Final Report

Remedial Investigation

AMCO Chemical Superfund Site
1414 3rd Street
Oakland, California

EPA Contract No. EP-59-08-04

Prepared for

U.S. Environmental Protection Agency
Region 9

75 Hawthorne Street
San Francisco, California 94105

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 9

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Executive Summary

This report presents the findings of the Remedial Investigation (RI) that was performed at the AMCO Chemical Superfund Site (the Site) from September 2004 to November 2006. Additional data that are included in the Risk Assessment section but are not presented in the RI Report include air and soil gas sampling data through June 2009, and soil sampling data from 2009 well construction activities.

The purpose of the RI is to characterize the nature and extent of contamination at the Site, and to gather the data necessary for a baseline human health risk assessment (HHRA). The results of the RI and the HHRA will be used to support the feasibility study for the Site and, ultimately, the selection of any remedial actions.

The former AMCO facility is located at 1414 3rd Street in Oakland, California at the intersection with Mandela Parkway (Figure 1). Additional parcels associated with the project include 1448 3rd Street, 324 Center Street, and 336-346 Center Street. It is on the eastern boundary of the South Prescott neighborhood in the portion of the city referred to as "West Oakland." The former AMCO facility property was leased to Cable Moore, Inc. through December 2009. Cable Moore primarily used the Site for cable storage, fabrication of finished cable products, painting, and metal scrapping. The property is generally zoned as light industrial (M-20) by the City of Oakland, with a small strip of general industrial (M-30) present along 3rd Street. In addition, the property falls within the S-15 overlay zone, which is intended to promote a mixture of residential, civic, commercial, and light industrial uses near transit stations. Currently land uses at properties adjacent to the former AMCO facility include a combination of residential and commercial/light industrial.

AMCO Chemical Corporation owned and operated the property as a chemical distribution facility from the 1960s to 1989. During operation of the AMCO Chemical distribution facility, bulk chemicals were off-loaded from a rail spur on-site and stored in drums and storage tanks before being transferred to smaller containers for resale. Bulk chemical storage facilities included up to 12 aboveground storage tanks (ASTs) and two 10,000-gallon underground storage tanks (USTs), as well as numerous drums. In addition, a pipe network was used to transfer chemicals to various locations around the facility. Inspections conducted in 1988 identified corroded, bulging, or leaking drums and noted chemical spillage to soil.

The hydrogeology beneath the Site was studied as part of the RI to help evaluate the fate and transport of the site-related contaminants. The Site is underlain by two unconsolidated aquifers that are separated by a regional aquitard. The upper aquifer is composed of fill and native sand and silty sand deposits with thin layers of silt and clay (Merritt Sand), and is approximately 55 to 70 feet thick. The Merritt Sand is underlain by a competent confining layer consisting primarily of lean clay (Older Bay Mud.) The Older Bay Mud is generally 50 to 90 feet thick in the vicinity of the Site. The lower aquifer (Alameda Formation) consists of variable fluvial and marine sediments. Its thickness below the Site is unknown.

During the RI, the shallow water table fluctuated from approximately 2.5 to 6.5 feet below ground surface (bgs). In the dry season (May through October) flow generally appears to be toward the southwest; in the wet season (November through April) flow is generally to the south. Gradients are relatively flat in the vicinity of the Site, but are typically steeper north of 3rd Street, ranging from 0.006 to 0.008 feet per foot (ft/ft), and shallower south of 3rd Street, ranging from 0.001 to 0.003 ft/ft. Total dissolved solids (TDS) in groundwater south of 3rd Street generally exceed the Regional Water Quality Control Board's Basin Plan criterion of 3,000 milligrams per liter (mg/L) for drinking water as a beneficial use.

To achieve the objectives of the RI, samples of light non-aqueous-phase liquid (LNAPL), groundwater, soil, soil gas, air, and produce were collected and analyzed in accordance with the 2004 Sampling and Analysis Plan (SAP) and subsequent modifications. Based on the history of the Site and surrounding areas, samples of various media were collected from temporary and/or permanent locations both on and off the former AMCO facility, and were analyzed for some or all of the following: volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, pesticides, polychlorinated biphenyls (PCBs), dioxins/furans, cyanide, general chemistry, and physical parameters.

Over 200 individual contaminants were detected in groundwater, soil, soil gas, and air during the RI, with 98 of those identified as contaminants of concern (COCs). The COCs include VOCs (chlorinated and petroleum hydrocarbons), SVOCs, organochlorine pesticides, PCBs, metals, and dioxins/furans. The data from the RI show that groundwater contamination is present in the upper aquifer, with no data collected from the aquitard or lower aquifer.

Since this document was originally submitted in 2008, Section 7 of this report has been updated to include a quantitative evaluation of the risks and hazards posed by the presence of VOCs in crawlspace air and ambient air. Other sections of this report have not been revised to include this data. Soil vapor and groundwater data have been used as lines of evidence that vapor intrusion is occurring but have not been quantitatively evaluated. Crawlspace air is thought to be less affected by the lifestyle choices of the building's occupants, such as household product use and smoking, than indoor air. The evaluation of the results of crawlspace air sampling is considered easier to interpret than indoor air sampling results (DTSC 2005). Key findings of the RI are as follows:

- Several feet of LNAPL were observed floating on groundwater beneath the central area of the former AMCO facility. The LNAPL consists primarily of VOCs, including tetrachloroethene (PCE) and trichloroethene (TCE), but also contains SVOCs, pesticides, and dioxins/furans. The LNAPL is serving as the primary continuing source of contamination to groundwater, soil, and soil gas.
- The highest concentrations of contaminants in groundwater and soil gas (primarily VOCs) were generally observed in the central and south-central areas of the former AMCO facility, corresponding with the known locations of former chemical storage units and buried distribution piping. However, other distinct areas of elevated contamination concentrations in groundwater and soil gas were observed beneath the large vacant lot on Center Street and beneath the UPRR/Amtrak yard south of the facility, suggesting that separate releases of contaminants have occurred in these areas.

- Groundwater contaminant concentrations beneath the central and south-central portions of the former facility decrease rapidly with depth. The concentrations in the deepest monitoring wells at the Site are low or below detection levels. A concentration of 1% of the saturation limit is typically used as an indication of the potential presence of NAPL (EPA 2009). With concentrations below 35 feet below ground surface (bgs) 100 to 1,000 times less than the 1 percent of the saturation limits for specific dense non-aqueous-phase liquid (DNAPL) compounds, these data indicate that DNAPL has not migrated below approximately 35 feet bgs at the Site.
- The VOCs identified as key contaminants (chlorinated solvents and petroleum hydrocarbons) are undergoing significant biodegradation in groundwater. However, data suggests that the down gradient edge of the VOC plume is expanding despite the naturally occurring biodegradation.
- 1,4-Dioxane, a highly mobile and recalcitrant contaminant, has widely migrated in groundwater from the Site, and it is expected to continue migrating. Other contaminants mobilized in groundwater are soluble arsenic, iron, and manganese. Other metals, organochlorine pesticides, PCBs, and dioxins/furans generally have limited mobility in the environment, and the extents of these compounds are limited to the immediate vicinities of their historic suspected source areas.
- The lateral extent of groundwater contamination in the mid and deeper zones of the upper aquifer has not been fully delineated to the current screening levels.
- Because the neighborhood surrounding the Site is a vulnerable community, EPA has elected to use an excess lifetime cancer risk of 10^{-6} as the point at which action will be required at this Site.
- Several contaminants in groundwater currently exceed risk criteria for the ingestion pathway; however, groundwater is not currently used nor is it likely to be used in the future as a source of drinking water.
- The distributions of contaminants in soil are less centralized and more widespread than in groundwater, suggesting multiple industrial, non-industrial, and non-point sources. Many contaminants in soil, particularly lead, exceed risk criteria for industrial and residential receptors.
- Elevated lead concentrations were detected at several residential properties adjacent to or near the former AMCO facility. The concentrations of lead detected in the soil posed an immediate risk to residents, particularly children. A soil removal action to address the lead contamination was performed at all residential parcels occupying the same block as the former AMCO facility.
- Several VOCs were detected above screening levels in crawlspace and ambient air samples indicating that vapor intrusion is occurring. No VOC detections exceeded acute reference concentrations, indicating that there is no immediate health threat to residents. The source of the VOCs in crawlspace and ambient air is difficult to determine. As a precautionary measure, mitigation systems were installed in several residences near the Site based on the results of the vapor intrusion assessment.

- At the former AMCO facility and off-facility locations, the concentrations of several contaminants in soil, soil gas, and groundwater would pose an unacceptable risk to Site workers. However, the current concrete pavement at the former AMCO facility and off-facility locations provides a protective layer that isolates current workers from the contaminated soil, soil gas, and groundwater underneath.
- An evaluation of vapor intrusion using groundwater data was not conducted;, however, it is acknowledged that in a worst case scenario, the risks and hazards may be as high as when residential use of the groundwater is considered. The cancer risks estimated for future residents using the groundwater as drinking water in the home ranges from $1x10^{-4}$ to $7x10^{-2}$, which is significantly above the risk management range and clearly unacceptable. Hazard indices for a child is 628 and for an adult is 262, which are also significantly above the non-cancer threshold of 1.
- Several VOCs were detected above screening levels, but within the acceptable risk range in crawlspace air samples collected from the facility office. No VOC detections exceeded acute reference concentrations, indicating that there is no immediate health threat to workers.
- Concentrations of metals and VOCs in sampled homegrown produce are below levels of concern for ingestion.

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Acronyms and Abbreviations

µg/kg	micrograms per kilogram
µg/m³	micrograms per cubic meter
APEX	APEX Environmental Recovery
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
bgs	below ground surface
BSK	BSK & Associates
BTEX	benzene, toluene, ethylbenzene, and xylenes
Caltrans	California Department of Transportation
cm/sec	centimeters per second
CDHS	California Department of Health Services
CDM	Camp, Dresser & McKee, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CET	CET Environmental Services
CHHSL	California Human Health Screening Level
CLP	contract laboratory program
COC	contaminants of concern
COPC	constituents of potential concern
CPT	cone penetrometer testing
CSF	cancer slope-factor
CSM	conceptual site model
DCA	dichloroethane
DCE	dichloroethene
DEH	Department of Environmental Health

DNAPL	dense non-aqueous-phase liquid
DTSC	California Department of Toxic Substances Control
E&E	Ecology & Environment, Inc.
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
ERM	Environmental Resources Management, Inc.
ERO	Emergency Response Office
ES	Engineering-Science, Inc.
ESL	environmental screening level
ft/d	feet per day
ft/ft	feet per foot
ft/yr	feet per year
FS	feasibility study
GMP	groundwater monitoring program
HHRA	human health risk assessment
HI	hazard index
HMIS	Hazardous Material Information System
L	liter
LNAPL	light non-aqueous-phase liquid
LOGSA	Material Command Logistics Support Agency
MCL	maximum contaminant level
MEK	methyl ethyl ketone
mg/kg	milligrams per kilogram
mph	miles per hour
msl	mean sea level
MTBE	methyl tert-butyl ether
NAD	North American Datum
NAPL	non-aqueous-phase liquid

NAS	Naval Air Station
NATA	National Air Toxics Assessment
ng/kg	nanograms per kilogram
NGVD	National Geodetic Vertical Datum
OEHHA	Office of Environmental Health Hazard Assessment
PA/SI	Preliminary Assessment and Site Investigation
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PEA	Preliminary Endangerment Assessment
PG&E	Pacific Gas and Electric Company
PHA	public health assessment
ppbv	parts per billion by volume
PSCC	Packaging, Storage, and Containerization Center
PTTIL	provisional total tolerable intake levels
QA/QC	quality assurance/quality control
RfD	reference dose
RI	Remedial Investigation
RME	reasonable maximum exposure
RSL	Regional Screening Level
RWQCB	California Regional Water Quality Control Board, San Francisco Region
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
SCI	Subsurface Consultants, Inc.
Site	AMCO Chemical Superfund Site
SL	screening level
SPTCo	Southern Pacific Transportation Company
STAO	States, Tribes, and Assessment Office
SVOC	semivolatile organic compounds
TAL	target analyte list

TCA	trichloroethane
TCDD	tetrachlorodibenzo-para-dioxin
TCE	trichloroethene
TCL	target compound list
TDS	total dissolved solids
TEQ	toxic equivalency quotient
TMB	trimethylbenzene
TPH	total petroleum hydrocarbons
TOC	total organic carbon
Todd	Todd Engineers, Inc.
UCL	upper confidence limit
UPRR	Union Pacific Railroad
USCS	Unified Soil Classification System
USFDA	U.S. Food and Drug Administration
UST	underground storage tank
VOC	volatile organic compound

1.0 Introduction

1.1 Purpose of Report and Report Organization

This Remedial Investigation (RI) Report has been prepared to present the findings of the remedial investigation at the AMCO Chemical Superfund Site (the Site) by the United States Environmental Protection Agency (EPA).

As part of this RI report, a human health risk assessment (HHRA) has been prepared. In this assessment, EPA estimates the current and future risks from the Site. Sources not potentially related to the AMCO Site were not evaluated within the RI, although the HHRA does take into account background levels of contaminants in the area. Also, additional risks that may occur due to chemical interactions are not addressed, because not enough scientific research has been performed to provide a basis for such an evaluation. It is a goal of the EPA to incorporate information about chemical interactions into risk assessments when there is sufficient credible scientific evidence that interactions exist and appropriate risk assessment tools are available.

The results of the RI will be used to support the feasibility study for the Site and, ultimately, the selection of any remedial actions pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as the Superfund law, and its attending promulgated regulation, the National Contingency Plan.

The RI Report is organized as follows:

- The remainder of Section 1.0 provides: 1) report organization, 2) RI objectives and scope, 3) description of facility and surrounding area, and 4) operational history of the former AMCO Chemical facility (AMCO facility).
- Section 2.0 discusses pre-RI activities at the former AMCO facility and other nearby properties.
- Section 3.0 presents the environmental setting.
- Section 4.0 describes the investigation activities conducted as part of the RI.
- Section 5.0 describes and evaluates the nature and extent of contamination.
- Section 6.0 presents the site conceptual model and describes fate and transport of contaminants.
- Section 7.0 summarizes the baseline HHRA.
- Section 8.0 provides a summary, conclusions, and recommendations to be implemented in the feasibility study (FS).
- Section 9.0 provides a list of documents referenced in this report.

The Appendices provide interim memoranda detailing specific miscellaneous findings plus a well construction memorandum for the 2009 activities (Appendix A); boring and cone penetrometer testing (CPT) logs, well and soil gas probe completion data, aquifer test data, and survey information (Appendix B); detailed description of field procedures (Appendix C); a quality assurance/quality control (QA/QC) evaluation of the analytical data (Appendix D); comprehensive analytical data (Appendix E); soil removal action documentation (Appendix F) natural attenuation evaluation of VOCs in groundwater (Appendix G); and the baseline Human Health Risk Assessment (Appendix H).

1.2 Remedial Investigation Objectives

The objectives of the remedial investigation are to:

- Identify the specific contaminants of concern (COCs) for the Site.
- Determine the current distribution and concentrations of the COCs in soil, groundwater, and soil gas within and/or outside the former AMCO facility boundaries, including nearby residential properties, South Prescott Park, and beyond.
- Better characterize the nature and extent of the light non-aqueous-phase liquid(s) (LNAPL) beneath the central portion of the former AMCO facility and identify if any dense non-aqueous-phase liquid(s) (DNAPL) is present at the bottom of the shallow aquifer.
- Determine if volatile organic compounds (VOCs) are present at levels of concern in soil gas, crawlspace air, and ambient air at the nearby residences.
- Evaluate the fate and transport pathways of Site-related contaminants based on chemical, physical, and hydrogeologic characteristics.
- Collect sufficient data for use in a baseline human health risk evaluation and for an evaluation of potential remediation alternatives in a feasibility study.

Throughout the investigation, EPA evaluated analytical data and new information as it became available. Based on this evaluation, EPA selected additional sampling locations and expanded the analyte lists for soil, groundwater, soil gas, crawlspace air, and ambient air to supplement the sampling locations proposed in the Sampling and Analysis Plan (SAP) (CH2M HILL 2004). The additional sampling locations were located at the former facility, associated parcels, and nearby properties.

1.3 Former AMCO Facility and Surrounding Area

1.3.1 Location

The former AMCO facility is located at 1414 3rd Street in Oakland, Alameda County, California at the intersection with Mandela Parkway (Figure 1). It is on the eastern boundary of the South Prescott neighborhood in the portion of the city referred to as "West Oakland." Additional parcels associated with the project include 1448 3rd Street, 324 Center Street, and 336-346 Center Street. A 2002 aerial photograph of the former AMCO facility property and its vicinity is shown on Figure 2.

1.3.2 Present Facility Features and Surrounding Areas

The former AMCO facility property was leased to Cable Moore, Inc. through December 2009. Cable Moore primarily used the Site for cable storage, finished cable and chain product fabrication, metal scrapping, and painting. Current structures consist of an office building, a warehouse, two small storage buildings, and a truck scale. The former AMCO facility property is approximately one acre. From 1989 to 1998, DC Metals used the property—along with the vacant lot and parking lot on Center Street—as a scrap-metal yard. DC Metals operations closed down in November 1998 and scrap metal was removed from the property.

The former AMCO facility property is bordered on the north by a vacant lot owned by Bay Area Rapid Transit (BART), on the west by residences, on the south by an industrial property leased to Amtrak, and on the east by a parking lot. The nearest residents are located along 3rd and Center Streets immediately adjacent to the former facility. A municipal park (South Prescott Park) lies southwest of the property, across 3rd Street. The West Oakland BART station is located one block north of the property. The Cypress Freeway (Interstate 880 [I-880]) corridor crosses just south of the former facility, passing over 3rd Street near the southeast corner of the property.

1.3.3 Zoning

The former AMCO facility property is generally zoned as light industrial (M-20) by the City of Oakland, with a small strip zoned as general industrial (M-30) present along 3rd Street. This zone allows for a variety of commercial and manufacturing activities such as retail, administrative, automotive repair, and manufacturing. In addition, the property falls within the S-15 overlay zone, which is intended to promote a mixture of residential, civic, commercial, and light industrial uses near transit stations. The S-15 overlay zone allows for a variety of uses, including residential development of approximately 100 units per acre.

The City of Oakland General Plan designation for the former AMCO facility property is Business Mix, which provides for uses comparable to those allowed under the M-20 zone. Surrounding and nearby land use designations include Business Mix, Open Space, Mixed Housing, Neighborhood Center, Community Commercial, Urban Residential, and General Industrial. Existing land-uses in the project vicinity generally reflect the mixture of land-use designations provided for in the General Plan.

1.3.4 Demographics

Demographics information is available from the 2000 Census for the South Prescott neighborhood, and for Census Tract 4019, which includes South Prescott and the area surrounding the West Oakland BART station and the land extending westward to San Francisco Bay. For the 2000 Census data, the South Prescott neighborhood was defined as the 8 city blocks bounded by 7th Street, 3rd Street, Peralta Street, and Nelson Mandela Parkway. The 2000 Census is the most recent data available that provides information at a neighborhood level.

