, and through continual dewatering of the wells strips VOCs from the soil adjacent to the wells. This dewatering creates new air flow pathways, and enhances VOC vapor removal rates, especially as soil particles with sorbed VOCs become exposed. For the system at the former Building 028J area, over 99 percent of the mass of the chloroform was recovered in the vapor phase that exits the well via the stinger.

From July 25, 2007 to August 12, 2008, ENVIRON operated a full-scale 2-PHASE™ Extraction system to remediate chloroform in the former Building 028J area. The startup, operation, monitoring, and shutdown of the 2-PHASE™ Extraction system was performed in general accordance with procedures described in the CMS Report for the Chloroform Release Area (ENVIRON 2007c) and with direct consultation with the DTSC. The location of the former Building 028J area where remediation was performed is shown on Figure 3. The layout of the remediation area is shown on Figure 10.

The 2-PHASE™ Extraction system originally consisted of 15 dual-use monitoring/extraction wells (EW-1 through EW-15) connected via a manifold to a Reitschle VLR-500 rotary claw vacuum blower fitted with a liquid-gas separator, heat exchanger, and a granular activated carbon (GAC) vapor treatment system. A sixteenth well (EW-16) was added to the A-Aquifer in April 2008 and two additional wells (EW-17 and EW-18), which were partially screened into the A/B Aquitard, were added in May 2008. The overall purpose of these additional wells was to enhance (i.e., maximize) the rate of mass recovery over the 2008 summer season when water levels were expected to be lower. Specifically, EW-16 was installed to increase the efficiency of the extraction system because wells EW-5 and EW-9 had periodically filled with sediment, and EW-17 and EW-18 were installed to target removal of chloroform from the A/B Aquitard.

The GAC vapor treatment system consisted of two 1,000-pound GAC vessels arranged in series with two additional 1,000-pound GAC vessels on standby. A process flow diagram is included as Figure 11. Well construction details are summarized in Table 3 and a schematic of the extraction/monitoring well heads is included as Figure 12.

The 2-PHASE™ Extraction system operated under a Bay Area Air Quality Management District (BAAQMD) Permit and was powered by a diesel-powered trailer-mounted electric generator, which required weekly refueling. Preventive maintenance of the generator and 2-PHASE™ Extraction system occurred weekly coincident with generator refueling. The 2-PHASE™ Extraction system was inspected and maintained weekly by ENVIRON's subcontractor, Drewelow Remediation Equipment, Inc., (DRE) of Escondido, California.

5.2 System Monitoring Activities

Routine measurements and inspections are necessary to describe the status of the remediation system and a summary of operating conditions. As described in the CMS Report for the Chloroform Release Area (ENVIRON 2007c), the following information was routinely recorded to evaluate performance:

- Hours of operation during the reporting period;
- Flow rates and vacuum;
- Water levels;
- Influent and effluent concentration of VOCs in the extracted vapors;
- Concentration of VOCs in the extracted groundwater;
- Summary of non-routine repairs or modifications, if any;
- Date and time of sampling;
- Mass removal rates and total mass removed;
- A table summarizing the laboratory results; and
- Laboratory results and chain-of-custody documents.

As part of an evaluation of performance, the concentrations of chloroform in the extracted vapor and groundwater were routinely reviewed to assess mass removal efficiency. As necessary, modifications were made to enhance the remediation system performance.

Detailed summaries of the performance data and monitoring results collected from system startup on July 25, 2007 to final system shutdown on August 12, 2008 are presented in Appendix B.

5.3 System Operations: July 2007 - August 2008

The system operated for almost 13 months, with a one month shutdown in November 2007. In November 2007, the 2-PHASE™ Extraction system was shutdown due to excessive flooding and heavy rainfall. In addition, chloroform mass removal rates had reached asymptotic levels and removal rates continued to diminish because of the rising water table. After raising the equipment on skids to prevent further impacts from flooding, Hitachi GST re-started the system in December 2007.

During approximately 7,968 hours of operation, the 2-PHASE™ Extraction system flushed and treated approximately 68.7 million cubic feet of atmospheric air through the vadose zone soils (removing chloroform in a vapor form in the process) and extracted 535,000 gallons of groundwater. The average extraction rates observed since startup were approximately 169 cubic feet per minute for vapor and approximately 1.2 gallons per minute for groundwater.

Initially, water levels declined during operation of the system in the summer months; however, beginning in mid September 2007 (and again in mid September 2008), water levels started to rise. This rise occurred prior to the onset of seasonal rains, which did not begin until October 2007 and 2008, respectively. This early rise in groundwater level is likely attributable to Santa Clara Valley water management activities. For example, directly east of the Site, near the former Ford Road percolation ponds, local water agencies periodically recharge groundwater by releasing additional surface water into Coyote Creek. It is likely these recharge activities increase in the late summer and early fall. In addition, water agency pumping of deep water supply wells is also modified in the late summer/early fall. Although no information is available to quantify these water management activities, the mid-September rise in the groundwater table at the Site (in both 2007 and 2008) is likely attributable to these water management activities since this rise occurred prior to any significant precipitation.

Although the remediation system effectively dewaters the shallow A-Aquifer during the summer months, the system can not overcome seasonal rise of the water table in the fall and winter months. During these periods of seasonal rain and artificial recharge, the water table rises in spite of the pumping, leading to a reduced hydraulic radius of influence of the remediation system and hence a lower, less efficient mass removal. Since routine measurements of water levels began in May 2007, the lowest and highest water levels were observed in September 2007 and April 2008, respectively. The difference in the observed high and low seasonal water levels was roughly seven to eight feet. Groundwater elevations in monitoring wells since the beginning of June 2007 are plotted on Figure 13.

Based on routine monitoring of extracted concentrations in vapor and water from July 2007 through mid August 2008, ENVIRON estimates that operation of the system removed between 6.1 and 8.2 pounds of chloroform. Figure 14 shows the cumulative chloroform mass removed since startup of the system while Figure 15 shows how the chloroform mass removal rate has changed over time. As seen in Figure 15, the rate of chloroform mass removal decreased significantly to asymptotic levels during the first couple months of operation.

On September 11-13, 2007, and again on November 6-7, 2007, ENVIRON conducted interim monitoring of soil gas and groundwater to better assess the progress of remediation and guide future operation of the 2-PHASE™ Extraction system. Results of the interim soil gas monitoring are summarized in Tables 4b and 4c and discussed below in Section 6.1. Results for chloroform in soil gas are also shown on Figure 16. All soil gas sampling results showed that VOCs (including chloroform) were one to two orders of magnitude below the residential RBTCs.

Based on the results of soil gas samples collected in September and November, 2007, with DTSC's concurrence, ENVIRON ceased periodic soil gas monitoring until permanent shutdown of the system in August 2008.

To further assess the progress of groundwater remediation, ENVIRON instituted frequent monitoring of groundwater from the on-site monitoring/extraction wells. Table 1 summarizes the groundwater data from these monitoring events and Figure 8 shows the chloroform results in groundwater from May 2007 (before system startup) through August 2008 (after system shutdown) and October 2008. Figure 17 shows the trend in average chloroform concentration in wells EW-5, EW-9, EW-10 and EW-13 from May 2007 to October 2008. As shown on this figure, average groundwater concentrations in these wells have remained below the RBTC for chloroform since November 2007. An additional extraction well (EW-16) was installed in May 2008 and operated over the summer until system shutdown to address a localized zone of elevated chloroform in groundwater. The concentrations of chloroform in this well had been reduced to well below the RBTC by the time the system operation was ended in August 2008.

5.4 Additional Soil Investigation

In April through May, 2008 ENVIRON conducted additional soil sampling in the former Building 028J area to evaluate the vertical and horizontal extent of residual chloroform in soil, to further assess the physical properties of the soils comprising the A/B Aquitard, and to evaluate the feasibility of excavating residual concentrations of chloroform from the A-Aquifer. During the course of the Spring 2008 investigation, the soil data indicated that the majority of the small amount of residual chloroform mass that remained in the former Building 028J area was present in the A/B Aquitard. Based on these results, it was determined to be technically infeasible to excavate soil within the A/B Aquitard because of the significant depth (greater than 38 feet bgs) and the large hydrostatic pressure within the underlying B-Aquifer.

Soil samples were collected from 11 soil borings (SB-1 through SB-8 and from 3 soil borings drilled for the purpose of installing three additional extraction/monitoring wells (EW-16, EW-17, and EW-18). These boring locations are shown on Figure 18. A total of 78 soil samples were collected using the EnCore® sampling system and submitted under chain-of-custody (COC) protocol to a California State-certified analytical laboratory for chloroform analysis by USEPA Method 8260B. An additional 28 soil samples, were submitted under COC protocol to PTS

Laboratories Inc. for analysis for fraction of organic carbon (f_{oc}) by the Walkley Black method, bulk density and total porosity by American Petroleum Institute (API) Method RP40, vertical permeability to water by American Society for Testing and Materials (ASTM) Method D5084/API RP40, and for moisture content by ASTM Method D2216. Soil boring logs and soil analytical reports are included as Appendix B and Appendix C, respectively of the report: *Chloroform Mass Estimates and Projected Future Groundwater Conditions* (ENVIRON 2008a). The results of the chloroform soil sampling are summarized in Table 6 and shown on Figure 19. Physical testing results are summarized on Tables 7 through 9.

During drilling, the A-Aquifer was encountered at depths of 31 to 34 feet bgs. This thin (two to four feet) layer consisted of silty fine sand to fine sand with silt. The A/B Aquitard was encountered at depths of 34 to 36 feet and consisted of a six to eight foot layer of silty clay to clay. The depths of the contacts and the types and occurrences of soils were consistent with previous soil investigations in the former Building 028J area, including the eight CPT soundings performed in April 2007 and the logging of soils during the April/May 2007 installation of extraction/monitoring wells, EW-1 through EW-15. Based on the results of this additional soil investigation, updated hydrostratigraphic cross-sections have been developed and are included as Figures 20 through 23.

At locations SB-5, SB-7, EW-16, EW-17, and EW-18, groundwater was first encountered at approximately 26.5 feet bgs. At soil boring locations SB-1 through SB-4 and SB-6, groundwater was first encountered at approximately 31 feet bgs. During both the drilling of the borings described above and during the drilling of wells EW-1 through EW-15 in April 2007, damp-to-wet conditions were routinely reported in the fine-grained deposits above the A-Aquifer zone. This is indicative of a fairly robust capillary fringe zone.[5]

In general, chloroform was detected only in soils in contact with groundwater. Chloroform was not detected above reporting limits in samples collected in the vadose zone at depths less than 25.5 feet, which is at a depth nearing the top of the observed capillary fringe zone. At locations SB-2, SB-7, and SB-8 chloroform was detected in the deepest vadose zone samples, approximately 25.5 feet bgs, at concentrations ranging from 4.6 to 7.9 µg/kg. Within the capillary fringe, occurring between depths of approximately 27 to 30 feet bgs, chloroform was detected in all eight locations sampled ranging from 5.2 to 33 µg/kg. Chloroform concentrations within the A-Aquifer soils ranged from 16 to 220 µg/kg from the five locations sampled with the highest concentration detected being near the top of the A/B Aquitard at location SB-1.

Chloroform was detected in all 27 soil samples collected from the A/B Aquitard, which included samples at varying depths within the aquitard unit. Concentrations within the A/B Aquitard ranged from 31 to 1,400 µg/kg with an average concentration of 183.5 µg/kg. The highest

---

[5] The capillary fringe zone can be defined as the zone immediately above the water table where the water content remains at or very close to saturation. It is often referred to as the tension-saturation zone because it can be saturated and yet exhibit a negative pressure. Chloroform concentrations detected in soil in the capillary fringe are likely due to entrained groundwater.

concentrations in the aquitard were generally co-located with groundwater wells having the historically highest measured groundwater concentrations in the area immediately northwest of former Building 028J along the former concrete trench.

Physical testing from locations SB-1 through SB-8 and EW-16 through EW-18 were generally consistent with soil investigations conducted previously in the former Building 028J area. As previously described, the A/B Aquitard is comprised predominantly of clay with some sporadic silty clay zones. Moisture content in samples collected from the A/B Aquitard ranged from 24 to 36 percent weight, with the deepest sample at each location having the lowest moisture content. Dry bulk density ranged from 1.34 to 1.57 grams per cubic centimeter (g/cc) and total porosity ranged from 42 to 50 percent bulk volume. Vertical hydraulic conductivity within the predominantly clay aquitard (based on testing of over 20 samples) ranged from 1.45×10^{-7} to 2.97×10^{-5} cm/s.

From these data, ENVIRON has concluded that the majority of the small amount of residual chloroform mass remaining beneath the former Building 028J area following remediation is found in the aquitard, not in the overlying A-Aquifer. The additional soil investigation in the spring of 2008 involved extensive soil sampling from 14 soil borings that were installed within an approximately 4000 square feet area in the vicinity of the three wells (EW-5, EW-9 and EW-10) with the highest concentrations of chloroform in groundwater. As a result, it is highly improbable that any meaningful mass of chloroform would remain undiscovered following this additional soil investigation. The results of this investigation also confirmed that only a small amount of residual chloroform mass remains present in groundwater, saturated soil in the A-Aquifer, and the A/B Aquitard, and that there is no “continuing source” of chloroform (i.e. leaking tank/drum or nonaqueous phase liquid [NAPL] zone in soil) that would perpetuate a condition of contamination over the long term.

6 POST-REMEDIATION SUBSURFACE CONDITIONS

This section describes the post-remediation subsurface conditions in the former Building 028J area following operation and monitoring of the 2-PHASE™ Extraction system to remediate chloroform.

6.1 Post-Remediation Soil and Soil Gas Conditions

As discussed in Section 5.3, based on results of soil gas sampling conducted in September and November 2007 and the observed decrease in the chloroform removal rate (see Figures 14 and 15), ENVIRON concluded that the cleanup of the vadose zone was essentially completed in the first three months of operation of the 2-PHASE™ Extraction system. The results of soil gas samples collected in September and November 2007 are presented in Tables 4b and 4c, respectively, and also shown on Figure 16. Because these soil gas samples were collected shortly after the remediation system was turned off, they likely do not reflect the then-current concentrations of chloroform that would be in equilibrium with the underlying groundwater.

Soil sampling conducted in April through May 2008 (discussed above in Section 5.4) corroborated the soil gas results and confirmed that the vadose zone had been successfully remediated. Soil samples collected at approximately five feet depth intervals from eight soil borings installed in April/May 2008 (Figure 19) show no detections of chloroform in the vadose zone to a depth of approximately 25 feet with sporadic low detections of chloroform in several deeper samples. These low concentrations of chloroform in soil below approximately 25 feet are likely due to entrained groundwater within a robust capillary fringe zone. Based on these data, there are no significant remaining sources or mass of chloroform in the vadose zone.

Post-remediation sampling of soil gas in the former Building 028J area was conducted on August 18-19, 2008 and again on October 16-17, 2008. Results of the August 2008 and October 2008 post-remediation soil gas sampling are summarized in Table 5a and 5b, respectively, and are both included on Figure 16.

In August 2008, trace levels of 20 VOCs in soil gas were detected, with all concentrations below their respective residential RBTCs. The August 2008 soil gas results were similar to results from September and November 2007. As expected, the August 2008 soil gas concentrations do not show significant evidence of an increase to equilibrium levels since the samples were collected only a few days after the remediation system was shutdown, and soil gas concentrations had not had sufficient time to equilibrate with the underlying groundwater. The similarity of August 2008 post-remediation soil gas concentrations to the concentrations detected during interim monitoring of soil gas in September and November 2007 indicates that all removable VOCs were being stripped from the vadose zone during operation of the 2-PHASE™ Extraction system.

In October 2008, trace levels of 21 VOCs in soil gas were detected, with all concentrations below their respective residential RBTC. Detections of chloroform in October 2008 ranged from 0.020 to 0.78 µg/L and were all below the residential RBTCs of 1.1 µg/L (five feet) and 1.9 µg/L

(10 feet). Because the remediation system had not operated for nearly two months, the chloroform concentrations in these samples are much more likely to be nearer natural equilibrium conditions between chloroform in groundwater and chloroform in soil gas.

Low concentrations of VOCs, such BTEX, were also detected in over 90 percent of the soil gas samples from the interim and post-remediation soil gas investigations.[6] All concentrations were below the residential RBTCs for soil gas. The presence of low concentrations of BTEX in soil gas samples is a common occurrence at sites that are in close proximity to freeways and major roadways such as the Hitachi GST Site. In addition, the detections of BTEX are to be expected: the 2-PHASE™ Extraction system has introduced more than 68 million cubic feet of atmospheric air into the subsurface zone in the chloroform remediation area. As a result, BTEX in atmospheric air has absorbed into and equilibrated with vadose zone soil and pore water. The detections of BTEX are not related to the entrainment of ambient air during sampling since the leak detection compound, DFA, was only very rarely detected during soil gas sampling, and then only in 2007 (see Tables 4b, 4c, 5a and 5b). Specifically, as stated in Section 4.1, DFA was used fully in accordance with regulatory guidance (DTSC 2003) for using leak detection compounds during soil gas sampling, and it was detected in only one out of 25 samples in interim sampling conducted in September 2007 and detected in only two out of 25 samples in interim sampling conducted in November 2007. There were no detections of DFA in post-remediation sampling performed in August and October 2008. Based on this data it is concluded that “leakage” of ambient air into the soil gas samples during sampling has not occurred and did not biased the results of the soil gas testing.

As anticipated, results from the October 2008 post-remediation soil gas sampling show evidence of a moderate increase in soil gas concentrations as soil gas concentration reach equilibration with groundwater. As explained in the succeeding paragraph, since groundwater concentrations are expected to remain below RBTCs, soil gas concentrations will also remain below RBTCs. Post-remediation increases in soil gas concentrations are to be expected as soil gas concentrations reach equilibrium with groundwater following shutdown of the 2-PHASE™ Extraction system. In addition, since there have been no detections of any compound above RBTCs during the interim and post-remediation soil gas sampling events, the remaining trace levels of VOCs, including chloroform, detected in soil gas do not pose a health risk to future on-site populations.

Table 10 presents a summary of the post-remediation soil gas data and groundwater data in comparison to the site-specific residential RBTCs for chloroform. The table includes the soil gas data from the approximate 4000 square feet area where groundwater concentrations (the “residual chloroform area”) exceed 80 µg/L. The chloroform RBTCs for soil gas were developed

---

[6] It is important to note that the detection limits for BTEX during the interim and post-remediation sampling events were lower than during the pre-remediation sampling events. As a result, more detections are evident in the interim and post-remediation data. The increased frequency in the interim and post-remediation sampling events may in part be due to the lower detection limits as well as the other reasons discussed in the subsequent sentences in this paragraph.

in the Final Remedy Completion Report for the Redevelopment Property using the Johnson and Ettinger Model, which assumes equilibrium between chloroform at the groundwater RBTC of 380 µg/L (ENVIRON 2007a) and chloroform concentrations in soil gas. The average groundwater concentration in the residual chloroform area in October 2008 is 158 µg/L, which is 42% of the groundwater RBTC. If the soil gas concentrations in October 2008 are in equilibrium with the groundwater concentrations, and further assuming that the layering of soils at the point of measurement is the same as was assumed in the modeling, then the average concentration of chloroform in soil gas should be about 42% of the soil gas RBTC.[7] At 10 feet bgs, the average chloroform concentration in soil gas in October 2008 is 0.57 µg/L; the expected equilibrium concentration (based on an average groundwater concentration of 158 µg/L) would be 0.80 µg/L. Likewise at five feet bgs, the average chloroform concentration in soil gas is 0.21 µg/L; the expected equilibrium concentration (based on an average groundwater concentration of 158 µg/L) would be 0.46 µg/L. In comparison to the August 2008 post-remediation data, the October 2008 data demonstrate that the chloroform concentration in soil gas in the residual chloroform area is rapidly approaching, but has not yet reached, the modeled equilibrium with groundwater. Based on the physical/chemical laws that define the equilibrium relationship between groundwater and soil gas, it would not be possible for soil gas concentrations to exceed the equilibrium concentrations (i.e. the soil gas RBTCs) while groundwater concentrations remain well below the groundwater RBTC. It is highly unlikely, therefore, that the concentrations of chloroform in soil gas in the future would ever exceed a level that would pose any health concern.

6.2 Post-Remediation Groundwater Conditions in A-Aquifer

ENVIRON conducted groundwater sampling from monitoring and extraction wells in the former Building 028J area from May 2007 to October 2008. Figure 17 shows the average trend over time for the wells in the area of residual chloroform (EW-5, EW-9, EW-10, EW-13 and EW-16). The average concentration of chloroform in groundwater in wells EW-5, EW-9, EW-10, and EW-13 in each monthly sampling episode after November 2007 has been consistently below RBTCs.[8] It is appropriate to look at the average concentration for the purpose of human health risk assessment, because according to the USEPA, the exposure concentration term in the intake equation should be the arithmetic average of the concentration that is contacted over the exposure period (USEPA 1989). This was discussed in the CMS for the Chloroform Release Area (ENVIRON 2007c, Section 5, page 27). Although this concentration does not reflect the maximum concentration that a potential receptor could be exposed to at any particular location at any one time, it is regarded as a reasonable estimate of the concentration likely to be potentially contacted over time, since assuming long-term contact with the maximum

---

[7] Using these types of comparisons is scientifically acceptable because physical/chemical principles dictate that there is direct relationship between the amount of chloroform that would be expected in groundwater and the amount found in the overlying soil gas.

[8] Although the concentration of chloroform slightly exceeded the groundwater RBTC for vapor migration in June 2008 in EW-16, subsequent remediation over the summer 2008 period has lowered the concentration in groundwater in this well to below the RBTC.

concentration is not reasonable. In addition, the area extent of the residual chloroform in groundwater is less than 4000 square feet, which is smaller than the typical lot size for new single-family home developments in Santa Clara County.

During post-remediation groundwater sampling conducted on August 12-14, 2008, chloroform was detected in 16 of the 18 groundwater wells. Detections of chloroform ranged from 1.8 to 320 µg/L, all of which were below the residential RBTC of 380 µg/L. Results of post-remediation groundwater sampling conducted on October 13-15, 2008 closely resembled the August 2008 results. In October 2008, chloroform was detected in 14 of 16 groundwater wells sampled with detections ranging from 1.9 to 330 µg/L, all of which were below the residential RBTC. The average post-remediation chloroform concentration within the area of residual chloroform (calculated using results from EW-5, EW-9, EW-10, EW-13 and EW-16) was 165 µg/L in August 2008 and 158 µg/L in October 2008. In August and October 2008, the average concentration in all wells (EW-1 through EW-16[9]) in the former Building 028J area is approximately 60 µg/L, which is below the drinking water goal. The average pre-remediation chloroform concentration in this area was 673 µg/L in May 2007.

Overall, since baseline sampling was first conducted by ENVIRON in May 2007, the areal extent of groundwater with chloroform concentrations above 80 µg/L has decreased from approximately 0.8 acres to less than 0.09 acres. Furthermore, as shown on Figure 17, the chloroform concentrations in the 0.09 acre area of residual chloroform have also significantly decreased during this time period. It is clear that the 2-PHASE™ Extraction system has been successful in decreasing the concentration and extent of chloroform impacts in the former Building 028J area. In addition, the post-remediation groundwater concentrations are below the residential RBTC and, are therefore, protective of future on-site populations.

---

[9] EW-17 and EW-18 are not included since the well screens of these wells extend into the A/B Aquitard. Inclusion of these wells in the average calculation results in an average concentration of 67 µg/L, which is still below the groundwater goal of 80 µg/L.

7 ATTAINMENT OF CAOS AND SYSTEM SHUTDOWN CRITERIA

7.1 Post-Remediation Risk Evaluation

This subsection evaluates the post-remedial concentrations of chloroform in soil, soil gas, and groundwater in the vicinity of Building 028J area. In general, as a conservative screen, individual soil and soil gas samples collected during remedial activities were compared directly to their respective residential RBTCs. According to the USEPA, the exposure concentration term in the intake equation is the arithmetic average of the concentration that is contacted over the exposure period (USEPA 1989). Although this concentration does not reflect the maximum concentration that could be contacted at any one time, it is regarded as a reasonable estimate of the concentration likely to be contacted over time, since assuming long-term contact with the maximum concentration is not reasonable. Because of the uncertainty associated with any exposure concentration, USEPA recommends that the 95 percent upper confidence limit (UCL) on the arithmetic average be used for this variable (USEPA 1989). The 95 percent UCL provides reasonable confidence that the true site average will not be underestimated (USEPA 1989). The quantification of exposure was based on exposure point concentrations (EPCs) that were calculated using ProUCL, Version 3.0 (USEPA 2004) to estimate the 95 percent UCL from applicable datasets.

