CORRECTIVE MEASURES STUDY (CMS) REPORT
REDEVELOPMENT PROPERTY
HITACHI GLOBAL STORAGE TECHNOLOGIES, INC.
5600 COTTLE ROAD
SAN JOSE, CALIFORNIA

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LIST OF ACRONYMS

AST	Above-Ground Storage Tank
bgs	below ground surface
BAAQMD	Bay Area Air Quality Management District
CalEPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CAO	Corrective Action Objective
CCR	Current Conditions Report
CHHSL	California Human Health Screening Level
CIH	Certified Industrial Hygienist
CMS	Corrective Measures Study
COPC	Chemical of Potential Concern
DCE	1,1-Dichloroethene
DHS	Department of Health Services
DJPA	David J. Powers & Associates
DTSC	Department of Toxic Substances Control
EH&SP	Environmental Health and Safety Plan
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
GPA	General Plan Amendment
GST	Global Storage Technologies
HAZWOPER	Hazardous Waste Operation and Emergency Response
HEPA	High Efficiency Particulate Air
HHRA	Human Health Risk Assessment
HI	Hazard Index
IBM	International Business Machines
kg	kilogram
KV	Kilovolt
LQG	Large Quantity Generator
mph	miles per hour
mg	milligram
MSDS	Material Safety Data Sheet
msl	mean sea level
MW	Megawatt
NCP	National Contingency Plan
NOA	Naturally-Occurring Asbestos

LIST OF ACRONYMS (Continued)

OCP	Organochlorine Pesticide
PCB	Polychlorinated Biphenyl
PD	Planned Development
PG&E	Pacific Gas & Electric
PID	Photoionization Detector
PPE	Personal Protective Equipment
PRG	Preliminary Remediation Goal
RBTC	Risk Based Target Concentration
RCRA	Resource Conservation and Recovery Act
R&D	Research and Development
RWQCB-SF	Regional Water Quality Control Board – San Francisco Bay Region
SI/SP	Soil Inspection and Sampling Plan
SMP	Soil Management Plan
SVE	Soil Vapor Extraction
SVOC	Semi-volatile Organic Compound
TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbon
UCL	Upper Confidence Limit
US	United States
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound

1.0 INTRODUCTION

ENVIRON International Corporation (ENVIRON), an environmental consulting firm, has prepared this Corrective Measures Study (CMS) Report on behalf of Hitachi Global Storage Technologies, Inc. (Hitachi GST) for a portion of their property located at 5600 Cottle Road, San Jose, California ("the Site"). Hitachi GST is planning redevelopment activities for this portion of the Site. The purpose of this plan is to select an alternative and detail procedures for characterizing and managing contaminated soil that may be encountered during building demolition and earthwork activities during site redevelopment.

1.1 OVERVIEW

Recently, 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 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 (IBM). The location of the Site is shown on Figure 1. The current Site layout is shown in Figure 2. The total Site is approximately 321 acres.

Hitachi GST is proposing to move its research and development (R&D) and administrative office operations to a different location in San Jose (3403 Yerba Buena Road). A portion of Site would then be sold, rezoned, and redeveloped into a mixed residential, commercial, and recreational open space area. The area to be developed is divided into five Parcels (Parcel O-1 through O-5), as shown on Figure 3. Hitachi GST transferred ownership of Parcel O-6, which is approximately 11 acres, to the City of San Jose in November 2005. In addition, Hitachi GST will be transferring ownership of Endicott Boulevard/Tucson Way, which borders the Site to the north, to the City of San Jose. For the purposes of this report, Parcels O-1 through O-5 and Endicott Boulevard/Tucson Way are 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 currently located on Parcels O-1 through O-5 will be moved to the Core Area under the redevelopment plan. The Core Area has been divided into three "core" parcels (C-1 through C-3). These parcels are shown on Figure 3.

Hitachi GST Site is a large quantity generator (LQG) of hazardous waste and also maintains a Resource, Conservation and Recovery Act (RCRA) Part B permit for on-site storage and treatment of hazardous waste. The RCRA Part B permit encompasses the full 321 acres of the Site. Hitachi GST is working with the California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control (DTSC) to remove the Redevelopment Property from the RCRA Part B Permit.

As part of the EIR, ENVIRON prepared a screening human health risk assessment (Screening HHRA) to evaluate the potential impacts on human health for Parcels O-1 through O-5. The overall objective of the Screening HHRA was to identify potential areas within Parcels O-1 through O-5 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 on Parcels O-1 through O-5; 2) compile and collect data regarding soil, soil gas and groundwater conditions in Parcels O-1 through O-5 to determine the site-specific chemicals of potential concern (COPCs); 3) develop risk-based target concentrations (RBTCs) for the COPCs within Parcels O-1 through O-5; and 4) compare the RBTCs to Parcel O-1 through O-5 data and determine which areas within these parcels require further investigation or mitigation measures. The RBTCs correspond to the level that would pose a *de minimis* health risk to future on-site populations. Table 1 lists the higher of the minimum residential RBTC developed for the Site or the maximum site-specific background concentration for inorganic chemicals.

The Screening HHRA was followed by a Current Conditions Report (CCR) (ENVIRON 2005a), which addressed Parcels O-1 through O-5 and Endicott Boulevard/Tucson Way. Additional evaluation/investigation needed to fill data gaps identified in the Screening HHRA/CCR were addressed in the Soil Inspection/Sampling Plan (SI/SP) (ENVIRON 2005b) and its associated attachments. Most of the evaluation/investigation proposed in the SI/SP will take place after demolition of on-site buildings and structures.

This CMS Report was prepared to address the presence of potential contamination 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 contained herein does not address potentially contaminated groundwater. Shallow groundwater underneath the Site is currently being remediated 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) with IBM. In addition, there is a deed restriction prohibiting the municipal use of shallow groundwater at the Site**.** If during implementation of this CMS Report, there is evidence of potential impacts to groundwater from contaminated soil, IBM and the RWQCB-SF will be notified. Groundwater characterization and remediation will be performed as required by the RWQCB-SF.