The total population of the South Prescott neighborhood is approximately 617. Of the 200 total housing units in the South Prescott neighborhood, 90 percent are occupied, of which 56 percent are occupied by the owner.

The ethnic/racial composition of the neighborhood is as follows:

- Black or African American – 29 percent
- White – 21 percent
- American Indian and Alaska Native – 0 percent
- Asian – 9 percent
- Native Hawaiian and Other Pacific Islander – 0 percent
- Some other race alone – 35 percent
- Two or more races – 7 percent

The available South Prescott neighborhood data did not include a category for people who consider themselves Latino or Hispanic. Members of the local Hispanic or Latino population may have classified themselves as white, some other race alone, or two or more races. For Census Tract 4019 as a whole, 49 percent of respondents indicated they were Hispanic or Latino.

The primary languages spoken at home by adults in South Prescott and the surrounding area are English (46 percent) and Spanish (48 percent), with small percentages speaking Chinese and French.

The median annual household income range is between $60,000 and $75,000, with 23 percent of local households falling within this range. Thirty-two percent of households live under the poverty level (less than $30,000), compared to the greater West Oakland area where approximately 62 percent of households fall under the poverty level. The percentage of college graduates is eight percent, same as for the greater West Oakland area. Approximately 60 percent of the population is employed. Another 34 percent report they are "not in labor force" (those who do not wish to be employed or are not able to work because of age or disability).

More information regarding demographics in the South Prescott neighborhood and the surrounding area is provided in the Community Involvement Plan (EPA 2004a).

1.3.5 Land Use

The South Prescott neighborhood in which the former AMCO facility is located has essentially the same boundaries as the historic Bay View Homestead, a 26-acre tract that was located south of the 7th Street local railway tracks, north of the 1st Street transcontinental tracks, and just east of where they converged at the Oakland Point wharf and yards. Purchased in 1869, the area developed quickly. After the tract's rapid development in the 1870s and 1880s, further growth most often took the form of existing building renovations.

Southern Pacific Railroad initially owned the marsh/waterfront land along the overland tracks but later acquired land in the South Prescott neighborhood after the turn of the twentieth century. Railroad maintenance yards were located just outside of the western South Prescott neighborhood boundary, immediately west of Peralta Street, between 3rd Street and the tracks. Additional railroad-associated commercial activity extended west from South Prescott to the wharf. Southern Pacific freight depots also began to occupy the former marsh blocks on the eastern border of South Prescott from Cypress Street (now Nelson Mandela Parkway) to Poplar Street. A concentration of railroad-related businesses bordered 7th Street, which extended north. South Prescott itself remained residential, although it was effectively sandwiched between the railroad maintenance shops and commercial activities.

During the 1950s and 1960s, a change in social planning philosophy reorganized many poorer Alameda County neighborhoods, including those located in West Oakland. The area of West Oakland that stretched from the Bay to I-880 was destroyed, including nearly all original residences, and the residents were moved into housing projects. South Prescott avoided complete demolition because of the construction of the elevated Cypress Freeway (I-880), which became an arbitrary dividing line between South Prescott and the redevelopment projects. South Prescott and adjoining areas west of Peralta Street were rezoned as heavy industry. Few industrial developers took advantage of South Prescott's new zoning designation, and the neighborhood remained relatively untouched. Finally, in the mid-1970s, planners restored the neighborhood to residential zoning. At this point, Southern Pacific sold its remaining neighborhood holdings to residents.

Today, South Prescott is a self-contained and well-preserved enclave of 19th century working-class cottages on small lots, with scattered vacant lots, industry, and new construction. All but 12 houses were built before 1910. In 1987, there were approximately 50 vacant lots in the district, mostly where sub-standard houses had been demolished. These lots are slowly being developed. Current redevelopment plans in or adjacent to the South Prescott neighborhood include mixed residential and commercial use. Projects currently under consideration include a proposed West Oakland Transit Village at 7th Street and Union and a planned 110-unit condominium community, called Mandela Village, to be built at 5th Street and Mandela Parkway. Other South Prescott area redevelopment projects include the Mandela Parkway Extension to 3rd Street, paving of the 7th Street corridor from Mandela Parkway to Market, and the 7th Street McClymonds Initiative at 7th and Mandela.

1.4 Operational History of Former AMCO Facility

In 1902, vacant lots and residential buildings occupied the former AMCO facility property. By 1912, businesses had developed in the area and a warehouse occupied the property. This warehouse has been identified as both a "kitchen boiler warehouse" and an Anheuser Busch storehouse. In the early 1930s, Sunset Supply Company, a bottle and rag dealer, began operating at the property. By 1951, the property was occupied by Walter R. Cole and Company, a welding and tank works facility.

AMCO Chemical Corporation owned and operated the property as a chemical distribution facility from the 1960s to 1989. Available information regarding the operational history of the facility is provided below. Information regarding historic operations at the former AMCO facility was obtained from the following sources:

- Historic aerial photographs (EPA 2003a and 2007)
- Interviews with neighboring residents, neighboring businesses, and former AMCO Chemical employees,
- AMCO Chemical facility records
- File reviews at City of Oakland, County of Alameda, and State of California agencies

- Review of City, County, and State archives
- Environmental assessment and investigation reports prepared for the former AMCO facility and surrounding properties.

These descriptions are based on information available at the time of preparation of this document and are subject to revision should new information become available in the course of the project.

1.4.1 Historic Facility Layout and Features

During operation of the AMCO Chemical distribution facility, bulk chemicals were off-loaded from a rail spur on-site and stored in drums and storage tanks before being transferred to smaller containers for resale. Bulk chemical storage facilities included up to 12 aboveground storage tanks (ASTs) and two 10,000-gallon underground storage tanks (USTs), as well as numerous drums. In addition, a pipe network, currently buried between layers of concrete, was used for chemical transfer at the facility. Transfer activities may have included unloading rail and truck tankers, filling tanks and drums, and transferring chemicals between tanks on the facility. The pipe network is known to have extended along the rail spur in the central and south central portion of the facility, and, based on field observations, is believed to have extended to the western portion of the facility. The following summarizes information regarding the historic facility layout and features:

- 1959: It does not appear that AMCO Chemical Company has started operations. Industrial operations are evident at the former AMCO facility property; however, many features that are specifically associated with the AMCO Chemical Company are not present.
- 1967: The AMCO Chemical building has been constructed and a rail spur now extends onto the property along the western side of the building. At least four vertical tanks, one near the western edge of the property and three adjacent to the rail spur, have been installed at the AMCO facility. In addition, possible disturbed ground is noted near the central portion of the property where the USTs were located. It is believed that the USTs were installed prior to 1970, most likely in the 1960s.
- 1977: The industrial building along the northern edge of the AMCO facility appears to have been demolished. At least one additional vertical tank has been installed adjacent to the existing rail spur. A second rail spur has been constructed along the eastern side of the AMCO Chemical building.
- 1980: Ten ASTs are noted at the AMCO facility. The ASTs include the five tanks previously observed, one additional vertical tank and a horizontal tank along the on-site rail spur, and three vertical tanks near the southwest corner of the icehouse. Access from Center Street to the facility from Center Street has been developed through the 332 Center Street property. A salvage yard and or/debris is present along the northern portion of the facility. The salvage yard appears to be located predominantly on the 349 Mandela Parkway property, currently known as the BART vacant lot, but spills onto both the former AMCO facility property and the eastern portion of the 346 Center Street property.

- 1983: The facility layout is very similar to the 1980 layout. The debris/scrap yard is still present.
- 1986: A map from the ES site investigation report indicates one additional vertical tank is present near the southwest corner of the ice house. The approximate UST(s) location, which is adjacent to the on-site rail spur, is also shown. Observations made during the site investigation documented that the current warehouse was used for drum storage and for transferring chemicals into different containers. In addition, the ice house, which also was used for drum storage, was noted to be partially burned and missing a roof.
- 1989 (October): The debris/salvage yard that was present on adjacent parcels has been removed although debris is still evident at the facility. The ASTs have been removed. The tank pad for the vertical tank along the western edge of the AMCO facility remains in place.
- 1989 (December): Disturbed ground, as well as a backhoe and dozer, are noted in the central portion of the facility. It is likely that the USTs were removed during this period. Based on field observations, the pipe network does not appear to have been removed, except in the immediate vicinity of the removed USTs.

AMCO facility buildings that remain on the property include an office, a warehouse, and small storage sheds. Historical buildings that no longer exist at the former facility include a large chemical storage warehouse along the northern boundary of the property that was removed between 1967 and 1970, an ice house (approximately 76 feet by 50 feet) located in the northeastern corner of the property that was removed between 1989 and 1993, and a large shed (approximately 25 feet by 114 feet) located at the western boundary of the property adjacent to the residential properties on 3rd Street.

A map of the AMCO facility, including historic features, is presented on Figure 3.

1.4.2 Chemical Storage and Releases

Available records indicate that the classes of chemicals handled at the AMCO facility included various chlorinated and non-chlorinated organic solvents, a wide range of petroleum hydrocarbons, organochlorine pesticides, organophosphate pesticides, products containing primarily ethylene glycol and other glycols, natural extract organic compounds, organic acids, creosote, inorganic salts, and a wide range of miscellaneous commercial and industrial liquid mixtures. Table 1 provides a list of specific compounds and products known to have been handled at the AMCO facility. The list of compounds handled at the AMCO facility is based on available surviving records, including the AMCO 1965-66 batchbook, AMCO 1971-1992 batchbook, and the United States Army's Hazardous Material Information System (HMIS, a database maintained by the Materiel Command Logistics Support Agency [LOGSA], Packaging, Storage, and Containerization Center [PSCC], Packing and Transportation Division) (Science Applications International Corporation [SAIC] 2004).

In 1988, the California Department of Toxic Substances Control (DTSC) conducted an inspection of the facility and determined from the property owner that chlorinated and non-chlorinated organic solvents, water-soluble and oil-soluble cleaners, and other chemicals had been handled and stored on-site. The DTSC inspector observed spillage of chemicals to soil and leaking and deteriorated drums. A report of violation was drafted but, for unknown reasons, not sent to AMCO (Ecology & Environment, Inc. [E&E] 2001).

Also in 1988, the Alameda County Department of Environmental Health (DEH) conducted an emergency response at the facility subsequent to notification that the Oakland Fire Department had observed leaking drums at the facility. The DEH investigators noted more than one hundred 5- and 55-gallon drums, many of which were corroded, bulging, or leaking. Among the drum labels noted in the investigation were acetone, 1,1,1-trichloroethane (1,1,1-TCA), methanol, methyl ethyl ketone (MEK), and dry cleaning solvent (E&E 2001). The DEH did not find that emergency action was necessary and met with the facility owner regarding required cleanup (E&E 2001).

The USTs were reported to have stored ethylene and propylene glycols (DEH 1996). There is no documentation regarding releases from the ASTs or USTs.

1.4.3 Neighboring Parcels

Three parcels adjacent to the former AMCO facility were investigated as part of the RI. These parcels, which comprise the "off-facility" areas, include:

- **332-346 Center Street (Large Vacant Lot).** In 1967, and perhaps past 1977, residences were present on these properties. By 1980, the residence had been removed from the 332 Center Street property, and the property was being used for vehicle access to the AMCO facility and material storage. In addition, the 1980 and 1983 aerial photographs indicate that the eastern half of the 346 Center Street property was covered by debris and may have been part of a scrap yard area.
- **1448 3rd Street (Warehouse and Parking Area).** Until at least 1935, this parcel was a residential property. By 1951, the structures had been demolished and the property had become a vacant lot. In 1952, the current warehouse was built. A waste paper business operated at the property between approximately 1952 and 1958. Sometime in the early 1960s, DC metals began using the warehouse and yard for metal storage. It is believed that the warehouse also housed a small machine shop (EPA 2006). In 1998, DC Metals ceased operations at the property.
- **324 Center Street (Small Vacant Lot).** At the time of AMCO's operation, a residence was located at this parcel.

1.5 Site History

Community interest in the former AMCO facility began in 1996, when DTSC presented information on hazardous materials found on property related to the California Department of Transportation (Caltrans) Cypress Construction Project. Pacific Gas and Electric Company (PG&E) employees who had worked on the construction of a utility trench on Center Street in June of 1995 expressed concern over possible chemical exposure. Investigations conducted on behalf of PG&E and Caltrans in 1996 documented the presence of vinyl chloride and other chlorinated solvents in soil and groundwater at sample locations on 3rd Street, south of the former AMCO facility. Sampling conducted in 1996 on behalf of DC Metals documented the presence of vinyl chloride on the property (E&E 2001).

EPA Region 9 first became aware of the former AMCO facility in 1996, when DTSC requested assistance. EPA began a removal assessment by sampling soil gas on the former AMCO facility and determined that a response to remove the contamination was necessary. Under the Emergency Response Program, EPA installed a dual-phase groundwater and soil vapor treatment system on the property, which began operating in January 1997.

The system included a groundwater collection trench, groundwater extraction sumps, and soil vapor extraction wells. Groundwater and soil vapor extracted from the trench were passed through a vapor stripper; vapor from the stripper then entered a thermal oxidation unit, while water was treated through two granular-activated carbon units. The approximate layout of the treatment system is shown on Figure 4. The system extracted approximately 7,000 pounds of VOCs, of which approximately 40 pounds were vinyl chloride (E&E 2001). The system operated until July 1998, when EPA shut it off in response to community concerns over the potential for release of dioxins to the environment from the thermal oxidation unit.

As part of the treatment system construction, approximately 160 cubic yards of soil were excavated from the former AMCO facility and from beneath the sidewalk immediately south of the former facility. Excavated soil was disposed of off-site. Additional excavation was performed while attempting to locate USTs reported to exist on-site. Excavations to 8 feet below ground surface (bgs) were conducted at locations where USTs had been reported by a former AMCO employee. However, no tanks or associated plumbing were found. Instead, debris and disturbed soil were found adjacent to disturbed soil at these locations. EPA concluded that the tanks had previously been removed, and the excavation had been backfilled with non-native soil and debris (Mandel 1996). An 1,800-gallon UST containing oily water and sludge was discovered during excavation for the treatment system collection trench. The tank, located under the sidewalk on 3rd Street (see Figure 4), was removed along with a small volume of petroleum-contaminated soil. The tank and all excavated soil were disposed of off-site (E&E 2001).

Following the shutdown of the treatment system, EPA conducted groundwater, soil, and air sampling in December 1998, September 1999, and April 2000 to verify that residents near the former AMCO facility were not at risk from the contamination. The results of the investigation are presented in the *Preliminary Assessment and Site Investigation [PA/SI] Report* (E&E 2001). Additional sampling of groundwater, soil gas, and crawlspace air was conducted in August 2002 following the PA/SI. The results of this sampling event are presented in the *Data Evaluation Report, Routine Site Monitoring Event* (CH2M HILL 2002).

EPA Region 9 proposed that the Site be added to the National Priorities List of federal Superfund sites. The proposal to list the Site on the National Priorities List was published in the Federal Register on April 30, 2003, and the Site was listed as a Superfund site on September 29, 2003.

2.0 Summary of Pre-RI Investigations

Numerous environmental investigations have been conducted at and around the AMCO facility, both prior to and following EPA involvement. These investigations have documented the presence of chlorinated solvents, petroleum hydrocarbons, and metals in soil, soil gas, and groundwater on-site and off-site, as described below. Environmental investigations conducted at nearby sites are also summarized.

2.1 Investigations Prior to EPA Involvement

The results of the investigations conducted prior to EPA involvement at the Site (pre-1996) are summarized in Table 2 and below.

2.1.1 1986 Site Investigation

In March 1986, Environmental-Science, a contractor for AMCO, collected six surface soil samples from six locations throughout the facility (ES 1986). Samples were analyzed for VOCs, total oil and grease, and metals by unspecified methods. Vinyl chloride was not detected in any of the samples; however, 1,1,1-TCA and 1,1-dichloroethane (1,1-DCA) were detected at maximum concentrations of 25,500 micrograms per kilogram (µg/kg) and 2,100 µg/kg, respectively. Total oil and grease were detected at concentrations ranging from 170 milligrams per kilogram (mg/kg) to 7,700 mg/kg. Arsenic, chromium, and lead were detected at elevated levels, with maximum detected concentrations of 540 mg/kg, 710 mg/kg, and 1,300 mg/kg, respectively.

2.1.2 1995 PG&E Utility Work Sampling

In May 1995, PG&E contractor Smith-Reidel collected soil samples from eight boring locations during the construction of a utility trench. Four of the borings were located on 3rd Street, immediately south of the former AMCO facility. The samples were analyzed for gasoline, total extractable petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylenes (BTEX), and organochlorine pesticides. Gasoline and BTEX were detected in the samples. In June 1995, Smith-Reidel collected additional soil samples from three hand-auger borings on the sidewalk on 3rd Street, immediately south of the former facility. Vinyl chloride was detected at a maximum concentration of 120 µg/kg, along with BTEX, 1,1,1-TCA, 1,1-DCA, and cis-1,2-dichloroethene (c-1,2-DCE). Smith-Reidel also reported the presence of a non-aqueous-phase liquid (NAPL) in the trench (E&E 2001).

In June 1995, PG&E crews noted strong odors during the construction of a utility trench on Center Street between 3rd and 5th Streets. Contractor CET Environmental Services (CET) collected six soil samples from the area, none of which contained detectable levels of vinyl chloride (E&E 2001).

2.1.3 1995 Caltrans Cypress Construction Project Sampling

In December 1995, Caltrans contractor APEX Environmental Recovery (APEX) conducted soil and groundwater sampling to characterize the area of proposed highway footings for the Cypress Construction Project (APEX 1995). Most of the samples were collected from the neighboring property at 1401 3rd Street; however, five of the borings were completed on 3rd Street and one was located on Mandela Parkway (formerly Cypress Street) adjacent to the former AMCO facility. Four of the borings were completed to 10 feet bgs and two borings extended to 55 feet bgs. Twenty-three soil samples and four groundwater samples from these locations were analyzed for VOCs. Vinyl chloride was detected in seven soil samples from three boring locations on 3rd Street at concentrations ranging from 9 µg/kg to 540 µg/kg; in groundwater, vinyl chloride was detected in samples from three borings on 3rd Street at concentration ranging from 30 micrograms per liter (µg/L) to 44,000 µg/L. Other chlorinated hydrocarbons, including tetrachloroethene (PCE), c-1,2-DCE, t-1,2-DCE, 1,1,1-TCA, and BTEX were also detected in soil and/or groundwater collected from borings on 3rd Street.