7.1.1 Risk Evaluation of Residual Soil Concentrations

Chloroform was not detected in data from soil samples collected in April/May 2008 to a depth of approximately 25 feet bgs, corresponding to soils located above the groundwater table. Detection limits ranged from 4.0 to 4.9, well below the residential soil RBTC of 8.7 µg/kg (assuming direct contact with soil). Soil data are presented in Table 6 and the concentrations across the Site are shown on Figure 19.

7.1.2 Risk Evaluation of Residual Soil Gas Concentrations

Post-remediation soil gas data collected from five and 10 feet bgs in October 2008 indicate chloroform concentrations ranging from non-detect to 0.47 µg/L at five feet bgs and non-detect to 0.78 µg/L at 10 feet bgs. These concentrations are well below the residential soil gas RBTC for chloroform of 1.1 µg/L (five feet bgs) and 1.9 µg/L (10 feet bgs). The maximum concentration detected at five feet bgs would correspond to an estimated cancer risk of 4.3×10^{-7}. The maximum concentration detected at 10 feet bgs would correspond to an estimated cancer risk of 4.1×10^{-7}. Post-remediation soil gas data are presented in Tables 5a and 5b and soil gas concentrations across the Site are shown on Figure 16.

7.1.3 Risk Evaluation of Residual Groundwater Concentrations

As discussed in Section 6.2, the maximum post remediation concentration detected in groundwater was 330 µg/L; below the residential RBTC of 380 µg/L. Due to the large data set, pre-remediation and post-remediation 95 percent UCLs were calculated for groundwater samples using chloroform data from EW-1 through EW-15. Additionally, an evaluation of post-remediation chloroform groundwater data from EW-1 through EW-18 was performed to include data from extraction wells added in April 2008 (EW-16) and May 2008 (EW-17 and EW-18). To be additionally conservative, data from EW-16, EW-17, and EW-18 were evaluated to include the relatively high concentrations of chloroform in groundwater from EW-16 at 330 µg/L. EW-16 was installed to increase the efficiency of the extraction system because wells EW-5 and EW-9 had periodically filled with sediment. EW-17 and EW-18 were installed to target removal of chloroform from the A/B Aquitard.

Groundwater data collected in May 2007 for EW-1 through EW-15 comprised the pre-remediation dataset. There is no May 2007 data for wells EW-16, EW-17, and EW-18 since these wells were installed after April 2008. The August and October 2008 data comprised the post-remediation dataset. The locations of EW-1 through EW-18 are shown on Figure 8. Groundwater data are presented in Table 1 and concentrations at wells are shown on Figure 8.

The pre-remediation chloroform 95 percent UCL of the mean for data from EW-1 through EW-15 was 610 µg/L. The post-remediation chloroform 95 percent UCLs for data from EW-1 through EW-15 and EW-1 through EW-18 were 93 µg/L and 133 µg/L, respectively. For groundwater, a RBTC of 380 µg/L for exposure via the vapor migration pathway was established. Although the post-remediation 95 percent UCLs exceeded the RWQCB-SF Cleanup Standard for total trihalomethanes (including chloroform) of 80 µg/L for drinking water, neither of the post-remediation 95 percent UCLs exceeded the RBTC of 380 µg/L. The ProUCL calculated 95 percent UCLs are presented in Appendix C.

Post-remediation excess lifetime cancer risks attributable to chloroform in groundwater through the vapor migration pathway are 2.4 x 10^{-7} (EW-1 through EW-15) and only slightly higher at 3.5 x 10^{-7} for EW-1 through EW-18.

The Site deed restriction prohibits use of shallow groundwater as a drinking water source, eliminating the risk of future residents exposed to groundwater with chloroform concentrations above 80 µg/L.

7.1.4 Cumulative Risk

The estimated cancer risks for post remediation soil, soil gas and groundwater are summarized in Table 11. The estimated risks were not added as they all represent the same exposure pathway, inhalation through vapor migration to indoor air. It should be noted, however, that even if the estimated risks were summed over media, the cumulative excess lifetime cancer risk would be less than 1 x 10^{-6}, at the low end of the NCP risk range that is considered to be acceptable.

7.2 Attainment of CAOs and System Shutdown Criteria

Based on the post-remediation data that was collected and analyzed for soil, soil gas and groundwater and the post-remediation risk calculations, CAOs have been attained at the former Building 028J area as follows:

- Chloroform concentrations in soil and soil gas have been reduced to below site-specific residential RBTCs; and
- Chloroform concentrations in groundwater have been reduced to levels below the site-specific residential RBTCs and to the extent practicable below 80 µg/L in the A-Aquifer.

Chloroform in the A-Aquifer has been removed to the extent practicable based on the following conditions:

- Concentrations of chloroform in the monitoring wells exhibit asymptotic behavior (this has been the case throughout 2008 up to shutdown in August, as shown Figure 17);
- The nature of soils and the presence of clay lenses in the seasonal water table zone are going to significantly degrade the effectiveness of the remediation system due to poor air circulation through these soils (see Figures 20 through 23);
- Diffusion will be the controlling process for the removal of chloroform (see Section 7.4.1 and Appendix E);
- Operation of the remediation system will not materially accelerate this diffusion process compared to natural flushing processes (see Section 7.4.1 and Appendix E and F); and
- Removal efficiency is significantly degraded much of the year by the seasonal rebound of the water table and the infiltration of surface moisture (rainfall).

Table 10 presents a comparison of post-remediation soil gas and groundwater data with the residential site-specific RBTCs.

As stated above, Section 7.10 of the CMS for the Chloroform Release Area (ENVIRON 2007c) stated the following basis for shutdown of the remediation system:

> In general, permanent system shutdown and post-remedial monitoring will be initiated once one, or all, of the following has occurred: soil gas and groundwater concentrations of VOCs meet CAOs, steady-state residual concentrations of VOCs have been determined not to pose a significant threat to future occupants, and/or mass removal rates during continuous and pulsed modes no longer justify continued operation of the extraction system. For the latter case, an alternate remedial approach may be warranted."

Permanent system shutdown meet the shutdown criteria in the following ways:

- soil gas concentrations of chloroform meet CAOs, i.e., chloroform concentrations in soil gas have been reduced to be below site-specific residential RBTCs (Table 10);

- chloroform concentrations in all groundwater wells are below the RBTC (Table 10);

- the average, post-remediation, chloroform concentration in all wells (EW-1 through EW-16[10]) is 60 µg/L, which meets CAOs;

- steady-state residual concentrations of chloroform in groundwater and soil gas do not to pose a significant threat to future occupants (see Section 7.1 and Table 11); and

- chloroform mass removal rates had reached an asymptotic level during continuous and pulsed[11] modes so that continued operation of the extraction system is no longer justified (see Section 5.3 and Figure 15).

The following subsections provide further demonstration that future concentrations within the former Building 028J area will remain below RBTCs, and that through natural flushing processes, chloroform concentrations in groundwater will ultimately decrease below the drinking water goal for chloroform of 80 µg/L.

7.3 Pre-Remediation and Post-Remediation Mass Estimates

Although the mass of chloroform remaining in the aquifer at any point in time has no direct bearing on the attainment of the CAO specified by the DTSC for Site remediation, ENVIRON estimated chloroform mass to assist in the evaluation of the effectiveness of the 2-PHASE™ Extraction system in removing chloroform from the subsurface. Estimates were prepared based on measured values for the pre-remediation conditions and the post-remediation conditions following implementation of 2-PHASE™ Extraction. The methodology for performing mass estimates is presented in Appendix D.

Estimates of chloroform mass were prepared for four units based on the conceptual hydrostratagraphic cross-sections: (1) the vadose zone (thickness varies depending on A-Aquifer water levels), (2) the A-Aquifer below the vadose zone, (3) the approximately eight-foot thick clayey aquitard overlain by the A-Aquifer, and (4) the approximately 15-foot thick B-Aquifer beneath the aquitard.

---

[10] EW-17 and EW-18 are not included since the well screens of these wells extend into the A/B Aquitard. Inclusion of these wells in the average calculation results in an average concentration of 67 µg/L, which is still below the groundwater goal of 80 µg/L.

[11] The November 2007 shutdown was considered a pulsed mode. Mass removal rates did not change significantly following restarting of the system in December 2007.

7.3.1 Pre-Remediation Chloroform Mass Estimates

The results of the estimated pre-remediation mass calculations are shown in Table 12. The total estimated pre-remediation chloroform mass in the A-Aquifer unit including the vadose zone was calculated as 6.74 pounds.

However, this estimate of mass does not include the mass of chloroform in aquitard soil because there were no samples collected in the aquitard prior to remediation. Data collected during the additional aquitard soil investigation in April and May 2008 was used as an estimate of pre-remediation aquitard mass, which was estimated to range from 0.25 to 0.81 pounds Undoubtedly, the pre-remediation mass was at this level or some amount above the current measured level and decreased to the current level due to influence from the 2-PHASE™ Extraction system. As a result, the total estimated pre-remediation mass of chloroform is estimated to be greater than 7 to 7.55 pounds because pre-remediation chloroform concentrations in aquitard soil were not available. This estimated mass is within the range of cumulative chloroform mass removed during operation of the 2-PHASE™ Extraction system presented in Section 5 (6.1 to 8.2 pounds).

In making these calculations, the extent of the area of residual chloroform concentration was generally defined as the area where chloroform was detected in groundwater between January and May 2007 (approximately 34,000 square feet). The area of residual chloroform concentrations in the vadose zone was considered to be the area directly above the chloroform-impacted area of the A-Aquifer.

Input parameters for these calculations were based on available measured values. For example, the average aquifer thickness was determined from water levels collected prior to the start of 2-PHASE™ Extraction in May 2007 in groundwater wells EW-1 through EW-15, and from the saturated portions of the capillary fringe, as observed from pre-remediation drilling activities.

Chloroform groundwater sample data collected in the vicinity of the former Building 028J area from January to May 2007 was used to estimate the average chloroform aqueous concentration in the A-Aquifer. The arithmetic mean of the concentrations that are larger than the goal for drinking water (80 µg/L) was used to represent the pre-remedial conditions in the A-Aquifer in the former Building 028J area.

In the vadose zone, soil gas concentrations were used as starting data to estimate average concentrations in the soil moisture and sorbed phases. To estimate the average soil gas concentration in the vadose zone, ENVIRON averaged soil gas measurements collected in the area of residual chloroform concentrations (as the arithmetic average of detected values) from investigations conducted prior to the implementation of 2-PHASE™ Extraction. The pre-remediation mass estimates are shown in Table 12 and the calculation procedures described in Appendix D.

7.3.2 Post-Remediation Chloroform Mass Estimates

After the implementation of 2-PHASE™ Extraction, the chloroform mass in the vadose zone and A-Aquifer was estimated using the procedures described in Appendix D, using the updated groundwater and soil gas concentrations measured in October 2008.

The extent of the area of residual chloroform concentrations was defined as the area where elevated concentrations remain in groundwater (generally defined as above 80 µg/L). This area is approximately 4,000 square feet and was the focus of the additional aquitard soil investigation in April-May 2008. For the vadose zone, the area of residual chloroform concentrations was considered to be the area directly above the chloroform-impacted area of the A-Aquifer.

Chloroform groundwater sample data collected in the wells within the area of residual chloroform concentrations (EW-5, EW-9, EW-10, EW-13, and EW-16) from October 2008 were used to estimate the average chloroform aqueous concentration in the A-Aquifer.

In the vadose zone, soil gas concentrations were used as starting data to estimate average concentrations in the soil moisture and sorbed phases. To estimate the average soil gas concentration in the vadose zone, soil gas measurements that were collected in the residual chloroform area in October 2008 were averaged (as the arithmetic average of detected values).

Data collected during the additional aquitard soil investigation in April and May 2008 was used to estimate the mass of chloroform in the A/B Aquitard. The aquitard mass estimates are shown in Table 14.

The results of the post-remediation mass estimates (Tables 13 and 14) are presented next to the pre-remediation mass estimates and projected future conditions and summarized in Table 15. The pre-remediation chloroform mass estimates are discussed in the previous section and the projected future conditions are discussed below in Section 7.4. The total estimated post-remediation chloroform mass was estimated to range from 0.33 to 1.06 pounds, the majority of which exists in the A/B Aquitard. As discussed in more detail in Appendix D, a range in mass was calculated in addition to calculating the mass based on average concentrations. Using the 90% and 95% confidence limits of the average groundwater concentration in the A-Aquifer, a range in chloroform mass was calculated for the A-Aquifer. For the aquitard mass range, the upper and lower 90% or 95% confidence limits of average aquitard soil concentration was used to estimate the range of chloroform mass in the aquitard. Figure 24 shows the approximate extent and distribution of the chloroform mass before and after remediation.

7.4 Estimated Future Groundwater Conditions

The post remediation concentrations of chloroform in the A-Aquifer and aquitard were used to predict future groundwater conditions in the former Building 028J area. The post-remedial sampling results indicate that chloroform concentrations in the A-Aquifer have been considerably reduced and that approximately 98 percent of the chloroform mass in the A-Aquifer and vadose zone have been removed by the 2-PHASE™ Extraction system. Although chloroform concentrations were found in the soil samples taken from the underlying aquitard, the discussion and analysis provided below demonstrates that the residual chloroform trapped in the aquitard does not present a significant risk to future on-site populations and does not significantly impact the groundwater quality at the Site.

7.4.1 Impact of Chloroform in the Aquitard on the A-Aquifer

The purpose of the analysis in this subsection is to show that the residual concentrations of chloroform in the A/B Aquitard are unlikely to have a significant effect on the post-remediation concentrations of chloroform in the A-Aquifer.

Contaminant transport in the subsurface is typically driven by two main processes: chemical diffusion and advection. In order to predict future groundwater conditions in the former Building 028J area, it is important to understand the contaminant transport processes that are occurring. The vertical chloroform concentration distribution observed in the A/B Aquitard shows that the chloroform concentration fluctuates vertically with no discernible or consistent decreasing or increasing concentration trend. The lack of a consistent trend strongly indicates that diffusion is not the dominant transport process responsible for chloroform transport from the A-Aquifer to the bottom of the aquitard and/or top of B-Aquifer. A diffusion dominant transport will produce a skewed concentration profile with the higher concentration nearer the source (i.e. the A-Aquifer, with a lower concentration in contact with the B-Aquifer). ENVIRON performed calculations in Appendix E to confirm that migration of the residual chloroform trapped in the A/B Aquitard is largely driven by advective processes under steady state, equilibrium conditions. Based on these calculations (as well as the observed distribution of chloroform in the A/B Aquitard), the transport of chloroform from the aquitard to the A-Aquifer due to upward diffusion is considered to be insignificant since it is overwhelmed by the downward advection process. In other words, once the extraction system is shutdown, the residual chloroform trapped in the A/B Aquitard will primarily migrate vertically downwards through advective processes and diffusion of chloroform into the A-Aquifer is limited.

7.4.2 Impact of Chloroform in the Aquitard on the B-Aquifer

Since advection is the primary mechanism for chloroform transport at the Site, chloroform in the aquitard is expected to gradually migrate into the B-Aquifer because of the predominant downward hydraulic gradient in the aquitard. To evaluate the impact of residual chloroform in the aquitard on the water quality in the B-Aquifer, the extent of chloroform dilution that is anticipated to occur in the B-Aquifer was estimated using the method described in Appendix E.

Using the equations described in Appendix E and the lowest dilution ratio of 78, the average aqueous concentration of chloroform in the B-Aquifer would be only about 2.6 % of the chloroform soil concentration in the aquitard.

7.4.3 Projected Future Groundwater Conditions

As demonstrated above and in Appendix E, chloroform in the A-Aquifer and aquitard will migrate to the B-Aquifer due to predominant downward advection transport, and upward diffusion transport of chloroform from the aquitard to the A-Aquifer is inconsequential. The following three alternative approaches were used to conservatively estimate future chloroform concentrations in groundwater.

7.4.3.1 Equilibrium Partitioning Approach

The equilibrium partitioning approaches, which are described in more detail below, assume different portions of the total (average) chloroform mass remaining in the A-Aquifer and A/B Aquitard would migrate to the B-Aquifer. The approaches then assume that the remaining portion of the chloroform mass would be retained in the A-Aquifer and aquitard, partitioning into the soil and water phases under the equilibrium conditions described by Equation D-6 (See Appendix D). The predicted chloroform concentrations in groundwater in the A-Aquifer and B-Aquifer under the three different approaches are presented in Table 15.

Best Case

Under this case, 75% of the total chloroform mass that currently remains in the A-Aquifer and A/B Aquitard would migrate to the B-Aquifer. The remaining 25% of the chloroform mass would be retained in the A-Aquifer and aquitard, partitioning into the soil and water phases under the equilibrium conditions described by Equation D-6. The site-specific f_{oc} values presented in Table 9 for the A-Aquifer and A/B Aquitard were used for equilibrium calculation. Given the small amount of chloroform mass that would remain in the A-Aquifer and the vertical gradient under static conditions, only a negligible amount of chloroform mass would be able to partition to soil vapor under this scenario. As shown in Table 15, the predicted chloroform concentration in groundwater in the A-Aquifer under this scenario below the goal for drinking water and well below the residential RBTC.

The future concentration of the residual chloroform on the B-Aquifer under this scenario was estimated using the arithmetic mean of all chloroform concentrations found in the A/B Aquitard soil samples (= 183.5 μg/kg) using Equation E-6 and assuming a dilution ratio of 78. As shown in Table 15, the predicted chloroform concentration in the B-Aquifer under this scenario is well below the goal for drinking water.

Reasonable Worst Case

Under this case, 50% of the total chloroform mass that currently remains in the A-Aquifer and A/B Aquitard would migrate to the B-Aquifer. The remaining 50% of the chloroform mass would be retained in the A-Aquifer and aquitard, partitioning into the soil and water phases under the equilibrium conditions described by Equation D-6. Given the small amount of chloroform mass that would remain in the A-Aquifer and the vertical gradient under static conditions, only a negligible amount of chloroform mass would be able to partition to soil vapor under this scenario. As shown in Table 15, the predicted chloroform concentration in groundwater in the A-Aquifer under this scenario is above the goal for drinking water but below the residential RBTC.

The future concentration of the residual chloroform on the B-Aquifer under this scenario was estimated using the arithmetic mean of the maximum chloroform concentrations found in the A/B Aquitard soil samples of individual borings (= 292.5 μg/kg) using Equation E-6 and assuming a dilution ratio of 78. As shown in Table 15, the predicted chloroform concentration in the B-Aquifer under this scenario is well below the goal for drinking water.

Worst Case

Under this case, only 25% of the total chloroform mass that currently remains in the A-Aquifer and A/B Aquitard would migrate to the B-Aquifer. The remaining 75% of the chloroform mass would be retained in the A-Aquifer and aquitard, partitioning into the soil and water phases under the equilibrium conditions described by Equation D-6. Even under this scenario, the remaining small amount of chloroform mass in the A-Aquifer would result in only a negligible amount of chloroform mass redistributing to soil vapor. As shown in Table 15, the predicted chloroform concentration in groundwater in the A-Aquifer under this scenario is above the goal for drinking water but below the residential RBTC.

The future concentration of the residual chloroform on the B-Aquifer under this scenario was estimated using the maximum chloroform concentration found in the A/B Aquitard soil samples (= 1400 μg/kg) using Equation E-6 and assuming a dilution ratio of 78. As shown in Table 15, the predicted chloroform concentration in the B-Aquifer under this scenario is still below the goal for drinking water.

7.4.3.2 Natural Flushing Time

The equilibrium partitioning approach presented above is a very conservative approach used to establish upper-bound concentrations for the purpose of evaluating the future human health risk for the chloroform mass remaining in the A-Aquifer and A/B Aquitard. However, importantly, the equilibrium partitioning approach above does not take into account the effects of natural flushing in the A-Aquifer. Natural flushing in the A-Aquifer in the former Building 028J area is evident based on the observed seasonal water table fluctuation (see Figure 13). During the period between May 9, 2007 and July 25, 2007, a natural fall of the groundwater table was observed.[12] After the extraction system started operating, the water table started to rise between September 13, 2007 and April 7, 2008. Using the water table on July 25, 2007 as a reference point (representing the pre-remediation level), the magnitude of this water table rise is about six feet despite the operation of the 2-PHASE™ Extraction system in the former Building 028J area.

---

[12] A pilot-scale study of 2-PHASE™ Extraction was conducted in the former Building 028J area from June 4, 2007 through June 9. The study was limited to approximately 100 hours of run-time. During the study, approximately 9,400 gallons of groundwater were extracted while operating one to three extraction wells. The decline in water levels was temporarily accelerated during this time period. The effect was not great, but can be seen in the first 11 measurements shown on Figure 13.

Pore Volume Flushing Estimate

Conservatively assuming a 4-foot annual rise and fall of the water table in the former Building 028J area, a pore-volume flushing approach was used to as an alternative basis to estimate the time required to achieve the goal for drinking water under natural conditions. The calculation procedure is provided in Appendix F. Based on the concentration of chloroform in the chloroform-impacted area in the A-Aquifer as of October 2008, the time required for natural flushing to achieve the drinking water goal in the A-Aquifer ranges from 5.6 to 8.5 years.

Vertical Leakage Flushing Estimate

The pore-volume flushing analysis above uses the water table fluctuation as an indicator of the extent of natural flushing occurring at the Site. The source of water for natural flushing includes precipitation and groundwater recharge. The clean water entering into the area of residual chloroform concentrations in the A-Aquifer may either horizontally exit the area or seep downward into the aquitard.

To provide an even more conservative estimate of natural flushing time to achieve the goal for drinking water in the A-Aquifer, the horizontal flow component was ignored, and only the vertical leakage was used to represent the annual flushing rate. While the head differences between the A- and B-Aquifer changes over time, the average head difference between these two aquifers is about 5.7 feet based on IBM Site monitoring reports (Table 16). The vertical leakage calculation procedure is provided in Appendix F. Using this method, the time required to achieve the goal for drinking water was estimated to be 8.6 years.

Based on these calculations, it is expected that the time required for natural flushing to reduce the chloroform concentration in the A-Aquifer to the goal from drinking water ranges from 5.6 to 8.6 years depending on the amount of rainfall/artificial recharge and flushing that occurs in the future. Regardless of the approach used for estimation, the chloroform concentrations in the A-Aquifer will never exceed the residential RBTCs.

8 SUMMARY AND CONCLUSIONS

In light of the information presented in the preceding sections of this report, ENVIRON, on behalf of Hitachi GST recommends that DTSC issue a determination that corrective action for the Chloroform Release Area at former Building 028J is complete, with no controls necessary. The overall Corrective Action Objective -- to prevent exposure of future on-site populations to elevated concentrations of chloroform in soil, soil gas, and groundwater (CMS, p. 26) – has been met, as have the specific CAOs for soil and soil vapor and the RBTCs for groundwater. Chloroform mass estimates indicate that since April 2007, 98 percent of the mass of chloroform in the A-Aquifer and vadose zone soil has been removed. Post-remediation soil gas concentrations and groundwater concentrations are consistently below residential RBTCs. Only a small area (less than 0.09 acres or less than 4000 square feet) of groundwater in the A-Aquifer remains above 80 µg/L.

As concluded in Section 7.4, the chloroform mass remaining in the aquitard is not expected to impact the B-Aquifer to a significant degree, and the chloroform concentration in the A-Aquifer is not predicted to exceed the residential RBTC for groundwater of 380 µg/L. Since the average concentration of chloroform in the A-Aquifer under current conditions is below the RBTC (380 µg/L) and predicted concentrations are conservatively estimated to remain below the RBTC, there is no significant human health risk to future on-site populations as a result of the residual chloroform that remains in the A-Aquifer beneath the former Building 028J area.

The principal reasons for determining that the corrective action for the Chloroform Release Area is complete are as follows:

1. The overall CAO has been met, as have the specific CAOs for soil and soil vapor and the RBTCs for groundwater (see Section 7.2).

2. The drinking-water-based specific CAO for groundwater to achieve 80 µg/L of chloroform in groundwater "to the extent practicable" has been met. The fact that the chloroform levels have been reduced "to the extent practicable" is evidenced by the fact that the rate of mass recovery of chloroform has exhibited asymptotic behavior throughout 2008, diffusion will be the controlling process for removal of any remaining chloroform from the finer grained soils in the aquifer/aquitard in the future, and operation of the remediation system will not materially accelerate this diffusion process as compared to natural flushing (See Section 7.2).