1.2 REPORT ORGANIZATION

This CMS Report is divided into seven sections as follows:

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

Section 2.0 – Site Characterization: presents an overview of the Site and surrounding area, discusses current and proposed land uses, and identifies features at the Site including topography and hydrogeology.

Section 3.0 – Summary of Recent Investigations: summarizes recent investigations conducted at the Site and identifies additional areas for investigation.

Section 4.0 – Corrective Action Objectives: identifies the specific Corrective Action Objectives (CAOs) for the Redevelopment Property.

Section 5.0 – Identification and Evaluation of Corrective Action Alternatives: identifies and evaluates the remedial alternatives and selects an appropriate corrective action alternative for the Redevelopment Property.

Section 6.0 – Corrective Action Implementation: details the steps that will be taken to implement the selected corrective action.

Section 7.0 – References: includes all references cited in this report.

Supporting information is provided in the appendices. The attachments to the SI/SP are included in Appendix A. Appendix B includes the reports from the recent investigations conducted on the Redevelopment Property.

2.0 SITE CHARACTERIZATION

The purpose of this section is to provide information regarding the Site, which is relevant to the CMS Report. This section includes a discussion of the Site history, areas surrounding the Site, current land use, future land use, groundwater use, topography, geology and hydrogeology.

2.1 SITE HISTORY

The Site is located at 5600 Cottle Road in San Jose, Santa Clara County, California. The Site, which is currently zoned industrial, is approximately 321 acres in size. 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.

In the early 1980s, chlorinated hydrocarbons were detected in soil beneath an on-site underground tank farm. Site-wide investigations showed that volatile organic compounds (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 RWQCB-SF (Order No. R2-2002-0082 – Final Site Cleanup Requirements), IBM is obligated to remediate the groundwater (RWQCB-SF 2002). According to IBM, on-site groundwater remedial actions are expected to continue for at least 10 more years.

2.2 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 (US) Route 101, approximately seven miles southeast of downtown San Jose. The Site vicinity 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.

- IBM Building 025 (formerly part of the Site), which is still owned by IBM, is located to the northwest. This parcel is the proposed location of a future Lowe's Store.

- 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, day care, and single-family residential area beyond.

2.3 CURRENT LAND USE

Current on-site operations include designing, developing, and manufacturing computer storage devices, including hard disk drives, read/write heads, and disk storage media. Currently, there are approximately 30 buildings on-site. Exterior areas of the Site primarily consist of landscaped areas, orchards, sidewalks, water fountains, asphalt parking lots, and paved private roads. In addition, a man-made lake, Homestead Lake, is located on-site. The current Site layout is shown in Figure 2.

Two electrical substations located in the central-southeastern portion of the Site provide electricity to the Site. One 115-kilovolt (kV) substation, which contains a 50 megawatt (MW) electrical generator, is owned and operated by Hitachi GST; the other 115-kV substation is owned and operated by Pacific Gas & Electric (PG&E). Facility personnel reported that electricity for the Site is provided by PG&E, and Hitachi GST's generator is only operated for testing or when there is a major Site power outage or when PG&E requests that Hitachi GST provide electrical back up during peak demand periods. In addition, most of the buildings on the Site have their own diesel-powered emergency generator with associated diesel fuel aboveground storage tank (AST).

2.4 FUTURE LAND USE

As previously discussed, Hitachi GST is proposing to move its R&D and administrative office operations to a different location in San Jose (3403 Yerba Buena Road). Buildings 010, 012, 018, 026, 028, 028J, and 051 will be demolished. Two buildings, Buildings 009 (office) and 011 (cafeteria) are considered historically significant and will remain intact.

The Redevelopment Property has been divided into five "outer" parcels (Parcels O-1 through O-5) and includes Endicott Boulevard/Tucson Way. These areas are shown in Figure 3. Following building demolition, rough grading and main utility/roadway installation by Hitachi GST, Parcels O-1 through O-5 will be sold, re-zoned, and redeveloped into a mixed residential, commercial, and recreational open space area. In addition, Hitachi GST will be transferring ownership of Endicott Boulevard/Tucson Way and newly constructed public roadways on Parcels O-1 through O-5 to the City of San Jose. Prior to sale, the Redevelopment Property must be removed from the RCRA Part B Permit.

As discussed above, Buildings 009 and 011 are considered historically significant and will remain on the Site. All other buildings within the Redevelopment Property will be demolished. The current plan is for the building demolition to start in mid-2006 and be completed by early to mid-2007.

2.5 GROUNDWATER USE

The Site is a non-community, non-transient drinking water supplier and maintains a Water Supply Permit issued by the California Department of Health Services (DHS) Drinking Water Program. Eleven registered groundwater production wells are located on the Site. Six wells provide drinking and process water for use at the Site; five wells provide water for irrigation. The drinking water wells, which are located on the Core Area, and the process water wells, which are all located in the landscaping area north of Tucson Way, are screened primarily in the deeper aquifers, in the range of approximately 100 to 350 feet below ground surface (bgs). Based on documentation reviewed by ENVIRON, these aquifers have not been impacted by on-site releases and groundwater sampling has indicated that the production wells are upgradient of the documented groundwater impacts. Two approximately 100,000-gallon well water storage tanks, which hold water from the Site's water production wells for domestic use, are located east of Building 021 (on the Core Area).

The Site also maintains a connection with the Great Oaks Water Company, which utilizes groundwater from deep wells; however, facility personnel reported that the Site does not currently receive water from off-site sources.

2.6 TOPOGRAPHY

Based on a review of the United States Geological Survey (USGS) topographic map for the Santa Teresa Hills, 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. According to Hitachi GST, there will likely be some grading and leveling during redevelopment, however, no significant changes to the topography are anticipated.

Based on ENVIRON's review of Federal Emergency Management Agency (FEMA) electronic floodplain data, the Site is located in a 500-year flood zone.

2.7 GEOLOGY AND HYDROGEOLOGY

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

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 one 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 A-aquifer 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 most shallow. 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 for treatment.