2.1.4 1996 Investigation for DC Metals

In July 1996, BSK & Associates (BSK), a contractor for DC Metals, collected 11 soil samples and four groundwater samples at four locations throughout the former AMCO facility (BSK 1996). Soil samples were collected from approximately 1 foot below the base of the concrete paving and at 5-foot intervals to maximum depths of 10 feet bgs, with one sample from each boring analyzed for chlorinated hydrocarbons. Groundwater samples were collected at approximately 5 to 8 feet bgs. Vinyl chloride was detected in two soil samples at concentrations of 70 µg/kg and 1,000 µg/kg, and in two groundwater samples at 0.95 µg/L and 0.98 µg/L. Other chlorinated hydrocarbons, including c-1,2-DCE and t-1,2-DCE, were also detected in soil and/or groundwater.

2.1.5 1996 PG&E Utility Work Sampling

In August 1996, CET conducted additional soil and groundwater sampling for PG&E to investigate the environmental conditions in the immediate vicinity of the utility trench on 3rd Street, immediately south of the former AMCO facility (CET 1996). Eighteen soil samples were collected from five soil borings, completed from 8 to 16 feet bgs. Two groundwater samples were collected from the soil borings, and one grab sample was collected from water in a utility vault in the sidewalk. Vinyl chloride was detected in two soil samples at concentrations of 17 µg/kg and 170 µg/kg, and in all three groundwater samples at concentrations ranging from 5.5 µg/L to 290 µg/L. Other chlorinated hydrocarbons—including PCE, trichloroethene (TCE), c-1,2-DCE, and t-1,2-DCE—were detected in soil and/or groundwater.

2.2 EPA Investigations

Prior to the RI, EPA investigations at the former AMCO facility were conducted through two programs: the Emergency Response Office (ERO) and the States, Tribes, and Assessment Office (STAO). ERO activities were conducted from October 1996 through July 1998 and included a removal assessment of soil gas contamination, installation of a dual-phase groundwater/soil vapor extraction treatment system, and continued Site monitoring to assess the effects of the treatment system. STAO investigations were conducted from December 1998 to August 2002 by the E&E Superfund Technical Assessment and Response Team and by CH2M HILL, with the focus on gathering information for the PA/SI and monitoring Site conditions after the treatment system was shut down. The treatment system operated from January 1997 to July 1998, as described in Section 3.3.

The EPA investigations are summarized in Table 3 and in more detail below. Tables and figures summarizing the results of the EPA investigations are available in the RI SAP (CH2M HILL 2004).

2.2.1 Soil Gas Sampling

EPA soil gas sampling activities conducted prior to the RI consist of the following:

- October/November 1996 - As part of a removal assessment, 26 soil gas samples were collected on-site and on two residential properties on 3rd Street and Center Street. The samples were analyzed for vinyl chloride by EPA Method TO-14.
- October 1997 - Soil gas samples were collected from 12 locations—six of which were at or near the 1996 sample locations—to assess whether the levels of vinyl chloride were being mitigated by the operation of the treatment system. The samples were analyzed for VOCs.
- December 1998 - Soil gas samples were collected at 13 locations to assess Site conditions (following the shutdown of the treatment system), and to gather data from previously uncharacterized portions of the former AMCO facility. The samples were obtained from subsurface borings established 2 to 3 feet bgs and collected in SUMMA canisters for VOC analysis by EPA Method TO-15. Three of the borings were converted to permanent soil gas probes.
- September 1999 - Soil gas samples were collected from the three permanent soil gas probes on the former AMCO facility. The samples were collected in SUMMA canisters and analyzed for VOCs by EPA Method TO-15.
- April 2000 - To determine whether vinyl chloride levels had changed from 1999, soil gas samples were collected from one of the permanent soil gas probe locations on the former AMCO facility; the other two probe locations were not sampled because these locations contained water.
- August 2002 - To continue monitoring, soil gas samples were collected from one of the permanent soil gas probe locations on the former AMCO facility; the other two probe locations were inaccessible.

Numerous VOCs were detected in the soil gas samples. The highest concentrations of VOCs were detected in the central portion of the former AMCO facility. Vinyl chloride and benzene in soil gas were detected at concentrations of 2,200,000 parts per billion by volume [ppbv] and 15,000 ppbv, respectively, in this area. Vinyl chloride and benzene concentrations greater than 1,000 ppbv also were detected at the north/northwestern boundary of the property, and vinyl chloride was detected in the vacant lot to the northwest at concentrations as high as 360 ppbv.

2.2.2 Soil Sampling

EPA soil sampling activities conducted prior to the RI consist of the following:

- September 1999 - To determine the magnitude and extent of soil contamination, 49 soil samples were collected from 16 borings on the former AMCO facility. The samples were collected at 2, 5, and/or 10 feet bgs. In addition, one soil sample was collected from 2 feet bgs at the eastern end of the 1401 3rd Street property, later developed as South Prescott Park. The samples were analyzed for VOCs using EPA Method 8260B.

- April 2000 - To further characterize the extent of soil contamination, 50 soil samples were collected from six borings at approximately 5-foot intervals ranging from 30 to 45 feet bgs. Deeper depths could not be reached because heaving sands were encountered. An additional seven surface soil samples were collected at 6 inches to 2 feet bgs from backyards at 1428 and 1432 3rd Streets. All samples were analyzed for VOCs by EPA Method 8260B; samples collected from one of the borings in the central portion of the former AMCO facility were also analyzed for metals.

Numerous VOCs, including chlorinated solvents and petroleum hydrocarbons, were detected in soil. The highest concentrations were generally detected at the shallower depths, with the results from the April 2000 sampling suggesting that the majority of VOC contamination is in the top 15 feet of soil.

Metals results from the one boring sampled indicate that metals concentrations at that location are generally below EPA Region 9 residential soil preliminary remediation goals (PRGs) (EPA 2004b), with the exception of lead in surface soil.

2.2.3 Groundwater Sampling

EPA groundwater sampling activities conducted prior to the RI consist of the following:

- February, June, September 1997 - As part of the removal action under ERO, five groundwater monitoring wells (MW-10 through MW-14) were installed on and near the former AMCO facility. All wells were screened from 5 to 20 feet bgs. Samples were collected from these wells in February, June, and September 1997. The samples collected in February 1997 were analyzed for VOCs, semivolatile organic compounds (SVOCs), and metals. The samples collected in June and September 1997 were analyzed for VOCs and SVOCs.

- December 1998 - To assess conditions following the shutdown of the treatment system, samples were collected from wells MW-11 through MW-14 using disposable bailers. The samples were analyzed for VOCs, SVOCs, and metals.

- September 1999 – To address community concerns, two groundwater samples were collected from temporary borings at the western portion of the 1401 3rd Street property, which is now South Prescott Park. The samples were collected at approximately 20 feet bgs and were analyzed for VOCs.

- April 2000 - Samples were collected from wells MW-12 through MW-14 using disposable bailers and were analyzed for VOCs. Approximately 7 gallons of floating NAPL were removed from MW-14 during well purging. In addition, groundwater grab samples were collected from six temporary borings on or near the former AMCO facility for VOC analysis. The grab samples were collected at various depths from 5 to 40 feet bgs. Deeper depths could not be reached because heaving sands were encountered. The samples from one of the temporary borings were also analyzed for metals.

- August 2002 - Samples were collected from wells MW-12 through MW-14 and from wells on the neighboring property at 1401 3rd Street. The samples were analyzed for VOCs. Floating NAPL was observed in MW-14 and MW-13 at thicknesses of 5.4 feet and 0.20 feet, respectively.

Numerous VOCs, including chlorinated solvents and petroleum hydrocarbons, were detected in the groundwater samples at concentrations exceeding federal and state maximum contaminant levels (MCLs) and/or EPA Region 9 PRGs for tap water. High concentrations of VOCs were detected at the maximum depths sampled (40 feet bgs) at several temporary locations. SVOCs (including naphthalene, carbazole, 2-methylphenol, and pentachlorophenol) and metals (including aluminum, arsenic, cadmium, chromium, lead, nickel, and thallium) also have been detected in groundwater samples at concentrations exceeding federal and state MCLs and/or EPA Region 9 PRGs.

2.2.4 Residential Soil Gas and Air Sampling

With the permission of the residents, EPA has collected soil gas, crawlspace air, and/or ambient air samples at four residences: 1428 3rd Street, 1432 3rd Street, 1436 3rd Street, and 326 Center Street. The samples were collected in September 1999, April 2000, and August 2002 and were analyzed for vinyl chloride.

In September 1999, vinyl chloride was detected in three crawlspace air samples at concentrations ranging from 0.02 ppbv to 0.045 ppbv, and in one residential soil gas sample at a concentration of 0.014 ppbv. The maximum crawlspace air concentration detected (0.045 ppbv, or 0.117 micrograms per cubic meter [$\mu g/m^3$]) exceeded the EPA Region 9 ambient air PRG for vinyl chloride of 0.042 ppbv, or 0.11 $\mu g/m^3$. However, in April 2000 and August 2002, vinyl chloride was not detected in any residential crawlspace air, ambient air, or soil gas samples.

2.3 Investigations at Neighboring Sites

Environmental investigations are known to have been conducted at the nearby sites described below. The locations of these sites are shown on Figure 5.

2.3.1 1401 3rd Street Site

The 1401 3rd Street site is located between Chester Street and Mandela Parkway, across 3rd Street from the former AMCO facility. Numerous investigations were performed at this site between 1990 and 1995. The following briefly summarizes the history of operations and environmental work performed at the site.

The 1401 3rd Street property is bordered to the south and east by a railroad marshalling yard, which operated from before 1930 to at least 1980. Based on historic aerial photographs, the western portion of the property (west of Center Street) has been used for commercial/industrial activities since at least 1930. In the 1930 photograph, the eastern portion of the property was mostly vacant, with one structure visible. By 1950, a commercial/industrial facility extended partially on to the eastern portion of the property, and the remainder of the property appeared to be used for storage. A 1958 aerial photograph of the site shows the property had not changed significantly by this time, but two above ground storage tanks (ASTs) appear to be present on the property. The site does not appear to change significantly until sometime around 1977, when the structures have been removed from the property. Occidental Chemical Company reportedly used the site to store and/or transfer agricultural products prior to 1976 (ERM 2002a).

The former Southern Pacific Transportation Company (SPTCo), now Union Pacific Railroad (UPRR) purchased the site in 1976 and leased the site to Mr. John Bobo for use as a scrap metal storage operation from 1976 to approximately 1988. Aerial photographs from this period show an automobile junkyard/scrap metal salvage yard covering the property. Caltrans purchased portions of the property from SPTCo to construct the I-880 Cypress Replacement Freeway following the 1991 Loma Prieta earthquake. Caltrans constructed an elevated freeway over the eastern portion of the site, and the western portion was developed into South Prescott Park in fall 2001. Based on a site investigation report by APEX (APEX 1995), which is discussed below, underground storage tanks were removed from the easternmost portion of the property sometime between 1990 and 1995.

Numerous soil and groundwater investigations and remedial actions (including excavations) were conducted by consultants on behalf of SPTCo between October 1990 and April 1993 (TerraNext 1996). In addition, a remedial investigation and baseline risk assessment were performed by Geomatrix Consultants on behalf of SPTCo in November 1995, and a site investigation and a supplemental site investigation were conducted by APEX on behalf of Caltrans in November/December 1995 (Geomatrix 1995; APEX 1995, 1996). Soil and groundwater at the property has been impacted by total petroleum hydrocarbons (TPH) as gasoline and diesel, polynuclear aromatic hydrocarbons (PAHs), and VOCs, including chlorinated solvents and BTEX. Pesticides and polychlorinated biphenyls (PCBs) also were found in soil. The results of the site investigation performed by APEX indicated that elevated concentrations of VOCs were present in the groundwater below the AST location and the UST location across from the former AMCO facility.

At the direction of DTSC, groundwater at the site has been monitored for TPH and VOCs quarterly from July 1991 through November 1992 and from August 1994 through 1996 (TerraNext 1996) and semiannually from January 1997 to December 2005 (ERM 2005). All of the wells on the property began to be monitored quarterly by EPA in 2005 as part of the AMCO Chemical Site RI; however, EPA has not assumed responsibility for any sampling required by Imminent or Substantial Endangerment Determination and Remedial Action Order (Docket No. I&/SE 94/95-002) section 5.1.3 issued to UPRR by DTSC (DTSC 2006).

UPRR leased the 1401 3rd Street site to Amtrak in 2003; shop facilities were constructed on the property in 2003 and 2004.

2.3.2 5th Street and Mandela Parkway Site

The 5th Street and Mandela Parkway site is located just east of the former AMCO facility, west of Mandela Parkway, and south of 5th Street. Environmental assessments, including Phase I and Phase II investigations, were performed at this site between 1996 and 1999. The following briefly summarizes the history of operations and environmental work performed at the site.

Based on historic aerial photographs, this property was used for railcar storage from prior to 1930 to at least 1959. By 1966, the majority of the rail spurs had been removed from the property. By 1980, the site appears to have been redeveloped as a warehouse facility or truck depot. According to a Phase II Investigation Report by OGISO Environmental, a UST is suspected to have been located in the southwestern portion of the property and an AST was identified on the southern central portion of the property in 1949.

A Phase I investigation was conducted at the 3.9-acre property by STV Incorporated in October 1996, and a Phase II investigation was conducted by Geomatrix Consultants in September 1998, prior to Union Pacific Railroad's sale of the property to the Community Economic Redevelopment Corporation. Because the 1998 Phase II did not meet all the identified needs of the Community Economic Redevelopment Corporation, a second Phase II investigation was performed in November 1999 by OGISO Environmental on behalf of the Alliance for West Oakland Development (OGISO 1999).

During the first limited Phase II investigation, soil samples were collected from five temporary borings: two west of the warehouse and three east of the warehouse. The soil samples were taken at approximately 1.5 feet bgs and analyzed for PAHs, VOCs, and selected metals. During the second Phase II investigation, soil samples were collected from four borings at 0.5, 2.5, and 5 feet bgs, and groundwater samples were collected from three of the borings at 8 feet bgs. The soil samples were analyzed for SVOCs and metals, and the groundwater samples were analyzed for VOCs.

No VOCs, PAHs, or other SVOCS were detected in the soil samples, and metals were not detected at concentrations above hazardous or regional background levels. VOCs were not detected in the groundwater samples (OGISO 1999).

2.3.3 Caltrans District 4 Excess Land - Former J&A Truck/Container Freight Sites

Environmental assessments have been performed at two Caltrans properties in the vicinity of the AMCO Chemical Site. The former J&A site is located two blocks northeast of, and the former Container Freight site is located two blocks east of, the former AMCO facility (on the east side of the 5th Street and Mandela Parkway site). The environmental assessment at the J&A site was performed in 1994. The environmental assessment(s) at the former Container Freight site were performed subsequent to a 1995 UST removal. The following briefly summarizes the history of operations and environmental work performed at these sites.

The J&A site was purchased by Caltrans in 1994 from Mr. Barney Smilo, a private owner who had used the site for truck maintenance. The site formerly had housed warehouses and a UST. It is currently paved and is being used by the United States Postal Service for vehicle storage and employee training. An environmental assessment performed in 1994 indicated the presence of TPH, lead, and low levels of SVOCs and VOCs in soil. During the UST excavation, PCBs were also detected in samples collected from the excavation walls; however, a risk assessment indicated lifetime cancer risks posed by site contaminants were within acceptable ranges. TPH, metals, pesticides, SVOCs, and VOCs have been observed in groundwater (ERM 2002b). VOCs detected in groundwater at concentrations exceeding MCLs include PCE, TCE, c-1,2-DCE, and 1,1-DCA.

The former Container Freight site was purchased by Caltrans in 1994. The property was used from approximately 1967 to 1994 as a freight warehouse and distribution facility, where cargo was transferred from freight trains to trucks. Prior to this, the property was owned by the Commissary Department of Southern Pacific Railroad. Currently, the site is paved and is used by Caltrans tenants for vehicle and equipment storage. All site structures were demolished in May 1995 to make way for the construction of footings for the Cypress Freeway overpass. In August 1995, one 700-gallon diesel fuel UST was excavated and removed. Subsequent environmental assessments have indicated the presence of TPH, lead, heavy metals, SVOCs, and VOCs in both soil and groundwater (ERM 2002b). VOCs detected in groundwater at concentrations exceeding MCLs include benzene and naphthalene. Caltrans is currently preparing a groundwater-monitoring plan for this site.

2.3.4 349 Mandela Parkway (BART Vacant Lot)

The 349 Mandela Parkway property is located just north of the former AMCO facility, west of Mandela Parkway and mid-block between 3rd and 5th Streets. Environmental assessments were performed at this site in 1987 and 1998. In addition, debris was removed from the site in 1988 and a shallow soil removal was performed in late 1999/early 2000. The following briefly summarizes the history of operations and environmental work performed at the site.

Prior to approximately 1967, the property was occupied by a number of businesses including a beer bottling company, a beer depot, and a soap powder manufacturing and warehouse facility. Between approximately 1967 and 1987, Ragtime Auto Wreckers began operations on the property (ES 1987). Historic aerial photographs indicate that the salvage yard at this property extended to the back half of the 346 Center Street property. In 1987, the San Francisco Bay Area Rapid Transit District (BART) purchased the property.

In April 1987, a preliminary environmental assessment was performed by Engineering-Science. During the investigation, eight surface soil samples were collected from the site and analyzed for metals, VOCs, and petroleum hydrocarbons. The results of the analysis showed elevated levels of cadmium, chromium, and lead were present in the soil (ES, 1987). In March 1988, after purchase of the site, surface debris was removed by BART. Since that time, the site has been vacant and unused (Camp Dresser & McKee, Inc. [CDM] 1999).

A second Preliminary Assessment was conducted at property by CDM in March 1998. During the investigation, 28 soil samples and three grab groundwater samples were collected from 11 borings. The soil and groundwater samples were analyzed for VOCs, SVOCs, metals, and pH. In addition, groundwater samples were analyzed for total dissolved solids (TDS). The analytical results indicated that lead, arsenic, and benzo(a)pyrene were present in the soil at elevated concentrations. No compounds were detected at concentrations above the MCLs in groundwater with the exception of TDS. No VOCs were detected; only one SVOC, benzoic acid, was detected. Between November 1999 and January 2000, a shallow soil removal action was performed at the property (CDM 2000).

3.0 Environmental Setting

The following subsections describe the physical and environmental characteristics at and in the vicinity of the former AMCO Chemical facility. The information presented below is based on the findings of this RI and a review of related documents.

3.1 Physiography

The AMCO Chemical Superfund Site is located within the Coast Ranges physiographic province. This province is characterized by northwest-trending mountain ranges, broad structural basins, and narrow valleys, many of which are controlled by complex folding and faulting. The mountain ranges and structural valleys of the San Francisco Bay Area were formed within the last few million years in response to transpressional movement along convergent plate boundaries. Local features include San Francisco Bay to the west and the Oakland Hills to the east (Harden 1988).

3.2 Climate

The Oakland area has a Mediterranean climate with average temperatures ranging from the mid-40s to mid-70s degrees Fahrenheit. Most rainfall occurs between November and March, with the heaviest precipitation typically occurring in January and February. The driest months are June through September. The average annual rainfall is 23 inches (WRCC 2003).