3. Extraction system shutdown criteria have been met (Section 7.2). Chloroform mass removal rates reached an asymptotic level during continuous and pulsed modes so that continued operation of the extraction system is no longer justified (see Section 5.3 and Figure 15).

4. There is <u>no</u> continuing source of chloroform that would result in any increase in chloroform concentrations in groundwater over the long term. There is only a small residual mass of chloroform sorbed to soil in the lower portion of the A-Aquifer and underlying aquatard that will continue to reduce over time through natural flushing.

Source area remediation has been completed: approximately 98 percent of known chloroform mass in the A-Aquifer and vadose zone has been removed. Additional soil investigations in April/May 2008, which included extensive soil sampling from 14 soil borings that were installed within an approximately 4000 square feet area in the vicinity of EW-5, EW-9 and EW-10, confirm that it is highly improbable that any meaningful mass of chloroform remains at the Site.

5. It is technically infeasible to remove the small amount of chloroform which remains bound in the A/B Aquitard. Furthermore, it is not necessary to remove this residual mass of chloroform in the aquitard because it does not significantly affect the chloroform concentrations in either the A-Aquifer or the B-Aquifer; and

6. There is no remaining unacceptable risk to human health. Chloroform concentrations are below the RBTCs for potential vapor migration, and there is a deed restriction that prevents use of shallow groundwater for drinking water, thus eliminating the risk of future residents being exposed to groundwater with chloroform concentrations above 80 µg/L.

9 SYSTEM SHUTDOWN AND DEMOBILIZATION

This section describes the proposed demobilization activities for the 2-PHASE™ Extraction system in the former Building 028J area.

9.1 System Shutdown

As discussed in Section 5, the 2-PHASE™ Extraction system was shutdown on August 12, 2008. The shutdown was performed in accordance with the CMS Report for the Chloroform Release Area (ENVIRON 2007c) and in direct consultation with the DTSC. The specific procedures followed for shutdown are outlined in the Operation, Maintenance, and Monitoring Plan (OMMP) prepared by ENVIRON in February 2008 (ENVIRON 2008b). In addition, the BAAQMD will be notified that the system operations have ceased and the air permit will be closed accordingly.

9.2 Equipment Demobilization

All equipment related to the 2-PHASE™ Extraction system will be demobilized from the Site by the equipment provider, DRE, Inc. Equipment to be removed includes, but is not limited to the 2-PHASE™ Extraction skid, four carbon vessels, air sparging unit, diesel-powered electrical generator, measurement equipment, spare parts, and any tools and other maintenance items. Aboveground piping, well manifolds, and wellheads will be broken down and disposed of in accordance with the waste management procedures outlined in Section 11.4.

Water holding tanks will be decontaminated and transported off-site by DECON Environmental, Inc. of Hayward, California. Wastewater from the cleaning process will be disposed of in accordance with the waste management procedures outlined in Section 11.4.

9.3 Extraction/Monitoring Well Decommissioning

The 18 extraction/monitoring wells in the former Building 028J area will be decommissioned according to well destruction procedures described in Water Well Standards: State of California, December 1981, Department of Water Resources (DWR) Bulletin 74-81, the supplement California Well Standards, June 1991, DWR, DWR Bulletin 74-90, and the Santa Clara Valley Water District (SCVWD) Well Ordinance.

It is anticipated that the wells will be overdrilled to the true total depth of the original boring and the resultant boring backfilled with neat cement grout, 10-sack sand cement grout, or hydrated high solids 20 percent bentonite slurry delivered down-hole via tremie pipe. However, the ultimate method of destruction will be determined by the SCVWD in the approved permit application. Bentonite chips and pellets will not be allowed as a sealing material. Well monuments and all other surface completions will be removed during decommissioning activities.

The drill rig and all associated equipment will be cleaned with a high-pressure steam washer prior to mobilizing to the Site and between each use at the Site. All other relevant field equipment will be cleaned prior to and between each use by washing in an Alconox/tap water solution, rinsing with distilled water, and allowing it to air dry.

9.4 Waste Management

All soil cuttings and water generated during well decommissioning and equipment decontamination will be contained in Department of Transportation (DOT) approved 55-gallon drums for subsequent testing and proper disposal. Each drum will be sealed and labeled with content, source, date, and well number and depth interval (when appropriate). The disposal method will be selected after analytical results are available. Drums will be stored at a secure, agreed upon location at the Site pending appropriate disposal.

Refuse and debris from demobilization activities will be contained in roll-off bins for subsequent disposal. All other remaining waste related to the 2-PHASE™ Extraction system will be handled in accordance with the procedures described in the CMS Report for the Chloroform Release Area.

10 REFERENCES

City of San Jose, California. 2005a. *Draft Environmental Impact Report. Hitachi Campus and Mixed-Use Transit Village Project. General Plan Amendment (GP04-02-01) and Planned Development Rezoning (PDC04-031). SCH#2004072110. Volume I through V.* Approved as Final: June 6.

City of San Jose, California. 2005b. *First Amendment to the Draft Environmental Impact Report. Hitachi Campus and Mixed-Use Transit Village Project. General Plan Amendment (GP04-02-01) and Planned Development Rezoning (PDC04-031). SCH#2004072110. Volume I through V.* Approved as Final: June 6.

Department of Toxic Substances Control (DTSC) and California Regional Water Quality Control Board-Los Angeles Region (LARWQCB). 2003. *Advisory – Active Soil Gas Investigations*. January 28.

Department of Toxic Substances Control (DTSC). 2004. *Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air.* December 15.

Department of Toxic Substance Control (DTSC). 2006. *Letter to Hitachi GST, Re: Conditional Approval of Redevelopment Area Corrective Action Investigation Documents, Hitachi Global Storage Technologies, Incorporated, EPA ID. NO. CAR0001288793.* January.

ENVIRON International Corporation (ENVIRON). 2008a. *Chloroform Mass Estimates and Projected Future Groundwater Conditions.* August 11, 2008.

ENVIRON International Corporation (ENVIRON). 2008b. *Operation, Maintenance, and Monitoring Plan: 2-PHASE™ Extraction System at the Chloroform Release Area at Former Building 028J. Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California.* February 12, 2008.

ENVIRON International Corporation (ENVIRON). 2007a. *Final Remedy Completion Report. Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California.* August 29, 2007.

ENVIRON International Corporation (ENVIRON). 2007b. *Soil Inspection/Sampling Plan Completion Report, Attachment III – Buried Concrete Trenches, Building 028J and Former Waste Vaults 02-04. Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California.* May 31, 2007.

ENVIRON International Corporation (ENVIRON). 2007c. *Corrective Measures Study Report, Chloroform Release Area at Former Building 028J. Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California.* August 29, 2007.

ENVIRON International Corporation (ENVIRON). 2007d. *Completion Report, Soil Inspection/Sampling Plan, Attachment I – Roads/Parking Lots, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 25.

ENVIRON. 2007e. *Completion Report, Soil Inspection/Sampling Plan, Attachment II – Aboveground Storage Tanks Associated with Emergency Generators, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 13.

ENVIRON. 2007f. *Completion Report, Soil Inspection/Sampling Plan, Attachment III – Buried Concrete Trenches, Building 028J and Former Waste Vaults 02-04, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 13.

ENVIRON. 2007g. *Completion Report, Soil Inspection/Sampling Plan, Attachment IV – Hydraulic Elevators, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 13.

ENVIRON. 2007h. *Completion Report, Soil Inspection/Sampling Plan, Attachment V – Former Petroleum Underground Storage Tanks, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 13.

ENVIRON. 2007i. *Completion Report, Soil Inspection/Sampling Plan, Attachment VI – Former Orchard Areas, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 13.

ENVIRON. 2007j. *Completion Report, Soil Inspection/Sampling Plan, Attachment VII – Endicott Boulevard/Tucson Way, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 23.

ENVIRON. 2007k. *DRAFT Completion Report, Soil Inspection/Sampling Plan, Attachment VIII – Other Remaining Areas, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 11.

ENVIRON. 2007l. *Completion Report, Soil Inspection/Sampling Plan, Attachment IX – Soil Gas Evaluation for Parcels O-1 and O-2, Hitachi Global Storage Technologies, Inc., Redevelopment Property, 5600 Cottle Road, San Jose, California*. July 23.

ENVIRON International Corporation (ENVIRON). 2006. *Corrective Measures Study (CMS) Report. Redevelopment Property. Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California.* June 28: revised August 31, 2006.

ENVIRON International Corporation (ENVIRON). 2005a. *Draft Current Conditions Report, Hitachi Global Technologies, Inc., Redevelopment Area and Endicott Boulevard/Tucson Way, 5600 Cottle Road, San Jose, California.* July.

ENVIRON International Corporation (ENVIRON). 2005b. *Soil Inspection/Sampling Plan. Hitachi Global Storage Technologies, Inc., Redevelopment Area and Endicott Boulevard/Tucson Way, 5600 Cottle Road, San Jose, California.* Revised January 31, 2006.

Regional Water Quality Control Board – San Francisco Bay Region (RWQCB-SF). 2007. *Order No. R2-2007-0004, Amendment of Site Cleanup Requirements Order No. R2-2002-0082, for*

International Business Machines, 5600 Cottle Road, San Jose, Santa Clara County, California. January 30.

Regional Water Quality Control Board – San Francisco Bay Region (RWQCB-SF). 2002. *Order No. R2-2002-0082, Final Site Cleanup Requirements and Rescission of Order No. 88-157 For: International Business Machines, San Jose, Santa Clara County, California.* August 20.

United States Environmental Protection Agency (USEPA). 2004. *ProUCL Version 3.0, User Guide*. EPA/600/R04/079. April. http://www.epa.gov/nerlesd1/tsc/images/proucl3apr04.pdf

United States Environmental Protection Agency (USEPA). 1989. *Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response. EPA-540/1-89/002.* Washington, D.C. December.

Tables

TABLE 1: SUMMARY OF GROUNDWATER WELL SAMPLING RESULTS IN THE A-AQUIFER
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

		Groundwater Concentration (ug/L) [1, 2]					
Well ID	**Sample Date**	**Chloroform**	**Carbon Tetrachoride**	**1,1-DCA**	**1,1-DCE**	**1,1,1-TCA**	**Toluene**
Residential RBTC [3]		*380*	*51*	*1,200*	*30,000*	*520,000*	*160,000*
RWQCB-SF Cleanup Standard [4]		*80*	*NA*	*5*	*6*	*200*	*NA*
EW-1	05/08/2007	**49**	<0.50	**0.63**	**4.1**	**11**	<2.0
	09/12/2007	**15**	<0.50	**1.0**	**1.1**	**8.5**	<2.0
	11/06/2007	**15**	<0.50	<0.50	**1.9**	**4.4**	<2.0
	01/24/2008	**19**	<0.50	<0.50	**1.7**	**3.9**	<2.0
	02/28/2008	**17**	<0.50	<0.50	**1.7**	**3.6**	<2.0
	04/01/2008	**17**	<0.50	<0.50	**2.0**	**4.0**	<2.0
	05/08/2008	**14**	na	na	na	na	na
	08/13/2008	**9.1**	na	na	na	na	na
	10/13/2008	**11**	na	na	na	na	na
EW-2	05/08/2007	**95**	<0.50	<0.50	**3.7**	**5.4**	<2.0
	09/12/2007	**31**	<0.50	<0.50	**0.62**	**2.6**	<2.0
	11/07/2007	**28**	<0.50	<0.50	**1.3**	**2.8**	<2.0
	01/24/2008	**22**	<0.50	<0.50	**1.1**	**1.2**	<2.0
	02/28/2008	**19**	<0.50	<0.50	**0.93**	**1.2**	<2.0
	04/01/2008	**17**	<0.50	<0.50	**0.82**	**1.2**	<2.0
	05/07/2008	**21**	na	na	na	na	na
	08/13/2008	**7.6**	na	na	na	na	na
	10/14/2008	**8.9**	na	na	na	na	na
EW-3	05/07/2007	**2.0**	<0.50	<0.50	<0.50	<0.50	<2.0
	09/12/2007	**2.2**	<0.50	<0.50	<0.50	<0.50	<2.0
	11/06/2007	<1.0	<0.50	<0.50	<0.50	<0.50	<2.0
	01/24/2008	<1.0	<0.50	<0.50	<0.50	<0.50	<2.0
	02/28/2008	**1.1**	<0.50	<0.50	<0.50	<0.50	<2.0
	04/02/2008	<1.0	<0.50	<0.50	<0.50	<0.50	<2.0
	05/08/2008	<1.0	na	na	na	na	na
	08/12/2008	<1.0	na	na	na	na	na
	10/13/2008	<1.0	na	na	na	na	na
EW-4	05/08/2007	**520**	<5.0	<5.0	<5.0	**12**	<2.0
	09/12/2007	**180**	<5.0	<5.0	<5.0	**8.0**	<2.0
	11/07/2007	**87**	<2.0	<2.0	<2.0	**5.4**	<2.0
	11/07/2007 [5]	**87**	<2.0	<2.0	<2.0	**6.2**	<2.0
	01/23/2008	**81**	**0.57**	<0.50	**1.9**	**5.8**	<2.0
	02/27/2008	**62**	**0.53**	<0.50	**1.4**	**5.2**	<2.0
	04/01/2008	**55**	<0.50	<0.50	**1.7**	**4.5**	<2.0
	05/07/2008	**61**	na	na	na	na	na
	06/05/2008	**48**	na	na	na	na	na
	07/09/2008	**49**	na	na	na	na	na
	07/09/2008 [5]	**50**	na	na	na	na	na
	08/13/2008	**53**	na	na	na	na	na
	10/14/2008	**74**	na	na	na	na	na

TABLE 1: SUMMARY OF GROUNDWATER WELL SAMPLING RESULTS IN THE A-AQUIFER
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

		Groundwater Concentration (ug/L) [1, 2]					
Well ID	**Sample Date**	**Chloroform**	**Carbon Tetrachoride**	**1,1-DCA**	**1,1-DCE**	**1,1,1-TCA**	**Toluene**
Residential RBTC [3]		*380*	*51*	*1,200*	*30,000*	*520,000*	*160,000*
RWQCB-SF Cleanup Standard [4]		*80*	*NA*	*5*	*6*	*200*	*NA*
EW-5	05/09/2007	**870**	<10	<10	<10	<10	<2.0
	09/13/2007	**460**	<10	<10	<10	<10	<2.0
	09/13/2007 [5]	**470**	<10	<10	<10	<10	<2.0
	11/07/2007	**180**	<2.0	<2.0	<2.0	<2.0	<2.0
	01/23/2008	**330**	<2.0	<2.0	**2.1**	**4.5**	<2.0
	02/27/2008	**240**	<2.0	<2.0	<2.0	**3.4**	<2.0
	03/03/2008 [6]	**160**	<2.0	<2.0	<2.0	<2.0	<2.0
	04/01/2008	**210**	<2.0	<2.0	<2.0	**2.6**	<2.0
	05/07/2008	**380**	na	na	na	na	na
	06/04/2008	**320**	na	na	na	na	na
	07/10/2008	**190**	na	na	na	na	na
	08/14/2008	**140**	na	na	na	na	na
	10/15/2008	**150**	na	na	na	na	na
EW-6	05/08/2007	**130**	<1.0	<1.0	**2.7**	**3.1**	<2.0
	09/12/2007	**100**	<1.0	<1.0	**1**	**1.6**	<2.0
	11/07/2007	**87**	<1.0	<1.0	**1.3**	**2.0**	<2.0
	01/23/2008	**76**	<0.50	<0.50	**1.6**	**1.7**	<2.0
	02/27/2008	**57**	<0.50	<0.50	**1.1**	**1.2**	<2.0
	04/01/2008	**55**	<0.50	<0.50	**1.0**	**1.1**	<2.0
	05/08/2008	**29**	na	na	na	na	na
	06/04/2008	**25**	na	na	na	na	na
	07/09/2008	**18**	na	na	na	na	na
	08/13/2008	**17**	na	na	na	na	na
	8/13/2008[5]	**16**	na	na	na	na	na
	10/14/2008	**22**	na	na	na	na	na
EW-7	05/07/2007	**5.9**	<0.50	<0.50	**1.2**	**0.88**	<2.0
	09/12/2007	**3.8**	<0.50	<0.50	<0.50	**0.57**	<2.0
	11/06/2007	**3.4**	<0.50	<0.50	**0.75**	<0.50	<2.0
	01/24/2008	**3.5**	<0.50	<0.50	**0.80**	<0.50	<2.0
	02/28/2008	**3.1**	<0.50	<0.50	**0.80**	<0.50	<2.0
	04/02/2008	**3.4**	<0.50	<0.50	**0.81**	<0.50	<2.0
	04/02/2008 [5]	**3.5**	<0.50	<0.50	**0.81**	<0.50	<2.0
	05/08/2008	**3.1**	na	na	na	na	na
	08/12/2008	**1.7**	na	na	na	na	na
	8/12/2008[5]	**1.8**	na	na	na	na	na
	10/13/2008	**1.8**	na	na	na	na	na
	10/13/2008[5]	**1.9**	na	na	na	na	na

TABLE 1: SUMMARY OF GROUNDWATER WELL SAMPLING RESULTS IN THE A-AQUIFER
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

		Groundwater Concentration (ug/L) [1, 2]					
Well ID	**Sample Date**	**Chloroform**	**Carbon Tetrachoride**	**1,1-DCA**	**1,1-DCE**	**1,1,1-TCA**	**Toluene**
Residential RBTC [3]		*380*	*51*	*1,200*	*30,000*	*520,000*	*160,000*
RWQCB-SF Cleanup Standard [4]		*80*	*NA*	*5*	*6*	*200*	*NA*
EW-8	05/08/2007	**12**	<0.50	<0.50	<0.50	**1.4**	<2.0
	05/08/2007 [5]	**12**	<0.50	<0.50	<0.50	**1.4**	<2.0
	09/12/2007	**3.1**	<0.50	<0.50	<0.50	**0.71**	<2.0
	11/06/2007	**1.1**	<0.50	<0.50	<0.50	<0.50	<2.0
	01/24/2008	**2.9**	<0.50	<0.50	<0.50	<0.50	<2.0
	02/28/2008	**1.9**	<0.50	<0.50	<0.50	<0.50	<2.0
	04/02/2008	**1.6**	<0.50	<0.50	<0.50	<0.50	<2.0
	05/07/2008	**1.1**	na	na	na	na	na
	08/12/2008	<1.0	na	na	na	na	na
	10/13/2008	<1.0	na	na	na	na	na
EW-9	05/09/2007	**920**	<10	<10	<10	<10	<2.0
	09/12/2007	**530**	<10	<10	<10	<10	<2.0
	11/07/2007	**280**	<2.0	<2.0	<2.0	<2.0	<2.0
	01/23/2008	**310**	<2.0	<2.0	<2.0	<2.0	<2.0
	03/03/2008 [6]	**210**	<2.0	<2.0	<2.0	<2.0	<2.0
	04/01/2008	**210**	<2.0	<2.0	<2.0	<2.0	<2.0
	05/07/2008	**220**	na	na	na	na	na
	05/07/2008 [5]	**230**	na	na	na	na	na
	06/05/2008	**130**	na	na	na	na	na
	07/09/2008	**120**	na	na	na	na	na
	08/13/2008	**62**	na	na	na	na	na
	10/14/2008	**83**	na	na	na	na	na
EW-10	05/09/2007	**550**	<5.0	<5.0	<5.0	<5.0	<2.0
	09/12/2007	**690**	<5.0	<5.0	<5.0	<5.0	<2.0
	11/07/2007	**430**	<5.0	<5.0	<5.0	<5.0	<2.0
	01/23/2008	**240**	<5.0	<5.0	<5.0	<5.0	<2.0
	02/27/2008	**300**	<5.0	<5.0	<5.0	<5.0	<2.0
	03/03/2008 [6]	**280**	<5.0	<5.0	<5.0	<5.0	<2.0
	04/01/2008	**430**	<5.0	<5.0	<5.0	<5.0	<2.0
	05/07/2008	**280**	na	na	na	na	na
	06/05/2008 [5]	**230**	na	na	na	na	na
	06/05/2008	**220**	na	na	na	na	na
	07/09/2008	**290**	na	na	na	na	na
	08/14/2008	**210**	na	na	na	na	na
	10/15/2008	**170**	na	na	na	na	na

TABLE 1: SUMMARY OF GROUNDWATER WELL SAMPLING RESULTS IN THE A-AQUIFER
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

		Groundwater Concentration (ug/L) [1, 2]					
Well ID	**Sample Date**	**Chloroform**	**Carbon Tetrachoride**	**1,1-DCA**	**1,1-DCE**	**1,1,1-TCA**	**Toluene**
Residential RBTC [3]		*380*	*51*	*1,200*	*30,000*	*520,000*	*160,000*
RWQCB-SF Cleanup Standard [4]		*80*	*NA*	*5*	*6*	*200*	*NA*
EW-11	05/08/2007	**56**	<0.50	<0.50	**1.2**	**4.4**	<2.0
	09/13/2007	**26**	<0.50	<0.50	<0.50	**3.1**	<2.0
	11/06/2007	**15**	<0.50	<0.50	<0.50	**1.1**	<2.0
	01/23/2008	**20**	<0.50	<0.50	<0.50	**1.1**	<2.0
	02/27/2008	**21**	<0.50	<0.50	<0.50	**1.1**	<2.0
	04/01/2008	**21**	<0.50	<0.50	<0.50	**1.3**	<2.0
	05/08/2008	**17**	na	na	na	na	na
	08/13/2008	**7.2**	na	na	na	na	na
	10/14/2008	**8.7**	na	na	na	na	na
EW-12	05/07/2007	**9.5**	<0.50	<0.50	<0.50	**1.7**	<2.0
	09/12/2007	**3.2**	<0.50	<0.50	<0.50	**1.1**	<2.0
	11/06/2007	**3.3**	<0.50	<0.50	<0.50	**0.91**	<2.0
	01/24/2008	**8.0**	<0.50	<0.50	<0.50	**0.76**	<2.0
	02/27/2008	**8.4**	<0.50	<0.50	<0.50	**0.84**	<2.0
	04/02/2008	**5.5**	<0.50	<0.50	<0.50	**0.96**	<2.0
	05/08/2008	**6.7**	na	na	na	na	na
	08/12/2008	**2.2**	na	na	na	na	na
	10/13/2008	**2.7**	na	na	na	na	na
EW-13	05/09/2007	**350**	<5.0	<5.0	<5.0	<5.0	<2.0
	09/12/2007	**190**	<5.0	<5.0	<5.0	<5.0	<2.0
	11/07/2007	**120**	<1.0	<1.0	<1.0	**1.5**	<2.0
	01/23/2008	**110**	<1.0	<1.0	<1.0	**1.2**	<2.0
	01/23/2008 [5]	**110**	<1.0	<1.0	<1.0	**1.2**	<2.0
	02/27/2008	**100**	<1.0	<1.0	<1.0	**1.4**	<2.0
	02/27/2008 [5]	**100**	<1.0	<1.0	<1.0	**1.5**	<2.0
	04/01/2008	**98**	<1.0	<1.0	<1.0	**1.3**	<2.0
	05/07/2008	**80**	na	na	na	na	na
	06/05/2008	**78**	na	na	na	na	na
	07/09/2008	**75**	na	na	na	na	na
	08/13/2008	**82**	na	na	na	na	na
	10/14/2008	**68**	na	na	na	na	na
EW-14	05/09/2007	**150**	<1.0	<1.0	<1.0	**3.3**	<2.0
	09/12/2007	**69**	<1.0	<1.0	<1.0	**2.1**	<2.0
	11/06/2007	**58**	<0.50	<0.50	<0.50	**1.7**	<2.0
	01/23/2008	**58**	<0.50	<0.50	<0.50	**1.4**	<2.0
	02/27/2008	**57**	<0.50	<0.50	<0.50	**1.2**	<2.0
	04/01/2008	**51**	<0.50	<0.50	<0.50	**1.4**	<2.0
	05/07/2008	**52**	na	na	na	na	na
	06/05/2008	**52**	na	na	na	na	na
	07/09/2008	**49**	na	na	na	na	na
	08/13/2008	**48**	na	na	na	na	na
	10/14/2008	**45**	na	na	na	na	na

TABLE 1: SUMMARY OF GROUNDWATER WELL SAMPLING RESULTS IN THE A-AQUIFER
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

		Groundwater Concentration (ug/L) [1, 2]					
Well ID	**Sample Date**	**Chloroform**	**Carbon Tetrachoride**	**1,1-DCA**	**1,1-DCE**	**1,1,1-TCA**	**Toluene**
Residential RBTC [3]		*380*	*51*	*1,200*	*30,000*	*520,000*	*160,000*
RWQCB-SF Cleanup Standard [4]		*80*	*NA*	*5*	*6*	*200*	*NA*
EW-15	05/08/2007	**3.5**	<0.50	<0.50	<0.50	**1.7**	<2.0
	09/12/2007	**2.4**	<0.50	<0.50	<0.50	**0.90**	<2.0
	11/06/2007	**2.8**	<0.50	<0.50	<0.50	**0.89**	<2.0
	01/24/2008	**3.4**	<0.50	<0.50	<0.50	**1.1**	<2.0
	02/28/2008	**2.3**	<0.50	<0.50	<0.50	**1.1**	<2.0
	04/02/2008	**2.8**	<0.50	<0.50	<0.50	**1.1**	<2.0
	05/08/2008	**3.3**	na	na	na	na	na
	08/12/2008	**2.5**	na	na	na	na	na
	10/13/2008	**2.9**	na	na	na	na	na
EW-16 [7]	04/02/2008	**200**	<2.0	<2.0	<2.0	<2.0	**2.7**
	05/07/2008	**370**	na	na	na	na	na
	06/04/2008	**500**	na	na	na	na	na
	07/10/2008	**380**	na	na	na	na	na
	08/14/2008	**320**	na	na	na	na	na
	10/15/2008	**330**	na	na	na	na	na
	10/15/2008[5]	**320**	na	na	na	na	na
EW-17 [8]	06/05/2008	**270**	na	na	na	na	na
	07/10/2008	**47**	na	na	na	na	na
	08/14/2008	**160**	na	na	na	na	na
EW-18 [8]	06/05/2008	**320**	na	na	na	na	na
	07/10/2008	**150**	na	na	na	na	na
	08/14/2008	**75**	na	na	na	na	na

Notes:

[1] Only compounds detected at least once in groundwater are shown; DCA = 1,1-Dichloroethane; DCE = 1,1-Dichloroethene; TCA = 1,1,1-Trichloroethane

[2] Samples analyzed by TestAmerica, Inc. (formerly STL-San Francisco) of Pleasanton, California by USEPA Method 8260B.