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

3.0 SUMMARY OF RECENT INVESTIGATIONS

Numerous investigations have been conducted in the Redevelopment Property to characterize the nature and extent of chemicals in environmental media. The results of these previous investigations were presented in detail in the CCR (ENVIRON 2005a). The CCR identified potential data gaps that exist within the Redevelopment Property and the need for sampling and inspection during redevelopment activities. Subsequently, ENVIRON submitted the SI/SP (ENVIRON 2005b) that outlined the procedures and schedule for sampling and/or inspection in the areas identified in the CCR. The sampling areas were grouped into nine categories and addressed in the following attachments to the SI/SP:

I. Roads/Parking Lots
II. Above ground Storage Tanks Associated with Emergency Generators
III. Buried Concrete Trenches, Building 028J, and Former Waste Vaults 02-04
IV. Hydraulic Elevators
V. Former Petroleum Underground Storage Tanks
VI. Former Orchard Areas
VII. Endicott Boulevard/Tucson Way
VIII. Other Remaining Areas
IX. Soil Gas Sampling on Parcels O-1 and O-2

Copies of these attachments are included in Appendix A to this CMS Report. As described in the SI/SP and its attachments, many of these areas cannot be inspected or sampled until demolition of the current onsite buildings has been completed. However, some areas were sampled prior to the start of building demolition/redevelopment activities as described below.

3.1 ROADS/PARKING LOTS

As part of the SI/SP, confirmatory sampling for naturally occurring asbestos (NOA) in road base beneath parking areas and roadways was recommended for the Redevelopment Property (SI/SP Attachment I – Soil Inspection/Sampling Plan for Roads/Parking Lots dated January 31, 2006). It was also recommended, upon receipt of the NOA results, that limited sampling for metals of the road base be performed for that material which may potentially remain on-site.

ENVIRON conducted two sampling events for NOA in the road base material on the Redevelopment Property. The first occurred in October 2005. Based upon the results of that event, a second investigation was conducted in December 2005. In addition, samples of the road base material were collected during the December 2005 investigation and submitted for CAM-17 metals analysis.

The results of these sampling events were summarized in a report entitled “Road Base Investigation Results – Roads/Parking Lots” (ENVIRON 2006a – included in Appendix B). No further investigation was recommended by ENVIRON as part of this report. As discussed in the EIR and agreed to with DTSC, current plans call for the road base to be excavated and reused as road base under future public roadways in the Redevelopment Property (DTSC 2006). A deed restriction will be adopted for each of the public roadways at the Site that have NOA-containing road base. Any NOA-containing road base not reused onsite will be disposed of offsite.

3.2 BURIED CONCRETE TRENCHES, BUILDING 028J, AND FORMER WASTE VAULTS 02-04

In the SI/SP, ENVIRON recommended soil sampling and a soil gas survey surrounding Building 028J and along the buried concrete trenches and associated waste vaults to determine the potential impacts to soils in these areas (SI/SP Attachment III – Soil Inspection/Sampling Plan for Buried Concrete Trenches, Building 028J and Former Waste Vaults 02-04 dated January 31, 2006). Due to the numerous utilities located in the proposed soil sampling locations (near the former waste vaults and potentially underneath Building 028J), soil samples could not be collected prior to building demolition and utility removal. However, it was determined that the soil gas survey along the buried concrete trenches and surrounding Building 028J could be performed.

The soil gas survey was performed in November 2005. The results of the soil gas sampling were summarized in a report entitled “ Soil Gas Investigation Results – Buried Concrete Trenches, Building 028J and Former Waste Vaults 02-04” (ENVIRON 2006b – included in Appendix B). Further investigation was recommended for this area in this report, but this investigation will not be completed until after the utilities have been disconnected and/or removed.

3.3 FORMER ORCHARD AREAS

In 2004, ENIVRON conducted characterization sampling of the existing orchard areas on Parcels O-1 through O-5 (ENVIRON 2005a). Based upon the results of the 2004 sampling, no additional investigation or remediation of the current orchard areas appeared warranted. However, because many of the historical orchard areas are covered by roads or parking lots, the SI/SP recommended limited native soil sampling beneath the fill in the roads and parking lots to determine if residual concentrations of organochlorine pesticide (OCP) or arsenic are present

(SI/SP Attachment VI – Soil Inspection/Sampling Plan for Former Orchard Areas dated January 31, 2006).

Based on the SI/SP recommendations, ENVIRON conducted two sampling events for OCPs and arsenic in the native soil below asphalt in the Redevelopment Property. The first sampling event occurred in October 2005. Based upon the results of that event, a second sampling event was conducted in December 2005. The results of these investigations were summarized in a report entitled “Soil Investigation Results – Former Orchard Areas Beneath Roads/Parking Lots” (ENVIRON 2006c – included in Appendix B). The report recommended further investigation in the vicinity of one boring located west of Building 026. Additional sampling in this area occurred in April 2006 and was conducted in accordance with the step-out plan submitted to DTSC (ENVIRON 2006d).

3.4 ENDICOTT BOULEVARD/TUCSON WAY

One of the areas identified in the SI/SP as requiring further evaluation/investigation was the vadose zone beneath Tucson Way located near Building 110 where an accidental release of Shell Sol 140 occurred (SI/SP Attachment VII – Endicott Boulevard/Tucson Way dated January 31, 2006). The accidental Shell Sol 140 release occurred in November 1985 in close proximity to Tucson Way.[1] According to a Material Data Safety Sheet (MSDS), Shell Sol 140 is a petroleum-based dry cleaning solvent consisting of a complex combination of predominantly C9 through C12 hydrocarbons. (See Attachment I for a copy of the Shell Sol 140 MSDS.)

To minimize the off-Site migration of free-phase Shell Sol 140, a subsurface drain system with five sumps was installed near the center of Tucson Way. This remedial action resulted in the movement of free Shell Sol 140 in soil toward the roadway, and some residual free product may have been entrapped in the soil beneath the roadway. Dissolved Shell Sol 140, benzene, toluene, and xylenes were subsequently found in the groundwater monitoring wells along Tucson Way. The SI/SP recommended that a limited number of soil samples be collected in the area beneath Tucson Way to confirm that residual concentrations were below RBTCs developed in the CCR. The results of the sampling event were summarized in a report entitled “Soil Investigation Results – Endicott Boulevard/Tucson Way” submitted to DTSC by ENVIRON in February 2006 (ENVIRON 2006e – included in Appendix B). All concentrations detected were below the RBTCs for residential land use. No further investigation was recommended by ENVIRON for this area.