Daily mean temperature and monthly cumulative precipitation data during the time the RI was conducted (September 2004 through September 2006) is provided in Figure 6. As shown, mean temperature in Oakland fluctuated between 42 and 82 degrees Fahrenheit. Months with the largest amount of precipitation include December 2005 and March 2006, which had 8.72 and 7.13 inches, respectively. Months with less than 0.1 inch of precipitation include September 2004 and the summer months (July-August-September) of 2005 and 2006.

Winds near the Site are generally light, typically coming from the west with average speeds of approximately 8 miles per hour (mph). There are some seasonal variations in both wind direction and wind speed. Based on historic data from Alameda Naval Air Station (NAS), which is located approximately two miles from the former AMCO facility, during the summer months, wind directions are almost exclusively westerly, with wind direction generally ranging from southwesterly to west-northwesterly. During the fall and spring months, although still minor, there is an increasing contribution from the southeast. During the winter months, predominant wind directions are from the north to northwest and from the southeast. Average wind speeds are typically highest in the spring months at 8.6 mph and lowest in the summer at 7.0 mph (Monteverdi 2004). Figure 7 presents a wind rose summarizing wind direction and wind speed measurements for Alameda NAS for 1994 through 1996 (University of Utah 1997).

Meteorological data was collected from a weather station located in the 1401 3rd Street property (across 3rd Street from the former AMCO facility) during three periods in 1996 and 1997 in conjunction with the construction of the Cypress Freeway. The three events were conducted as follows: preconstruction (November 1996), construction (December 1996) and post-construction (June/July 1997) (CIH 1997a-c).

- November 1996: Wind speed data collected over a 5-day period indicated that the wind was calm approximately 55 percent of the time. The wind blew at greater than 4 mph less than 5 percent of the time, and 1 to 3 mph the remainder of the time. During the periods that the wind was blowing, wind direction was predominantly from the westerly direction, with wind direction ranging from west to northwesterly over 75 percent of the time.
- December 1996: Wind speed data collected over a 5-day period indicated that the wind was calm approximately 19 percent of the time, blew at 1 to 3 mph 42 percent of the time, and at wind speeds greater than 4 mph the remainder of the time. During the periods that the wind was blowing, wind direction was predominantly from the westerly direction, but with a significant contribution from the southeasterly direction. During the time that wind was blowing, the wind direction ranging from southwesterly to west-northwesterly over 75 percent of the time.
- June/July 1996: Wind speed data collected over a 5-day period indicated that the wind was calm approximately 35 percent of the time, and blew at 1 to 3 mph the remainder of the time. During the periods that the wind was blowing, wind direction was predominantly from the westerly direction, the wind direction ranged from southwesterly to west-northwesterly over 60 percent of the time; wind was from the southeasterly direction almost 20 percent of the time.

These measurements are generally consistent with the meteorological data collected at the Alameda NAS.

3.3 Surface Water and Topography

The Site lies near the margin of the San Francisco Bay, approximately 0.6 mile north of the Oakland Inner Harbor and approximately 1.5 miles east of the Oakland Outer Harbor. In general, the San Francisco Bay is an estuarine environment in which freshwater from the Sacramento and Joaquin Rivers mixes with saltwater from the Pacific Ocean.

The Site and surrounding areas are relatively flat with ground surface elevations ranging from 8.3 to 12.3 feet above mean sea level (msl). No surface water bodies are located at or adjacent to the Site. The majority of on-facility and off-facility areas are currently covered with concrete or structures with few small areas of exposed soil (see Figure 8).

As part of the RI, surficial concrete was cored at approximately 70 on- and off-facility locations to allow subsurface access for sampling. The concrete was encountered in solid thicknesses ranging from 0.5 foot to more than 3.7 feet. At some on-facility locations, the concrete cover is present in multiple 6- to 12-inch layers separated by debris of similar thicknesses. The debris includes various materials (metal lathe cuttings, glass, and wood) and soil. The soil intermixed in the debris is generally black in color and occasionally exhibited petroleum hydrocarbon odors. Field observations pertaining to the thickness and condition of the concrete are summarized in a technical memorandum, which is attached in Appendix A.

Due to the high percentage of on- and off-facility surface area covered with concrete and the absence of an engineered stormwater management system, stormwater runoff pathways were noted as part of the RI. The findings of this evaluation are presented in a technical memorandum, which has been attached in Appendix A. The findings are summarized as follows:

- **On-Facility:** Five general areas of stormwater runoff were observed. Along the western boundary of the former AMCO facility, runoff generally drains to the adjacent properties. In the northwest corner, the adjacent property is the large vacant lot; along the remainder of this boundary, the adjacent parcels are generally residential properties. At the northeast boundary of the property, runoff generally drains to the municipal storm drain system along Mandela Parkway. Water from the central portion of the property generally drains to the storm drains along 3rd Street. On-facility, uneven concrete topography results in several areas of stormwater ponding within the property.
- **Off-Facility:** Stormwater runoff from the large vacant lot flows to Center Street and into the municipal storm drain system. Runoff from the small vacant lot has no clear drainage pattern, and likely drains to the nearest parcel boundary. Runoff from the 1448 3rd Street parking area collects near the center of the property, and then flows to the municipal storm drains located on 3rd Street.

The southern edge of the former AMCO facility is bound by 3rd Street, three residential parcels, and the elevated I-880 freeway. The Amtrak property (until recently owned by Union Pacific Railroad [UPRR]) and South Prescott Park are located immediately south of 3rd Street. The UPRR/Amtrak property is almost entirely covered with asphalt. The majority of South Prescott Park, with the exception of footpaths and the playground area, is unpaved. The play area includes areas paved with safety surfacing (a rubberized material) and sand-filled areas. Records indicate that the sandy portion of the playground area is underlain by a 2-inch asphalt liner (Caltrans 1998).

A significant portion of the area to the south, north, and west of the former AMCO facility is occupied by residential and commercial properties, all of which are covered by one or more residential structures with sparse areas of exposed soil. During RI activities, one of the adjacent residences has a slab-on-grade foundation, with the remaining residences having a post-and-pillar sub-floor construction that provides a crawlspace. After completion of the the RI activities, one house was remodeled such that a post-and-pillar foundation was replaced with a slab-on-grade foundation. The ground cover of the remaining portions of the different residences varies widely, including yards that are almost entirely paved, bare dirt, or landscaped.

To the east, the former AMCO facility property is bounded by Mandela Parkway. The entire area immediately east of Mandela Parkway is paved or covered by structures.

3.4 Geology

The AMCO Chemical Superfund Site lies on the east shore of San Francisco Bay near the historic margin of the Bay. Historic maps place the original shoreline immediately south and east of the former facility. Based on this investigation and other published studies (Subsurface Consultants, Inc. [SCI] & Todd Engineers, Inc. [Todd] 1999), the geological model of the Site is of a fairly uniform, layered, and laterally continuous system. Figure 9 presents the conceptual interpretation of the geology beneath the Site, which consists of two unconsolidated aquifers separated by an aquitard above consolidated bedrock.

Based on data collected during the RI, most of the Site is underlain by undifferentiated fill material typically four to eight feet thick, although the fill may be thinner in specific locations. The fill consists mostly of silty sand to clayey sand, typically with some moderate amounts of miscellaneous refuse (brick fragments, glass, concrete, metal debris, wood, etc.). Much of the early fill placed in the bay front and wetland areas originated from dredged sediment during the construction of the Oakland Inner Harbor (California Regional Water Quality Control Board, San Francisco Region [RWQCB] 1999).

Mapped native surficial deposits at the Site consist of Merritt Sand. The Merritt Sand is a fine- to medium-grained sand or silty sand with thin lenses of sandy clay and clayey silt of alluvial and aeolian origin. During the RI investigation, Merritt Sands were encountered from the bottom of the undifferentiated fill material to approximately 55 to 60 feet bgs at the northern edge of the facility, and as deep as 70 feet bgs south of the facility. The upper 45 feet of the Merritt Sands are loose, but become very dense below this depth.

A sharp sea level rise following the last ice age—8,000 to 11,000 years ago—caused the infilling of stream valleys incised into the Merritt Sands with estuarine mud, known as the Younger Bay Mud (Rogers and Figuers 1991). In the most southerly and southeasterly portions of the Site, the Merritt Sand is overlain by Younger Bay Mud to a maximum depth of 15 feet bgs (BPZ-01, BMW-08, RMW-13, and RGW-16). At some up-gradient locations (i.e., BMW-06, RMW-03, RGW-10, and RMW-11), Younger Bay Mud, peat soils, and other clayey soils were observed in the shallow interval. The Younger Bay Mud consists of very soft, organic-rich clayey silt to silty clay with abundant plant debris and thin peat lenses. Peat consists almost entirely of plant debris with little to no inorganic soil material. Locations where Younger Bay Mud and peat were encountered during the RI are consistent with the location of tidal channels that were mapped prior to landfilling and development of the area around the facility (Figure 10).

The Merritt Sand is underlain by the Older Bay Mud, which is typically a firm, dark greenish-gray, low- to moderate-plasticity clay with varying amounts of sand and fine gravel. Based on cone penetrometer test data, the upper portion of the Older Bay Mud beneath the investigation area is primarily comprised of very dense silt with zones of dense clay.

The Older Bay Mud was encountered in CPT borings advanced in the investigation area at depths ranging from 55 to 70 feet bgs. The borings drilled as part of the RI did not fully penetrate the Older Bay Mud. However, the well log from the well at the former Red Star Yeast facility (located approximately 250 feet north of the former AMCO facility) indicates that the Older Bay Mud is present from approximately 43 to 132 feet bgs at that location. In addition, according to the hydrogeologic interpretation presented in the Hydrogeologic Investigation Report for the Oakland Harbor Navigation Improvement (-50 Foot) Project (SCI & Todd 1999), the Older Bay Mud occurs as a laterally extensive unit ranging in thickness from approximately 50 to 90 feet.

The Alameda Formation, which generally consists of interbedded clay, silt, sand and gravel, underlies the Older Bay Mud. The Alameda Formation has a thickness of greater than 250 feet in the vicinity of the Site. Bedrock is composed of Jurassic-aged Franciscan Formation sandstone and shale, which lie more than 400 feet below the Site.

3.5 Regional Hydrogeology

3.5.1 Hydrogeologic Units and Groundwater Occurrence

The Site lies in the East Bay Plain groundwater basin, which extends from San Pablo Bay in the north to Hayward in the south and from San Francisco Bay on the west to the Hayward Fault on the east. The base of the basin is defined by the contact of the unconsolidated sediments and the bedrock. Regionally, the East Bay Plain is subdivided into two primary basins, the San Francisco and San Pablo Basins, and further subdivided into seven Sub-Areas based on geologic, geomorphic, and geographic factors (RWQCB 1999). The Site lies in the western portion of the Oakland Sub-Area along the margin of the Central Sub-Area.

Shallow groundwater in this area of the basin occurs in an unconfined aquifer consisting of undifferentiated fill material and Merritt Sand. This shallow aquifer is underlain by the low-permeability Older Bay Mud unit. The Older Bay Mud unit is a regionally continuous aquitard that separates the brackish to fresh water in the Merritt Sand from the relatively fresh groundwater in sand units of the Alameda Formation.

Regional groundwater flow direction in the East Bay Plain groundwater basin is east to west from the Hayward Fault to the San Francisco Bay, generally correlating to surface topography. Typically, east-west trending preferential flow pathways exist in buried stream channels throughout the majority of the basin (RWQCB 1999). Based on water levels measured in monitoring wells at the Site and in the immediate vicinity, shallow groundwater flow within the western portion of the Oakland Sub-Area is generally toward the Oakland Inner and Outer Harbors, which are the closest surface water bodies. Groundwater levels on the western margin of the Oakland Sub-Area are tidally influenced. Tidal influence is only observable in a few deeper wells screened in higher permeability soils, and then is only barely detectable during long-term observation using sensitive equipment. Tidal influence is not observed in any of the shallower wells at or in the vicinity of the Site.

3.5.2 Water Supply Wells

A search of the well completion database maintained by the County of Alameda Department of Public Works Water Resources Section indicated the existence of approximately nine industrial or irrigation wells within a 1-mile radius of the former AMCO facility. The current condition and usage of these wells are unknown. No domestic wells were identified within the 1-mile radius of the former AMCO facility, and there are no municipal water supply wells within four miles of the facility, indicating that groundwater beneath the Site is not being used for public drinking supply. Table 4 summarizes the available well information; the approximate well locations are shown on Figure 11.

During investigation activities, one well was identified at a residence adjacent to the former AMCO facility. This brick-lined well appears to have been hand dug. This well is 3.25 feet in diameter and 9.3 to 10 feet deep, with an uneven gravel-filled bottom. Although no records of this well exist, it is likely this well is relatively old and was likely constructed prior to government permitting or recording of wells. Water from this well is used for backyard irrigation and other non-potable uses. The groundwater in this area is not used as a source of drinking water.

3.5.3 Water Quality

Total dissolved solids concentrations in groundwater are a primary metric used to determine groundwater quality. The RWQCB does not consider Municipal and Domestic Supply as a potential Beneficial Use for groundwater in areas with TDS concentrations greater than 3,000 milligrams per liter (mg/L). Elimination of drinking water as beneficial use requires that the California Regional Water Quality Control Board, San Francisco Region certify the finding of elevated TDS concentrations (RWQCB 2004). EPA uses a criterion of 10,000 mg/L TDS in determining potential drinking water sources (40 CFR Part 144, Section 3, Paragraph [USDW]).

Studies conducted by Muir (1997) and Figuers (1998) have evaluated the groundwater quality in the East Bay Plain groundwater basin. Shallow groundwater is generally a sodium-bicarbonate type of water with TDS concentrations ranging from 364 to 1,020 mg/L; however, shallow groundwater along the Oakland Inner Harbor and adjacent to the San Francisco Bay (in the vicinity of the Site) appears to be in contact with saltwater, as indicated by the magnesium-sodium-chloride type of waters (Muir 1997). Based on available TDS results from the wells sampled during the RI, groundwater south of 3rd Street in all but one sample exceeds the Basin Plan (RWQCB 2004) criterion of 3,000 mg/L for drinking water as a beneficial use. In addition, three of the six samples collected in this area exceed the EPA criterion of 10,000 mg/L (Table 5). North of 3rd Street, all but one concentration was below 3,000 mg/L, indicating that drinking water cannot be eliminated as a potential beneficial use in this area.

3.6 Site Hydrogeology

3.6.1 Hydrogeologic Zones

Two unconsolidated aquifers, separated by an aquitard, are present beneath the Site (see Figure 9). The shallow aquifer is generally unconfined and includes a thin layer of surface fill, the Merritt Sands, and isolated occurrences of Younger Bay Mud. The deeper aquifer, the Alameda Formation, is separated from the Merritt Sands and confined by a thick, laterally extensive aquitard consisting of Older Bay Mud. Groundwater levels in the shallow aquifer fluctuate seasonally from approximately 5.5 to 8.5 feet msl, or approximately 2.5 to 6.5 feet bgs, as a function of formation hydraulic conductivity and precipitation infiltration. The influence of tidal fluctuations on groundwater levels at the Site is minimal. As observed in selected RI monitoring wells, the tidal influence in shallow wells (i.e., less than 25 feet deep) was not measurable; however, a barely measurable tidal fluctuation of up to 0.01 foot was measured in some wells screened deeper than 25 feet bgs.

Data collected as part of the RI indicate that in the vicinity of the former AMCO facility, the Merritt Sands consist of material ranging in texture from poorly-graded sand to silty sand. Including the four to eight feet of fill material at the surface, the upper 20 to 25 feet of the shallow aquifer is generally finer-grained than deeper portions, and primarily consists of silty sands (Figures 12a through 12d; soil boring logs are presented in Appendix B). The percentage of fines (i.e., silt plus clay) generally decreases with increasing depth. Poorly-graded fine sands (Unified Soil Classification System [USCS] classification SP) are observed below 30 to 45 feet bgs. Thin lenses (ranging from a few inches to 1.5 feet thick) of sandy silt to clay are interbedded throughout the formation. The finer-grained soils in the upper 20 to 25 feet bgs exhibit lower hydraulic conductivity values than the coarser-grained soils found at depth.

To evaluate soil physical properties and estimate hydraulic conductivity, a series of soil samples were collected during the construction of selected wells (Table 6) and slug tests were conducted on eight representative wells (Table 7). Detailed field and analysis procedures are provided in Appendix C. Based on the analysis of slug test data, shallow aquifer soils (0 to 25 feet bgs) exhibit hydraulic conductivities ranging from 5.6×10^{-5} centimeters per second [cm/s] (0.16 feet per day [ft/d]) to 5.4×10^{-4} cm/s (1.5 ft/d), with one well screened in more clayey soil (RMW-03-15) exhibiting a hydraulic conductivity of 1.4×10^{-6} cm/s (3.8×10^{-3} ft/d). Below approximately 25 feet bgs, the soil contains fewer fines and has correspondingly higher hydraulic conductivity values, which range from 1.4×10^{-3} cm/s (4.1 ft/d) to 2.5×10^{-3} cm/s (7.1 ft/d).

As presented on Figures 12a through 12d, Younger Bay Mud is present within the shallow aquifer in the northeastern (RMW-03, RGW-10, and RMW-11) and southern (RMW-13, BMW-08 and RGW-16) portions of the investigation area beneath the shallow fill material. In addition, Younger Bay Mud was noted in the boring log for BMW-06, which is located east of the former facility. The locations where Younger Bay Mud has been observed are generally consistent with the fringes of the historic tidal channels shown in Figure 10. The Younger Bay Mud encountered during the RI is organic-rich silty clay to clayey silt of medium plasticity. Groundwater from wells BMW-08 and BPZ-01 (installed prior to the RI), which are screened within the Younger Bay Mud, is black in color and exhibits a strong sulfur odor. This Younger Bay Mud, which has a lower hydraulic conductivity with respect to other shallow aquifer material, is not interpreted to be laterally or vertically continuous in the vicinity of the former AMCO facility and therefore does not have a broad effect on groundwater flow.

The base of the shallow aquifer is defined by the contact with the Older Bay Mud. Hydrogeologic investigations in the Basin have quantified the vertical permeability of Older Bay Mud material in the laboratory. The geometric mean of six samples collected from the aquitard was 2×10^{-8} cm/s (SCI & Todd 1999). Given the three to five orders of magnitude difference between the shallow aquifer and the aquitard, the Older Bay Mud significantly retards the vertical communication of groundwater between the shallow and deep aquifers.

The deep aquifer, which is defined by the lower extent of the Older Bay Mud, is estimated to occur at depths greater than 130 feet bgs beneath the Site. Contaminant fate and transport is discussed in Section 6.