[3] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*).

[4] Regional Water Quality Control Board - San Francisco Bay Region (RWQCB-SF) groundwater Cleanup Standard for the A-aquifer (*Source: RWQCB-SF Order No. R2-2002-0082 - Final Site Cleanup Requirements, International Business Machines, Inc., 5600 Cottle Road, San Jose, California, as amended by Order N0. R2-2007-004*). The Cleanup Standard assumes groundwater is used as a drinking water source.

[5] Duplicate Sample

[6] Sample was collected after re-developing the well to remove accumulated fine sand.

[7] Well constructed on March 31, 2008.

[8] Aquitard extraction well constructed with five-foot screen (three feet deep into aquitard). Well constructed on May 29-31, 2008.

ug/L = microgram per liter

NA = Not Available

na = Not Analyzed

< = the analyte was not detected above the reporting limit

Results detected above the reporting limit listed are shown in **bold**.

TABLE 2: SUMMARY OF GROUNDWATER SAMPLING RESULTS IN THE B-AQUIFER (PRE-REMEDIATION)

Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Location ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Chloroform (ug/L)	1,1,1-Trichloroethane (ug/L)	Freon 113 (ug/L)
RWQCB-SF Groundwater Cleanup Standard for B-Aquifer [1]				*NA*	*40*	*120*
CPT-1	CPT-1-44-46	44-46	04/19/2007	**3.8**	<0.50	**0.81**
CPT-1	CPT-1-TB [2]	----	04/19/2007	<1.0	<0.50	<0.50
CPT-2	CPT-2-44-46	44-46	04/19/2007	<1.0	<0.50	**0.82**
CPT-5	CPT-5-44-46	44-46	04/20/2007	**34**	**0.55**	**0.57**
CPT-6	CPT-6-47-49	47-49	04/19/2007	<1.0	<0.50	**0.62**
CPT-6	CPT-6-DUP [3]	47-49	04/19/2007	<1.0	<0.50	**0.54**
CPT-6	CPT-6-EB [4]	----	04/19/2007	<1.0	<0.50	<0.50
CPT-8	CPT-8-47-49	47-49	04/19/2007	<1.0	<0.50	**0.53**

Notes:

Only compounds detected in at least one sample are shown. Results are in micrograms per liter (ug/L).

Samples analyzed by USEPA Method 8260B by Severn Trent Laboratories, Inc., (STL) of San Francisco, California.

[1] Regional Water Quality Control Board - San Francisco Bay Region (RWQCB-SF) groundwater Cleanup Standard for the B-aquifer (*Source: RWQCB-SF Order No. R2-2002-0082 - Final Site Cleanup Requirements, International Business Machines, Inc., 5600 Cottle Road, San Jose, California, as amended by Order N0. R2-2007-004*). The Cleanup Standard assumes groundwater is used as a drinking water source.

[2] Trip Blank

[3] Duplicate

[4] Equipment Blank

bgs = below ground surface.

< = the analyte was not detected above the listed detection limit.

NA = not available

---- = not applicable

Results detected above the reporting limit are shown in **bold**.

TABLE 3: GROUNDWATER EXTRACTION/MONITORING WELL DETAILS
2-PHASE™ Extraction System at Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Well	Installation Date	Well Type [1]	Total Depth (feet bgs)	Water Level [2] (feet bgs)	Stinger Depth [2, 3] (feet bgs)	Casing Material	Casing Diameter	Screen Slot Size	Screen Interval (feet bgs)	Filter Pack Interval (feet bgs)
EW-1	04/26/2007	Monitoring	37.5	33.80	33.5	PVC	4"	0.020"	17.0 - 37.0	15.0 - 37.5
EW-2	04/24/2007	Pulse	37.5	32.14	32.0	PVC	4"	0.020"	17.0 - 37.0	15.0 - 37.5
EW-3	04/27/2007	Monitoring	36.5	32.75	32.5	PVC	4"	0.020"	16.0 - 36.0	14.0 - 36.5
EW-4	04/24/2007	Pulse	37.5	35.07	35.0	PVC	4"	0.020"	17.0 - 37.0	15.0 - 37.5
EW-5	04/27/2007	Extraction	37.0	34.19	34.0	PVC	4"	0.020"	16.5 - 36.5	14.5 - 37.0
EW-6	04/25/2007	Pulse	37.5	33.36	33.0	PVC	4"	0.020"	17.0 - 37.0	15.0 - 37.5
EW-7	04/30/2007	Monitoring	36.5	33.44	33.0	PVC	4"	0.020"	16.0 - 36.0	14.0 - 36.5
EW-8	04/26/2007	Monitoring	37.5	35.96	34.5	PVC	4"	0.020"	17.0 - 37.0	15.0 - 37.5
EW-9	5/1//2007	Extraction	38.0	35.61	35.5	PVC	4"	0.020"	17.5 - 37.5	15.5 - 38.0
EW-10	04/26/2007	Extraction	38.5	35.85	35.5	PVC	4"	0.020"	18.0 - 38.0	16.0 - 38.5
EW-11	04/30/2007	Pulse	37.5	35.65	35.5	PVC	4"	0.020"	17.0 - 37.0	15.0 - 37.5
EW-12	04/23/2007	Monitoring	38.5	34.56	34.0	PVC	4"	0.020"	18.0 - 38.0	16.0 - 38.5
EW-13	05/01/2007	Pulse	38.5	37.18	37.0	PVC	4"	0.020"	18.0 - 38.0	16.0 - 38.5
EW-14	04/30/2007	Pulse	38.5	36.55	36.5	PVC	4"	0.020"	18.0 - 38.0	16.0 - 38.5
EW-15	04/25/2007	Monitoring	38.5	35.95	35.5	PVC	4"	0.020"	18.0 - 38.0	16.0 - 38.5
EW-16	03/31/2008	Extraction	39.5	35.31	35.0	PVC/SS	8"	0.010"	17.0 - 37.0	15.0 - 39.5
EW-17	05/24/2008	Extraction	41.0	40.45	40.0	PVC	8"	0.010"	34.0 - 39.0	32.0 - 39.0
EW-18	05/25/2008	Extraction	41.0	35.14	35.0	PVC	8"	0.010"	35.0 - 40.0	33.0 - 40.0

Notes:

[1] Well Type is the predominant use of well as determined by the percentage of time the well was used for extraction.

[2] Water levels and stinger depths measured August 12, 2008.

[3] The "stinger" is a 1" PVC pipe that hangs inside the well, and through which, the vacuum is applied. The depth of the stinger controls the extracted vapor/water ratio.

"feet bgs" = feet below ground surface

"PVC" = polyvinyl chloride (SCH 40)

"PVC/SS" = polyvinyl chloride blank casing with a stainless steel screen

TABLE 4a: SUMMARY OF PRE-REMEDIATION SOIL GAS MONITORING - NOVEMBER 2005 AND MARCH 2007

Former Building 028J Area

Hitachi Global Storage Technologies, Inc.

5600 Cottle Road, San Jose, California

			Soil Gas Concentration (ug/L)[1]																				
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Benzene**	**CT**	**Chloroform**	**1,1-DCA**	**1,1-DCE**	**Ethyl-benzene**	**Freon 11**	**Freon 12**	**Freon 113**	**Methyl chloride**	**Methylene chloride**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**m,p-Xylene**	**o-Xylene**	**TVH**	**1,1-DFA**
Residential RBTC - 5 feet bgs [2]			*0.24*	*0.18*	*1.1*	*4.9*	*110*	*3,700*	*8,900*	*410*	*54,000*	*2.8*	*6.1*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*1,300*	*1,100*	*110*	*Leak Check*
Residential RBTC - 10 feet bgs [2]			*0.41*	*0.31*	*1.9*	*8.5*	*190*	*6,400*	*16,000*	*720*	*93,000*	*4.7*	*10*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*2,200*	*1,900*	*390*	*Compound*
SG-028J-1	5	11/18/2005	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.13**	< 0.080	< 0.080	----	----	**0.16**	< 0.080	**6.4**	<10
SG-028J-1	10	11/18/2005	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.091**	----	< 0.080	< 0.080	**0.095**	**0.20**	< 0.080	----	----	**0.12**	< 0.080	< 5.0	<10
SG-028J-1 [3]	10	11/18/2005	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.080**	----	< 0.080	< 0.080	**0.14**	**0.19**	< 0.080	----	----	**0.17**	< 0.080	< 5.0	<10
SG-028J-2 [4]	5	11/18/2005	< 0.011	< 0.022	< 0.017	< 0.014	< 0.014	< 0.015	< 0.039	< 0.017	< 0.053	----	< 0.048	< 0.023	< 0.013	**0.088**	< 0.019	----	----	< 0.030	< 0.015	----	**370**
SG-028J-2	5	11/18/2005	< 0.080	< 0.080	**0.23**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.22**	----	< 0.080	< 0.080	**0.088**	**0.36**	< 0.080	----	----	**0.10**	< 0.080	< 5.0	<10
SG-028J-2	10	11/18/2005	< 0.080	< 0.080	**0.23**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.23**	----	< 0.080	< 0.080	< 0.080	**0.37**	< 0.080	----	----	**0.090**	< 0.080	< 5.0	<10
SG-TR-11 [4]	5	11/18/2005	**0.018**	**0.070**	**20**	**0.036**	**0.75**	**0.033**	< 0.0079	< 0.0035	**0.32**	----	**0.014**	< 0.0047	**0.085**	**1.2**	**0.19**	----	----	**0.14**	**0.046**	----	< 0.038
SG-TR-11	5	11/18/2005	< 0.080	< 0.080	**24**	< 0.080	**0.89**	< 0.080	< 0.080	< 0.080	**0.53**	----	< 0.080	< 0.080	**0.11**	**1.1**	**0.15**	----	----	**0.12**	< 0.080	**22**	<10
SG-TR-11	10	11/18/2005	< 0.080	**0.11**	**34**	< 0.080	**1.2**	< 0.080	< 0.080	< 0.080	**0.56**	----	< 0.080	< 0.080	**0.094**	**1.4**	**0.33**	----	----	**0.12**	< 0.080	**29**	<10
SG-TR-12	5	11/18/2005	< 0.080	< 0.080	**12**	< 0.080	**0.31**	< 0.080	< 0.080	< 0.080	**0.57**	----	< 0.080	< 0.080	**0.16**	**0.57**	**0.35**	----	----	**0.10**	< 0.080	**14**	<10
SG-TR-12	10	11/18/2005	< 0.080	< 0.080	**16**	< 0.080	**0.42**	< 0.080	< 0.080	< 0.080	**0.60**	----	< 0.080	< 0.080	< 0.080	**0.68**	**0.62**	----	----	< 0.080	< 0.080	**16**	<10
SG-TR-13	5	11/18/2005	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.26**	< 0.080	< 0.080	----	----	**0.15**	< 0.080	**26***	<10
SG-TR-13	10	11/18/2005	< 0.080	< 0.080	**0.45**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.14**	----	< 0.080	< 0.080	**0.14**	< 0.080	< 0.080	----	----	**0.17**	< 0.080	**63***	<10
TRIP BLANK[4,5]	NA	11/17/2005	<0.0016	<0.0031	<0.0024	<0.0020	<0.0020	<0.0022	<0.0056	<0.0025	<0.0077	----	<0.0069	<0.0034	<0.0019	<0.0027	<0.0027	----	----	**0.005**	<0.0022	----	<0.027
SG-028J-3 [6] (1 Purge Vol.)	5	3/12/2007	< 0.080	< 0.080	18	< 0.080	**0.34**	< 0.080	< 0.080	< 0.080	**0.40**	----	< 0.080	< 0.080	**0.27**	**0.63**	**0.26**	----	----	< 0.20	< 0.080	----	<10
SG-028J-3 [6] (3 Purge Vol.)	5	3/12/2007	< 0.080	< 0.080	18	< 0.080	**0.29**	< 0.080	< 0.080	< 0.080	**0.31**	----	< 0.080	< 0.080	< 0.20	**0.59**	**0.26**	----	----	< 0.20	< 0.080	----	<10
SG-028J-3 [6] (7 Purge Vol.)	5	3/12/2007	< 0.080	< 0.080	19	< 0.080	**0.32**	< 0.080	< 0.080	< 0.080	**0.42**	----	< 0.080	< 0.080	**0.24**	**0.66**	**0.29**	----	----	< 0.20	< 0.080	----	<10
SG-028J-3	10	3/12/2007	< 0.080	< 0.080	28	< 0.080	**0.47**	< 0.080	< 0.080	< 0.080	**0.61**	----	< 0.080	< 0.080	**0.25**	**0.93**	**0.55**	----	----	< 0.20	< 0.080	----	<10
SG-028J-4	5	3/12/2007	< 0.080	< 0.080	4.5	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.56**	----	< 0.080	< 0.080	**0.24**	**0.18**	**0.17**	----	----	< 0.20	< 0.080	----	<10
SG-028J-4 [3]	5	3/12/2007	< 0.080	< 0.080	4.3	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.54**	----	< 0.080	< 0.080	< 0.20	**0.17**	**0.17**	----	----	< 0.20	< 0.080	----	<10
SG-028J-4	10	3/12/2007	< 0.080	< 0.080	7.9	< 0.080	**0.087**	< 0.080	< 0.080	< 0.080	**0.69**	----	< 0.080	< 0.080	**0.30**	**0.29**	**0.28**	----	----	< 0.20	< 0.080	----	<10
SG-028J-5	5	3/12/2007	< 0.080	< 0.080	**0.36**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.12**	----	< 0.080	< 0.080	**0.38**	< 0.080	< 0.080	----	----	**0.21**	< 0.080	----	<10
SG-028J-5 [7]	10	3/12/2007	**0.0095**	**0.0055**	**1.4**	< 0.0032	< 0.0031	**0.063**	**0.011**	**0.023**	**0.19**	< 0.0016	< 0.054	**0.14**	**0.19**	**0.080**	**0.012**	**0.15**	**0.034**	**0.28**	**0.11**	----	<10[4]
SG-028J-5	10	3/12/2007	< 0.080	< 0.080	**1.8**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.14**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-6	5	3/12/2007	< 0.080	< 0.080	**3.9**	< 0.080	**0.36**	< 0.080	< 0.080	< 0.080	**0.26**	----	< 0.080	< 0.080	**0.34**	**0.38**	< 0.080	----	----	**0.20**	< 0.080	----	<10
SG-028J-6	10	3/12/2007	< 0.080	< 0.080	**9.4**	< 0.080	**0.53**	< 0.080	< 0.080	< 0.080	**0.40**	----	< 0.080	< 0.080	**0.36**	**0.57**	< 0.080	----	----	**0.21**	< 0.080	----	<10
SG-028J-7	5	3/12/2007	< 0.080	< 0.080	**2.3**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.44**	----	< 0.080	< 0.080	**0.38**	**0.22**	< 0.080	----	----	**0.23**	< 0.080	----	<10
SG-028J-7	10	3/12/2007	< 0.080	< 0.080	**3.1**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.33**	----	< 0.080	< 0.080	**0.25**	**0.20**	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-8	5	3/13/2007	**0.17**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**1.2**	< 0.080	< 0.080	----	----	**0.36**	< 0.080	----	<10
SG-028J-8	10	3/13/2007	< 0.080	< 0.080	**1.2**	< 0.080	< 0.080	< 0.080	< 0.080	**0.11**	**0.20**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-9	5	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-9 [3]	5	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-9	10	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.24**	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-10	5	3/13/2007	**0.14**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.89**	< 0.080	< 0.080	----	----	**0.26**	< 0.080	----	<10
SG-028J-10	10	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.98**	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.31**	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-11 [7]	5	3/13/2007	**0.11**	< 0.0054	< 0.0042	< 0.0035	< 0.0034	**0.23**	**0.013**	**0.0076**	< 0.013	**0.0031**	< 0.059	< 0.0058	**1.2**	< 0.0047	< 0.0046	**0.37**	**0.12**	**1.0**	**0.32**	----	**14**[4,8]
SG-028J-11	5	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.28**	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-11	10	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.24**	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-12	5	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.24**	**0.081**	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-12	10	3/13/2007	< 0.080	< 0.080	**0.16**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.32**	**0.12**	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-13	5	3/13/2007	< 0.080	< 0.080	**0.16**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.20**	----	< 0.080	< 0.080	< 0.20	**0.15**	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-13	10	3/13/2007	< 0.080	< 0.080	**1.1**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.29**	----	< 0.080	< 0.080	**0.21**	**0.27**	**0.17**	----	----	< 0.20	< 0.080	----	<10
SG-028J-14	5	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10

TABLE 4a: SUMMARY OF PRE-REMEDIATION SOIL GAS MONITORING - NOVEMBER 2005 AND MARCH 2007
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

			Soil Gas Concentration (ug/L)[1]																				
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Benzene**	**CT**	**Chloroform**	**1,1-DCA**	**1,1-DCE**	**Ethyl-benzene**	**Freon 11**	**Freon 12**	**Freon 113**	**Methyl chloride**	**Methylene chloride**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**m,p-Xylene**	**o-Xylene**	**TVH**	**1,1-DFA**
Residential RBTC - 5 feet bgs [2]			*0.24*	*0.18*	*1.1*	*4.9*	*110*	*3,700*	*8,900*	*410*	*54,000*	*2.8*	*6.1*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*1,300*	*1,100*	*110*	*Leak Check*
Residential RBTC - 10 feet bgs [2]			*0.41*	*0.31*	*1.9*	*8.5*	*190*	*6,400*	*16,000*	*720*	*93,000*	*4.7*	*10*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*2,200*	*1,900*	*390*	*Compound*
SG-028J-14	10	3/13/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-15	5	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**3.8**	**0.21**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-15 [7]	5	3/14/2007	**0.0064**	< 0.0045	< 0.0035	< 0.0029	< 0.0029	**0.036**	**0.015**	**1.6**	**0.23**	< 0.0015	< 0.050	< 0.0049	**0.12**	**0.011**	< 0.0039	**0.087**	**0.020**	**0.16**	**0.062**	----	<10[7]
SG-028J-15	10	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**2.1**	**0.18**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-16	4	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	**0.085**	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	**0.20**	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-16	9	3/14/2007	< 0.080	< 0.080	**0.094**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-16 [3]	9	3/14/2007	< 0.080	< 0.080	**0.11**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-17	5	3/14/2007	< 0.080	< 0.080	**1.6**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.41**	----	< 0.080	< 0.080	< 0.20	< 0.080	**0.090**	----	----	< 0.20	< 0.080	----	<10
SG-028J-17	10	3/14/2007	< 0.080	< 0.080	**2.7**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.35**	----	< 0.080	< 0.080	< 0.20	**0.11**	**0.11**	----	----	< 0.20	< 0.080	----	<10
SG-028J-18	3	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-18	8	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.34**	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-19	3	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-19	10	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-20	3	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.15**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-20	10	3/14/2007	< 0.080	< 0.080	**0.92**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.24**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-21	5	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-21	10	3/14/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-22	4	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-22	8	3/15/2007	**0.11**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	**0.74**	< 0.080	< 0.080	----	----	**0.21**	< 0.080	----	<10
SG-028J-23	4	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.38**	< 0.080	< 0.080	----	**0.14**	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-23 [7]	10	3/15/2007	**0.0098**	< 0.0044	**0.28**	< 0.0028	< 0.0028	**0.053**	**0.025**	**0.0055**	**0.11**	< 0.0014	< 0.049	**0.024**	**0.16**	**0.0085**	< 0.0038	**0.13**	**0.031**	**0.25**	**0.092**	----	<10[7]
SG-028J-23	10	3/15/2007	< 0.080	< 0.080	**0.28**	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.099**	----	< 0.080	< 0.080	**0.28**	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-24	5	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	**0.092**	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-24	10	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-25	5	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-25	10	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
SG-028J-25 [3]	10	3/15/2007	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	----	< 0.080	< 0.080	< 0.20	< 0.080	< 0.080	----	----	< 0.20	< 0.080	----	<10
TRIP BLANK [5,7]	NA	3/15/2007	<0.0016	<0.0031	<0.0024	<0.0020	<0.0020	<0.0022	<0.0056	<0.0025	<0.0077	<0.0010	<0.035	<0.0034	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0043	<0.0022	----	<10[7]

Notes:

Samples analyzed by USEPA Method 8260B using mobile laboratory unless indicated otherwise.

[1] Only compounds detected in at least one sample are shown. Results are in micrograms per liter (ug/L).

[2] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*).

[3] Duplicate sample.

[4] Sample analyzed at fixed-base laboratory by USEPA Method TO-15.

[5] Trip blank sample.

[6] Purge volume test with 1, 3, and 7 purge volumes performed at this location.

[7] Sample analyzed at fixed-base laboratory by USEPA Method TO-14A.

[8] Concentration exceeds the calibration range.

bgs = below ground surface

---- = not analyzed

* = TVH result from uncharacteristic peak

< = the analyte was not detected above the detection limit

N/A = not available

Results detected above the reporting limit are shown in **bold**.