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[1] The roadway was called Perimeter Road in past remediation and soil investigation reports.

4.0 CORRECTIVE ACTION OBJECTIVES

The purpose of this Section is to identify the goals, objectives, and the scope of the corrective action. The overall CAO for the Redevelopment Property is to prevent exposure of Site workers and future occupants to elevated concentrations of chemicals in environmental media. In addition, because these areas are part of the Hitachi GST Site, which is under a RCRA Part B permit, elevated concentrations of chemicals must be addressed in order for the DTSC to remove these parcels from the RCRA-permitted facility boundary.

The specific CAOs for the Redevelopment Property are as follows:

- To detail procedures for characterizing and managing contaminated soil encountered during building demolition and/or earthwork activities during Hitachi GST's redevelopment; and

- Ensure concentrations of COPCs in soil are below the site-specific residential RBTCs developed as part of the CCR or site-specific background concentrations for inorganic chemicals, if applicable. If chemicals are encountered during redevelopment that were not previously identified in the CCR, then efforts shall be made to ensure that the concentrations are below United States Environmental Protection Agency (USEPA) Region IX Preliminary Remediation Goals (PRGs), California Human Health Screening Levels (CHHSLs), or natural background levels, as appropriate. The attached Table 1 will be updated to include new chemicals detected.

The RBTCs were developed as part of the HHRA/CCR. RBTCs represent the concentration of a chemical that can remain in soil and still be protective of human health for future land use. The methodology used to develop the RBTCs is consistent with CalEPA, RWQCB-SF, and 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 soil 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, soil gas and soil. The RBTCs presented in Table 1 are the lowest RBTCs for residential land use.

The National Contingency Plan (NCP) (40 Code of Federal Regulations [CFR] § 300) is commonly cited as the basis for target risk and hazard levels. According to the NCP, lifetime incremental cancer risks posed by a site should not exceed one in a million (1×10^{-6}) to one hundred in a million (1×10^{-4}), and noncarcinogenic chemicals should not be present at levels expected to cause adverse health effects (i.e., Hazard Index (HI) greater than one). As a risk management policy, the CalEPA generally considers 1×10^{-6} to be a point of departure for purposes of making risk management decisions, with most approved remediation achieving incremental risk levels of 10 in one million (1×10^{-5}) or lower. The California Safe Drinking Water and Toxic Enforcement Act considers 1×10^{-5} as a no significant risk level. The RBTCs calculated as part of the HHRA/CCR correspond to a cancer risk of 1×10^{-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).

In some cases, naturally occurring background concentrations for inorganic chemicals are higher than risk-based concentrations. For example, as previously agreed to with DTSC, the site-specific background concentration for arsenic is a mean concentration of 8 milligrams per kilogram (mg/kg) with a maximum concentration of 12 mg/kg. In cases where the background concentration is higher than the RBTC, the background concentration will be used to evaluate the chemical concentrations detected at the Site.

As a conservative screen, individual soil samples will be compared directly to the chemical-specific RBTCs (or background concentrations, if applicable). In many cases, if a single point concentration is greater than the RBTC (or background concentration, if applicable), corrective measures will be implemented. In some cases where the single point concentration is above the lowest RBTC, an exposure concentration may be calculated according to USEPA and CalEPA risk assessment guidance.

According to 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 estimate of 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 1992).

Exposure concentrations below the RBTCs (or background levels, if applicable) would support the conclusion that risks posed by residual chemicals in soil at the Site are within acceptable limits. The presence of exposure concentrations above or at the high end of this risk range may warrant additional remediation or risk management measures.

Once the Site investigation/remediation has been completed, a final risk assessment will be prepared for the Site. In addition to comparisons to RBTCs, this risk assessment will evaluate cumulative risks in order to ensure that cumulative exposure to multiple chemicals will not result in risks above an acceptable level.

If a chemical is detected during investigation/remediation for which a RBTC has not already been developed, then the chemical concentration will be compared to USEPA PRGs and/or CalEPA CHHSLs. The PRGs are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. The CHHSLs are concentrations of hazardous chemicals in soil that the CalEPA considers to be below thresholds of concern for human health. Both the PRGs and CHHSLs correspond to a cancer risk of 1×10^{-6} and a noncancer hazard index of 1.

5.0 IDENTIFICATION AND EVALUATION OF CORRECTIVE ACTION ALTERNATIVES

The remedial alternative evaluation, as presented below, consists of development of two remedy alternatives, evaluation of the alternatives, and the selection of an appropriate remedy for the Redevelopment Property.

5.1 CORRECTIVE ACTION ALTERNATIVES

The two alternatives that have been developed are:

Alternative 1 No Action

Alternative 2 Implementation of a Soil Management Plan (SMP)

A description and details regarding implementation of each alternative are presented below.

5.1.1 Alternative 1 – No Action

Alternative 1 is the No Action Alternative. In this alternative, it is assumed that no corrective action occurs and redevelopment activities proceed and ignore the presence of COPCs in soil.

5.1.2 Alternative 2 – Implementation of a SMP

Alternative 2 consists of creating a SMP to address how soils potentially impacted by COPCs will be identified, managed, and disposed if encountered during redevelopment activities.

5.2 COMPARATIVE ANALYSIS OF CORRECTIVE ACTION ALTERNATIVES

The two alternatives described above are subjected to comparative analysis below. Each alternative is evaluated on the basis of three criteria: effectiveness, implementability and cost. The criterion is described and followed by a comparative analysis of the two remedy alternatives.