3.6.2 Groundwater Flow Direction and Gradient

Groundwater elevations were collected quarterly during the RI to evaluate hydraulic gradients and seasonal variation. The groundwater elevation maps are presented on Figures 13a through 13g. The data collected indicate that the groundwater flow direction ranges from south to southwest, toward the San Francisco Bay, with subtle variation as a function of season precipitation. In the dry season, flow generally appears to be toward the southwest; in the wet season, flow is generally to the south. Groundwater gradients vary across the investigation area. Gradients north of 3rd Street are typically steeper, ranging from 0.006 to 0.008 feet per foot (ft/ft), and shallower south of 3rd Street, ranging from 0.001 to 0.003 ft/ft. The determination of groundwater flow direction south of 3rd Street is somewhat less precise due to the very small variation in groundwater levels.

Comparison of groundwater elevations at locations where multiple depth monitoring wells are grouped indicates small, downward vertical hydraulic gradients within the shallow aquifer. Over the reporting period, the vertical gradients observed ranged from -0.074 ft/ft (i.e., downward) to 0.062 ft/ft (i.e., upward). The median vertical gradient across all well groups was -0.005 ft/ft, and the average vertical gradient was -0.006 ft/ft. Small, downward vertical gradients such as these are common in areas affected by surface infiltration of rainfall and residential irrigation.

Ranges of groundwater flow velocities for the shallow aquifer have been calculated based on an estimated porosity of 0.35 and the range of hydraulic conductivity values and gradients. The calculated ranges of groundwater flow velocities are from 0.33 to 7.5 ft per year (ft/yr) and 8.6 to 48 ft/yr in the shallow and deeper portions of the aquifer, respectively (i.e., above and below approximately 25 feet bgs, respectively). The hydraulic conductivity value calculated from the slug test data of well RMW-03-15 was excluded from the groundwater velocity calculations because the lithology in which this well is screened is significantly different (finer grained and lower permeability) than all other wells tested. Therefore, the conductivity values for this well are not considered representative of the primary groundwater conductive portions of the shallow aquifer.

3.7 Ecology

The present ecology of the AMCO Chemical Superfund Site and surrounding urban area has been determined by human activities. Most of this area has been devoid of native vegetation and wildlife habitat for more than a century.

4.0 Remedial Investigation Activities

This section presents a summary of EPA sampling activities conducted as part of the AMCO Chemical Superfund Site RI. Sampling activities were designed to further characterize the properties and the extent of contamination in the air, soil, soil gas, and groundwater associated with the Site. The activities included:

- LNAPL sampling
- Groundwater sampling from temporary depth-discrete locations
- Groundwater well construction and sampling
- Soil sampling for chemical and physical parameter analysis
- Soil gas sampling from temporary depth-discrete locations
- Permanent soil gas probe construction and sampling
- Crawlspace air sampling
- Ambient air sampling
- Lithologic data collection
- Aquifer hydraulics testing

The general rationale for each medium sampled was originally provided in Part I, Section 6 of the RI SAP. The rationale for the investigation, which is presented below, has been updated as appropriate, based on field screening results and field observations. The rationale for the different types of sampling, sample locations, sampling frequency, and sample analyses are summarized for each sample medium. Table 8 provides a list of analytes by medium. Sampling methods and procedures are described in Appendix C; QA/QC procedures are described in Appendix D. A discussion of the results of the RI is included in Section 5.0, Nature and Extent of Contamination.

4.1 NAPL Sampling

Prior to the RI, LNAPL had been detected in two monitoring wells at the former AMCO facility. In August 2002, 5.4 feet and 0.2 foot of floating LNAPL were measured in monitoring wells MW-14 and MW-13, respectively (Figure 14). In addition, during the construction of RMW-02-13 (located approximately 30 feet west of MW-14), a mixture of flowing water and free-phase product was observed entering a large saw-cut hole in the concrete from a 1-foot-thick debris layer embedded between two 1-foot-thick concrete layers. Also observed in this debris layer were two approximately 1-inch-diameter pipes that were later determined to be part of an underground piping system used to transfer chemicals to various locations at the facility. It is likely that the former piping system is one of the sources of the NAPL observed at the Site.

4.1.1 Rationale

The objective of the NAPL investigation was to better characterize the nature and extent of the LNAPL present beneath the central portion of the former AMCO facility, as well as any DNAPL that might be present at the bottom of the shallow aquifer. Delineation of NAPLs is a major component of subsurface contaminant studies, as NAPLs act as a continuing source of contaminants to the groundwater, soil, and soil vapor.

The proposed NAPL investigation activities presented in the SAP included:

- Installing new well(s) screened across the groundwater table to further characterize the extent of the LNAPL
- Collecting LNAPL sample(s) from monitoring well(s) screened across the water table to determine the composition of the LNAPL
- Installing new monitoring wells screened at the bottom of the shallow aquifer to determine if DNAPL is present beneath the Site.

During the RI, it was determined that it was infeasible to install new monitoring wells screened across the water table. Due to the shallow depth of groundwater, an acceptable sanitary seal could not be installed if the well was screened across the water table. In addition, no monitoring wells were screened at the bottom of the lower aquifer. Data collected during the discrete-depth groundwater sampling (Section 4.2.1) indicated that, with the exception of one location on UPRR property, contaminants were not present in concentrations above screening levels near the bottom of the shallow aquifer. The concentrations of contaminants that are present within 20 feet of the bottom of the aquifer are two to four orders of magnitude (dependent on location and specific contaminant) or more below the 1 percent of saturation limit, the value considered indicative of the presence of NAPL (EPA 2009). Therefore, well screens in the lower zone of the shallow aquifer were positioned as sentry wells for delineation of the vertical extent of contamination. Additional discussion related to the NAPL assessment is included in Section 5.3.

4.1.2 Sampling Locations

One sample was collected from MW-14 where the greatest thickness of LNAPL has been measured. Monitoring well MW-13 was not accessible during the RI and could not be sampled. Both MW-13 and MW-14 are centrally located at the former facility in what would be considered the source area.

4.1.3 Number of Samples

One sample of LNAPL was collected for analysis from MW-14 in March 2005. The composition of LNAPL in the central portion of the former AMCO facility is assumed to be relatively homogenous; therefore, one sample was determined sufficient for LNAPL characterization. Detailed LNAPL sampling procedures are provided in Appendix C.

4.1.4 Laboratory Analyses

The LNAPL sample was analyzed for:

- Target compound list (TCL) VOCs, including methyl tert-butyl ether (MTBE) and fuel oxygenates
- TCL SVOCs, including 1,4-dioxane
- Target analyte list (TAL) metals

- Organochlorine pesticides and PCBs
- Dioxins/furans
- pH
- Flash point

4.2 Groundwater Sampling

Prior to this RI, information regarding the nature and extent of contamination at the former AMCO facility was limited. Previous groundwater characterization activities conducted by EPA included installing and sampling both temporary borings and groundwater monitoring wells at and near the former AMCO facility. Eight temporary borings—six on the former facility and two at South Prescott Park—were sampled for VOCs. Five monitoring wells on or near the former facility were sampled for VOCs, SVOC, and metals. In addition to the EPA investigations, VOC and metal concentration data were available from monitoring wells located on neighboring properties.

Groundwater characterization activities conducted prior to the RI determined that VOCs, SVOCs, and metals were present in groundwater beneath the former AMCO facility (CH2M HILL 2004) and had migrated beyond the property boundaries. During these previous activities, the vertical extent of VOC contamination was investigated to a maximum depth of 40 feet bgs in the area of the former facility. However, the full vertical and horizontal extent of groundwater contamination had not been determined.

The groundwater investigation activities proposed in the SAP included:

- Collecting depth-discrete grab samples from approximately 13 borings to define the horizontal and vertical extent of VOC-impacted groundwater and to verify the up-gradient water quality
- Establishing a monitoring well network by installing new wells in eight to ten locations up-gradient, cross-gradient, down-gradient, and inside the plume to monitor groundwater elevations and contaminant concentrations over time
- Collecting appropriate field and laboratory parameters during monitoring well sampling to assess groundwater geochemical conditions for use in evaluating potential remedial alternatives
- Measuring water levels in monitoring wells during sampling events and performing slug tests at selected wells to characterize hydrogeologic properties and groundwater flow conditions.

4.2.1 Discrete-depth Groundwater Survey

4.2.1.1 Rationale

Grab groundwater samples were collected at depth-discrete intervals from temporary borings within and outside the former facility boundaries to further define the horizontal and vertical extent of the groundwater plume. Collecting grab groundwater samples from depth-discrete-interval temporary borings is an efficient and cost-effective way to collect screening-level groundwater quality data to estimate extent of the subsurface plume and to better design a permanent monitoring well network. Due to sample volume limitations, not all analyses could be performed on the grab groundwater samples. Because VOCs are the most mobile class of contaminants, and 1,4-dioxane is also highly mobile, they were selected as the most appropriate compounds for characterizing the extent of the plume. The grab groundwater sampling was performed between September and December 2004.

4.2.1.2 Sampling Locations

Grab groundwater samples were collected from 17 locations, including the 13 locations described in the SAP and four step-out locations. The boring locations were selected using professional judgment based on the results from prior groundwater sampling activities and the general of groundwater flow directions. At each location, borings associated with the grab groundwater samples were advanced to the top of the interpreted Bay Mud aquitard (bottom of the shallow aquifer) or until refusal. Figure 15 presents the locations of the borings from which depth-discrete grab groundwater samples were collected.

As described in the SAP, grab groundwater samples were to be collected at 5 feet bgs, 10 feet bgs, and at 10-foot intervals thereafter to the bottom of the shallow aquifer. However, due to low aquifer yield, samples could not be collected at all planned intervals. Table 9 presents the depths at which grab groundwater samples were collected at each sampling location. Table 9 also summarizes the logging method, total boring depth, and the presence of the aquitard if encountered. A detailed description of grab groundwater sampling methods is provided in of Appendix C.

4.2.1.3 Number of Samples

The grab groundwater samples were collected at multiple depths from 17 borings (RGW-01 through RGW-17). Samples were collected at depths ranging from 7 feet bgs (RMW-16) to 65 feet bgs (RGW-09). A total of 69 groundwater characterization samples were collected.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. As outlined in the SAP, field quality assurance samples were collected at a frequency of approximately 10 percent of the primary samples. Eight field duplicate samples were collected and analyzed, as described in Section 4.2.1.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.2.1.4 Laboratory Analyses

Due to sample volume limitations, the depth-discrete samples collected from the temporary borings were analyzed for TCL VOCs (including MTBE/fuel oxygenates) and 1,4-dioxane only. Because of the small sample volume, 1,4-dioxane was analyzed for using EPA Method 8260B rather than Method 8270B, which resulted in elevated detection limits for this compound.

4.2.2 Groundwater Monitoring Wells

4.2.2.1 Rationale

The objective of the monitoring well installation was to establish a monitoring well network, including up-gradient, cross-gradient, down-gradient, and in-plume wells to monitor both groundwater elevations and the concentrations of VOCs and other contaminants over time. Groundwater quality and elevation data collected from permanent monitoring wells are considered more reliable than data collected from temporary borings. Data collected from the monitoring well network are used to assess the horizontal and vertical extent of the contaminant plume, provide geochemical information relevant to evaluating natural attenuation, characterize aquifer hydraulic properties, and provide water-level data to evaluate groundwater gradients and flow direction. The locations of the new monitoring wells were selected based on the data collected during the discrete-depth sampling described in Section 4.2.1. Table 10 summarizes the rationale for each monitoring well location.

4.2.2.2 Monitoring Well Installation

Twenty-two new monitoring wells were installed at 14 locations during the RI. Wells were installed in three zones within the upper aquifer: 10 shallow wells (< 25 feet bgs), nine mid-depth wells (25 to 35 feet bgs), and three deep (>35 feet bgs). In several locations, well clusters were installed to evaluate the vertical profile of the plume. The well locations are presented in Figure 14; Table 11 includes a summary of well construction details.

During January and February 2005, 17 wells were installed at locations RMW-01 through RMW-10. Based on the results of two quarterly groundwater monitoring events, five additional wells were installed at locations RMW-11 through RMW-14 in September 2005. Where feasible, monitoring wells were installed with a rotosonic drill rig as described in the SAP. However, at locations with access or vertical clearance limitations, limited access hollow-stem auger drill rigs were used to install the wells. Hollow-stem auger drilling methods were only utilized in areas near the boundary of the plume where contaminant concentrations are relatively low. All new monitoring wells were developed in accordance with procedures outlined in the SAP to ensure groundwater quality samples representative of the shallow aquifer. Details of monitoring well installation and development are provided in Appendix C. The boring logs and well construction diagrams are included in Appendix B.

All of the existing and new monitoring wells were surveyed for horizontal coordinates (North America Datum [NAD] '83 Zone 3) and reference elevations (National Geodetic Vertical Datum [NGVD] '87). The horizontal and vertical survey coordinates are reported for all monitoring wells in Appendix B.

4.2.2.3 Sampling Locations

The RI groundwater monitoring well network consists of 29 wells screened in horizontal and vertical locations throughout the plume. The monitoring network includes 22 monitoring wells that were installed as part of the remedial investigation and seven existing wells, including one on-facility well and six wells owned by UPRR.

The 22 new monitoring wells were installed at 14 locations (RMW-1 through RMW-14). In several locations, wells were installed in clusters or near existing wells to better characterize the vertical distribution of contaminants in the groundwater. The existing wells in the monitoring network include one AMCO well (MW-12) and six wells on neighboring properties (BMW-1, BMW-3, BMW-6, BMW-7, BMW-8, and BPZ-1). Existing AMCO wells MW-13 and MW-14 are not included in the network due to the presence of LNAPL in those wells. The procedures used to collect the groundwater samples are described in Appendix C.

4.2.2.4 Number of Samples

Groundwater monitoring has been conducted quarterly since March 2005. However, because monitoring wells RMW-11-35, RMW-12-32, RMW-12-51, RMW-13-35, and RMW-14-35 were installed in September 2005, sample collection from these wells begins with the third quarter 2005 monitoring event (September and October 2005). A total of 139 primary samples were collected and analyzed through third quarter 2006. Groundwater monitoring at the Site is ongoing.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Seventeen field duplicate samples were collected and analyzed, as described in Section 4.2.2.5. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.2.2.5 Laboratory Analyses

The analyses included in the groundwater monitoring program (GMP) have varied slightly over the course of the RI as new information has become available. Analyses have been added to the analyte list as new information regarding materials handled at the former AMCO facility has become available. In addition, several analyses are no longer part of the analyte list because the contaminants were not detected in one or more groundwater monitoring events or the analyses were for general water quality parameters, which do not require ongoing monitoring. Table 12 summarizes the groundwater analyses completed during each monitoring event. The analyses included in the GMP through the period of the RI include the following:

- VOCs and MTBE and fuel oxygenates (semi-annually – once during the dry season and once during the wet season)
- Organochlorine pesticides and PCBs (semi-annually in RMW-01-17, RMW-02-13, and MW-12; annually in all other wells)
- Metals, total (annually)
- Metals, dissolved (i.e., filtered) (annually)
- Dioxin/furans (annually)
- Anions (semi-annually)
- Dissolved gases (semi-annually).

Analyses that are not routinely included as part of the GMP include:

- Cyanide (no detection)
- Hexavalent chromium (no detection)
- Organophosphate pesticides (no detection)
- Total organic carbon (general water quality to aid in remedial alternative analysis and treatment system design; only one-time sampling necessary)

- TDS (general water quality to aid in remedial alternative analysis and treatment system design; only one-time sampling necessary)
- Hardness (general water quality to aid in remedial alternative analysis and treatment system design; only one-time sampling necessary)
- Total silicon (general water quality to aid in remedial alternative analysis and treatment system design; only one time sampling necessary. Silicon is reported as a metal).

Parameters that have been measured or analyzed in the field from groundwater at all monitoring wells include pH, electrical conductivity, salinity, temperature, turbidity, dissolved oxygen, oxidation-reduction potential, ferrous iron, alkalinity, and carbon dioxide. Table 13 presents the field parameter data from third quarter 2006.

A detailed description of field sampling procedures is provided in Appendix C.

4.2.3 Residential Groundwater Well

During the RI, a previously unidentified well was discovered at a residence near the former AMCO facility. According to the property owner, the well is primarily used for backyard irrigation and other non-potable uses. The well is not a source of drinking water.

4.2.3.1 Rationale

Sampling of this well was completed to assess the quality of water obtained from this well and to evaluate potential human health risks. Because the well is not constructed in accordance with standard monitoring well standards (for construction details see Section 4.2.3.2) and ongoing access cannot be ensured, this well was not added to the groundwater monitoring network.

4.2.3.2 Sampling Location

The well is located in a backyard shed. The brick-lined well appears to be several decades old. The well is approximately 3.25 feet in diameter and has a total depth ranging from 9.3 to 10.5 feet bgs, with an uneven bottom. The groundwater level in the well was measured to be 6.80 feet bgs on September 2, 2004.

4.2.3.3 Number of Samples

The residential groundwater well was sampled on September 2, 2004, June 24, 2005, and October 12, 2005.

4.2.3.4 Laboratory Analyses

The sample from the residential well groundwater collected in September 2004 was analyzed for VOCs, SVOCs, 1,4-dioxane, TAL metals, mercury, hexavalent chromium, and hardness. In June 2005, the groundwater collected from the well was analyzed for VOCs (including MTBE and fuel oxygenates), 1,4-dioxane, organochlorine pesticides and PCBs. The October 2005 sample was analyzed for organophosphate pesticides.

4.3 Soil Sampling

Soil sampling was conducted at the former AMCO Chemical facility (on-facility), at the vacant lots along Center Street and the parking lot at 1448 3rd Street (off-facility sampling), and at residences located in the same city block as the former facility (residential sampling). On-facility and off-facility soil sampling was performed in September and October 2004. Residential soil sampling was performed in October 2006. As described in the SAP, the *Supplemental Guidance to RAGS: Calculating the Concentration Term* (EPA 1992a) was used as a reference for the design of the on-facility and off-facility soil sampling program.

The soil investigation activities proposed in the SAP included:

- Collecting soil samples both within and outside former facility boundaries to assess the horizontal extent of contamination and to collect data necessary to evaluate potential exposure of current and/or future receptors to near-surface soil. Soil samples were to be collected from above the groundwater table at an approximately 50-foot grid spacing.
- Collecting soil samples from selected monitoring well borings to characterize the physical properties of the unsaturated and saturated zones for use in fate-and-transport and risk assessment modeling.

Residential soil sampling was not included in the SAP but was conducted based on data collected during the on- and off-facility sampling program.

Soil sampling performed to collect lithologic data is discussed in Section 4.7.1.

4.3.1 On-facility Soil

4.3.1.1 Rationale

Soil characterization activities conducted at the former AMCO facility prior to the RI determined the presence of VOCs and metals in Site soil. Vertical delineation sampling of VOCs (to a maximum depth of 45 feet bgs) indicated that the majority of VOC contamination was in the top 15 feet of soil. Only one boring had been sampled for metals, and no soil samples had been analyzed for SVOCs, organochlorine pesticides, PCBs, and dioxin/furans. Based on facility records, many of these compounds are known or suspected to have been handled within the former facility or may have been generated as a result of a fire at the former ice house (dioxins/furans).