"CT" = Carbon Tetrachloride
"1,1-DCA" = 1,1-Dichloroethane
"1,1-DCE" = 1,1-Dichloroethene
"Freon 11" = Trichlorofluoromethane
"Freon 12" = Dichlorodifluoromethane
"Freon 113" = 1,1,2-Trichloro-1,2,2-trifluoroethane
"PCE" = Tetrachloroethene

"1,1,1-TCA" = 1,1,1-Trichloethane
"TCE" = Trichloroethene
"1,2,4-TMB" = 1,2,4-Trimethylbenzene
"1,3,5-TMB" = 1,3,5-Trimethylbenzene
"TVH" = Total Volatile Hydrocarbons
"1,1-DFA" = 1,1-Difluoroethane

TABLE 4b: SUMMARY OF INTERIM SOIL GAS MONITORING - SEPTEMBER 2007
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

				Soil Gas Concentration (ug/L) [1, 2]																								
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Vacuum at Probe [3] (inches H2O)**	**Acetone**	**Benzene**	**Bromo-dichloro-methane**	**Bromo-form**	**2-Butanone**	**Carbon Disulfide**	**Chloroform**	**Chloro-methane**	**Dibromo-chloro-methane**	**1,1-DCE**	**Ethyl-benzene**	**Ethyl-toluene**	**Freon 11**	**Freon 12**	**2-Hexanone**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**Vinyl Acetate**	**m,p-Xylene**	**o-Xylene**	**1,1-DFA**
Residential RBTC - 5 feet bgs [4]				*NA*	*0.24*	*NA*	*NA*	*NA*	*NA*	*1.1*	*2.8*	*NA*	*110*	*3,700*	*NA*	*8,900*	*410*	*NA*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*NA*	*1,300*	*1,100*	*Leak Check*
Residential RBTC - 10 feet bgs [4]				*NA*	*0.41*	*NA*	*NA*	*NA*	*NA*	*1.9*	*4.7*	*NA*	*190*	*6,400*	*NA*	*16,000*	*720*	*NA*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*NA*	*2,200*	*1,900*	*Compound*
SG-028J-26	5	9/11/2007	0.0	**0.17**	<0.0032	<0.0067	<0.010	**0.023**	<0.0031	<0.0049	<0.0021	<0.0085	<0.0039	<0.0043	<0.0049	<0.011	<0.0049	<0.0082	<0.0067	**0.0054**	<0.0054	<0.0053	<0.0098	<0.0049	<0.0070	<0.0086	<0.0043	<10
SG-028J-26	10	9/11/2007	0.0	**0.22**	**0.0067**	<0.0053	<0.0082	**0.021**	<0.0025	**0.029**	<0.0016	<0.0068	<0.0032	**0.0053**	<0.0039	<0.0089	<0.0039	<0.0065	<0.0054	**0.027**	<0.0043	**0.0066**	**0.013**	<0.0039	<0.0056	**0.018**	**0.0085**	<10
SG-028J-27	5	9/12/2007	0.0	**0.11**	**0.0026**	<0.0049	<0.0075	**0.018**	<0.0023	**0.034**	<0.0015	<0.0062	<0.0029	<0.0032	<0.0036	<0.0082	**0.0038**	<0.0060	<0.0050	**0.0087**	<0.0040	<0.0039	<0.0072	<0.0036	<0.0051	**0.0078**	**0.0033**	<10
SG-028J-27	10	9/12/2007	0.0	**0.027**	<0.0024	<0.0051	<0.0078	**0.0057**	<0.0024	**0.28**	<0.0016	<0.0064	**0.0031**	<0.0033	<0.0037	<0.0085	<0.0037	<0.0062	<0.0051	**0.0038**	**0.0073**	**0.020**	<0.0074	<0.0037	<0.0053	<0.0066	<0.0033	<10
SG-028J-28	5	9/11/2007	0.0	**0.27**	**0.0054**	<0.0056	<0.0087	**0.028**	<0.0026	**0.019**	<0.0017	<0.0072	<0.0033	<0.0036	<0.0041	<0.0094	<0.0042	**0.0076**	<0.0057	**0.0073**	<0.0046	<0.0045	**0.012**	<0.0041	**0.0097**	**0.0097**	**0.0053**	<10
SG-028J-28	10	9/11/2007	0.0	**0.087**	**0.0043**	<0.0058	<0.0089	**0.016**	<0.0027	**0.12**	<0.0018	<0.0074	**0.0049**	<0.0038	<0.0043	<0.0097	<0.0043	<0.0071	<0.0059	**0.0072**	**0.0068**	<0.0046	<0.0085	<0.0043	<0.0061	**0.0077**	**0.0040**	<10
SG-028J-29	5	9/12/2007	0.1	**0.055**	**0.0054**	<0.0052	<0.0081	**0.0081**	<0.0024	**0.022**	<0.0016	<0.0066	<0.0031	<0.0034	<0.0038	<0.0088	<0.0039	<0.0064	<0.0053	**0.012**	<0.0043	**0.011**	<0.0077	<0.0038	<0.0055	**0.0098**	**0.0043**	<10
SG-028J-29	10	9/12/2007	0.2	**0.057**	**0.0032**	<0.0047	<0.0072	**0.014**	<0.0022	**0.054**	<0.0014	<0.0060	<0.0028	**0.0057**	<0.0034	<0.0079	**0.0038**	<0.0057	<0.0047	**0.0054**	**0.0057**	**0.019**	**0.0081**	<0.0034	<0.0049	**0.027**	**0.012**	<10
SG-028J-30	5	9/12/2007	0.2	**0.083**	**0.0026**	<0.0049	<0.0076	**0.014**	<0.0023	**0.093**	<0.0015	<0.0063	<0.0029	**0.013**	<0.0036	<0.0083	<0.0036	<0.0060	<0.0050	**0.0086**	<0.0040	**0.021**	**0.013**	<0.0036	<0.0052	**0.060**	**0.027**	<10
SG-028J-30 [5]	5	9/12/2007	0.2	**0.074**	**0.0025**	<0.0051	<0.0079	**0.014**	<0.0024	**0.093**	<0.0016	<0.0065	<0.0030	**0.0034**	**0.0044**	<0.0086	<0.0038	<0.0063	<0.0052	**0.0086**	<0.0042	**0.014**	**0.011**	<0.0038	<0.0054	**0.016**	**0.0080**	<10
SG-028J-30	10	9/12/2007	0.3	**0.083**	<0.0025	<0.0052	<0.0080	**0.014**	<0.0024	**0.11**	<0.0016	<0.0066	<0.0031	<0.0034	<0.0038	<0.0087	<0.0038	<0.0063	<0.0053	**0.0038**	<0.0042	**0.018**	<0.0076	<0.0038	<0.0055	<0.0067	<0.0034	<10
SG-028J-31	5	9/11/2007	0.3	**0.20**	<0.0023	<0.0049	<0.0076	**0.035**	<0.0023	**0.14**	<0.0015	<0.0063	**0.0080**	<0.0032	<0.0036	<0.0083	<0.0036	**0.0092**	<0.0050	**0.0045**	**0.048**	<0.0039	**0.013**	<0.0036	<0.0052	**0.016**	**0.0079**	<10
SG-028J-31	10	9/11/2007	0.2	**0.10**	**0.0029**	<0.0050	<0.0077	**0.018**	<0.0023	**0.13**	<0.0015	<0.0063	**0.013**	<0.0032	<0.0037	**0.0092**	<0.0037	<0.0061	<0.0051	**0.0050**	**0.017**	**0.0042**	**0.0089**	<0.0037	**0.0055**	**0.0081**	**0.0041**	<10
SG-028J-32	5	9/11/2007	0.0	**0.20**	<0.0026	<0.0054	<0.0083	**0.024**	<0.0025	<0.0039	<0.0017	<0.0069	<0.0032	<0.0035	<0.0040	<0.0090	<0.0040	<0.0066	<0.0055	**0.0060**	<0.0044	<0.0043	<0.0079	<0.0040	<0.0057	**0.0082**	**0.0041**	<10
SG-028J-32	10	9/11/2007	0.1	**0.35**	**0.0046**	<0.0049	<0.0076	**0.034**	<0.0023	**0.017**	<0.0015	<0.0063	<0.0029	<0.0032	<0.0036	<0.0083	<0.0036	**0.0092**	<0.0050	**0.0067**	<0.0040	**0.014**	**0.011**	<0.0036	**0.0060**	**0.0082**	**0.0045**	<10
SG-028J-33	5	9/12/2007	0.0	**0.13**	**0.016**	<0.0049	<0.0076	**0.024**	**0.0026**	**0.0064**	**0.0041**	<0.0063	<0.0029	**0.025**	**0.012**	<0.0083	<0.0036	<0.0060	<0.0050	**0.10**	<0.0040	<0.0039	**0.041**	**0.012**	<0.0052	**0.088**	**0.034**	<10
SG-028J-33	10	9/12/2007	0.3	**0.068**	<0.0023	<0.0049	<0.0075	**0.011**	<0.0023	**0.012**	<0.0015	<0.0062	<0.0029	**0.0076**	<0.0036	<0.0081	<0.0036	<0.0059	<0.0049	**0.0053**	<0.0040	<0.0039	**0.0086**	<0.0036	<0.0051	**0.032**	**0.013**	<10
SG-028J-34	5	9/11/2007	0.0	**0.24**	<0.0025	<0.0053	<0.0082	**0.026**	<0.0025	**0.34**	<0.0016	<0.0068	<0.0032	<0.0035	<0.0039	**0.025**	<0.0039	**0.0078**	<0.0054	**0.0066**	**0.034**	**0.032**	**0.015**	<0.0039	**0.0068**	**0.013**	**0.0072**	<10
SG-028J-34	10	9/11/2007	0.0	**0.084**	<0.0045	<0.0094	<0.015	**0.015**	<0.0044	**0.10**	<0.0029	<0.012	<0.0056	<0.0061	<0.0069	<0.016	<0.0070	<0.012	<0.0096	**0.0069**	**0.0094**	**0.012**	<0.014	<0.0069	<0.0099	<0.012	<0.0061	<10
SG-028J-35	5	9/11/2007	0.0	**0.19**	**0.0060**	<0.0046	<0.0071	**0.026**	**0.0050**	**0.023**	<0.0014	<0.0059	<0.0027	**0.0064**	<0.0034	<0.0078	<0.0034	**0.0064**	<0.0047	**0.0095**	<0.0038	<0.0037	**0.016**	**0.0039**	**0.026**	**0.023**	**0.0089**	<10
SG-028J-35	10	9/11/2007	0.0	**0.19**	**0.0046**	<0.0047	<0.0072	**0.018**	<0.0022	**0.0070**	**0.0017**	<0.0060	<0.0028	**0.0046**	<0.0034	<0.0079	<0.0035	<0.0057	<0.0047	**0.025**	<0.0038	<0.0038	**0.0098**	<0.0034	<0.0049	**0.015**	**0.0068**	<10
SG-028J-36	5	9/11/2007	0.0	**0.15**	**0.015**	<0.019	<0.030	**0.033**	<0.0090	<0.014	<0.0059	<0.025	<0.011	**0.014**	<0.014	<0.032	<0.014	<0.024	<0.020	**0.046**	<0.016	<0.015	**0.030**	<0.014	<0.020	**0.055**	**0.038**	<10
SG-028J-36	10	9/11/2007	0.1	**0.059**	**0.016**	**0.0054**	**0.064**	**0.016**	**0.0030**	**0.019**	**0.0028**	**0.013**	<0.0031	**0.0045**	<0.0038	<0.0087	<0.0038	<0.0063	**0.0053**	**0.010**	<0.0042	<0.0041	**0.017**	**0.0061**	<0.0054	**0.022**	**0.014**	<10
SG-028J-37	5	9/11/2007	0.0	**0.091**	**0.016**	<0.024	<0.037	**0.025**	<0.011	<0.018	<0.0074	<0.031	<0.014	**0.019**	<0.018	<0.040	<0.018	<0.029	<0.024	**0.067**	<0.020	<0.019	<0.035	<0.018	<0.025	**0.066**	**0.028**	**31**
SG-028J-37	10	9/11/2007	0.0	**0.068**	**0.0050**	<0.0048	<0.0074	**0.014**	<0.0022	**0.019**	<0.0015	<0.0061	<0.0029	**0.0034**	<0.0035	<0.0081	<0.0036	<0.0059	<0.0049	**0.0090**	<0.0039	<0.0039	**0.012**	<0.0035	**0.0078**	**0.015**	**0.0074**	<10
TRIP BLANK [6]	NA	9/12/2007	NA	<0.0048	<0.0016	<0.0034	<0.0052	<0.0029	<0.0016	<0.0024	<0.0010	<0.0043	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0041	<0.0034	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0035	<0.0043	<0.0022	<10
Number of Samples				*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*
Number of Detections				*25*	*17*	*1*	*1*	*25*	*3*	*21*	*3*	*1*	*4*	*12*	*2*	*2*	*2*	*5*	*1*	*25*	*7*	*11*	*16*	*3*	*6*	*21*	*21*	*1*
Minimum Detected Concentration				*0.027*	*0.0025*	*0.0054*	*0.064*	*0.0057*	*0.0026*	*0.0064*	*0.0017*	*0.013*	*0.0031*	*0.0034*	*0.0044*	*0.0092*	*0.0038*	*0.0064*	*0.0053*	*0.0038*	*0.0057*	*0.0042*	*0.0081*	*0.0039*	*0.0055*	*0.0077*	*0.0033*	*31*
Maximum Detected Concentration				*0.35*	*0.016*	*0.0054*	*0.064*	*0.035*	*0.0050*	*0.34*	*0.0041*	*0.013*	*0.013*	*0.025*	*0.012*	*0.025*	*0.0038*	*0.0092*	*0.0053*	*0.10*	*0.048*	*0.032*	*0.041*	*0.012*	*0.026*	*0.088*	*0.038*	*31*
Average Detected Concentration				*0.13*	*0.007*	*0.0054*	*0.064*	*0.020*	*0.0035*	*0.08*	*0.0029*	*0.013*	*0.007*	*0.009*	*0.008*	*0.017*	*0.0038*	*0.0080*	*0.0053*	*0.02*	*0.018*	*0.016*	*0.015*	*0.007*	*0.010*	*0.025*	*0.012*	*31*

Notes:

[1] Only compounds detected in at least one sample are shown. Results are in micrograms per liter (ug/L).

[2] Samples analyzed by Calscience Environmental Laboratories, Inc. of Garden Grove, California by USEPA Method TO-15.

[3] Vacuum measured in soil probe immediately prior to sampling.

[4] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007).

"CT" = Carbon Tetrachloride
"1,1-DCA" = 1,1-Dichloroethane
"1,1-DCE" = 1,1-Dichloroethene
"Freon 11" = Trichlorofluoromethane
"Freon 12" = Dichlorodifluoromethane

"1,1,1-TCA" = 1,1,1-Trichloethane
"TCE" = Trichloroethene
"1,2,4-TMB" = 1,2,4-Trimethylbenzene
"1,3,5-TMB" = 1,3,5-Trimethylbenzene
"1,1-DFA" = 1,1-Difluoroethane

TABLE 4b: SUMMARY OF INTERIM SOIL GAS MONITORING - SEPTEMBER 2007
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

				Soil Gas Concentration (ug/L) [1, 2]																									
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Vacuum at Probe [3] (inches H2O)**	**Acetone**	**Benzene**	**Bromo-dichloro-methane**	**Bromo-form**	**2-Butanone**	**Carbon Disulfide**	**Chloroform**	**Chloro-methane**	**Dibromo-chloro-methane**	**1,1-DCE**	**Ethyl-benzene**	**Ethyl-toluene**	**Freon 11**	**Freon 12**	**2-Hexanone**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**Vinyl Acetate**	**m,p-Xylene**	**o-Xylene**	**1,1-DFA**
Residential RBTC - 5 feet bgs [4]				*NA*	*0.24*	*NA*	*NA*	*NA*	*NA*	*1.1*	*2.8*	*NA*	*110*	*3,700*	*NA*	*8,900*	*410*	*NA*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*NA*	*1,300*	*1,100*	*Leak Check Compound*
Residential RBTC - 10 feet bgs [4]				*NA*	*0.41*	*NA*	*NA*	*NA*	*NA*	*1.9*	*4.7*	*NA*	*190*	*6,400*	*NA*	*16,000*	*720*	*NA*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*NA*	*2,200*	*1,900*	

[5] Duplicate sample.

[6] Trip blank sample.

NA = Not Available

bgs = below ground surface

< = the analyte was not detected above the detection limit

Results detected above the reporting limit are shown in **bold**.

"PCE" = Tetrachloroethene

TABLE 4c: SUMMARY OF INTERIM SOIL GAS MONITORING - NOVEMBER 2007
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

			Soil Gas Concentration (ug/L) [1, 2, 3]																							
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Acetone**	**Benzene**	**2-Butanone**	**Carbon Disulfide**	**CT**	**Chloroform**	**Chloro-methane**	**1,2-DCA**	**1,1-DCE**	**Ethyl-benzene**	**Ethyl-toluene**	**Freon 11**	**Freon 12**	**Freon 113**	**Methylene chloride**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**Vinyl Acetate**	**m,p-Xylene**	**o-Xylene**	**1,1-DFA**
Residential RBTC - 5 feet bgs [4]			*NA*	*0.24*	*NA*	*NA*	*0.18*	*1.1*	*2.8*	*0.285*	*110*	*3,700*	*NA*	*8,900*	*410*	*54,000*	*6.1*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*NA*	*1,300*	*1,100*	*Leak Check*
Residential RBTC - 10 feet bgs [4]			*NA*	*0.41*	*NA*	*NA*	*0.31*	*1.9*	*4.7*	*0.487*	*190*	*6,400*	*NA*	*16,000*	*720*	*93,000*	*10*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*NA*	*2,200*	*1,900*	*Compound*
SG-028J-26	5	11/6/2007	**0.086**	**0.0031**	**0.018**	**0.0068**	<0.0043	**0.013**	<0.0014	<0.0028	<0.0027	<0.0030	<0.0034	<0.0078	<0.0034	<0.011	<0.048	<0.0047	**0.0058**	<0.0038	<0.0037	**0.013**	<0.0034	<0.0049	**0.0066**	<0.0030	<10
SG-028J-26	10	11/6/2007	**0.048**	**0.0064**	**0.024**	**0.0040**	**0.0053**	**0.12**	<0.0015	<0.0030	<0.0029	<0.0032	<0.0036	<0.0083	**0.0040**	<0.011	<0.051	<0.0050	**0.0088**	**0.010**	**0.022**	**0.0080**	<0.0036	<0.0052	**0.0064**	<0.0032	<10
SG-028J-27	5	11/7/2007	**0.041**	<0.0024	**0.012**	<0.0023	<0.0047	**0.091**	<0.0015	<0.0030	<0.0030	<0.0032	<0.0037	<0.0084	<0.0037	<0.011	<0.052	<0.0051	**0.0088**	<0.0041	**0.0069**	<0.0073	<0.0037	<0.0052	<0.0065	<0.0032	<10
SG-028J-27	10	11/7/2007	**0.046**	<0.0025	**0.015**	<0.0024	<0.0049	**0.36**	<0.0016	<0.0031	**0.0057**	**0.0047**	**0.0063**	<0.0087	<0.0038	<0.012	<0.054	<0.0053	**0.011**	**0.0080**	**0.035**	**0.023**	**0.0061**	<0.0055	**0.022**	**0.0092**	<10
SG-028J-28	5	11/7/2007	**0.067**	<0.0024	**0.012**	<0.0024	<0.0048	**0.015**	<0.0016	<0.0031	<0.0030	<0.0033	**0.0048**	<0.0086	<0.0038	<0.012	<0.053	<0.0052	**0.0083**	<0.0042	<0.0041	**0.0083**	<0.0038	<0.0054	**0.0099**	**0.0042**	<10
SG-028J-28	10	11/7/2007	**0.071**	**0.0077**	**0.0078**	<0.0024	<0.0048	<0.0037	**0.0030**	<0.0031	<0.0030	**0.0040**	**0.0056**	<0.0086	<0.0038	<0.012	<0.053	<0.0052	**0.050**	<0.0042	<0.0041	**0.011**	<0.0038	<0.0054	**0.014**	**0.0049**	<10
SG-028J-28 [5]	10	11/7/2007	**0.19**	**0.0039**	**0.090**	<0.0025	<0.0050	<0.0039	<0.0016	<0.0032	<0.0032	<0.0035	**0.0057**	<0.0089	<0.0039	<0.012	<0.055	<0.0054	**0.036**	<0.0043	<0.0043	**0.012**	<0.0039	<0.0056	**0.011**	**0.0044**	<10
SG-028J-29	5	11/6/2007	**0.18**	<0.0025	**0.019**	<0.0025	<0.0050	**0.050**	<0.0016	<0.0032	<0.0031	<0.0034	<0.0039	<0.0089	**0.0043**	<0.012	<0.055	<0.0054	**0.0063**	**0.0047**	**0.015**	<0.0078	<0.0039	<0.0056	<0.0069	<0.0034	<10
SG-028J-29	10	11/6/2007	**0.046**	**0.0027**	**0.012**	<0.0023	<0.0046	**0.19**	<0.0015	<0.0030	<0.0029	<0.0032	<0.0036	<0.0082	**0.0040**	<0.011	<0.051	<0.0050	**0.011**	**0.016**	**0.067**	<0.0072	<0.0036	<0.0051	<0.0062	<0.0032	<10
SG-028J-29 [5]	10	11/6/2007	**0.058**	**0.0044**	**0.012**	<0.0027	<0.0055	**0.19**	<0.0018	**0.0057**	<0.0034	<0.0038	<0.0043	<0.0098	**0.0043**	<0.013	<0.060	<0.0059	**0.0058**	**0.016**	**0.067**	<0.0086	<0.0043	<0.0061	<0.0076	<0.0038	<10
SG-028J-30	5	11/6/2007	**0.041**	<0.0032	<0.0058	**0.0037**	<0.0062	**0.081**	<0.0020	<0.0040	<0.0039	<0.0043	<0.0049	<0.011	<0.0049	<0.015	<0.069	<0.0067	**0.0086**	<0.0054	**0.011**	<0.0097	<0.0049	<0.0070	<0.0086	<0.0043	<10
SG-028J-30	10	11/6/2007	**0.097**	**0.0042**	<0.0050	<0.0026	<0.0053	**0.29**	<0.0017	<0.0034	**0.0038**	<0.0036	<0.0041	<0.0094	<0.0042	<0.013	<0.058	<0.0057	**0.0083**	**0.012**	**0.035**	**0.0098**	<0.0041	<0.0059	**0.0079**	**0.0038**	<10
SG-028J-31	5	11/7/2007	**0.12**	**0.0087**	**0.024**	<0.0026	<0.0052	**0.023**	<0.0017	<0.0033	<0.0033	**0.0064**	**0.0080**	<0.0093	<0.0041	<0.013	<0.057	<0.0056	**0.018**	**0.012**	**0.0070**	**0.030**	**0.0078**	<0.0058	**0.028**	**0.013**	<10
SG-028J-31	10	11/7/2007	**0.020**	**0.0030**	**0.0078**	<0.0024	<0.0048	**0.17**	<0.0016	<0.0031	**0.011**	<0.0033	<0.0038	**0.021**	**0.0045**	**0.015**	<0.053	<0.0052	**0.0091**	**0.023**	**0.0059**	<0.0075	<0.0038	<0.0054	<0.0066	<0.0033	<10
SG-028J-32	5	11/6/2007	**0.14**	**0.0039**	**0.021**	**0.0046**	<0.0047	**0.0098**	**0.0017**	<0.0031	<0.0030	**0.0039**	**0.0046**	<0.0085	<0.0037	<0.012	<0.052	<0.0051	**0.0088**	<0.0041	**0.0057**	**0.023**	**0.0047**	**0.0057**	**0.017**	**0.0074**	<10
SG-028J-32	10	11/6/2007	**0.056**	**0.0086**	**0.019**	**0.0078**	<0.0053	**0.15**	<0.0017	<0.0034	<0.0033	<0.0036	<0.0041	<0.013	<0.0042	<0.013	<0.058	**0.0064**	**0.014**	**0.0059**	**0.099**	<0.0083	<0.0041	<0.0059	<0.0073	<0.0036	<10
SG-028J-33	5	11/6/2007	**0.091**	<0.0026	**0.015**	**0.0089**	<0.0051	**0.024**	<0.0017	<0.0033	<0.0032	<0.0035	<0.0040	<0.0090	<0.0040	<0.012	<0.056	<0.0055	**0.0048**	<0.0044	<0.0043	<0.0079	<0.0040	<0.0057	<0.0070	<0.0035	<10
SG-028J-33	10	11/6/2007	**0.54**	**0.0049**	**0.020**	**0.0028**	<0.0050	**0.018**	**0.0042**	<0.0032	<0.0032	**0.0048**	**0.0072**	<0.0089	<0.0039	<0.012	<0.055	<0.0054	**0.030**	<0.0043	<0.0043	**0.036**	**0.0073**	<0.0056	**0.020**	**0.0093**	**19**
SG-028J-34	5	11/7/2007	**0.038**	<0.0023	**0.012**	<0.0023	<0.0046	**0.053**	<0.0015	<0.0030	<0.0029	**0.0036**	<0.0036	<0.0083	<0.0036	<0.011	<0.051	<0.0050	**0.0090**	**0.0050**	**0.0065**	**0.011**	<0.0036	<0.0052	**0.016**	**0.0064**	<10
SG-028J-34	10	11/7/2007	**0.23**	**0.0061**	**0.026**	<0.0025	<0.0051	<0.0039	**0.0035**	<0.0033	<0.0032	**0.013**	**0.010**	<0.0090	<0.0069	<0.012	<0.056	<0.0055	**0.070**	<0.0044	**0.0047**	**0.042**	**0.0096**	<0.0057	**0.044**	**0.016**	**15**
SG-028J-35	5	11/6/2007	**0.11**	**0.0074**	**0.055**	**0.024**	<0.0059	**0.013**	<0.0019	<0.0038	<0.0037	<0.0041	<0.0046	<0.011	<0.0046	<0.014	<0.065	<0.0063	**0.0083**	<0.0051	<0.0050	<0.0092	<0.0046	**0.0068**	<0.0081	<0.0041	<10
SG-028J-35	10	11/6/2007	**0.13**	**0.0035**	**0.046**	<0.0026	<0.0053	**0.19**	<0.0017	<0.0034	<0.0033	<0.0036	<0.0041	<0.0094	<0.0041	<0.013	<0.058	<0.0057	**0.0075**	**0.0074**	**0.039**	<0.0082	<0.0041	<0.0059	<0.0073	<0.0036	<10
SG-028J-36	5	11/6/2007	**0.23**	<0.0049	**0.028**	**0.0058**	<0.0097	<0.0075	<0.0032	<0.0062	<0.0061	<0.0067	<0.0076	<0.017	<0.0076	<0.024	**0.18**	<0.010	**0.0067**	**0.0067**	<0.0083	<0.015	<0.0076	<0.011	<0.013	<0.0067	<10
SG-028J-36	10	11/6/2007	**0.21**	**0.0056**	**0.027**	**0.012**	<0.0091	**0.058**	<0.0030	<0.0058	<0.0057	<0.0063	<0.0071	<0.016	<0.0071	<0.022	<0.10	<0.0098	**0.0087**	<0.0079	<0.0077	<0.014	<0.0071	<0.010	<0.013	<0.0063	<10
SG-028J-37	5	11/6/2007	**0.20**	**0.011**	**0.024**	**0.016**	<0.0045	**0.013**	<0.0015	<0.0029	<0.0028	<0.0031	<0.0035	**0.023**	<0.0035	<0.011	<0.050	<0.0048	**0.017**	<0.0039	<0.0038	<0.0070	<0.0035	<0.0050	**0.0090**	**0.0043**	<10
SG-028J-37	10	11/6/2007	**0.064**	**0.0024**	**0.012**	**0.0036**	<0.0045	**0.32**	<0.0015	<0.0029	<0.0028	<0.0031	<0.0035	**0.011**	**0.0036**	<0.011	<0.049	<0.0048	**0.0051**	**0.0057**	**0.030**	<0.0070	<0.0035	<0.0050	<0.0062	<0.0031	<10
SG-028J [6]	NA	11/6/2007	<0.0048	<0.0016	<0.0029	<0.0016	<0.0031	<0.0024	<0.0010	<0.0020	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0077	<0.035	**0.013**	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0035	<0.0043	<0.0022	<10
SG-028J [6]	NA	11/7/2007	**0.0088**	<0.0016	<0.0029	<0.0016	<0.0031	<0.0024	<0.0010	<0.0020	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0077	<0.035	<0.0034	**0.0024**	<0.0027	**0.0042**	<0.0049	<0.0025	<0.0035	<0.0043	<0.0022	<10
Number of Samples			*25*	*25*	*25*	*25*	*25*	*25*	*25*	*25*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*
Number of Detections			*25*	*17*	*23*	*11*	*1*	*21*	*4*	*1*	*3*	*7*	*8*	*3*	*6*	*1*	*1*	*1*	*26*	*13*	*16*	*12*	*5*	*2*	*13*	*11*	*2*
Minimum Detected Concentration			*0.020*	*0.0024*	*0.0078*	*0.0028*	*0.0053*	*0.0098*	*0.0017*	*0.0057*	*0.0038*	*0.0036*	*0.0046*	*0.011*	*0.0036*	*0.015*	*0.18*	*0.0064*	*0.0048*	*0.0047*	*0.0047*	*0.0080*	*0.0047*	*0.0057*	*0.0064*	*0.0038*	*15*
Maximum Detected Concentration			*0.54*	*0.011*	*0.090*	*0.024*	*0.0053*	*0.36*	*0.0042*	*0.0057*	*0.011*	*0.013*	*0.010*	*0.023*	*0.0045*	*0.015*	*0.18*	*0.0064*	*0.070*	*0.023*	*0.099*	*0.042*	*0.0096*	*0.0068*	*0.044*	*0.016*	*19*
Average Detected Concentration			*0.12*	*0.006*	*0.024*	*0.008*	*0.0053*	*0.12*	*0.0031*	*0.0057*	*0.007*	*0.006*	*0.007*	*0.018*	*0.0041*	*0.015*	*0.18*	*0.0064*	*0.015*	*0.010*	*0.029*	*0.019*	*0.0071*	*0.00625*	*0.016*	*0.008*	*17*