5.2.1 Effectiveness

In the effectiveness evaluation, the following factors are considered:

- *Overall Protection of Human Health and the Environment*. For the Redevelopment Property, this factor considers the ability of each alternative to meet CAOs. As discussed above, the overall corrective action goal is to prevent exposure of on-site workers and future occupants to elevated concentrations of chemicals in environmental media in these areas. Specifically, the goals are 1) to detail procedures for characterizing and managing contaminated soil encountered during building demolition and/or earthwork activities during Hitachi GST redevelopment activities; and 2) ensure that concentrations of COPCs in soil are below the site-specific RBTCs developed as part of the CCR or site-specific background concentrations, if applicable. If chemicals are encountered during redevelopment activities that were not previously identified in the CCR, then efforts shall be made to ensure that the concentrations are below PRGs/CHHSLs or Site-specific background for inorganic chemicals, as appropriate.

- *Reduction of Mobility, Toxicity, or Volume.* For the Redevelopment Property, this factor considers whether implementation of the corrective action will reduce the mobility, toxicity, or volume of chemicals in on-site soil.

- *Long-Term Effectiveness and Permanence.* For the Redevelopment Property, this factor considers whether the CAOs will continue to be met in the future under each alternative; and

- *Short-Term Effectiveness*. This factor evaluates the protection of public health during implementation of each alternative for the Redevelopment Property.

Alternative 1, the No Action alternative, is rated the lowest in effectiveness and is presented as a baseline case. Alternative 1 does not satisfy any of the four factors under the effectiveness criterion. Alternative 2 is rated higher in effectiveness than Alternative 1. Alternative 2 addresses CAOs and will be protective of on-site workers and future occupants. Alternative 2 also reduces the mobility and volume of chemicals in the soil, as it generally requires the removal of the soil with COPCs above criteria. Alternative 2 is a permanent solution, so there are no risks of human exposure to elevated concentrations of chemicals in the future. In addition, the short-term effectiveness of Alternative 2 is acceptable because the SMP provides procedures for handling and management of soil containing COPCs during redevelopment activities.

5.2.2 Implementability

This criterion examines the technical and administrative feasibility of implementing the alternative. Evaluation includes the availability of various services and materials required during implementation of the action, institutional or social concerns that could preclude the action, and State concerns that could impact implementation. In the implementability evaluation, the following factors are considered:

- Technical Feasibility: the ease or difficulty of implementing the alternatives and the reliability of the technology;
- Administrative Feasibility: those activities needed to coordinate with other offices and agencies, such as waivers or permits;
- State Acceptance; and
- Community Acceptance.

There are no technical feasibility concerns with the implementation of the alternatives. The SMP, which would be prepared as part of Alternative 2, would require approval from the regulatory agencies.

Alternative 2 may involve soil excavation, which can readily be conducted within the Redevelopment Property. Alternative 2 is easy to construct, and the goods and service are easily available.

Alternative 1, which does nothing to prevent/minimize contact with impacted soil, is the least likely alternative to be accepted by the state and community. Alternative 2 is likely the most acceptable alternative to the state and community because it addresses short- and long-term protection of the community.

5.2.3 Cost

Because the extent of soil impacted with COPCs is unknown, no cost estimate is presented for either remedy alternative.

5.3 RECOMMENDED ALTERNATIVE

Alternative 1 is not protective of human health for either current or future on-site workers and/or occupants. It also does nothing to reduce the mobility, toxicity, or volume of chemicals that may be present in the soils. Alternative 2 is the most protective of human health and can be readily implemented. Therefore, Alternative 2 is the recommended alternative for implementation in the Redevelopment Property.

6.0 CORRECTIVE ACTION IMPLEMENTATION

This Section details the steps that will be taken to implement the SMP under Alternative 2, during Hitachi GST redevelopment activities. Redevelopment activities including building demolition, and earthwork activities (such as grading, utility installation and roadway demolition/construction) will be performed by a California certified contractor (the "Contractor"). Activities required by the SMP will also be performed by the Contractor under the supervision of a California registered geologist or engineer (the "Environmental Professional"). All soil removal, transportation, and disposal activities will be performed in accordance with all applicable federal, state, and local laws, regulations, and ordinances, as well as meet Hitachi GST corporate environmental policies.

6.1 SITE PREPARATION

Many of the preparation activities, including utility clearance, security, and obtaining permits and approvals from local and state agencies, will be the responsibility of the Contractor.

Contractors, whose workers may contact COPCs in soil during redevelopment activities, will prepare their own site-specific environmental health and safety plan (EH&SP) under the direction of a Certified Industrial Hygienist (CIH) and in a manner consistent with applicable occupational safety and health standards. Alternatively, to promote efficiency and coordination, the principal contractor may prepare a site-specific EH&SP organized as a single document with component sections/appendices covering all tasks, operations and contractors/sub-contractors that may contact COPCs in soil on the Redevelopment Property. The site-specific EH&SP will be maintained at the Site.

It is the responsibility of the contractor preparing the site-specific EH&SP to verify that the components of the EH&SP are consistent with applicable California occupational health and safety administration (Cal/OSHA) standards and currently available toxicological information. Each contractor must require its employees to perform all SMP activities in accordance with the contractor's EH&SP. Each construction contractor will assure that its on-site construction workers will have the appropriate level of health and safety training and will use the appropriate level of personal protective equipment, as determined in the relevant EH&SP based upon the evaluated job hazards and monitoring results. To the extent that any construction activities may constitute "clean-up operations" or "hazardous substance removal work" as defined in the Cal/OSHA standards for Hazardous Waste Operations and Emergency Response (HAZWOPER), 8 Cal. Code Reg. § 5192, each construction contractor will assure that its on-site personnel conducting such activities, who may contact chemicals in soil have had training, and are subject to medical surveillance, in accordance with Cal/OSHA standards ("HAZWOPER-trained personnel"). Soil that is visibly stained, discolored, shiny, or oily or has a noticeable odor will be handled only by such HAZWOPER-trained personnel until it is determined that such soil does not contain COPCs which exceed RBTCs, any other chemical above the PRGs or CHHSLs, or site-specific background concentrations for inorganic chemicals, as appropriate.

Two weeks prior to the initiation of demolition activities within the Redevelopment Property, Hitachi GST shall submit a copy of site grading plans and a detailed schedule for building demolition and earthwork activities to the DTSC.

6.2 FIELD DOCUMENTATION

The Environmental Professional will be responsible for maintaining a field logbook during implementation of SMP activities. The field logbook will serve to document observations, personnel on-site, equipment arrival and departure times, and other vital project information.