The majority of the ground surface within the former facility boundary is currently paved (see Figure 8); however, soil sampling was required throughout the former facility to determine the extent of contamination and to collect data necessary to evaluate potential sources of contamination to groundwater and the potential risk to current and/or future receptors via direct (dermal) contact, ingestion, and inhalation of dust.

4.3.1.2 Sampling Locations

To characterize the extent of soil contamination within the former AMCO facility, soil samples were collected from temporary soil borings in a grid network with approximately 50-foot spacing. Soil sampling locations classified as "on-facility" include RSB-01 through RSB-24 and RSB-42. However, due to logistical considerations including above ground structures or subsurface conditions (i.e., concrete and rubble thickness or underground utilities), several of the sampling locations had to be adjusted. Although some boring locations were moved outside the former facility boundary as described below, samples collected from these borings are still classified as on-facility samples. The soil boring locations are presented in Figure 16.

The following describes the locations where samples could not be collected as proposed in the SAP:

- RSB-01 was moved immediately west of the facility fence line to the adjoining large vacant lot because the concrete at the proposed location was greater than 40 inches thick and could not be successfully cored.
- RSB-02 was moved west just over the facility fence line to the adjoining vacant lot. The proposed location was inaccessible due a very large scrap cable pile that covered the area.
- At the planned RSB-09 location, the concrete was 37 inches thick, and the soil was fully saturated at the concrete/soil interface. Since the SAP indicated that no soil sampling would be conducted below the water table (i.e., saturated soil), no sample was collected at this location.
- RSB-12 and RSB-15 were moved from their planned grid locations because of the presence of subsurface utilities.
- RSB-16 was abandoned because of multiple failed attempts to core concrete at this location and nearby alternative locations. The concrete slab at this location was 12 inches thick, underlain by 12 inches of gravel with debris (i.e., scrap metal, rubble, glass, wood, etc.), and in turn underlain by an additional layer of concrete of unknown thickness.
- RSB-17 was moved east because of concrete thickness (40 inches) and the initial inability to successfully core the concrete at the proposed location.
- RSB-42 was added at the original location of RSB-17. A subcontractor specializing in concrete coring completed the coring at this location at the end of the RI field effort.

In accordance with the SAP, soil samples for chemical characterization were only collected from soil above the water table. At the time of the soil investigation, the unsaturated/saturated soil interface was encountered from 3 to 7.5 feet bgs. A non-engineered concrete cap exists over the majority of the former AMCO facility and varies from 6 to more than 40 inches thick. In accordance with the SAP, shallow soil samples were generally collected from between 1 and 2 feet below the concrete or below ground surface in unpaved areas. In several locations, shallow soil samples were collected deeper than planned due to the presence of rubble or debris. In addition, in some locations where the concrete slab was less than 4 inches thick, samples were collected at 1 foot bgs rather than 1 foot below bottom of pavement.

The SAP proposed additional soil sampling at 5 feet below bottom of concrete and at subsequent 5-foot intervals to the groundwater surface. Samples were collected as deep as possible while remaining above the groundwater table. Due to the shallow groundwater table, deeper samples were generally collected 4 to 5 feet below the bottom of concrete.

4.3.1.3 Number of Samples

Thirty-five (35) primary soil samples were collected from 23 on-facility locations. Twenty-three (23) shallow samples and 12 deeper samples were collected. Table 14 summarizes soil sample locations, depths, concrete thicknesses, and depths to saturated soil.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Five field duplicate samples were collected and analyzed as described, in Section 4.3.1.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.3.1.4 Laboratory Analyses

Soil samples were analyzed for TCL VOCs, including MTBE and fuel oxygenates, 1,4-dioxane, TCL SVOCs, and TAL metals. In addition, the shallow soil samples (from 1 to 2 feet bgs) were analyzed for PCBs and organochlorine pesticides. Dioxins/furans were analyzed in the 1- to 2-foot-bgs samples collected from four on-facility locations at the Site of the former burned ice house (RSB-10, RSB-11, RSB-12, and RSB-18). Samples for VOC analysis were collected from an undisturbed portion of the sample core. The remaining portion of the soil core was homogenized and distributed to other sample jars for the remaining analyses. Four field duplicate samples were analyzed for all analytes except dioxins/furans; one field duplicate was analyzed for dioxins/furans only.

4.3.2 Off-facility Soil

4.3.2.1 Rationale

During the development of the SAP, the operational histories of the vacant lots along Center Street and the parking lot along 3rd Street were largely unknown. Soil samples were collected at these locations to assess whether any facility or other industrial activities may have impacted soil at these parcels outside the former facility boundaries.

4.3.2.2 Sampling Locations

Off-facility soil sampling was conducted in the large vacant lot at 332-346 Center Street, the small vacant lot at 324 Center Street, and the parking area at 1448 3rd Street (see Figure 16). The SAP included nine off-facility soil sampling locations, including five locations in the large vacant lot (RSB-25 through RSB-29), one location in the small vacant lot (RSB-30), and three sampling locations in the parking lot (RSB-31 through RSB-33). However, based on the analytical results of the planned soil samples, borings were performed at eight additional step-out locations (RSB-34 through RSB-41).

Historical aerial photographs indicate that a residence was present in the northwestern portion of the large vacant lot on Center Street during the period in which AMCO operated. Therefore, sampling was initially proposed only in the southern and eastern portions of this lot. However, based on detections in soil gas at the originally proposed locations in the large vacant lot, soil sampling was conducted throughout the remainder of the large vacant lot. Boring locations along the eastern fence line of the large vacant lot were moved approximately 45 feet to the west because large steel barricade prevented access to the easternmost portion of the former AMCO facility property.

Soil sampling depths at off-facility locations were consistent with soil sampling depths at on-facility locations (refer to Section 4.3.1.2).

4.3.2.3 Number of Samples

Twenty-eight primary samples were collected from the 17 boring locations on off-facility parcels. Seventeen shallow samples were collected; 11 deeper samples were collected.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Two field duplicate samples were collected and analyzed, as described in Section 4.3.2.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.3.2.4 Laboratory Analyses

All soil samples collected from the temporary borings were analyzed for TCL VOCs, including MTBE and fuel oxygenates, 1,4-dioxane, TCL SVOCs, TAL metals, and shallow (1 to 2 feet bgs) samples for organochlorine pesticides and PCBs. Dioxins/furans were collected from the three locations from the shallow samples at the 1448 3rd Street parking area. For each sample, VOC analyses were performed on an undisturbed portion of the sample, and the remainder of the sample volume was homogenized prior distributing to other sample containers for remaining analyses. Detailed soil sampling procedures are provided in Appendix C.

4.3.3 Residential Soil

4.3.3.1 Rationale

Based on an evaluation of the soil sampling results at on- and off-facility locations (see Section 5.0) and an evaluation of potential transport mechanisms, soil sampling was conducted at residential properties adjacent to or near the former AMCO facility. The potential mechanisms of transport of contaminants from the Site to nearby residential soil include windblown dust (of contaminant particulate or of soil to which contaminants are adsorbed), stormwater runoff from the Site, and/or volatilization of VOCs from the groundwater plume. A more detailed discussion of the transport mechanisms and the conceptual model is provided in Sections 5.0 and 6.0.

Residential soil samples were collected both along property boundaries that are common with the former facility and from selected areas where produce was grown. Samples were collected at the property boundaries common with the former AMCO facility to assess contamination that may have migrated from the former AMCO facility. Because these locations are nearest the property boundary, it is likely that concentrations of contaminants migrating from the former AMCO facility would be highest at these locations. Soil samples were collected adjacent to selected backyard produce sampling locations for comparison of concentrations of specific contaminants in soil to the concentrations in backyard produce.

Subsequent to the collection of the residential soil samples, a soil removal action was performed at residential properties adjacent to and near the former AMCO facility. These properties include 1428, 1432, and 1436 3rd Street, and 320, 326, 356, 360, and 366/368 Center Street. As a result, the samples collected during the RI are no longer representative of the soil conditions at these properties.

4.3.3.2 Sampling Locations

Soil sampling was conducted at six residential properties adjacent to or near the former AMCO facility. Soil sampling locations were sited either along the property boundary or in areas where produce was grown. Below is a list of residences where soil sampling was conducted and a brief description of the sampling location(s):

- 360 Center Street:
  - 360SSa—Near the central portion of the northern fence line adjacent to sampling locations for the cactus produce sample and one of the two aliquots of blackberries.
  - 360SSb—Along the eastern fence line adjacent to the northern Cable Moore facility. This is sampling location is adjacent to the blackberry bush that was sampled for the second aliquot of this produce sample.
- 356 Center Street:
  - 356SSa—Along the southern fence line adjacent to the large vacant lot.
  - 356SSb—Along the southern fence line adjacent to the large vacant lot. This location is within 20 feet of the apple produce sampling location.
  - 356SSc—Along the southern fence line adjacent to the large vacant lot.
- 326 Center Street:
  - 326SSa—Along the northern fence line in a garden area adjacent to the large vacant lot. This location is adjacent to where the soil gas sample was collected at this property.
  - 326SSb—Along the northern fence line adjacent to the large vacant lot.
  - 326SSc—Along the northern fence line adjacent to the large vacant lot.
  - 326SSd—In the northeast corner of the property adjacent to the large vacant lot and the former AMCO facility.
  - 326SSe—In the southeast corner of the property adjacent to the small vacant lot and the former AMCO facility.
- 1428 3rd Street:
  - 1428SSa—In the northwest corner of the property adjacent to the former AMCO facility.
  - 1428SSb—In the northeast corner of the property adjacent to the former AMCO facility.
  - 1428SSc—Approximately in the center of this parcels backyard.
  - 1428SSd—Along the eastern fence line adjacent to the former AMCO facility.
  - 1428SSe—Approximately 10 feet from the eastern fence line adjacent to the former AMCO facility.
- 1432-3rd Street:
  - 1432SSa—In the northwest corner of this property adjacent to the pomegranate produce sample and near but not directly adjacent to, the former AMCO facility.

- 1432SSb—In the northwest corner of the property near the former AMCO facility.
- 1432SSc—Along the eastern fence line adjacent to the tomato and grape produce sample locations.

- 1436 3rd Street:
  - 1436SSa—Along the eastern fence line of the property adjacent to the parking area at 1448 3rd Street. This sample was collected from the garden area where the tomatillo, red chili, green chili, tomato, and mint produce samples were collected.
  - 1436SSb—Near the middle of the backyard lawn adjacent to the lemon produce sample location.

Access was not granted for 320 Center Street; therefore, no soil samples were collected at this property. Figure 17 presents the approximate residential soil sample locations. Soil samples were generally collected from 0.5 to 1 foot bgs and 2.5 to 3 feet bgs. However, one deeper sample, 326SSd, was collected from 2 to 2.5 feet bgs because concrete rubble prevented sampling deeper than 2.5 feet bgs. Sample depths were selected based on likely residential exposure scenarios. Detailed sampling procedures for soil sampling at residential parcels are provided in Appendix C.

4.3.3.3 Number of Samples

Forty primary samples were collected from 20 residential locations. At each location, one shallow sample and one deeper sample were collected.

Four field duplicate samples were collected and analyzed as described in Section 4.3.3.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.3.3.4 Laboratory Analyses

Soil samples were analyzed for TCL VOCs including MTBE and fuel oxygenates, 1,4-dioxane, TCL SVOCs, TAL metals, and PCBs, and organochlorine pesticides. From each sample, the portion for VOC analysis was sub-cored using Encore™ samplers, and the remainder of the sample volume was homogenized prior placing it in jars for the remaining analyses.

4.4 Backyard Produce Sampling

4.4.1.1 Rationale

Sampling of produce grown on residential properties was not proposed in the SAP. However, EPA chose to conduct sampling of backyard produce to evaluate the potential risk from contaminants that may be present in (or on) the produce.

4.4.1.2 Sampling Locations

Produce samples were collected from backyards at 356 and 360 Center Street and 1428 and 1432 3rd Street. No produce was present at 326 Center Street and 1428 3rd Street. No access was obtained at 320 Center Street so no sampling was performed at this property. At each of the four residences where produce samples were collected, one sample was collected for each type of produce grown. At 360 Center Street, the blackberry sample was a composite collected from two separate bushes, one growing on the north central fence line and a second growing on the eastern fence line adjacent to the facility. Figure 17 presents the approximate locations where the produce samples were collected.

4.4.1.3 Number of Samples

Fifteen backyard produce samples were collected from the four residential properties.

Two field duplicate samples were collected and analyzed as described in Section 4.4.1.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.4.1.4 Laboratory Analyses

All backyard produce samples collected were analyzed for TCL VOCs and the metals arsenic, lead, and chromium.

4.5 Soil Gas Sampling

Soil gas sampling was conducted at the former AMCO facility (on-facility sampling), at the vacant lots along Center Street and the parking lot at 1448 3rd Street (off-facility sampling), and at residences located in the same city block as the former facility and at South Prescott Park (residential sampling). In addition, permanent soil gas probes were installed and were monitored during residential monitoring events.

The soil gas investigation activities proposed in the SAP included:

- Performing a soil gas survey both within and outside former facility boundaries to determine current soil gas conditions and collect data necessary to for a risk assessment; co-locating samples with soil samples; and collecting samples in both the wet and dry seasons to assess potential seasonal variability.
- Collecting soil gas samples in the backyards of nearby residences to assess potential vapor migration to nearby residences, and collecting samples in both the wet and dry seasons to assess potential seasonal variability.
- If depth-discrete groundwater sampling indicates that VOCs are present in the shallow groundwater beneath South Prescott Park, collecting soil gas samples to assess potential upward vapor migration at the park.
- Installing permanent soil gas probes at the following locations: the western border of the former AMCO facility where the former facility property adjoins to residences, within potential preferential pathways produced by utility corridors along the street-side of the residences, and near the extraction trench on the south side of the property. Collecting samples in both the wet and dry seasons to assess potential seasonal variability. During the first event, sampling each probe twice on the same day to evaluate potential diurnal effects.

4.5.1 Soil Gas Survey

4.5.1.1 On-facility

Rationale. In fall 2004, a soil gas survey was conducted within the former AMCO facility boundaries to characterize the current soil gas conditions and to collect data for a risk evaluation. An on-facility soil gas survey had not been conducted since December 1998. The number and location of samples collected fell within the guidance provided by the *Supplemental Guidance to RAGS: Calculating the Concentration Term* (EPA 1992a). The data collected from locations near existing buildings may be used to assess potential indoor vapor intrusion.

A dry season soil gas sampling event was conducted in September through October 2004. During this sampling event, the shallow water table and high soil moisture made soil gas sampling problematic. As a result, the wet season soil gas sampling event proposed in the SAP was canceled because it was considered highly unlikely that soil gas sampling could be successfully completed during the wet season.

Sampling Locations. Figure 18 shows the on-facility soil gas sampling locations. As with the soil sampling locations, the spacing of the soil gas grid (with points approximately 50 feet apart) was intended to provide a sufficient number of samples to provide a statistical basis for estimating mean concentrations. Soil gas samples were collected through the same 6-inch-diameter concrete coring prior to soil sampling.

The locations of several of the soil gas samples proposed in the SAP were relocated based on logistical considerations, primarily aboveground structures or adverse ground conditions (i.e., concrete and rubble thickness or underground utilities). Since all soil gas samples (designated RSG) were collected from the same concrete coring location as soil samples (designated RSB), both the soil and soil gas sampling locations were moved, as described in Section 4.3.1.2.

Due to the shallow water table, the soil gas samples were collected from 2.1 to 2.5 feet bgs using a 4-inch wire-mesh, stainless-steel screen. At location RSG-09, the soil was fully saturated at the concrete/soil interface; therefore, no soil gas sample was collected at that location. Additionally, no sample was collected at location SSG-16 because efforts to core through the concrete and rubble were not successful. One additional location, RSG-42 was added, as described in Section 4.3.1.2. Detailed soil gas sampling procedures are provided in Appendix C.

Number of Samples. One primary soil gas sample was collected from each soil gas survey location. Twenty-seven primary soil gas samples were collected at on-facility locations. At four locations, samples were collected on two different days.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Four field duplicate samples were collected and analyzed as described in the next subsection. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

Laboratory Analyses. The soil gas survey samples collected from within the former AMCO facility boundaries were analyzed by a mobile laboratory for VOCs using EPA Method 8260B to allow the addition or adjustment of sampling locations in the field. Analysis for SVOCs was not performed because collecting sufficient sample volume to achieve laboratory reporting limits at or below screening levels was not feasible for this investigation. To achieve the desired reporting limits for SVOCs, hundreds to thousands of liters of soil gas would need to be collected for each sample.

4.5.1.2 Off-facility

Rationale. Because the operational histories of the two vacant lots along Center Street and the parking lot at 1448 3rd Street are largely unknown, soil gas samples were collected at these locations to help assess the presence of any off-site contaminated soil or groundwater, assess current soil gas conditions, and collect data necessary for a risk evaluation. A dry season soil gas sampling event was conducted in September through October 2004. A wet season soil gas sampling event proposed in the SAP was canceled, as described in Section 4.5.1.1.

Sampling Locations. Off-facility soil gas sampling was conducted in the large vacant lot at 332-346 Center Street, the small vacant lot at 324 Center Street, and the parking lot at 1448 3rd Street. Historical aerial photographs indicate that a residence was present in the northwestern portion of the large vacant lot on Center Street. For this reason, soil gas sampling was proposed only in the southern and eastern portions of this lot, an area leased by AMCO and adjacent to the AMCO facility, respectively.

Figure 18 shows the locations where off-facility soil gas samples were collected. These off-facility soil gas survey locations correspond to the soil sampling locations described in Section 4.4.1.2, as soil gas samples were collected through the same 6-inch-diameter concrete coring prior to soil sampling. Five soil gas sampling locations were originally proposed at the large vacant lot; however, step-out locations were completed at 11 locations based on the results from the planned soil gas samples. A total of 16 soil gas samples were collected at the large vacant lot. One sample was collected in the small vacant lot (not including RSB-02, which was moved just over the fence from the facility), and three samples were collected from the parking lot at 1448 3rd Street. Due to the shallow water table, the soil gas samples were collected from 2.1 to 2.5 feet bgs using a probe with a 4-inch wire-mesh, stainless-steel screen. Detailed soil gas sampling procedures are provided in Appendix C.

Number of Samples. One primary soil gas sample was collected from each soil gas survey location. Sixteen soil gas samples were collected from 16 off-facility locations.

Field quality assurance sample collection did not differentiate between off-facility and on-facility locations. All four field quality assurance samples for the soil gas survey were collected at on-facility locations. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

Laboratory Analyses. All of the samples collected from both the on-facility and off-facility sampling locations were analyzed at an on-site mobile laboratory. The samples were analyzed using EPA Method 8260B modified for air. The presence of the on-site mobile laboratory allowed rapid turnaround of preliminary results (i.e., unvalidated) to allow for rapid decision-making on the necessity of step-out locations.