Notes:

[1] Only compounds detected in at least one sample are shown. Results are in micrograms per liter (ug/L).

[2] Samples analyzed by Calscience Environmental Laboratories, Inc. of Garden Grove, California by USEPA Method TO-15.

[3] System turned off on November 3, 2007 and remained off during sampling.

[4] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*).

[5] Duplicate sample.

[6] Trip blank sample.

NA = Not Available

bgs = below ground surface

< = the analyte was not detected above the detection limit

Results detected above the reporting limit are shown in **bold**.

"CT" = Carbon Tetrachloride
"1,2-DCA" = 1,2-Dichloroethane
"1,1-DCE" = 1,1-Dichloroethene
"Freon 11" = Trichlorofluoromethane
"Freon 12" = Dichlorodifluoromethane
"Freon 113" = 1,1,2-Trichloro-1,2,2-trifluoroethane

"PCE" = Tetrachloroethene
"1,1,1-TCA" = 1,1,1-Trichloethane
"TCE" = Trichloroethene
"1,2,4-TMB" = 1,2,4-Trimethylbenzene
"1,3,5-TMB" = 1,3,5-Trimethylbenzene
"1,1-DFA" = 1,1-Difluoroethane

TABLE 5a: SUMMARY OF POST-REMEDIATION SOIL GAS SAMPLING - AUGUST 2008
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

			Soil Gas Concentration (ug/L) [1, 2, 3]																				
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Acetone**	**Benzene**	**2-Butanone**	**Carbon Disulfide**	**Chloroform**	**1,1-DCE**	**Ethyl-benzene**	**Ethyl-toluene**	**Freon 11**	**Freon 12**	**Freon 113**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**Vinyl Acetate**	**m,p-Xylene**	**o-Xylene**	**1,1-DFA**
Residential RBTC - 5 feet bgs [4]			*NA*	*0.24*	*NA*	*NA*	*1.1*	*110*	*3,700*	*NA*	*8,900*	*410*	*54,000*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*NA*	*1,300*	*1,100*	*Leak Check*
Residential RBTC - 10 feet bgs [4]			*NA*	*0.41*	*NA*	*NA*	*1.9*	*190*	*6,400*	*NA*	*16,000*	*720*	*93,000*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*NA*	*2,200*	*1,900*	*Compound*
SG-028J-26	5	8/19/2008	**0.061**	**0.0051**	**0.016**	<0.0025	**0.035**	<0.0032	**0.0072**	<0.0040	<0.0092	<0.0040	<0.012	<0.0055	**0.012**	**0.0094**	<0.0044	<0.0080	<0.0040	<0.0057	**0.014**	**0.0049**	<10
SG-028J-26	10	8/19/2008	**0.059**	**0.0066**	**0.017**	<0.0025	**0.096**	<0.0032	<0.0035	<0.0039	<0.0089	<0.0039	<0.012	<0.0054	**0.0096**	**0.0088**	**0.0089**	<0.0078	<0.0039	<0.0056	**0.010**	**0.0037**	<10
SG-028J-27	5	8/20/2008	**0.14**	**0.048**	**0.021**	<0.0022	**0.27**	**0.0072**	**0.0036**	<0.0035	<0.0081	<0.0036	<0.011	<0.0049	**0.012**	**0.019**	**0.014**	<0.0071	<0.0035	<0.0051	**0.014**	**0.0052**	<10
SG-028J-27	10	8/20/2008	**0.10**	**0.0055**	**0.017**	<0.0025	**0.35**	**0.0082**	**0.0035**	<0.0039	<0.0090	<0.0040	<0.012	<0.0054	**0.012**	**0.016**	**0.020**	<0.0079	<0.0039	<0.0056	**0.015**	**0.0055**	<10
SG-028J-27 [5]	10	8/20/2008	**0.077**	**0.0050**	**0.015**	<0.0024	**0.15**	<0.0030	<0.0033	<0.0037	<0.0085	<0.0038	<0.012	<0.0052	**0.013**	**0.0075**	**0.0074**	<0.0075	<0.0037	<0.0054	**0.013**	**0.0043**	<10
SG-028J-28	5	8/19/2008	**0.091**	**0.011**	**0.037**	**0.0028**	**0.016**	**0.0038**	**0.011**	**0.0053**	**0.020**	**0.0048**	<0.012	<0.0052	**0.031**	**0.012**	<0.0041	**0.017**	**0.0042**	**0.013**	**0.033**	**0.012**	<10
SG-028J-28 [6]	NA	8/19/2008	<0.0048	<0.0016	<0.0029	<0.0016	<0.0024	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0077	<0.0034	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0035	<0.0043	<0.0022	<10
SG-028J-28	10	8/19/2008	**0.17**	**0.0045**	**0.027**	<0.0026	**0.036**	**0.0048**	<0.0037	<0.0042	<0.0095	<0.0042	<0.013	<0.0057	**0.0078**	**0.0084**	<0.0045	<0.0083	<0.0042	<0.0060	<0.0073	**0.0039**	<10
SG-028J-29	5	8/20/2008	**0.045**	**0.0034**	**0.014**	<0.0023	**0.19**	**0.012**	**0.0052**	**0.0043**	<0.0083	**0.0055**	<0.011	**0.0053**	**0.013**	**0.042**	**0.062**	**0.010**	**0.0041**	<0.0052	**0.021**	**0.0088**	<10
SG-028J-29	10	8/20/2008	**0.082**	**0.0056**	**0.012**	<0.0025	**0.20**	**0.0060**	**0.0040**	<0.0039	<0.0090	<0.0040	<0.012	<0.0054	**0.016**	**0.042**	**0.072**	<0.0079	<0.0039	<0.0056	**0.017**	**0.0061**	<10
SG-028J-30	5	8/20/2008	**0.027**	<0.0025	<0.0046	<0.0024	<0.0038	<0.0031	<0.0034	<0.0038	<0.0087	**0.0039**	<0.012	<0.0053	**0.020**	<0.0042	<0.0042	<0.0076	<0.0038	<0.0055	<0.0067	<0.0034	<10
SG-028J-30	10	8/20/2008	**0.11**	**0.018**	**0.014**	<0.0024	**0.25**	<0.0031	**0.0045**	<0.0037	<0.0085	<0.0038	<0.012	<0.0052	**0.016**	**0.011**	**0.025**	**0.0079**	<0.0037	<0.0054	**0.019**	**0.0066**	<10
SG-028J-31	5	8/19/2008	**0.087**	**0.038**	**0.021**	**0.0039**	**0.026**	<0.0035	**0.0073**	<0.0044	**0.019**	<0.0044	<0.014	<0.0060	**0.022**	**0.022**	<0.0048	<0.0088	<0.0044	**0.0089**	**0.019**	**0.0069**	<10
SG-028J-31	10	8/19/2008	**0.059**	**0.030**	**0.013**	<0.0026	**0.14**	**0.0064**	**0.0053**	<0.0042	**0.098**	<0.0042	**0.020**	<0.0058	**0.023**	**0.026**	**0.0060**	**0.0094**	<0.0042	<0.0060	**0.022**	**0.0077**	<10
SG-028J-32	5	8/19/2008	**0.040**	**0.0065**	**0.0099**	<0.0025	**0.032**	<0.0032	**0.0036**	<0.0039	<0.0090	<0.0040	<0.012	<0.0054	**0.014**	**0.0046**	**0.016**	**0.0083**	<0.0039	<0.0056	**0.019**	**0.0069**	<10
SG-028J-32 [5]	5	8/19/2008	**0.033**	**0.0058**	**0.0082**	<0.0025	**0.031**	<0.0032	<0.0035	<0.0040	<0.0092	<0.0040	<0.012	<0.0055	**0.0054**	**0.0047**	**0.016**	<0.0080	<0.0040	<0.0057	<0.0071	<0.0035	<10
SG-028J-32	10	8/19/2008	**0.039**	**0.038**	**0.021**	<0.0023	**0.13**	<0.0030	**0.0052**	<0.0037	<0.0084	<0.0037	<0.011	**0.0070**	**0.015**	**0.0088**	**0.098**	**0.0090**	<0.0037	**0.0089**	**0.016**	**0.0058**	<10
SG-028J-33	5	8/19/2008	**0.11**	**0.0044**	**0.025**	<0.0024	**0.050**	<0.0031	<0.0033	<0.0038	<0.0087	<0.0038	<0.012	<0.0052	**0.011**	<0.0042	**0.0044**	<0.0076	<0.0038	**0.0057**	**0.013**	**0.0047**	<10
SG-028J-33	10	8/19/2008	**0.11**	**0.018**	**0.022**	<0.0026	**0.12**	<0.0033	**0.0042**	<0.0041	<0.0093	<0.0041	<0.013	<0.0056	**0.017**	**0.0058**	**0.014**	**0.0086**	<0.0041	**0.0092**	**0.017**	**0.0061**	<10
SG-028J-34	5	8/19/2008	**0.11**	**0.0042**	**0.026**	<0.0026	**0.053**	<0.0033	<0.0036	<0.0041	<0.0093	<0.0041	<0.013	<0.0056	**0.011**	**0.0057**	<0.0044	<0.0081	<0.0041	**0.0063**	**0.012**	**0.0044**	<10
SG-028J-34	10	8/19/2008	**0.11**	**0.0055**	**0.025**	<0.0025	**0.077**	<0.0031	**0.0041**	<0.0039	<0.0089	<0.0039	<0.012	<0.0054	**0.014**	**0.0054**	**0.0045**	**0.0088**	<0.0039	<0.0056	**0.020**	**0.0087**	<10
SG-028J-35	5	8/20/2008	**0.069**	**0.0039**	**0.017**	<0.0024	**0.029**	<0.0030	<0.0033	<0.0038	<0.0086	<0.0038	<0.012	<0.0052	**0.011**	**0.0046**	**0.0044**	<0.0075	<0.0038	<0.0054	**0.012**	**0.0043**	<10
SG-028J-35 [6]	5	8/20/2008	<0.0048	<0.0016	<0.0029	<0.0016	<0.0024	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0077	<0.0034	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0035	<0.0043	<0.0022	<10
SG-028J-35	10	8/20/2008	**0.077**	**0.036**	**0.012**	<0.0021	**0.083**	<0.0027	<0.0030	<0.0034	<0.0078	<0.0034	<0.011	<0.0047	**0.011**	**0.0052**	**0.010**	<0.0068	<0.0034	<0.0049	**0.011**	**0.0038**	<10
SG-028J-36	5	8/19/2008	**0.15**	**0.011**	**0.039**	<0.0022	**0.010**	<0.0028	**0.0049**	<0.0035	<0.0080	<0.0035	<0.011	**0.0065**	**0.016**	<0.0039	<0.0038	**0.0074**	<0.0035	**0.0061**	**0.015**	**0.0055**	<10
SG-028J-36	10	8/19/2008	**0.13**	**0.0073**	**0.020**	<0.0026	**0.048**	<0.0033	**0.0053**	<0.0041	**0.016**	<0.0041	<0.013	**0.0093**	**0.011**	<0.0046	<0.0031	<0.0082	<0.0041	<0.0059	**0.012**	**0.0041**	<10
SG-028J-37	5	8/20/2008	**0.33**	**0.025**	**0.043**	<0.012	**0.053**	<0.015	<0.017	<0.019	**0.20**	<0.019	<0.058	<0.026	**0.060**	<0.021	<0.020	<0.037	<0.019	<0.027	**0.038**	<0.017	<10
SG-028J-37	10	8/20/2008	**0.10**	**0.0059**	**0.016**	<0.0023	**0.19**	<0.0029	**0.0039**	<0.0036	**0.051**	<0.0036	<0.011	<0.0050	**0.014**	**0.0045**	**0.017**	**0.0075**	<0.0036	<0.0051	**0.017**	**0.0059**	<10
SG-028J-99 [7]	NA	8/20/2008	**0.02**	<0.0025	<0.0046	<0.0024	<0.0038	<0.0031	<0.0034	<0.0038	<0.0087	<0.0038	<0.012	<0.0053	**0.012**	<0.0042	<0.0042	<0.0076	<0.0038	<0.0055	**0.0089**	<0.0034	<10
Number of Samples			*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*
Number of Detections			*26*	*25*	*25*	*2*	*25*	*7*	*16*	*2*	*6*	*3*	*1*	*4*	*26*	*21*	*17*	*10*	*2*	*7*	*23*	*23*	*0*
Minimum Detected Concentration			*0.027*	*0.0034*	*0.0082*	*0.0028*	*0.010*	*0.0038*	*0.0035*	*0.0043*	*0.016*	*0.0039*	*0.020*	*0.0053*	*0.0054*	*0.0045*	*0.0044*	*0.0074*	*0.0041*	*0.0057*	*0.010*	*0.0037*	*<10*
Maximum Detected Concentration			*0.33*	*0.048*	*0.043*	*0.0039*	*0.35*	*0.012*	*0.011*	*0.0053*	*0.20*	*0.0055*	*0.020*	*0.0093*	*0.060*	*0.042*	*0.098*	*0.017*	*0.0042*	*0.013*	*0.038*	*0.012*	*<10*
Average Detected Concentration			*0.097*	*0.014*	*0.020*	*0.0034*	*0.11*	*0.007*	*0.005*	*0.0048*	*0.07*	*0.0047*	*0.020*	*0.0070*	*0.016*	*0.013*	*0.024*	*0.009*	*0.0042*	*0.008*	*0.017*	*0.006*	*<10*

Notes:

[1] Only compounds detected in at least one sample are shown. Results are in micrograms per liter (ug/L).

[2] Samples analyzed by Calscience Environmental Laboratories, Inc. of Garden Grove, California by USEPA Method TO-15.

[3] System turned off on August 12, 2008 and remained off during sampling.

[4] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007).

[5] Duplicate sample.

[6] Trip blank sample.

[7] Ambient air sample.

NA = Not Available

bgs = below ground surface

< = the analyte was not detected above the detection limit

Results detected above the reporting limit are shown in **bold**.

"CT" = Carbon Tetrachloride
"1,2-DCA" = 1,2-Dichloroethane
"1,1-DCE" = 1,1-Dichloroethene
"Freon 11" = Trichlorofluoromethane
"Freon 12" = Dichlorodifluoromethane
"PCE" = Tetrachloroethene

"1,1,1-TCA" = 1,1,1-Trichloethane
"TCE" = Trichloroethene
"Freon 113" = 1,1,2-Trichloro-1,2,2-trifluoroethane
"1,2,4-TMB" = 1,2,4-Trimethylbenzene
"1,3,5-TMB" = 1,3,5-Trimethylbenzene
"1,1-DFA" = 1,1-Difluoroethane

TABLE 5b: SUMMARY OF POST-REMEDIATION SOIL GAS SAMPLING - OCTOBER 2008

Former Building 028J Area

Hitachi Global Storage Technologies, Inc.