6.2.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in black ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology, which might prove inappropriate. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Corrections will be dated and initialed. No entries will be obliterated or rendered unreadable.

Entries in the field logbook will include at a minimum the following for each fieldwork date:

- Site name and address
- Recorder's name
- Team members and their responsibilities
- Time of site arrival/entry on-site and time of site departure
- Other personnel on-site

- A summary of any on-site meetings
- Field observations of soil (e.g., heavy rains, odors, colors, etc.)
- Quantity of soil excavated
- Quantity of soil temporarily stored on-site
- Quantity of excavated soil in truckloads transported off-site
- Names of waste transporters and proposed disposal facilities
- Copies or numbers of manifests or other shipping documents (such as bill of lading) for waste shipments
- Changes in personnel and responsibilities, as well as reasons for the changes
- Levels of safety protection
- Calibration readings for any equipment used and equipment model and serial number

6.2.2 Photographs

Photographs will be taken at every excavation area and in other areas of interest during implementation of the SMP. Photographs will also be taken prior to the commencement of redevelopment and construction activities. They will serve to verify information entered in the field logbook. When a photograph is taken, the following information will be written in the logbook or will be recorded in a separate field photography log:

- Time, date, location, and, if appropriate, weather conditions
- Description of the subject photographed
- Name of person taking the photograph

6.3 PROCEDURES FOR SOIL INSPECTION

An Environmental Professional will be on-site to oversee some building demolition, particularly when building slabs are being removed. During these activities the Environmental Professional will be looking for visual and/or olfactory evidence of contamination. Methods of field screening the soils will be employed, including use of a photoionization detector (PID) to screen for VOCs and pH paper to test for the possible presence of corrosives. In addition, in certain areas described further in Section 6.4 below, the Environmental Professional will be inspecting the integrity of pipes, tanks, concrete pads, building foundation floors, etc. as they are removed and/or demolished. If cracks, holes, or any other indication that a release may have occurred are observed, the soil in the vicinity will be sampled in accordance with the appropriate SI/SP attachment or procedures defined below (if not specifically addressed in the SI/SP).

If during demolition, soil is encountered that is visibly stained, discolored, shiny, or oily or has a noticeable solvent-like or hydrocarbon odor that is not in an area specifically described in the SI/SP, a sample of the visibly contaminated or odorous soil (“potential source soil”) will be collected and analyzed, at a minimum, for:

- VOCs by USEPA Method 8260; and
- Total petroleum hydrocarbons (TPH) for diesel and motor oil fractions by USEPA Method 8015m.

Additional analyses may be performed if there is evidence that semi-volatile or non-volatile chemicals may be present that could represent a potential health risk through direct contact. Determination of whether other chemicals may be present would be based on field observation and professional judgment of the Environmental Professional. Additional analyses may include the following:

- Polychlorinated Biphenyls (PCBs) by USEPA Method 8080,
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270, and
- Metals by USEPA Method 6010B and 7470/7471.

The results of the field or laboratory analyses will be used to identify which chemicals are present in the visibly contaminated or odorous soil. If the remedial goals for soil (or PRGs/CHHSLs, as appropriate) are exceeded for the area where the soils are present, then the soil will be excavated until:

- Visual or olfactory evidence of contamination has been removed;
- Analysis of confirmation soil samples for relevant chemicals indicates that the RBTCs, site-specific background concentrations for inorganic chemicals, PRGs, or CHHSLs (as appropriate) are met; or

- Approximately 1,000 cubic yards of soil has been excavated. If upon reaching this volume of soil, chemicals remain at concentrations above the relevant soil remedial goals for the area, then additional remedial actions may be necessary and must be evaluated.

If contaminated soil is encountered in areas not previously identified as potential source areas, the Environmental Professional will notify Hitachi GST of the findings. Hitachi GST will then notify the appropriate parties (such as IBM and/or the DTSC).

6.3.1 Alternative Remedial Actions for Soil

If, after excavating approximately 1,000 cubic yards of soil, chemicals remain at concentrations above the relevant soil remedial goals for the area, then alternative remedial actions may be evaluated and implemented pending approval from DTSC. In addition to continued excavation, other possible remedial actions to be considered are as follows:

Capping and Deed Restrictions

If soil with chemicals above remedial goals is located in a publicly-owned portion of the Redevelopment Area (such as a street or roadway), the residual contaminated soil area may be capped and deed restrictions implemented. Capping and deed restrictions will only be implemented if the following conditions are met:

- the concentrations of residual chemicals do not pose a risk to future site occupants if they remain buried;
- the concentrations of residual chemicals do not pose a threat to ground water; and
- the DTSC approves.

The cap shall consist of a minimum depth of 18-inches of clean backfill materials (such as clean fill, road base, pavement and/or concrete) underlain by a geotextile marker fabric. A deed restriction will be implemented to notify of the potential hazard and limit access to subsurface soil below the geotextile fabric. The area where the residual contaminated soil is located will be surveyed by a licensed California land surveyor and the survey information will be recorded in the deed restriction and completion report described in Section 6.11.

Soil Vapor Extraction

If soil has VOCs above remedial goals at depths greater than five feet, implementation of soil vapor extraction (SVE) may be warranted. SVE has been well documented to be an effective technology for the removal of VOCs from soil and is the USEPA's presumptive remedy for VOCs in soil (USEPA 1993). SVE consists of applying a vacuum to vadose zone soil. The vacuum is typically generated by a vacuum pump or blower and is applied through one or more horizontal or vertical extraction wells. If the soil is reasonably permeable, the applied vacuum will induce airflow through the subsurface. The induced air flow captures and transports volatilized constituents to the extraction well(s), where they can be routed to the surface for treatment. The induced airflow will also promote the transfer of constituents from soil and/or groundwater to air by volatilization. The extracted vapors are treated through an off-gas treatment unit prior to emission to the atmosphere. The exact design of the SVE system will be based on the type and concentration of the VOCs, the areal extent of the VOCs, and the permeability of the soil. Additional data will likely have to be collected to design the SVE system. If it is determined that SVE is a viable technology for use in a specific portion of the Redevelopment Area in lieu of additional excavation, plans and specifications for the SVE system will be submitted to the DTSC for their approval prior to implementation. Depending on the type and concentration of the VOCs, a permit from the Bay Area Air Quality Management District (BAAQMD) may also be required for treatment of the vapors. A permit application will also be submitted to the BAAQMD for their approval.