4.5.2 Permanent Soil Gas Probes

4.5.2.1 Rationale

Permanent soil gas probes were installed and sampled along the western property boundary of the former AMCO facility to monitor potential changes in soil gas contamination and to assess potential off-site migration. In addition, permanent probes were installed in the gas-line trench backfill and former extraction trench backfill to evaluate whether these materials act as preferential flow paths for VOCs in soil gas.

To assess seasonal variability, the soil gas probe sampling was conducted three times—twice during the dry season (September 2004 and November 2006) and once in the wet season (May 2005). To evaluate temperature-induced diurnal fluctuations in concentration, during the first two sampling events, soil gas samples were collected from the probes once in the morning and once in the afternoon. Based on the similarity of the morning and afternoon results from earlier events, sampling was only performed once during a day during the third sampling event.

4.5.2.2 Permanent Soil Gas Probe Installation

Twelve permanent soil gas probes were installed as part of the RI. Six of these probes (RSP-01 through RSP-06) were installed along the western property line of the former AMCO facility to allow monitoring of soil gas closest to the adjacent residences. One probe (RSP-07) was installed in the gravel backfill of the down-gradient end of the former interceptor trench. The remaining five permanent soil gas probes were installed in the sandy backfill of a gas line that runs under the sidewalk on 3rd Street and that has a branch extending along Center Street (RSP-08 through RSP-12). The purpose of these latter probes is to evaluate the potential of the more permeable sandy backfill of the gas-line trench acting as a preferential flow path for soil gas.

All probes were constructed in general accordance with the methods outlined in the SAP. At most locations, a 6-inch "permanent-implant" soil gas probe screen was installed between 2 and 3 feet below the paved surface. Soil probes at locations RSP-07 through RSP-12 were installed shallower than the planned depth, with screen intervals of 1.5 to 2 feet bgs. The probe installed in the interceptor trench backfill (RSP-07) was limited due to caving in the borehole. The five probes installed in the gas-line backfill had shallow screen intervals because 2 feet was the maximum depth allowed by the on-site safety coordinator for PG&E. Table 14 presents construction details and screen depths of the permanent soil gas probes. Construction procedures are described in Appendix C, and permanent soil gas probe construction diagrams are provided in Appendix B.

4.5.2.3 Sampling Locations

Figure 19 shows the locations of the 12 permanent soil gas probes. Permanent soil gas probes RSP-01 through RSP-06 were installed along the western boundary of the former AMCO facility to monitor the soil gas concentrations at the facility adjacent to the residential properties. Permanent soil gas probes RSB-01 and RSB-02 were moved into the vacant lots immediately west over the former facility property boundary due to limited access and thick concrete at the proposed locations, which would likely result in shallow groundwater interference.

Permanent soil gas probe RSB-07 was installed in the gravel backfill for the former interceptor trench at the southern boundary of the former facility property. Permanent soil gas probes RSB-08 through RSP-12 were installed in the sand trench backfill of the PG&E gas lines that run underneath the sidewalk on 3rd Street in front of the former facility property. This subsurface gas line also has a branch extending north along Center Street.

4.5.2.4 Number of Samples

During the first two sampling events, a morning and afternoon sample was collected from each of the permanent soil gas probes sampled. During the third sampling event, one sample was collected from each permanent soil gas-probe. During the two dry season events, all 12 of the permanent soil gas probes were sampled; however, saturated soil encountered during the wet season prevented sampling of four of the probes. The number of primary samples collected during each event was:

- Phase 1 (September 2004): 24 normal samples (two per probe)
- Phase 2 (May 2005): 18 normal samples (two each from nine probes)
- Phase 3 (November 2006): 12 normal samples (one per probe)

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Six field duplicate samples were collected and analyzed, as described in the Section 4.5.2.5. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.5.2.5 Laboratory Analyses

All soil gas samples collected from the permanent soil gas probes were analyzed by the fixed laboratory for the full list of VOCs by EPA Method TO-15. Each soil gas sample was re-run using the low detection limit TO-15 SIM Method if concentrations were not so high that damage to the SIM laboratory instrument could occur and if the sample was nondetect for the compounds with laboratory reporting limits above the compound screening level.

4.5.3 Residential Soil Gas Sampling

4.5.3.1 Rationale

Contaminants in soil gas are at an intermediate position in the pathway between volatile contaminants in soil and groundwater and residential receptors. To support the assessment of potential risk to residential receptors from vapor intrusion of VOCs originating from soil or groundwater, soil gas sampling was conducted at residential properties within the immediate vicinity of the former AMCO facility. South Prescott Park was also sampled during the residential sampling events.

Residential soil gas sampling was performed concurrently with crawlspace air, ambient air, permanent soil gas probe, and background ambient air sampling. To evaluate seasonably variability, residential soil gas sampling was conducted three times—twice during the dry season (September 2004 and November 2006) and once in the wet season (May 2005). Detailed soil gas sampling procedures are provided in Appendix C.

4.5.3.2 Sampling Locations

Soil gas sampling was conducted at six residential properties adjacent to the former AMCO facility (Figures 20a through 20c). As surface conditions allowed, the soil gas sampling locations were sited near the residential structure(s). Below is a list of residences where soil gas sampling was conducted and a brief description of the sampling location(s):

- 360 Center Street:
  - 360SGa—At the northeast side of residence near 366/368 Center Street.
  - 360SGb—On eastern property boundary nearest the facility.
  - 360SGc—Adjacent to residential structure the southeast corner of the residential structure.
- 356 Center Street—356SG—Adjacent to residential structure.
- 326 Center Street—326SG—Approximately 15 feet northeast of the structure; at this property, most of the parcel is paved which limited the available sampling areas.
- 1428 3rd Street—1428SG—Adjacent to residential structure.
- 1432 3rd Street:
  - 1432SGa—Approximately 20 feet from the main residential structure due to concrete patio and just southeast of the front of freestanding residence in the backyard.
  - 1432SGb—At the rear wall of the freestanding residence in the backyard.
- 1436 3rd Street—1436SG—Approximately 25 feet from the main residential structure due to concrete patio.
- South Prescott Park:
  - PPNW—Just northwest of the concrete walkway surrounding the play structure.
  - PPSW—Just southwest of the concrete walkway surrounding the play structure.
  - PPE—Just east of the concrete walkway surrounding the play structure.

Access to 320 Center Street was not obtained; therefore, no samples were collected from this property.

All the residential soil gas samples were collected from 2.1 to 2.5 feet bgs.

4.5.3.3 Number of Samples

During the September 2004 residential soil gas sampling event, one sample was collected at each of the 12 locations. Because of the high soil moisture content during the May 2005, only seven samples could be collected from the 12 soil gas sampling locations. Similarly, during the November 2006 sampling event, only 10 soil gas samples could be collected. During the May 2005 sampling event, groundwater was between approximately 2 and 3 feet bgs, whereas during the other two soil gas sampling events, groundwater was between roughly 3 and 5 feet bgs.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Three field duplicate samples were collected and analyzed, as described in Section 4.5.3.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.5.3.4 Laboratory Analyses

Residential soil gas samples were analyzed by the fixed laboratory for the full list of VOCs by EPA Method TO-15. Each soil gas sample was re-run using the low detection limit TO-15 SIM Method if concentrations were not so high that damage to the SIM laboratory instrument could occur and if the sample was nondetect for the compounds for which laboratory reporting limits for the EPA Method TO-15 analyses were above screening levels.

4.6 Air Sampling

Air sampling was conducted at the office at the former AMCO facility, residences located in the same city block as the former facility, South Prescott Park, and at a background location within the South Prescott neighborhood.

The soil gas investigation activities proposed in the SAP included:

- Sampling crawlspace and ambient air at adjacent residences and analyzing for VOCs to determine if crawlspace and ambient air at those locations contain VOCs at levels of concern; collecting samples in both the dry season and wet season to assess potential seasonal variability.

Crawlspace air sampling at the office on the former AMCO facility property was not included in the SAP but was added by EPA.

4.6.1 Background Ambient Air

4.6.1.1 Rationale

Background ambient air samples were collected during each residential monitoring event to enable the comparison of the ambient and crawlspace air samples collected at residential properties, South Prescott Park, and the on-facility office to background ambient air concentrations. During each event, morning and afternoon samples were collected at a location several blocks away from the former AMCO facility. This location was selected because it is sufficiently close to the former facility property so that concentrations of VOCs in ambient air at this location would be representative of area-wide concentrations, but is sufficiently distant from the Site so that any VOCs related to the former AMCO facility would be unlikely to bias the sample.

4.6.1.2 Sampling Locations

During the 2004 and 2006 sampling events, background samples were collected on the western sidewalk of Lewis Street, approximately 50 feet north of the intersection of Lewis and 3rd Streets (329BA; see Figure 20a and 20c). During the 2005 event, the background samples were collected on the sidewalk on the opposite side of the street from the background sampling location for the other two events. To access the electricity necessary to operate the high-volume sampler used for naphthalene air sampling, the change in background location was necessary. As with all other ambient air sampling locations, the background ambient air samples were collected with the inlet positioned approximately 3 feet above the ground surface to reflect the approximate breathing zone of a child receptor.

4.6.1.3 Number of Samples

During each sampling event, two background ambient air samples were collected. The two samples consisted of a morning and afternoon sample collected on the same day. Morning samples were collected from roughly 9:00 a.m. to 1:00 p.m., and afternoon samples were collected roughly from 1:00 p.m. to 5:00 p.m. Detailed sampling procedures are provided in Appendix C.

Field duplicate samples were not collected for the background ambient air samples.

4.6.1.4 Laboratory Analyses

The background ambient air samples collected represented time-weighted samples collected over a 4-hour period. The background air (i.e., background ambient air) samples collected were analyzed for 17 VOCs by the low-detection limit TO-15 SIM method. During the May 2005 event, background air samples were also collected for analysis of naphthalene by method TO-13.

4.6.2 Residential Ambient and Crawlspace Air

4.6.2.1 Rationale

Soil gas, crawlspace air, and ambient air associated with the residences immediately adjacent to the former AMCO facility were sampled and analyzed for vinyl chloride in September 1999, April 2000, and August 2002. EPA's preliminary reassessment of TCE and PCE indicate that their toxicity may be higher than previously understood. In addition, results of on- and off-facility sampling of soil, groundwater, and soil gas indicate a broader range of VOCs may be of concern. As part of the RI, ambient and crawlspace air sampling was conducted in September 2004, May 2005, and November 2006.

Based on the soil and groundwater sampling results from this RI, EPA chose to sample for naphthalene in ambient air. Due to the large sample volume required, sampling of crawlspaces could not be conducted without drawing ambient air into the crawlspace, which would result in an unrepresentative crawlspace sample. No naphthalene ambient air sample was collected at South Prescott Park because the high volume sampler requires electrical power, which was not available at the park. The use of a generator for collection of a sample at the park was rejected because the generator exhaust could contaminate the sample.

4.6.2.2 Sampling Locations

Ambient air sampling was conducted at residential properties bordering the former AMCO facility, including 326 Center Street, 360 Center Street, 1428 3rd Street, 1432 3rd Street, and 1436 3rd Street (see Figures 20a through 20c). Ambient air sampling was also conducted at South Prescott Park. The collection of a sample at each residential property was contingent upon the EPA being granted access. No ambient air samples were collected at 320 Center Street because the access to this property was not obtained. No ambient air samples were collected at 356 Center Street because of the proximity of this residence to the ambient air sample collected at 360 Center Street. All ambient air VOCs samples were collected with the sampler inlet positioned approximately 3 feet above the ground surface to reflect the approximate breathing zone of a child receptor.

During the May 2005 event, ambient air samples for naphthalene analysis were collected at the above-described residential properties using high-volume samplers (air sample volume was 1,000s of liters) with an intake approximately 4 feet above the ground surface. A detailed discussion of sampling procedures is included in Appendix C.

Crawlspace air samples were collected as described below:

- 320 Center Street—No crawlspace air samples were collected at this property because access was not granted.
- 326 Center Street—One crawlspace sample was collected during each sampling event.
- 356 Center Street and 360 Center Street—These residences are approximately 120 feet from the former facility. Because these residences are up-gradient (for groundwater) from the former facility and it is unlikely the VOC plume in groundwater migrated beneath these residences, no crawlspace air samples were collected at either of these residences. After the Phase 1 residential soil gas/air sampling event, EPA evaluated the soil gas sampling results and confirmed no crawlspace air samples were warranted at these residences.
- 1428 3rd Street—During each event, two crawlspace air samples were collected at this residence. During Phase 2 and 3, one of the initial locations (1428CSb) was no longer available so an alternate sampling location was used (1428CSc).
- 1432 3rd Street—One crawlspace air sample was collected during each sampling event.
- 1436 3rd Street—The foundation of this residence consists of a slab-on-grade; therefore, no crawlspace air samples were collected.

4.6.2.3 Number of Samples

Residential crawlspace and ambient air samples were collected during three sampling events (September 2004, May 2005, and November 2006). The numbers of samples collected during each event are as follows:

- During each of the three sampling events, four crawlspace air samples were collected from three residences.
- During the September 2004 sampling event, five ambient air samples were collected at five residences. No ambient air sample was collected at South Prescott Park.
- During each of the May 2005 and November 2006 sampling events, six ambient air samples for VOCs were collect from five residential properties and South Prescott Park.
- During the May 2005 event, five naphthalene ambient air samples were collected from five residential properties.

Field quality assurance samples were collected in accordance with QA/QC procedures outlined in the SAP. Six field duplicate samples were collected and analyzed, as described in Section 4.6.2.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.6.2.4 Laboratory Analyses

All crawlspace air and ambient air samples collected in South Prescott Park were time-weighted samples collected over a 4-hour time period. All crawlspace air and ambient air samples collected were analyzed for 17 VOCs by the low-detection limit TO-15 SIM Method. Naphthalene samples were analyzed using EPA Method TO-13.

4.6.3 Facility Office Crawlspace Air

4.6.3.1 Rationale

Because of the proximity of this structure to some of the highest-detected concentrations of VOCs in soil, groundwater, and soil gas, EPA determined it was appropriate to conduct crawlspace sampling at this location. Crawlspace air sampling will allow an evaluation of risk associated with vapor intrusion of VOCs from the subsurface.

The warehouse at 1414 3rd Street is built with a slab-on-grade foundation; therefore, there is no crawlspace to sample. Indoor air samples were not considered for this location because the thick concrete slab foundation would reduce the infiltration of VOCs from soil gas, and the paints and solvents that are stored and regularly used in the warehouse could affect the air samples. The results could be non-representative of risk from soil gas contamination.

4.6.3.2 Sampling Locations

Crawlspace air samples were collected at the office on the former AMCO facility property (Figure 20c).

4.6.3.3 Number of Samples

Two crawlspace air samples were collected during the November 2006 sampling event. No samples were collected during previous events. Detail sampling procedures are provided in Appendix C.

One field duplicate sample was collected and analyzed, as described in Section 4.6.3.4. A detailed discussion of quality assurance procedures and testing is included in Appendix D.

4.6.3.4 Laboratory Analyses

All crawlspace air samples collected at from the office at 1414 3rd Street were time-weighted samples collected over a 4 hour period. Samples were analyzed for 17 VOCs by the low-detection limit TO-15 SIM Method.

4.7 Aquifer Characteristics

4.7.1 Lithologic Data Collection

4.7.1.1 Rationale

Lithologic data collection, including soil logging and testing of soil samples for physical characteristics, was performed as part of the sampling program. Lithologic data were collected to aid in the development of a site hydrogeologic conceptual model, support contaminant fate and transport studies, and assist in risk assessment calculations.

4.7.1.2 Sampling Locations

Lithological information was collected from all on- and off-facility soil sampling locations, grab groundwater sampling locations, well construction locations, and from residential properties.

Soil samples were collected during the construction of monitoring wells RMW-03-15, RMW-07-15, RMW-08-35, RMW-09-35, and RMW-10-35. Samples were generally collected both above and below the groundwater table.

The residential soil samples were collected at 326, 356, and 360 Center Street and 1428, 1432, and 1436 3rd Street. Two samples were collected at each of these locations, one at 0.5 to 1 foot bgs and one at 2.5 to 3 feet bgs. The following summarizes the soil sampling locations:

- 360GT—Approximately 20 east of the residential structure.
- 356GT—Approximately 10 feet to the east of the residential structure and close to the soil gas sample location for this property.
- 326SGT—In the garden area approximately 15 feet northeast of the structure and adjacent to the soil gas sample location for this property.
- 1428GT—Approximately in the center of this parcels backyard.
- 1432GT—In the northern portion of the property adjacent to the 1432SGb soil gas sample location.
- 1436GT—Approximately the middle of the backyard lawn close to the soil gas sample location for this property.

Subsequent to the collection of the residential soil samples, a soil removal action was performed at residential properties adjacent to and near the former AMCO facility. These properties include 1428, 1432, and 1436 3rd Street, and 320, 326, 356, 360, and 366/368 Center Street. The soil was generally excavated to depths of between one and three feet. Small areas were excavated to a depth of less than 1 foot in locations where valuable trees or plants might have been damaged by deeper excavation. As a result, the samples collected during the RI are no longer representative of the soil conditions at these properties.

4.7.1.3 Number of Samples

During construction of five monitoring wells, a total of nine samples were collected for physical parameter analysis. In addition, 12 samples were collected from six residential properties.

4.7.1.4 Lithologic Logging/Laboratory Analyses

Lithologic logging was performed by a qualified geologist at all on- and off-facility soil sampling locations and monitoring well construction locations, as well as at three grab groundwater sampling locations (RGW-12, RGW-14, and RGW-15). Soils were classified in general accordance with the American Society of Testing and Materials (ASTM) D2488, *Visual-Manual Procedure for Description and Identification of Soils.* All grab groundwater sampling borings that were not visually logged were logged using a CPT. A detailed description of the visual logging methods and CPT data collection and interpretation methods are provided in Appendix C. Lithologic logs for all locations recorded are provided in Appendix B.

Soil samples collected from the monitoring well locations were analyzed for:

- Total organic carbon (TOC)
- Bulk density and grain density
- Air-filled-, water-filled-, and total porosity
- Grain-size distribution
- Water permeability
- Air permeability

Soil samples collected from residential properties were analyzed for:

- TOC
- Grain-size distribution
- Water content
- Bulk Density
- Water-filled and total porosity
- Air permeability

Results of the laboratory analyses for the samples collected from monitoring wells are included in Table 6. The soil from the residential properties has been excavated; therefore, the data is no longer relevant.

4.7.2 Aquifer Hydraulic Testing

4.7.2.1 Rationale

Aquifer tests were performed to evaluate the range of hydraulic conductivities characteristic to the shallow aquifer underlying the Site. Hydraulic conductivity is a measure of relative water permeability of various earth materials. Hydraulic conductivity measurements are essential to allow calculations of groundwater flow rates. The estimated range of groundwater flow rates is integral to the assessment of the fate and transport of groundwater contaminants and, subsequently, to the evaluation of remedial solutions for the Site.