5600 Cottle Road, San Jose, California

			Soil Gas Concentration (ug/L) [1, 2, 3]																					
Location ID	**Depth (feet bgs)**	**Sampling Date**	**Acetone**	**Benzene**	**2-Butanone**	**Carbon Disulfide**	**CT**	**Chloroform**	**1,1-DCE**	**Ethyl-benzene**	**Ethyl-toluene**	**Freon 11**	**Freon 12**	**Freon 113**	**PCE**	**Toluene**	**1,1,1-TCA**	**TCE**	**1,2,4-TMB**	**1,3,5-TMB**	**Vinyl Acetate**	**m,p-Xylene**	**o-Xylene**	**1,1-DFA**
Residential RBTC - 5 feet bgs [4]			*NA*	*0.24*	*NA*	*NA*	*0.18*	*1.1*	*110*	*3,700*	*NA*	*8,900*	*410*	*54,000*	*1.4*	*480*	*1,800*	*3.8*	*11*	*11*	*NA*	*1,300*	*1,100*	*Leak Check*
Residential RBTC - 10 feet bgs [4]			*NA*	*0.41*	*NA*	*NA*	*0.31*	*1.9*	*190*	*6,400*	*NA*	*16,000*	*720*	*93,000*	*2.4*	*830*	*3,100*	*6.5*	*19*	*19*	*NA*	*2,200*	*1,900*	*Compound*
SG-028J-26	5	10/16/2008	**0.013**	**0.0087**	**0.022**	**0.0042**	<0.0053	**0.083**	<0.0033	**0.0060**	**0.0079**	<0.0094	<0.0042	<0.013	<0.0057	**0.012**	**0.029**	<0.0045	**0.041**	**0.011**	<0.012	**0.024**	**0.013**	<10
SG-028J-26	10	10/16/2008	**0.047**	**0.0070**	**0.0081**	<0.0024	**0.010**	**0.27**	**0.0047**	**0.014**	**0.020**	<0.0085	<0.0037	<0.012	<0.0051	**0.028**	**0.035**	**0.024**	**0.097**	**0.029**	<0.011	**0.060**	**0.030**	<10
SG-028J-27	5	10/17/2008	**0.076**	**0.045**	<0.017	<0.0092	<0.019	**0.47**	<0.012	**0.038**	**0.043**	<0.033	<0.015	<0.045	<0.020	**0.055**	**0.039**	**0.019**	**0.16**	**0.047**	<0.042	**0.14**	**0.072**	<10
SG-028J-27 [5]	5	10/17/2008	**0.033**	**0.019**	<0.012	<0.0062	<0.012	**0.15**	<0.0078	**0.018**	**0.024**	<0.022	<0.0098	<0.030	<0.013	**0.027**	**0.012**	<0.011	**0.095**	**0.028**	<0.028	**0.069**	**0.038**	<10
SG-028J-27	10	10/17/2008	**0.041**	**0.0089**	<0.015	<0.0079	<0.016	**0.76**	**0.020**	<0.011	<0.013	<0.029	<0.013	<0.039	<0.017	**0.011**	**0.040**	**0.035**	<0.025	<0.013	<0.036	<0.044	<0.011	<10
SG-028J-28	5	10/16/2008	**0.036**	**0.0046**	**0.0087**	<0.0023	<0.0046	**0.034**	**0.0062**	**0.0056**	<0.0036	**0.014**	**0.0038**	<0.011	<0.0050	**0.013**	**0.016**	<0.0039	<0.0072	<0.0036	**0.011**	**0.017**	**0.0072**	<10
SG-028J-28 [6]	NA	10/16/2008	<0.0048	<0.0016	<0.0029	<0.0016	<0.0031	<0.0024	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0077	<0.0034	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0070	<0.0087	<0.0022	<10
SG-028J-28	10	10/16/2008	**0.026**	**0.0045**	**0.0060**	<0.0031	<0.0063	**0.12**	**0.019**	**0.0054**	<0.0049	**0.023**	<0.0049	**0.015**	<0.0068	**0.012**	**0.031**	<0.0054	**0.016**	<0.0049	<0.014	**0.019**	**0.010**	<10
SG-028J-29	5	10/17/2008	**0.061**	<0.013	<0.023	<0.012	<0.025	**0.34**	<0.016	<0.017	<0.019	<0.044	<0.020	<0.061	<0.027	<0.015	**0.12**	**0.099**	**0.055**	<0.019	<0.056	<0.069	**0.019**	<10
SG-028J-29	10	10/17/2008	**0.032**	**0.0098**	<0.016	<0.0083	<0.017	**0.78**	**0.012**	<0.012	<0.013	<0.030	<0.013	<0.041	<0.018	<0.010	**0.099**	**0.17**	<0.026	<0.013	<0.037	<0.046	<0.012	<10
SG-028J-30	5	10/17/2008	**0.13**	**0.012**	<0.020	<0.010	<0.021	**0.21**	<0.013	<0.015	<0.016	<0.038	<0.017	<0.051	<0.023	**0.014**	**0.031**	**0.023**	<0.033	<0.016	<0.047	<0.058	<0.015	<10
SG-028J-30	10	10/17/2008	**0.037**	<0.0095	<0.018	<0.0093	<0.019	**0.67**	<0.012	<0.013	<0.015	<0.033	<0.015	<0.046	<0.020	<0.011	**0.046**	**0.051**	**0.033**	<0.015	<0.042	<0.052	<0.013	<10
SG-028J-31	5	10/16/2008	**0.067**	**0.052**	**0.010**	**0.0044**	<0.0049	**0.025**	<0.0031	**0.021**	**0.024**	**0.015**	<0.0039	<0.012	<0.0053	**0.034**	**0.022**	<0.0042	**0.097**	**0.032**	<0.011	**0.089**	**0.048**	<10
SG-028J-31	10	10/16/2008	**0.023**	**0.012**	<0.0048	**0.0032**	<0.0051	**0.19**	**0.012**	**0.0081**	**0.013**	**0.045**	<0.0040	**0.026**	<0.0055	**0.010**	**0.045**	**0.0072**	**0.058**	**0.018**	<0.011	**0.040**	**0.022**	<10
SG-028J-32	5	10/16/2008	**0.15**	**0.082**	<0.038	<0.020	<0.041	**0.17**	<0.026	**0.50**	**0.31**	<0.073	<0.032	<0.10	<0.044	**1.1**	<0.035	**0.082**	**1.0**	**0.36**	<0.092	**2.0**	**0.87**	<10
SG-028J-32	10	10/16/2008	**0.042**	**0.050**	**0.0057**	<0.0025	<0.0051	**0.48**	<0.0032	**0.087**	**0.089**	<0.0090	<0.0040	**0.013**	**0.0096**	**0.12**	**0.024**	**0.17**	**0.32**	**0.099**	<0.011	**0.33**	**0.16**	<10
SG-028J-32 [5]	10	10/16/2008	**0.044**	**0.032**	**0.0057**	<0.0023	<0.0046	**0.42**	<0.0029	**0.035**	**0.051**	<0.0081	**0.0039**	**0.013**	**0.011**	**0.043**	**0.025**	**0.18**	**0.19**	**0.049**	<0.010	**0.13**	**0.069**	<10
SG-028J-33	5	10/16/2008	**0.065**	**0.016**	**0.012**	<0.0025	<0.0050	**0.15**	<0.0032	**0.014**	**0.018**	<0.0089	<0.0039	<0.012	<0.0054	**0.023**	**0.015**	**0.013**	**0.080**	**0.024**	<0.011	**0.055**	**0.035**	<10
SG-028J-33	10	10/16/2008	**0.041**	**0.0078**	<0.0062	<0.0033	<0.0066	**0.58**	<0.0042	**0.0071**	**0.013**	<0.012	<0.0052	<0.016	<0.0072	**0.014**	**0.030**	**0.049**	**0.061**	**0.017**	<0.015	**0.033**	**0.018**	<10
SG-028J-34	5	10/16/2008	**0.21**	**0.0058**	**0.013**	<0.0025	<0.0050	**0.21**	<0.0031	**0.0075**	**0.0063**	**0.013**	<0.0039	**0.013**	<0.0054	**0.016**	**0.026**	**0.0055**	**0.026**	**0.0081**	<0.011	**0.028**	**0.015**	<10
SG-028J-34	10	10/16/2008	**0.13**	**0.0062**	**0.012**	<0.0028	<0.0056	**0.40**	<0.0035	**0.0038**	<0.0044	**0.017**	<0.0044	**0.014**	<0.0060	**0.012**	**0.029**	**0.014**	**0.013**	<0.0044	<0.012	<0.015	**0.0074**	<10
SG-028J-35	5	10/16/2008	**0.054**	**0.017**	**0.0081**	<0.0022	<0.0045	**0.096**	<0.0028	**0.034**	**0.039**	**0.022**	**0.0037**	**0.014**	<0.0048	**0.044**	**0.014**	**0.011**	**0.16**	**0.049**	<0.010	**0.15**	**0.074**	<10
SG-028J-35	10	10/16/2008	**0.062**	**0.025**	**0.011**	<0.0024	<0.0049	**0.31**	**0.0037**	**0.024**	**0.029**	**0.036**	**0.0039**	**0.029**	<0.0053	**0.025**	**0.031**	**0.046**	**0.11**	**0.035**	<0.011	**0.11**	**0.055**	<10
SG-028J-36	5	10/16/2008	**0.14**	**0.015**	**0.023**	**0.0042**	<0.0047	**0.020**	<0.0030	**0.0065**	**0.0061**	**0.038**	<0.0037	**0.012**	**0.0064**	**0.016**	**0.0087**	<0.0040	**0.027**	**0.0081**	<0.011	**0.023**	**0.013**	<10
SG-028J-36	10	10/16/2008	**0.077**	**0.0056**	**0.0095**	<0.0025	<0.0051	**0.33**	<0.0032	**0.0055**	**0.0081**	**0.086**	<0.0040	**0.020**	**0.012**	**0.012**	**0.014**	<0.0043	**0.042**	**0.012**	<0.011	**0.023**	**0.013**	<10
SG-028J-37	5	10/17/2008	**0.072**	<0.013	<0.023	<0.012	<0.025	**0.029**	<0.016	<0.017	<0.019	**0.32**	<0.019	<0.060	<0.027	**0.016**	<0.021	<0.021	**0.056**	<0.019	<0.055	<0.068	**0.021**	<10
SG-028J-37	10	10/17/2008	**0.046**	<0.012	<0.023	<0.012	<0.024	**0.54**	<0.015	<0.017	<0.019	**0.060**	<0.019	<0.059	<0.026	<0.014	<0.021	**0.031**	**0.052**	<0.019	<0.054	<0.066	**0.019**	<10
SG-028J-37 [6]	NA	10/17/2008	<0.0048	<0.0016	<0.0029	<0.0016	<0.0031	<0.0024	<0.0020	<0.0022	<0.0025	<0.0056	<0.0025	<0.0077	<0.0034	<0.0019	<0.0027	<0.0027	<0.0049	<0.0025	<0.0070	<0.0087	<0.0022	<10
SG-028J-99-00 [7]	NA	10/17/2008	**0.017**	<0.0026	<0.0047	<0.0025	<0.0050	<0.0039	<0.0032	0.0035	0.0039	<0.0090	<0.0040	<0.012	<0.0054	**0.0051**	<0.0044	<0.0043	**0.014**	<0.0039	<0.011	<0.014	<0.0035	<10
Number of Samples			*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*	*26*
Number of Detections			*26*	*22*	*14*	*4*	*1*	*26*	*7*	*19*	*16*	*12*	*4*	*10*	*4*	*22*	*23*	*18*	*22*	*16*	*1*	*18*	*22*	*0*
Minimum Detected Concentration			*0.013*	*0.0045*	*0.0057*	*0.0032*	*0.010*	*0.020*	*0.0037*	*0.0038*	*0.0061*	*0.013*	*0.0037*	*0.012*	*0.0064*	*0.010*	*0.0087*	*0.0055*	*0.013*	*0.0081*	*0.011*	*0.017*	*0.0072*	*<10*
Maximum Detected Concentration			*0.21*	*0.082*	*0.023*	*0.0044*	*0.010*	*0.78*	*0.020*	*0.50*	*0.31*	*0.32*	*0.0039*	*0.029*	*0.012*	*1.1*	*0.12*	*0.18*	*1.0*	*0.36*	*0.011*	*2.0*	*0.87*	*<10*
Average Detected Concentration			*0.07*	*0.020*	*0.011*	*0.0040*	*0.010*	*0.30*	*0.011*	*0.04*	*0.04*	*0.06*	*0.0038*	*0.017*	*0.010*	*0.08*	*0.03*	*0.06*	*0.13*	*0.05*	*0.011*	*0.19*	*0.07*	*<10*

Notes:

[1] Only compounds detected in at least one sample are shown. Results are in micrograms per liter (ug/L).

[2] Samples analyzed by Calscience Environmental Laboratories, Inc. of Garden Grove, California by USEPA Method TO-15.

[3] The extraction system was turned off on August 12, 2008.

[4] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007).

[5] Duplicate sample.

[6] Trip blank sample.

[7] Ambient air sample.

NA = Not Available

bgs = below ground surface

< = the analyte was not detected above the detection limit

Results detected above the reporting limit are shown in **bold**.

"CT" = Carbon Tetrachloride
"1,1-DCE" = 1,1-Dichloroethene
"Freon 11" = Trichlorofluoromethane
"Freon 12" = Dichlorodifluoromethane
"Freon 113" = 1,1,2-Trichloro-1,2,2-trifluoroethane
"PCE" = Tetrachloroethene

"1,1,1-TCA" = 1,1,1-Trichloethane
"TCE" = Trichloroethene
"1,2,4-TMB" = 1,2,4-Trimethylbenzene
"1,3,5-TMB" = 1,3,5-Trimethylbenzene
"1,1-DFA" = 1,1-Difluoroethane

TABLE 6: SUMMARY OF SOIL SAMPLING RESULTS - APRIL AND MAY 2008
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Boring ID	Sample ID	Sample Depth (feet bgs)	Stratigraphic Unit	Sample Date	Chloroform (ug/kg)
Residential Risk-Based Target Concentration (RBTC) [1]					*8.7*
EW-16	EW-16-6.5-7.0	6.5	Vadose Zone	03/28/2008	<4.5 [2]
	EW-16-12.0-12.5	12.0	Vadose Zone	03/28/2008	<4.3 [2]
	EW-16-17.0-17.5	17.0	Vadose Zone	03/28/2008	<4.4 [2]
	EW-16-22.0-22.5	22.0	Vadose Zone	03/28/2008	<4.5 [2]
	EW-16-27.0-27.5	27.0	Capillary Fringe	03/28/2008	**10 [2]**
	EW-16-32.5-33.0	32.5	A Aquifer	03/28/2008	**35 [2]**
	EW-16-38.0-38.5	38.0	A/B Aquitard	03/28/2008	**340 [2, 3]**
EW-17	EW-17-36.0-36.5	36.0	A/B Aquitard	05/28/2008	**1400**
	EW-17-40.0-40.5	40.0	A/B Aquitard	05/28/2008	**150**
EW-18	EW-18-36.0-36.5	36.0	A/B Aquitard	05/28/2008	**180**
	EW-18-40.0-40.5	40.0	A/B Aquitard	05/28/2008	**160**
SB-1	SB-1-5.5-6.0	5.5	Vadose Zone	04/21/2008	<4.4
	SB-1-15.0-15.5	15.0	Vadose Zone	04/21/2008	<4.4
	SB-1-19.0-19.5	19.0	Vadose Zone	04/21/2008	<0.043
	SB-1-24.5-25.0	24.5	Vadose Zone	04/21/2008	<5.1
	SB-1-30.0-30.5	30.0	Capillary Fringe	04/21/2008	**19**
	SB-1-34.0-34.5	34.0	A Aquifer	04/21/2008	**220***
	SB-1-TOP	35.0	A/B Aquitard	04/21/2008	**160**
	SB-1-MID	38.0	A/B Aquitard	04/21/2008	**140**
	SB-1-BOT	39.5	A/B Aquitard	04/21/2008	**76**
SB-2	SB-2-5.5-6.0	5.5	Vadose Zone	04/25/2008	<4.4
	SB-2-10.5-11.0	10.5	Vadose Zone	04/25/2008	<4.6
	SB-2-15.5-16.0	15.5	Vadose Zone	04/25/2008	<4.6
	SB-2-20.5-21.0	20.5	Vadose Zone	04/25/2008	<4.5
	SB-2-25.5-26.0	25.5	Vadose Zone	04/25/2008	**7.9**
	SB-2-30.5-31.0	30.5	Capillary Fringe	04/25/2008	**20**
	SB-2-TOP	37.5	A/B Aquitard	04/25/2008	**88**
	SB-2-BOT	40.5	A/B Aquitard	04/25/2008	**96**
SB-3	SB-3-TOP	35.5	A/B Aquitard	04/22/2008	**150**
	SB-3-MID	38.0	A/B Aquitard	04/22/2008	**170**
	SB-3-BOT	39.5	A/B Aquitard	04/22/2008	**310**
SB-4	SB-4-4.0-4.5	4.0	Vadose Zone	04/21/2008	<4.5
	SB-4-10.0-10.5	10.0	Vadose Zone	04/21/2008	<4.9
	SB-4-15.0-15.5	15.0	Vadose Zone	04/21/2008	<5.0
	SB-4-20.0-20.5	20.0	Vadose Zone	04/21/2008	<4.2
	SB-4-24.5-25.0	24.5	Vadose Zone	04/21/2008	<4.5
	SB-4-30.0-30.5	30.0	Capillary Fringe	04/21/2008	**8.5**
	SB-4-TOP	36.0	A/B Aquitard	04/22/2008	**100**
	SB-4-MID	38.0	A/B Aquitard	04/22/2008	**95**
	SB-4-DUP	38.5	A/B Aquitard	04/22/2008	**220 [4]**
	SB-4-BOT	41.0	A/B Aquitard	04/22/2008	**96**

TABLE 6: SUMMARY OF SOIL SAMPLING RESULTS - APRIL AND MAY 2008
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Boring ID	Sample ID	Sample Depth (feet bgs)	Stratigraphic Unit	Sample Date	Chloroform (ug/kg)
Residential Risk-Based Target Concentration (RBTC) [1]					*8.7*
SB-5	SB-5-5.0-5.5	5.0	Vadose Zone	04/21/2008	<4.3
	SB-5-10.0-10.5	10.0	Vadose Zone	04/21/2008	<4.7
	SB-5-15.0-15.5	15.0	Vadose Zone	04/21/2008	<4.5
	SB-5-20.0-20.5	20.0	Vadose Zone	04/21/2008	<4.4
	SB-5-25.0-25.5	25.0	Vadose Zone	04/21/2008	<4.4
	SB-5-30.0-30.5	30.0	Capillary Fringe	04/21/2008	**5.2**
	SB-5-35.0-35.5	35.0	A Aquifer	04/21/2008	**37**
	SB-5-TOP	36.0	A/B Aquitard	04/22/2008	**160**
	SB-5-MID	38.0	A/B Aquitard	04/22/2008	**180**
	SB-5-BOT	41.0	A/B Aquitard	04/22/2008	**93**
SB-6	SB-6-5.5-6.0	5.5	Vadose Zone	04/22/2008	<4.8
	SB-6-10.5-11.0	10.5	Vadose Zone	04/22/2008	<5.4
	SB-6-15.5-16.0	15.5	Vadose Zone	04/22/2008	<4.8
	SB-6-20.5-21.0	20.5	Vadose Zone	04/22/2008	<4.3
	SB-6-25.5-26.0	25.5	Vadose Zone	04/22/2008	<5.1
	SB-6-30.5-31.0	30.5	Capillary Fringe	04/22/2008	**23**
	SB-6-35.5-36.0	35.5	A Aquifer	04/22/2008	**49**
	SB-6-TOP	40.0	A/B Aquitard	04/22/2008	**92**
	SB-6-BOT	43.5	A/B Aquitard	04/22/2008	**60**
SB-7	SB-7-6.0-6.5	6.0	Vadose Zone	04/25/2008	<4.0
	SB-7-10.5-11.0	10.5	Vadose Zone	04/25/2008	<5.0
	SB-7-15.5-16.0	15.5	Vadose Zone	04/25/2008	<4.7
	SB-7-20.5-21.0	20.5	Vadose Zone	04/25/2008	<4.3
	SB-7-25.5-26.0	25.5	Vadose Zone	04/25/2008	**6.4**
	SB-7-30.5-31.0	30.5	Capillary Fringe	04/25/2008	**33**
	SB-7-TOP	36.5	A/B Aquitard	04/25/2008	**180**
	SB-7-BOT	39.5	A/B Aquitard	04/25/2008	**130**
SB-8	SB-8-5.5-6.0	5.5	Vadose Zone	04/25/2008	<4.4
	SB-8-10.5-11.0	10.5	Vadose Zone	04/25/2008	<5.4
	SB-8-15.5-16.0	15.5	Vadose Zone	04/25/2008	<4.6
	SB-8-20.5-21.0	20.5	Vadose Zone	04/25/2008	<4.4
	SB-8-25.5-26.0	25.5	Vadose Zone	04/25/2008	**4.6**
	SB-8-30.5-31.0	30.5	Capillary Fringe	04/25/2008	**25**
	SB-8-35.0-35.5	35.0	A Aquifer	04/25/2008	**16**
	SB-8-TOP	36.5	A/B Aquitard	04/25/2008	**60**
	SB-8-MID	38.0	A/B Aquitard	04/25/2008	**31**
	SB-8-BOT	40.5	A/B Aquitard	04/25/2008	**38**
				Average of Results in Vadose [5]	**< 5.0**
				Average of Results in A-Aquifer [5]	**23**
				Average of Results in A/B Aquitard [5]	**184**

TABLE 6: SUMMARY OF SOIL SAMPLING RESULTS - APRIL AND MAY 2008
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Boring ID	Sample ID	Sample Depth (feet bgs)	Stratigraphic Unit	Sample Date	Chloroform (ug/kg)
Residential Risk-Based Target Concentration (RBTC) [1]					*8.7*

Notes:

Results are in micrograms per kiologram (ug/kg).

Samples collected using the EnCore® sampling system unless otherwise noted.

Samples analyzed by USEPA Method 8260B by McCampbell Analytical, Inc., of Pittsburg, California unless otherwise noted.

[1] Risk-Based Target Concentrations (RBTCs) for residential land use as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*). The RBTC assumes direct contact with soil on a daily basis (ingestion, dermal contact, inhalation of vapors, and windblown dust).

[2] Samples analyzed by USEPA Method 8260B by TestAmerica Laboratories, Inc., of Pleasanton, California.

[3] Estimated value.

[4] Sample collected and submitted to laboratory in a brass sleeve with Teflon caps, sealed with silicone tape (no EnCore® sampling).

[5] Averages are calculated as arithmetic mean.

* Sample collected at the interface between the A-Aquifer and A/B Aquitard.

bgs = below ground surface.

< = the analyte was not detected above the listed detection limit.

Results detected above the reporting limit are shown in **bold**.

TABLE 7: SUMMARY OF PHYSICAL TESTING RESULTS - Soil Classification Properties
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

					Atterberg Limits		Grain Size Distribution (wt. percent)							
								Sand Size				Fines		
Sample No.	**Boring Number**	**Depth (feet bgs)**	**Stratigraphic Unit**	**Soil Type [1]**	Liquid Limit	Plasticity Index	**% Gravel**	Coarse	Medium	Fine	**% Sand**	Silt	Clay	**% Fines**
EW-1-6.5-7	EW-1	7.0	Vadose	ML/SM	22	7	**0**	0	4	47	**50**	37	13	**50**
EW-1-10-10.5	EW-1	10.5	Vadose	CL	29	18	**0**	0	0	9	**9**	67	23	**91**
EW-1-21.5-22	EW-1	22.0	Vadose	CL/SC	29	16	**0**	0	3	37	**40**	41	20	**60**
EW-1-32-32.5	EW-1	32.5	A Aquifer	SM	19	NP	**0**	0	18	58	**76**	17	7	**24**
EW-1-37-37.5	EW-1	37.5	A/B Aquitard	CL	44	23	**0**	0	0	4	**4**	70	26	**96**
EW-6-17-17.5	EW-6	17.5	Vadose	ML	35	NP	**0**	0	2	19	**21**	53	27	**79**
EW-8-33.5-34	EW-8	34.0	A Aquifer	ML/SM	10	NP	**0**	0	7	53	**60**	30	10	**40**
EW-8-37-37.5	EW-8	37.5	A/B Aquitard	CL	44	25	**0**	0	0	5	**5**	63	32	**95**
EW-10-8-8.5	EW-10	8.5	Vadose	ML/SM	24	NP	**0**	0	8	50	**58**	29	13	**42**
EW-10-16-16.5	EW-10	16.5	Vadose	CL	31	16	**0**	0	0	2	**2**	73	24	**98**
EW-10-22.5-23	EW-10	23.0	Vadose	CL	29	11	**0**	0	0	29	**29**	51	19	**71**
EW-10-35-35.5	EW-10	35.5	A Aquifer	SM	20	NP	**0**	0	14	66	**80**	14	5	**20**
EW-10-36-36.5	EW-10	36.5	A/B Aquitard	CL	28	11	**0**	0	4	19	**24**	54	22	**76**
EW-15-11-11.5	EW-15	11.5	Vadose	ML/SM	13	NP	**0**	0	12	51	**62**	27	11	**38**
EW-15-19-19.5	EW-15	19.5	Vadose	CL	31	19	**0**	0	0	16	**16**	55	29	**84**
EW-15-23-23.5	EW-15	23.5	Vadose	CL	31	18	**0**	0	2	21	**22**	54	24	**78**
EW-15-34.5-35	EW-15	35.0	A Aquifer	ML	29	NP	**0**	0	2	11	**12**	67	21	**88**
EW-15-37-37.5	EW-15	37.5	A/B Aquitard	CL	40	21	**0**	0	0	2	**2**	61	37	**98**

Notes:

Methodologies for particle size and Atterberg Limits were ASTM D4464M/D422 and ASTM D4318, respectively.