6.4 AREAS TO BE INSPECTED AND/OR SAMPLED

The SI/SP outlined the steps to be taken during demolition regarding sampling of known or suspected contaminated soils in specific areas of the Redevelopment Property. In addition to the areas discussed in the SI/SP, the Environmental Professional will also be on-site during demolition of building foundations and other earthwork activities to inspect the soils uncovered during these activities in the unlikely event that additional areas of suspected contamination are found. If the Environmental Professional believes based on field observation that chemicals in soil may be present in other areas not identified in the SI/SP, sampling will be conducted in accordance with Section 6.3 of this CMS Report. If the results of sampling of any of the areas indicate that soil removal is necessary, then the soil removal will be conducted in accordance with Section 6.5 of this CMS Report. The areas requiring inspection per the SI/SP are summarized in Table 2 and shown on Figure 4. The SI/SP attachments are included in Appendix B of this CMS Report.

6.5 SOIL MANAGEMENT PLAN

If the visibly contaminated soils are observed or if the results of soil sampling indicate that soil removal is required to meet the CAOs, excavation of the soil will be conducted. Prior to beginning excavation activities the Environmental Professional will notify Hitachi GST and Hitachi GST will notify the appropriate parties (such as IBM and/or DTSC), if necessary. Excavated soils will be segregated and stockpiled on-site for characterization prior to off-site disposal as detailed in Section 6.5.2. Excavated soil will be transported off-site for disposal at an appropriately permitted or otherwise authorized facility as detailed in Section 6.8.

Confirmation samples will be collected from in-place soils at the limits of the excavation as follows:

- Sidewall samples will be collected from freshly exposed soil approximately one-half of the excavation depth at an interval of approximately one sample per 100 to 150 linear feet of sidewall excavation face. A single sidewall confirmation sample will consist of four discrete samples that will be collected in brass or stainless steel liners and composited in the laboratory to result in a single composite analysis.

- If a sidewall face is less than 50 linear feet, a discrete sample will be collected. The discrete sidewall samples will be collected from freshly exposed soil approximately one-half of the excavation depth.

- Bottom confirmation samples will be collected from excavation bottoms at discrete locations on approximately 50-foot centers for areas greater than approximately 2,500 square feet. For areas smaller than 2,500 square feet, one bottom sample will be collected from the approximate center of the excavation. Excavation bottom samples will not be composited.

- A minimum of one bottom sample and one sidewall sample per excavation face will be collected from each excavation.

Confirmation samples will be analyzed for COPCs depending upon which area identified in the SI/SP Attachments is being sampled. If the area has not been previously identified in the SI/SP, samples will be collected according to Section 6.3 of this CMS Report. If concentrations of COPCs (or other chemical) are above the applicable RBTCs or site-specific background concentrations for inorganic chemicals (or appropriate PRG or CHHSL, as applicable) then further excavation will be performed in accordance with this plan and the excavation re-sampled in accordance with the methods described above. If concentrations of COPCs (or other chemical) are below the applicable RBTCs or site-specific background concentrations for inorganic chemicals (or appropriate PRG or CHHSL, as applicable) then no further excavation will be performed.

Any NOA-containing road base not reused onsite will be disposed of offsite. All handling of NOA-containing road base (including excavation, reuse, or off-site disposal) will be conducted according to the NOA Management Plan prepared by ENVIRON and submitted to DTSC.

6.5.1 Waste Management

Stockpiles will be sampled for off-site disposal at an appropriate facility. Sampling will be done in accordance with all local, state, and federal regulations and will be conducted based upon the soil conditions and the requirements of the appropriate receiving facility.

6.5.2 Temporary Storage Operations

As soil is excavated, it may be temporarily stored at staging areas on-site before off-site transportation and disposal. At the staging areas, excavated soil will be placed on an impermeable barrier and covered to prevent any run-on and/or dust generation. Each such stockpile will have one layer of 10-mil visqueen on the bottom and one layer of 10-mil visqueen as a covering at all times except for when material is being handled. The top covering will be adequately secured so that all surface areas are covered. Berms will be constructed around the stockpile area to control precipitation run-on and runoff. Stockpiles shall be no higher than six feet. Each excavation area will be secured and water will be used to control any fugitive dust from blowing onto other properties.

Direct loading may take place concurrently with excavation operations, in which case, stockpiles may be uncovered while loading. To minimize fugitive dust emissions during loading, drop heights should be minimized and water should be used. Stockpiles of soil shall remain no longer than 30 days.

6.5.3 Waste Segregation Operations

If soil removal is required from any area on-site, the soil from each area will be segregated and stockpiled separately to prevent mixing the different types of potential contamination.

6.5.4 Decontamination Procedures

Entry to the excavation areas should be limited to avoid unnecessary exposure to the potential contaminants. In unavoidable circumstances, equipment or trucks should be decontaminated in a designated decontamination area before leaving the work area. Decontamination will occur prior to and after remediation activities have been completed using dry brush, hand washing, or steam cleaning methods. Equipment will be decontaminated in a pre-designated area on pallets or plastic sheeting. Clean bulky equipment will be stored on plastic sheeting. Cleaned small equipment will be stored in plastic bags. Decontamination wastes will be collected in separate, labeled containers provided by Hitachi and transported to Building 042 at the Site, where Hitachi personnel will be responsible for arranging for disposal.

6.6 AIR

Conducting air monitoring will be the responsibility of the Contractor. Air monitoring will conducted to achieve several goals:

- Measure the particulate matter generated during the excavation and decontamination activities to assign the appropriate personal protective equipment (PPE) for on-site workers;
- Measure particulate matter and meteorological variables to assist the Contractor in the implementation of dust control measures; and
- Measure particulate matter to determine potential off-site impacts during excavation and decontamination activities.