[1] Unified Soil Classification System (UCSC) soil classification (CL = clay; ML = silt; SC = clayey sand; SM = silty sand)

"--" = not analyzed

bgs = below ground surface

NP = Non-Plastic

TABLE 8: SUMMARY OF PHYSICAL TESTING RESULTS - Physical Properties
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Sample No.	Boring Number	Depth (feet bgs)	Stratigraphic Unit	Soil Type	Moisture Content (% wt.)	Moisture Content (g/g)	Dry Bulk Density [4] (g/cc)	POROSITY Total (% Vb)	POROSITY Total (Vb)	POROSITY Effective [3] (% Vb)	POROSITY Air-Filled (% Vb)	POROSITY Water-Filled (% Vb)	Sample Orientation [2]	Hydraulic Conductivity [1] (cm/s)	Permeability to Air (millidarcy)
EW-1-6.5-7	EW-1	7.0	Vadose	ML/SM	11	0.18	1.58	41	0.41	--	23	18	V	--	--
EW-1-10-10.5	EW-1	10.5	Vadose	CL	24	0.38	1.57	41	0.41	--	4	38	V	--	--
EW-1-21.5-22	EW-1	22.0	Vadose	CL/SC	18	0.32	1.75	35	0.35	--	3	32	V	--	--
EW-1-32-32.5	EW-1	32.5	A Aquifer	SM	23	0.41	1.76	43	0.43	31	--	--	H	4.1 x 10-5	--
EW-1-37-37.5	EW-1	37.5	A/B Aquitard	CL	27	0.45	1.67	45	0.45	13	--	--	V	9.1 x 10-7	--
EW-6-17-17.5	EW-6	17.5	Vadose	ML	22	0.37	1.65	39	0.39	--	2	37	V	--	--
EW-8-33.5-34	EW-8	34.0	A Aquifer	ML/SM	24	0.35	1.47	41	0.41	34	--	--	V	--	--
EW-8-37-37.5	EW-8	37.5	A/B Aquitard	CL	34	0.46	1.35	46	0.46	15	--	--	V	--	--
EW-10-8-8.5	EW-10	8.5	Vadose	ML/SM	9	0.14	1.57	42	0.42	--	28	14	V	--	1,138
EW-10-16-16.5	EW-10	16.5	Vadose	CL	26	0.39	1.53	43	0.43	--	3.4	39.3	V	--	0.215
EW-10-22.5-23	EW-10	23.0	Vadose	CL	21	0.33	1.59	41	0.41	--	7.7	33.1	V	--	0.086
EW-10-35-35.5	EW-10	35.5	A Aquifer	SM	25	0.36	1.48	40	0.40	33	--	--	H	1.0 x 10-3	--
EW-10-36-36.5	EW-10	36.5	A/B Aquitard	CL	36	0.46	1.28	41	0.41	14	--	--	V	1.1 x 10-6	--
EW-15-11-11.5	EW-15	11.5	Vadose	ML/SM	8	0.13	1.63	39	0.39	--	26.4	12.7	V	--	--
EW-15-19-19.5	EW-15	19.5	Vadose	CL	20	0.32	1.61	40	0.40	--	7.7	32.4	V	--	--
EW-15-23-23.5	EW-15	23.5	Vadose	CL	23	0.38	1.66	38	0.38	--	0.8	37.5	V	--	--
EW-15-34.5-35	EW-15	35.0	A Aquifer	ML	34	0.51	1.51	45	0.45	19	--	--	H	5.5 x 10-6	--
EW-15-37-37.5	EW-15	37.5	A/B Aquitard	CL	40	0.51	1.29	43	0.43	10	--	--	V	8.8 x 10-7	--
SB-1-TOP	SB-1	36.0	A/B Aquitard	CL	28	0.41	1.46	46	0.46	--	--	--	V	1.05 x 10-6	--
SB-1-MID	SB-1	39.0	A/B Aquitard	CL	25	0.39	1.56	43	0.43	--	--	--	V	2.10 x 10-6	--
SB-1-BOT	SB-1	40.0	A/B Aquitard	CL	25	0.39	1.53	43	0.43	--	--	--	V	3.27 x 10-6	--
SB-2-TOP	SB-2	38.0	A/B Aquitard	CL	30	0.43	1.45	46	0.46	--	--	--	V	2.36 x 10-6	--
SB-2-BOT	SB-2	41.0	A/B Aquitard	CL	26	0.39	1.49	44	0.44	--	--	--	V	2.97 x 10-5	--
SB-3-TOP	SB-3	36.0	A/B Aquitard	CL	32	0.44	1.39	49	0.49	--	--	--	V	2.23 x 10-7	--
SB-3-MID	SB-3	38.5	A/B Aquitard	CL	28	0.40	1.40	48	0.48	--	--	--	V	5.35 x 10-7	--
SB-3-BOT	SB-3	40.0	A/B Aquitard	CL	24	0.38	1.57	42	0.42	--	--	--	V	7.10 x 10-7	--
SB-4-TOP	SB-4	36.5	A/B Aquitard	CL	26	0.40	1.53	43	0.43	--	--	--	V	1.01 x 10-6	--
SB-4-MID	SB-4	38.5	A/B Aquitard	CL	32	0.45	1.39	49	0.49	--	--	--	V	5.32 x 10-7	--
SB-4-BOT	SB-4	41.5	A/B Aquitard	CL	26	0.41	1.57	42	0.42	--	--	--	V	1.85 x 10-7	--
SB-5-TOP	SB-5	36.5	A/B Aquitard	CL	33	0.46	1.38	49	0.49	--	--	--	V	1.59 x 10-6	--
SB-5-MID	SB-5	38.5	A/B Aquitard	CL	31	0.42	1.37	49	0.49	--	--	--	V	1.45 x 10-7	--
SB-5-BOT	SB-5	41.0	A/B Aquitard	CL	28	0.42	1.50	45	0.45	--	--	--	V	2.78 x 10-7	--

TABLE 8: SUMMARY OF PHYSICAL TESTING RESULTS - Physical Properties
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Sample No.	Boring Number	Depth (feet bgs)	Stratigraphic Unit	Soil Type	Moisture Content (% wt.)	Moisture Content (g/g)	Dry Bulk Density [4] (g/cc)	POROSITY Total (% Vb)	POROSITY Total (Vb)	POROSITY Effective [3] (% Vb)	POROSITY Air-Filled (% Vb)	POROSITY Water-Filled (% Vb)	Sample Orientation [2]	Hydraulic Conductivity [1] (cm/s)	Permeability to Air (millidarcy)
SB-6-5.5'-6.0'	SB-6	6.0	Vadose	ML	16	0.29	1.82	35	0.35	--	--	--	V	6.91 x 10-8	--
SB-6-10.5'-11.0'	SB-6	11.0	Vadose	SM	10	0.15	1.51	44	0.44	--	--	--	V	2.73 x 10-5	--
SB-6-15.5'-16.0'	SB-6	16.0	Vadose	ML	27	0.40	1.47	46	0.46	--	--	--	V	2.60 x 10-7	--
SB-6-20.5'-21.0'	SB-6	21.0	Vadose	CL	21	0.33	1.61	41	0.41	--	--	--	V	1.54 x 10-7	--
SB-6-25.5'-26.0'	SB-6	26.0	Vadose	SM	18	0.29	1.59	41	0.41	--	--	--	V	1.67 x 10-6	--
SB-6-30.5'-31.0'	SB-6	31.0	Capillary Fringe	ML	32	0.44	1.37	50	0.50	--	--	--	V	6.60 x 10-8	--
SB-6-35.5'-36.0	SB-6	36.0	A Aquifer	SM	26	0.39	1.48	45	0.45	--	--	--	V	3.82 x 10-4	--
SB-6-TOP	SB-6	40.5	A/B Aquitard	CL	36	0.49	1.36	50	0.50	--	--	--	V	3.07 x 10-7	--
SB-6-BOT	SB-6	44.0	A/B Aquitard	CL	27	0.41	1.56	42	0.42	--	--	--	V	3.50 x 10-6	--
SB-7-TOP	SB-7	36.0	A/B Aquitard	CL	34	0.45	1.34	50	0.50	--	--	--	V	2.23 x 10-6	--
SB-7-BOT	SB-7	40.0	A/B Aquitard	CL	24	0.36	1.53	43	0.43	--	--	--	V	3.75 x 10-6	--
SB-8-TOP	SB-8	37.0	A/B Aquitard	CL	33	0.44	1.35	50	0.50	--	--	--	V	1.56 x 10-7	--
SB-8-MID	SB-8	38.5	A/B Aquitard	CL	31	0.42	1.38	49	0.49	--	--	--	V	6.20 x 10-7	--
SB-8-BOT	SB-8	41.0	A/B Aquitard	CL	24	0.36	1.54	43	0.43	--	--	--	V	4.23 x 10-7	--
Average of Results in Vadose (5)					**18**	**0.29**	**1.61**	**40**	**0.40**	**--**	**11**	**29**	**--**	**--**	**379**
Average of Results in A-Aquifer (5)					**26**	**0.40**	**1.54**	**43**	**0.43**	**29**	**--**	**--**	**H**	**6.3 x 10-5**	**--**
Average of Results in A/B Aquitard (5)					**30**	**0.41**	**1.44**	**46**	**0.46**	**13**	**--**	**--**	**V**	**9.0 x 10-7**	**--**

Notes:

Methodology for Physical Properties Data: ASTM D2216, API RP40, ASTM D425M, ASTM D5084.

[1] Permeability to water and conductivity measured at saturated conditions.

[2] Sample Orientation: H = horizontal; V = vertical.

[3] Effective Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; ASTM D425M

[4] Water = 0.9981 grams/cubic centimeter (g/cc)

[5] Averages are calculated as arithmetic mean except for the hydraulic conductivities, which are calculated as the geometric mean.

cm/s = centimeters per second

g/cc = gram of soil per cubic centimeter of soil; g/g = gram of water per gram of soil

Vb = Bulk Volume

"--" = not analyzed

TABLE 9: SUMMARY OF SOIL ANALYTICAL RESULTS - Total Organic Carbon
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Sample No.	Boring Number	Depth (feet bgs)	Stratigraphic Unit	Soil Type	Total Organic Carbon (mg/kg) [1]	Fraction Organic Carbon (g/g)
EW-1-32-32.5	EW-1	32.5	A Aquifer	SM	820	0.0008
EW-1-37-37.5	EW-1	37.5	A/B Aquitard	CL	4,450	0.0045
EW-8-33.5-34	EW-8	34.0	A Aquifer	ML\SM	2,150	0.0022
EW-8-37-37.5	EW-8	37.5	A/B Aquitard	CL	7,100	0.0071
EW-10-35-35.5	EW-10	35.5	A Aquifer	SM	1,650	0.0017
EW-10-36-36.5	EW-10	36.5	A/B Aquitard	CL	3,450	0.0035
EW-15-34.5-35	EW-15	35.0	A Aquifer	ML	3,250	0.0033
EW-15-37-37.5	EW-15	37.5	A/B Aquitard	CL	4,950	0.0050
SB-1-TOP	SB-1	36.0	A/B Aquitard	CL	3850	0.0039
SB-1-MID	SB-1	39.0	A/B Aquitard	CL	2450	0.0025
SB-1-BOT	SB-1	40.0	A/B Aquitard	CL	2250	0.0023
SB-2-TOP	SB-2	38.0	A/B Aquitard	CL	3350	0.0034
SB-2-BOT	SB-2	41.0	A/B Aquitard	CL	2150	0.0022
SB-3-TOP	SB-3	36.0	A/B Aquitard	CL	5350	0.0054
SB-3-MID	SB-3	38.5	A/B Aquitard	CL	4400	0.0044
SB-3-BOT	SB-3	40.0	A/B Aquitard	CL	3000	0.0030
SB-4-TOP	SB-4	36.5	A/B Aquitard	CL	4050	0.0041
SB-4-MID	SB-4	38.5	A/B Aquitard	CL	6900	0.0069
SB-4-BOT	SB-4	41.5	A/B Aquitard	CL	3350	0.0034
SB-5-TOP	SB-5	36.5	A/B Aquitard	CL	4150	0.0042
SB-5-MID	SB-5	38.5	A/B Aquitard	CL	10400 [2]	0.0104 [2]
SB-5-BOT	SB-5	41.0	A/B Aquitard	CL	22800 [2]	0.0228 [2]
SB-6-5.5'-6.0'	SB-6	6.0	Vadose Zone	ML	2600	0.0026
SB-6-10.5'-11.0'	SB-6	11.0	Vadose Zone	SM	1850	0.0019
SB-6-15.5'-16.0'	SB-6	16.0	Vadose Zone	ML	3350	0.0034
SB-6-20.5'-21.0'	SB-6	21.0	Vadose Zone	CL	2200	0.0022
SB-6-25.5'-26.0'	SB-6	26.0	Vadose Zone	SM	2200	0.0022
SB-6-30.5'-31.0'	SB-6	31.0	Capillary Fringe	ML	3700	0.0037
SB-6-35.5'-36.0	SB-6	36.0	A Aquifer	SM	1750	0.0018
SB-6-TOP	SB-6	40.5	A/B Aquitard	CL	7100	0.0071
SB-6-BOT	SB-6	44.0	A/B Aquitard	CL	2500	0.0025
SB-7-TOP	SB-7	36.0	A/B Aquitard	CL	4950	0.0050
SB-7-BOT	SB-7	40.0	A/B Aquitard	CL	4000	0.0040
SB-8-TOP	SB-8	37.0	A/B Aquitard	CL	5100	0.0051
SB-8-MID	SB-8	38.5	A/B Aquitard	CL	4550	0.0046
SB-8-BOT	SB-8	41.0	A/B Aquitard	CL	2450	0.0025
Average of Results in Vadose [3]					2440	0.0024
Average of Results in A-Aquifer [3]					1924	0.0019
Average of Results in A/B Aquitard [3]					4167	0.0042

Notes:

[1] Analyzed using the Walkley Black method. Results are in miligrams per kilogram (mg/kg).

[2] Results are an order of magnitude higher than all other results. These results are considered outliers.

[3] Averages are calculated as arithmetic mean. The two outlying results from the A/B aquitard are not used in calulation of the mean.

bgs = below ground surface

g/g = gram of organic carbon per gram of soil ; mg/kg = milligram of organic carbon per kilogram of soil

TABLE 10: POST-REMEDIATION DATA COMPARISON TO RBTCs

Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

		Post- Remediation Results (ug/L)		
		Chloroform Data Range (Average) from Area Where Chloroform Concentrations Exceed 80 ug/l in Groundwater		**Chloroform Maximum Concentration - All Samples**
	Risk-Based Target Concentration for Chloroform[1]	**August 2008**	**October 2008**	**October 2008**
Soil Gas Sample at 5 feet bgs	1.1	<0.0038-0.19	0.02-0.34	0.47
		(0.057)	(0.21)	
Soil Gas Sample at 10 feet bgs	1.9	0.048-0.25	0.33-0.78	0.78
		(0.15)	(0.57)	
Groundwater	380	62-320	68-330	330
		(163)	(158)	

Notes:

(xxx) = average concentration
bgs = below ground surface
ug/L = microgram per liter

[1] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*).

TABLE 11: POST REMEDIATION RISK ESTIMATES
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Matrix (units)	Chloroform (Maximum Concentration)	95% UCL [1]	Residential RBTC[3]	Excess Lifetime Cancer Risk
Soil Gas (ug/L)	0.47	NC	1.1	4.3E-07
Soil (ug/kg)	ND	NC	8.7	NC
Groundwater (ug/L):				
GW-EW1-15	170	93	380	2.4E-07
GW-EW1-18	330	133	380	3.5E-07

Notes:

[1] 95% Upper Confidence Limit (UCL) calculated for post-remediation data.

[2] Maximum soil gas concentration at a depth of 5 feet.

[3] Risk-Based Target Concentrations (RBTCs) for residential land use (assuming vapor migration into an onsite building) as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Storage Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*).

ug/kg = milligram per kilogram

ug/L = milligram per liter

NC = Not calculated

ND = Not detected

RBTC = Risk-Based Target Concentration

TABLE 12: ESTIMATE OF TOTAL CHLOROFORM MASS USING GROUNDWATER AND SOIL GAS DATA (PRE-REMEDIATION)
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Chloroform Partitioning from Groundwater In A-Aquifer				
		Value	**Unit**	**Source**
Input Values	Average groundwater concentration	448.13	µg/L	Average of May 2007
	Area of CF-impacted aquifer	34,000	ft^2	Estimate of plume area based on data from January to May 2007
	Aquifer thickness	9	ft	Conservative estimate
	Total porosity	0.43		Average measured
	Bulk density	1.54	kg/L	Average measured
Calculated Values	CF soil concentration (sorbed in aquifer)	35.7	µg/kg	
	Total GW mass	1636.67	g	
	Total CF in ground water	3.60	lbs	
	Total SG mass (in aquifer)	0.00		
	Total Soil mass (sorbed in aquifer)	480.34	g	
	Total CF in soil (sorbed)	1.06	lbs	
	Total mass in saturated zone	2117.02	g	
	Total CF mass in saturated zone	**4.66**	lbs	

Chloroform Partitioning from Soil Gas in Vadose zone				
		Value	**Unit**	**Source**
Input Values	Impacted Thickness	27	ft	Estimate, assumes top 5 feet of vadose zone not affected.
	Total Thickness	32	ft	Estimate
	Air-filled porosity	0.11		Average measured
	Average soil gas concentration	9.91	µg/L	Average measured
	Water-filled porosity	0.29		Average measured
	Bulk density	1.61	kg/L	Average measured
Calculated Values	CF soil moisture concentration	84.0	µg/L	
	CF soil concentration (sorbed)	6.68	µg/kg	
	Total mass in soil moisture	638.84	g	
	Total CF in soil moisture	1.41	lbs	
	Total SG mass	27.23	g	
	Total CF in soil gas	0.06	lbs	
	Total soil mass (sorbed in vadose zone)	280.21	g	
	Total CF in soil (sorbed)	0.62	lbs	
	Total mass in vadose zone	946.29	**Total (g)**	
	Total CF mass in vadose zone	**2.08**	lbs	

Total CF mass, A-Aquifer and Vadose Zone:	***6.74***	*lbs*

Notes:

CF = Chloroform; GW = Groundwater; SG = Soil Gas

ft = feet; g = gram; kg = kilogram; L = liter; lbs = pound; µg = microgram

TABLE 13: ESTIMATE OF TOTAL CHLOROFORM MASS USING GROUNDWATER AND SOIL GAS DATA (POST-REMEDIATION)
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Chloroform Partitioning from Groundwater In A-Aquifer				
		Value	**Unit**	**Source**
Input Values	Average groundwater concentration	158	µg/L	October 2008 average in residual CF area (EW-5, 9, 10, 13, and 16)
	Area of CF-impacted aquifer	4,000	ft^2	Estimate of residual CF area
	Aquifer thickness	7	ft	Conservative estimate (includes capillary fringe)
	Total porosity	0.43		Average measured
	Bulk density	1.54	kg/L	Average measured
Calculated Values	CF soil concentration (sorbed in aquifer)	12.6	µg/kg	
	Total GW mass	53.59	g	
	Total CF in ground water	0.12	lbs	
	Total SG mass (in aquifer)	0.00		
	Total Soil mass (sorbed in aquifer)	15.35	g	
	Total CF in soil (sorbed)	0.03	lbs	
	Total mass in saturated zone	68.93	g	
	Total CF mass in saturated zone	**0.15**	lbs	based on Oct 2008 average groundwater concentration (EW-5, 9, 10, 13, & 16)
	Range of CF mass in saturated zone	**0.07 to 0.24**	lbs	lower and upper 95% confidence limit assuming a normal distribution -see Appendix D.

Chloroform Partitioning from Soil Gas in Vadose zone				
		Value	**Unit**	**Source**
Input Values	Thickness	24	ft	Estimate, assumes top 5 feet of vadose zone not affected.
	Thickness	29	ft	Estimate
	Air-filled porosity	0.11		Average measured
	Average soil gas concentration	0.30	µg/L	Average measured (October 2008)
	Water-filled porosity	0.29		Average measured
	Bulk density	1.61	kg/L	Average measured
Calculated Values	CF soil moisture concentration	2.5	µg/L	
	CF soil concentration (sorbed)	0.20	µg/kg	
	Total mass in soil moisture	2.02	g	
	Total CF in soil moisture	0.004	lbs	
	Total SG mass	0.086	g	
	Total CF in soil gas	0.0002	lbs	
	Total soil mass (sorbed in vadose zone)	0.887	g	
	Total CF in soil (sorbed)	0.00195	lbs	
	Total mass in vadose zone	3.00	**Total (g)**	
	Total CF mass in vadose zone	**0.00659**	lbs	
	Total CF mass, A-Aquifer and Vadose Zone:	***0.16***	*lbs*	*based on Oct 2008 average groundwater concentration (EW-5, 9, 10, 13, & 16)*
	Range of CF mass in saturated zone	*0.08 to 0.25*	*lbs*	*lower and upper 95% confidence limit assuming a normal distribution -see Appendix D.*

Notes:

CF = Chloroform; GW = Groundwater; SG = Soil Gas

ft = feet; g = gram; kg = kilogram; L = liter; lbs = pound; µg = microgram

TABLE 14: ESTIMATE OF TOTAL CHLOROFORM MASS IN AQUITARD USING AQUITARD SOIL DATA
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Chloroform Mass in A/B Aquitard				
		Value	**Unit**	**Source**
Input Values	Thickness	8	ft	Estimate, assumes 8 feet of aquitard thickness based on boring logs
	Contaminated Area	4000	ft2	Estimate of residual chloroform area
	Total Porosity	0.46		Average measured
	Average soil concentration	183.5	µg/kg	Average concentration in soil samples from A/B Aquitard
	Bulk density	1.44	kg/L	Based on average measured
	Total CF mass in A/B Aquitard Soil	**0.53**	lbs	Average concentration in soil samples from A/B Aquitard
	Range of CF mass in A/B Aquitard Soil	**0.25 to 0.81**	lbs	lower and upper 95% confidence limit assuming a normal distribution -see Appendix D.

Notes

CF = Chloroform

ft = feet

kg = kilogram

L = liter

lbs = pounds

µg = microgram

TABLE 15: CALCULATION RESULTS OF CHLOROFORM CONCENTRATIONS AND MASS DISTRIBUTIONS
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

	Measured		Predicted Post-Remediation Conditions		
	Pre-Remediation January to May 2007 Data	*Post-Remediation October 2008*	*Best Case Scenario*	*Reasonable Worst Case Scenario*	*Worst Case Scenario*
Chloroform impacted area (acres)[1]	0.8	0.09	0.09	0.09	0.09
Input Parameters					
Average Fraction Organic Content of Aquitard Soils (g/g)	0.0042	0.0042	0.0042	0.0042	0.0042
Average A-Aquifer Thickness (feet)	9	7	12	9	5
A/B Aquitard Average Chloroform Concentration (ug/kg)	NA	NA	183.5	183.5	183.5
Percent Chloroform Migrating to B-Aquifer	NA	NA	75	50	25
Chloroform Partitioning					
Chloroform in Vadose Zone (lbs)	2.08	0.0066	0	0	0
Chloroform Sorbed to A-Aquifer Soil (lbs)	1.06	0.02 to 0.05	0.02	0.04	0.04
Chloroform Dissolved in A-Aquifer (lbs)	3.60	0.05 to 0.19	0.07	0.13	0.13
Total Chloroform in A/B Aquitard (lbs)	>0.25 to 0.81	0.25 to 0.81	0.08	0.18	0.35
Total Estimated Chloroform Mass (lbs)	>7 to 7.55	0.33 to 1.06	0.17	0.35	0.52
Average Chloroform Concentration in A-Aquifer Groundwater (ug/L)	448[2]	163[3]	57	132	250
Chloroform Concentration in B-Aquifer Groundwater (ug/L)	34[4]	NA	4.8	7.7	37
Groundwater RBTC for Chloroform (ug/L)	*380* [5]	*380*	*380*	*380*	*380*
RWQCB-SF Groundwater Cleanup Goal for Chloroform (ug/L)	*80* [6]	*80*	*80*	*80*	*80*

Notes:

[1] Approximate area where chloroform concentrations in groundwater exceed the RWQCB-SF Groundwater Cleanup Goal of 80 ug/L.

[2] Average calculated from arithmetic mean of A-aquifer wells within chloroform impacted area (0.8 acres based on January and May 2007 data); specifically, EW-2, EW-4, EW-5, EW-6, EW-9, EW-10, EW-13, and EW-14.

[3] Average calculated from arithmetic mean of A-aquifer wells within the chloroform impacted area (0.09 acres in October 2008); specifically, EW-5, EW-9, EW-10, EW-13, and EW-16.

[4] Maximum chloroform concentration measured in B-aquifer at location CPT-5 (located between EW-10 and EW-16) during grab sampling conducted in April 2007.

[5] Risk-Based Target Concentrations (RBTCs) for residential land use as presented in the Final Remedy Completion Report for the Redevelopment Property (*Source: Final Remedy Completion Report, Redevelopment Property, Hitachi Global Stor Technologies, Inc., 5600 Cottle Road, San Jose, California. Prepared by ENVIRON, August, 2007*). The RBTC assumes vapor migration into a home.

[6] Regional Water Quality Control Board - San Francisco Bay Region (RWQCB-SF) groundwater Cleanup Standard for the A-aquifer (*Source: RWQCB-SF Order No. R2-2002-0082 - Final Site Cleanup Requirements, International Business Mach 5600 Cottle Road, San Jose, California, as amended by Order N0. R2-2007-004*). The Cleanup Standard assumes groundwater is used as a drinking water source.

RBTC = Risk-Based Target Concentration

RWQCB-SF = Regional Water Quality Control Board - San Francisco Bay Region

g = gram; kg = kilogram; L = liter; lbs = pounds; µg = microgram

TABLE 16: POTENTIOMETRIC HEAD DIFFERENCE BETWEEN A-AQUIFER AND B-AQUIFER
Former Building 028J Area
Hitachi Global Storage Technologies, Inc.
5600 Cottle Road, San Jose, California

Year	Month	A-Aquifer Head	B-Aquifer Head	Head Difference	Gradient
		Unit: feet			*positive = downward flow*
2003 [1]	July to December	157	147	10	1.25
2004 [2]	January to June	153	149	4	0.50
2004 [3]	July to December	155	148	7	0.88
2006 [4]	January to June	162	161	1	0.13
2007 [5]	January to June	162	157	5	0.63
2007 [6]	July to December	158.5	151.5	7	0.88
Average				**5.7**	**0.7**

Notes:

[1] Golder. 2004. Annual Report to the RWQCB: Second Semi-Annual, July 1 through December 31, 2003, Groundwater Self-Monitoring Program, IBM facility, 5600 Cottle road, an Jose, California. February.

[2] Golder. 2004. Semi-Annual Report to the RWQCB, January 1 through June 30, 2004, Groundwater Self-Monitoring Program, IBM, San Jose, California. August.

[3] Golder. 2005. Annual Report to the RWQCB: Second Semi-Annual, July 1 through December 31, 2003, Groundwater Self-Monitoring Program, IBM, San Jose, California. February.

[4] Golder. 2006. Semi-Annual Report to the RWQCB, January 1 through June 30, 2006, Groundwater Self-Monitoring Program, IBM, San Jose, California. August.

[5] Golder. 2007. Semi-Annual Report to the RWQCB, January 1 through June 30, 2007, Groundwater Self-Monitoring Program, IBM facility, 5600 Cottle road, an Jose, California. August.

[6] Golder. 2008. Second Semi-Annual and Annual Groundwater Monitoring Report, July 1 through December 31, 2007, IBM facility, 5600 Cottle road, San Jose, California. February.