6.7 DUST CONTROL PLAN

This section details potential dust control measures that the Contractor will implement, if required, to minimize dust emissions during the corrective action implementation. Dust emissions may result from activities during corrective action implementation and from wind erosion. These sources are most effectively controlled using wet suppression. A high wind threshold will also be established to minimize wind erosion during extreme meteorological conditions and low visibility/permeability wind fencing will be installed around the excavation area(s). Stockpiles will be covered unless being loaded, water will be sprayed on areas which have already been excavated and are subject to wind erosion.

6.7.1 Wet Suppression

The main mechanism for the control of fugitive dust emissions from construction activities and wind erosion is by watering, which leads to the formation of a surface crust to reduce the available reservoir of dust. In addition to water, a wide variety of chemical dust suppressants are available to enhance the formation of a surface crust. However, if chemical dust suppressants are used, the chemical will require prior approval from Hitachi GST.

The effectiveness of wet suppression is dependent on the type of activities occurring, the frequency of watering, and the meteorological conditions. The watering schedule will be determined by an evaluation of the air monitoring and meteorological data, site conditions, and site activities.

6.7.2 High Wind Warnings

High wind conditions can lead to higher dust emissions. Thus, based on the information collected by the on-site meteorological station, work will be stopped during high wind conditions. There is no wind speed restrictions stated in local or federal regulations. However, an initial self-imposed action level for work stoppage will be set at a sustained wind speed of 25 miles per hour (mph). This action level is subject to revision based on actual site conditions.

6.7.3 Wind Fences

Wind fences may be used as a dust control measure in conjunction with other dust control measures discussed above. The fence reduces the wind speed at a specific location. The fence dimensions necessary to achieve optimum effectiveness will vary depending on the geography of the dust source. Typically, a fence material with 50% porosity is generally considered optimum for most applications. Low visibility/permeability windscreens will be installed around the perimeters of the excavation area(s) during the remediation activities.

6.7.4 Track Out

Track out prevention measures will be used in conjunction with other dust control measures discussed above. These may include installation of one or more of the following track-out prevention measures: a gravel pad designed using good engineering practices to clean the tires of exiting vehicles; a tire shaker; a wheel wash system; pavement extending for not less than 50 consecutive feet from the intersection with the paved public road; or any other measure as effective as the measures listed previously. Additionally, any visible track-out on a paved public road at any location where vehicles exit the work site shall be removed using wet sweeping or a high efficiency particulate air (HEPA) filter-equipped vacuum device at the end of the work day or at least one time per day.

6.8 TRANSPORTATION PLAN FOR OFF-SITE DISPOSAL

The waste materials will be profiled and approval from off-site disposal facilities will be received before any off-site disposal activities commence. Final determination of the disposal sites will be based on review of waste characterization sampling data and approval from the disposal sites. Once the disposal facility is selected, copies of waste profile reports used to secure disposal permission from the landfill will be provided to the DTSC in a Completion Report.

For the purposes of the SMP, it is assumed that excavated soil classified as hazardous waste would be transported as California hazardous waste to the Kettleman Hills Landfill, located at 35321 Old Skyline Road in Kettleman City, California, for disposal. This facility is operated by Chemical Waste Management, Inc., which is a subsidiary of Waste Management, Inc. It is further assumed that excavated soil classified as nonhazardous waste would be transported to the Altamont Landfill, located at 10840 Altamont Pass Road in Livermore, California, for disposal. This facility is operated by Waste Management, Inc.

6.9 SITE RESTORATION

Following excavation of soils under the SMP, backfilling of the excavation will be the responsibility of the Contractor and will be coordinated with the Hitachi GST and other local agencies, as required. Clean import fill may be brought onsite to backfill excavated areas.

6.9.1 Borrow Source Evaluation

Evaluation of any imported fill soil for the presence of contaminants must be concluded prior to their consideration for use as replacement fill at the Site. Only fill materials that meet DTSC criteria will be transported to the Site. A reasonable approach to confirming the absence of chemical contaminants for any potential fill sources is to follow DTSC's Information Advisory on Clean Imported Fill Material. Following this guideline, it is anticipated that four samples for up to 1,000 cubic yards plus one sample per each additional 500 cubic yards of imported soil will be taken. The samples will be analyzed for metals by USEPA method 6010B and potentially other constituents depending on the source of the imported fill.

6.9.2 Load Checking

All loads of imported fill will be checked by Organic Vapor Analyzer for each truckload entering the Site and by visual screening for fuel/hydraulic oil leaks (or other staining) in soil placed for filling the Site excavation.

6.9.3 Diversion of Unacceptable Borrow

Imported base material will be visually checked for unacceptable materials at the working face. If loads containing unacceptable materials (exhibit staining or detectable VOCs) are dumped, transporters of the unacceptable loads will be stopped before leaving the Site.

Equipment operators will watch for evidence of contaminated imported fill in loads being dumped at the working face. If contaminated materials are found or suspected, the imported material is to be isolated. The hauler of the prohibited materials will be identified and the Engineer will be contacted to determine what appropriate actions will be taken.

Segregated, improper materials will be removed from the working face immediately. These materials will be reloaded to the transporter's vehicle when possible or stockpiled in an appropriate area for later removal by a properly licensed waste hauler.

6.9.4 Documentation of Rejected Loads

All loads, which enter the Site and are subsequently rejected, will be recorded. Data compiled will include when the incident occurred, who the hauler was, why the load was rejected, whether the load was dumped prior to rejection, and what steps were taken to remove the rejected material. Additional data may be recorded as deemed necessary for the particular situation.

A separate area will always be maintained for the storage of unacceptable materials, pending removal by the original transporter or a properly licensed waste hauler.

6.10 PROJECT SCHEDULE

SMP activities will coincide with the Contractor's demolition schedule. Currently, activities are scheduled for late 2006/early 2007.

6.11 COMPLETION REPORT

A Completion Report, documenting all activities conducted pursuant to an approved CMS Report and certifying that all activities have been conducted consistent with this CMS Report, will be prepared as expeditiously as possible upon completion of the remedy and submitted to the DTSC for review and approval.

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