4.7.2.2 Test Locations

Hydraulic conductivity data were obtained by conducting slug tests at seven monitoring wells located throughout the plume. The slug test locations were selected to assess both lateral and vertical variability of hydraulic conductivities within the shallow aquifer. Slug tests were conducted in the following wells:

- RGW-03-15
- RGW-07-15
- RGW-08-15
- RGW-09-15
- RGW-09-35
- RGW-10-15
- RGW-10-35

Slug tests were conducted in wells screened in the upper and middle zones of the shallow aquifer. Additional slug tests were not conducted in deep interval wells because (1) contaminant concentrations in most of these wells are below detection limits and modestly above screening levels in only one well (RMW-14-50), (2) boring logs indicate that the middle and deep intervals of the aquifer are lithologically similar and therefore likely have similar ranges of hydraulic conductivity, and (3) the available hydraulic data are sufficient to interpret the movement of contaminants.

The monitoring well locations are shown in Figure 14. Results of the slug tests are presented in Table 7 and Section 3.6. The results of the aquifer test analyses are included in Appendix B; slug testing procedures are presented in Appendix C.

4.7.3 Groundwater Level Monitoring

4.7.3.1 Rationale

Groundwater level measurements were performed in monitoring wells during sampling events to groundwater gradients to evaluate variations in groundwater flow conditions over time.

4.7.3.2 Monitoring Locations

Groundwater elevation data were collected from all network groundwater monitoring wells during each groundwater monitoring event. The groundwater elevation data are summarized in Table 15. Groundwater elevation maps for each monitoring event are presented in Figures 13a through 13g.

5.0 Nature and Extent of Contamination

This section presents the distribution of contaminants in groundwater, soil, soil gas, and air as determined from data collected during the RI. To facilitate the discussion, screening levels are used as a basis of comparison for contaminant concentrations detected in the RI Study Area. To focus the discussion of contaminant distribution, key contaminants have been identified for detailed evaluation.

5.1 Screening Level Determination

Screening levels were identified in the SAP for the originally proposed groundwater, soil, soil gas, and air analytes. During the course of the RI, these screening levels were updated as needed to address additional analytes that were incorporated into the investigation and changes in the regulatory standards that were used as the basis for the screening levels. Screening levels for analytes in groundwater, soil, soil gas, and air are presented on Tables 16a through 16d, respectively.

The screening levels were chosen to be generic and intentionally conservative, for the purpose of identifying appropriate analytical methods and detection limits for the RI. These levels do not address all of the possible human exposure scenarios for the Site and, therefore, should not be viewed as cleanup levels. Cleanup levels will be developed during the Feasibility Study.

The screening levels are used as a basis of comparison in the discussion of contaminant occurrence. For some compounds with exceptionally low screening levels, the laboratory reporting limits exceeded the screening level.

5.1.1 Groundwater

The lower of either the federal or state primary maximum contaminant level (MCL) for drinking water was used as the screening level for groundwater. If a Primary MCL was not available, the EPA Region 9 tap water PRG was used. The PRGs were last updated by EPA Region 9 in October 2004 (EPA 2004b) and are based on a target cancer risk level of 10^{-6} or a non-cancer hazard quotient of 1.

The screening levels for individual dioxins/furans were calculated using their Toxicity Equivalency Factors (EPA 2000) based on the tap water PRG for 2,3,7,8-tetrachlorodibenzo-para-dioxin (TCDD).

5.1.2 Soil

EPA Region 9 residential soil PRGs were used as screening levels for soil. The PRGs were last updated by EPA Region 9 in October 2004, and are based on a target cancer risk level of 10^{-6} or a non-cancer hazard quotient of 1. In some cases where a PRG is not available, the California State Water Resources Control Board Environmental Screening Level (ESL) value for direct exposure in residential scenarios was used.

The screening levels for individual dioxins/furans were calculated using their Toxicity Equivalency Factors (EPA 2000) based on the residential soil PRG for 2,3,7,8-TCDD.

Background information for soil was obtained from the city of Oakland (City of Oakland Urban Land Redevelopment Program 1995).

5.1.3 Soil Gas

For soil gas in general, there are no widely-accepted and directly-applicable regulatory screening levels that have been developed by EPA. To identify the appropriate analytical method and detection levels for soil gas data, screening levels for soil gas were determined by multiplying the ambient air screening levels (see Section 5.1.4) by a conservative attenuation factor of 10. The attenuation factor was based on the soil gas-to-indoor air attenuation factor presented by EPA in the draft indoor air guidance (EPA 2002).

5.1.4 Air

EPA Region 9 ambient air PRGs were used as screening levels for both ambient and crawlspace air. The PRGs were last updated by EPA Region 9 in October 2004, and are based on target cancer risk level of 10^{-6} or a non-cancer hazard quotient of 1.

5.1.5 Produce

The U.S. Food and Drug Administration's (USFDA) recommended Provisional Total Tolerable Intake Level (PTTIL) was used as the screening level for produce. For lead, the PTTIL is 6 µg lead/day for children less than 6 years of age, 15 µg lead/day for children seven years and older, and 75 µg lead/day for adults (USFDA 1993).

5.2 Key Contaminants

During the RI, over 200 individual contaminants were detected in groundwater, soil, soil gas, and air. To facilitate the presentation of the nature and extent of contamination within the RI Study Area, key compounds representative of overall subsurface conditions have been chosen for detailed discussion. These key compounds were selected using the following criteria:

- Analytes that exceed the following risk evaluation criteria in groundwater:
  - Cancer risk value greater than 1×10^{-4}
  - Non-cancer hazard quotient greater than 1 and individually comprises greater than 1 percent of the total risk
- Analytes that exceed the following risk evaluation criteria in soil:
  - Cancer risk value greater than 1×10^{-5}
  - Non-cancer hazard quotient greater than 1
- Analytes that are chemical parent or break-down products of analytes that exceed to the risk evaluation criteria.
- Analytes detected above the screening level at a high frequency in a specific media (soil, groundwater, air) during the RI.

- Analytes for which understanding of the distribution provides salient information about contaminant fate and transport within the RI Study Area.

Compounds meeting one or more of the selection criteria have been identified as key contaminants. Key contaminants are composed of analytes from various chemical classes including VOCs, SVOCs, pesticides and PCBs, and metals. A list of key contaminants is provided below. Specific dioxin/furan compounds are not included in the key contaminant list; instead, they are discussed as a chemical class.

VOCs	SVOCs	Pesticides and PCBs	Metals
1,2,4-Trimethylbenzene	1,4-Dioxane	Aroclor 1260	Antimony
1,3,5-Trimethylbenzene	2-Methylnaphthalene	4,4'-DDT	Arsenic
Benzene	Benzo(a)pyrene	Dieldrin	Iron
Carbon Tetrachloride	Naphthalene		Lead
Chloroform			Manganese
Cis-1,2-dichloroethene			
Tetrachloroethene			
Toluene			
Trichloroethene			
Vinyl Chloride			

5.3 NAPL

The presence of NAPL in the RI Study Area was evaluated during the RI. Investigations conducted prior to the RI have indicated measurable thicknesses of LNAPL in monitoring wells MW-13 and MW-14, which are located in the central area of the former facility parcel. In August 2002, the maximum thickness of LNAPL measured in wells MW-13 and MW-14 was 0.2 and 5.43 feet, respectively. During the RI (March 2005), 3.68 feet of LNAPL was measured in MW-14 and MW-13 could not be accessed. In addition, while cutting the surficial concrete for the installation of monitoring well RMW-02-13 for the RI, a mixture of LNAPL and water was encountered in a layer of debris between layers of concrete. Metal piping installed within the concrete, which is believed to be part of a conveyance system used during AMCO operations to distribute chemical products across facility during packaging operations, was also observed in this cut.

Evidence of LNAPL was also noted in the central and south-central portion of the facility during the on-facility soil sampling. As the water table fluctuates, NAPL on the surface of the groundwater can be trapped in the pore spaces in the soil. Black, oily material, strong petroleum odors, and/or high photo-ionization detector readings, all of which indicate the potential for NAPL to be present, were observed at soil boring locations in the south-central portion of the facility. These observations are consistent with the distribution of contaminant concentrations in soil and shallow groundwater, which indicate that the highest concentrations of contaminants are in the central and south-central portion of the facility.

During the RI, the LNAPL in MW-14 was sampled once for characterization. The profile of compounds detected in the LNAPL from MW-14 suggests the material is a mixture of fuel petroleum hydrocarbons and chlorinated hydrocarbons with significant concentrations of other hydrophobic organic compounds dissolved in this fuel-solvent mixture. The nature of this LNAPL would suggest releases of a variety of chemicals including, but not limited to, multiple types of chlorinated solvents, fuel hydrocarbons, SVOCs (including some PAHs), and multiple types of organochlorine pesticides—the latter of which are often formulated using fuel hydrocarbons. A summary of the laboratory analytical results is provided in Table 17. The primary compounds detected in the LNAPL are listed below:

Petroleum Hydrocarbons	Chlorinated Hydrocarbons	SVOCs and PAHs	Pesticides
Benzene	1,1,1-Trichloroethane	1,4-Dioxane	4,4’-DDD
Ethylbenzene	1,1-Dichlorotheane	2-Methylnaphthalene	4,4’-DDE
Toluene	1,2-Dichlorobenzene	Acenaphthene	Dieldrin
Xylenes	Cis-1,2-Dichloroethene	Benzyl butyl phthalate	
	Trans-1,2-Dichloroethene	Bis(2-ethylhexyl)phthalate	
	Methylene Chloride	Dibenzofuran	
	Tetrachloroethene	Di-n-butyl phthalate	
	Trichloroethene	Fluoranthene	
		Fluorene	
		Naphthalene	
		Pentachlorophenol	
		Phenanthrene	
		Pyrene	

In addition to the compounds listed above, dioxins/furans were detected at concentrations equating to a toxic equivalency quotient (TEQ) of 1,400 nanograms per kilogram (ng/kg). PCB compounds were not detected at concentrations above the reporting limit (3,300 μg/kg). Metals detected in the LNAPL include chromium (42 mg/kg) and copper (7.5 mg/kg); however, detection limits were generally high, ranging from 0.025 to 2,000 mg/kg. A flash point of 18°C was measured.

Based on the analysis of groundwater samples collected during the depth-discrete groundwater survey (Section 5.4.1) and subsequent quarters of groundwater monitoring (Section 5.4.2), concentrations of the above constituents were very low at depth (below 35 ft bgs). At the low concentrations of DNAPL constituents at depth (>35 feet bgs), the presence of DNAPL is not presently indicated at depth in the RI Study Area. When released to a water-saturated soil, DNAPL will sink; however, surface tension and immiscibility significantly affect the movement and migration pathways of the DNAPL. As a hydrophobic DNAPL moves through the soil, surface tension of the water in the soil causes residual NAPL to be trapped in the soil pore spaces (at rates of 5 percent to 30 percent of total pore space), restricting further movement. This immobilized DNAPL, as a bulk (i.e., free-phase) residual product, acts as a continuous source for the dissolved phased plume. Based on DNAPL solubilities, residual DNAPL can be expected to take many decades to hundreds of years to become completely solubilized (EPA 2009). Therefore, even if DNAPL is not directly encountered during an investigation, its presence or absence can be inferred based on groundwater contaminant concentrations relative to each specific compound's solubility limits. Where present as a separate phase, DNAPL compounds are generally detected at greater than or equal to 1 percent of their solubility limit in groundwater (EPA 1994 and 2009; EA 2003; ITRC 2003). At this Site, below 35 feet bgs the highest single concentration as a percentage of the solubility limit was 0.08 percent (TCE in RGW-15 at 43 feet bgs); in addition, most detections of this class of constituents were one or more orders of magnitude lower than 1 percent of their solubility limits. These very low concentrations, coupled with the decades (or longer) persistence of residual DNAPL (EPA 2009), indicate that DNAPL may not have migrated below approximately 35 feet bgs. Provided below is a list of highest detections and concentration as a percent of the saturation limit during the remedial investigation reporting period for key contaminants. The values above and below 35 feet bgs clearly show dramatically diminished percent saturation below 35 feet bgs, indicating the high unlikelihood of DNAPL having migrated below this depth.

Analyte	% of Saturation Limit (µg/L)	Highest Detected Concentration (µg/L)	% of Saturation limit	Highest Detected Concentration (µg/L)	% of Saturation limit
		Above 35 ft bgs		Below 35 ft bgs	
Benzene	9.12E+05	4,000	0.44%	1.8	0.00019%
Carbon tetrachloride	9.80E+05	0.3	0.00003%	Not detected below 35 ft bgs	
Chloroform	3.51E+06	46	0.0013%	8.3	0.00024%
cis-1,2-Dichloroethene	1.20E+06	90,000	7.5%	53	0.0044%
1,4-Dioxane	8.86E+07	2,700	0.03%	41	0.000046%
Ethylbenzene	2.34E+05	4,000	1.7%	4.6	0.0019%
Tetrachloroethene	3.66E+05	83	0.02%	3.6	0.00098%
Toluene	5.21E+05	31,000	5.9%	7.9	0.0015%
Trichloroethene	8.19E+05	880	0.11%	670	0.081%
1,2,4-Trimethylbenzene	9.05E+03	2,400	26%	3.8	0.042%
1,3,5-Trimethylbenzene	7.17E+03	2,800	39%	0.4	0.0056%
Xylenes, total	2.88E+05	5,700	20%	25	0.0086%

Vertical concentration trends of dense compounds within individual groundwater survey borings and monitoring well groups generally decrease with depth across the RI Study Area. In addition, with the exception of shallow groundwater in the central and south-central areas of the former facility, concentrations of dense compounds are far below one percent of their solubility limits. In mid-depth groundwater well RMW-02-32, which is located in the central portion of the former AMCO facility, concentrations of several VOCs have been detected at approximately one to two percent of their solubility limits. However, in all deeper zone wells (>35 feet), VOCs were generally not detected or were detected at less than 0.04 percent of their solubility limits (>25 times lower than the 1 percent threshold). Concentrations observed in mid-zone well RMW-02-32 indicate that NAPL may have migrated to a depth of approximately 30 feet bgs; however, concentrations observed in all deeper wells (>35 feet) do not indicate the presence of any NAPL in the deeper zone of the upper aquifer (within 20 or more feet of the aquitard).

5.4 Groundwater

Groundwater in and around the former AMCO facility property has been extensively investigated as part of the RI (including 69 depth-discrete grab groundwater samples and 6 quarters of sampling from up to 29 monitoring wells). Initially, data from a depth-discrete groundwater survey was used to determine the design of a long-term groundwater monitoring well network. Data collected from the monitoring well network (quarterly monitoring during the RI) has been used to characterize the groundwater quality at the Site. During the RI, 98 contaminants were detected in groundwater at concentrations above screening levels. These compounds, which comprise the groundwater constituents of concern (COCs) for the Site, are presented in Table 18.

5.4.1 Depth-Discrete Groundwater Survey

Depth-discrete groundwater sampling (referred to as the groundwater survey) was conducted throughout the shallow aquifer to obtain a preliminary understanding of groundwater quality at the Site, and subsequently, design a monitoring well network for long-term monitoring of groundwater. Laboratory analytical data obtained from this survey are considered to be screening level data as the data are not reproducible (i.e., a long-term sampling point that can be resampled was not established). A brief summary of the discrete-depth groundwater survey data is provided below. A complete presentation of groundwater quality as discerned through the analysis of groundwater monitoring well data is provided in Section 5.4.2.

Groundwater samples collected as part of this survey were analyzed for VOCs and 1,4-dioxane (EPA Method 8260A) as these compounds represent the most water-soluble (i.e., mobile) group of contaminants at the former AMCO facility. The detected VOCs include chlorinated hydrocarbons and associated chemical breakdown products, and fuel hydrocarbons. In total, 43 VOCs (including 1,4-dioxane) were detected in samples from the survey, and 25 of these were detected above screening levels. A summary of the laboratory analytical data from the depth-discrete groundwater survey (including number of detections greater than screening level and ranges of detected concentrations) is provided in Table 19. Laboratory analytical results for the depth discrete groundwater survey are included in Appendix E.

Figure 21 presents the compounds detected above screening levels (grouped by depth) for each depth-discrete groundwater survey location. Groundwater survey data suggest the highest contaminant concentrations occur at shallow depths (i.e., less than 25 feet bgs) in the central (RGW-12 and RGW-13) and southern (RGW-03) portions of the former facility. One exception, RGW-09, indicates localized elevated contaminant concentrations in shallow groundwater south of 3rd Street on the UPRR/Amtrak property. In general, location-specific vertical profile trends indicate that contaminant concentrations decrease with depth. Location RGW-15 (immediately south of South Prescott Park and approximately 275 feet down-gradient of the source area) is the only sample location where the vertical profile concentration trend increases with depth. With the exception of RGW-15, concentrations in the deepest samples at each location were only slightly above the reporting limit, when detected, or less than the laboratory reporting limit. The deepest sample at the RGW-15 location exhibited elevated concentrations of TCE and cis-1,2-DCE, as well as the presence of benzene and vinyl chloride, while the compounds were not detected in the shallowest samples. Contaminant concentrations were not detected above screening levels in any samples from the eastern/southeastern perimeter groundwater survey locations RGW-04, RGW-10, and RGW-17. With the exception of naphthalene, which was detected at concentrations below the laboratory reporting limit but above the screening level, contaminants were not detected at concentrations above screening levels in any samples from northeastern perimeter groundwater survey locations RGW-05 and RGW-06.

The data from this depth-discrete groundwater survey were considered in evaluating the nature and extent of contamination in areas where monitoring well data are less dense, and where contaminants were not detected or were detected at very low concentrations in the monitoring wells (e.g., deeper groundwater in the east and southeastern portions of the RI Study Area).

5.4.2 Groundwater Monitoring Wells

Based on data from the depth-discrete groundwater survey, the existing groundwater monitoring well network was supplemented with newly installed wells (see Section 4.2.2.2) and existing wells associated with the UPRR/Amtrak property. Data was collected from this expanded groundwater monitoring network on a quarterly basis during the RI (seven total events). For each quarterly sampling event, summaries of laboratory analytical data (including quantities of samples and detection ranges) are provided in Tables 20a through 20g. Tables presenting all groundwater laboratory analytical results are included in Appendix E.

A summary of groundwater contaminant distribution and trends for key contaminants is provided in Subsections 5.4.2.1 through 5.4.2.5. Due to the large volume of groundwater data available, the discussion is focused on data collected in third quarter 2006 (3Q06; the most recent sampling event). The distribution of key contaminants as interpreted from this dataset is presented on Figures 22 through 32. Two figures, one presenting concentrations in shallow groundwater (i.e., less than 25 feet bgs) and a second for mid-depth and deeper groundwater (i.e., well screens deeper than 25 feet bgs), are provided for each key contaminant or class key contaminants. To facilitate the presentation of this data, the monitoring well network has been subdivided into categories as follows:

On-Facility	Cross-Gradient	Down-Gradient	Background
MW-12	RMW-04-15	RMW-05-15	RMW-11-35
MW-13	RMW-06-15	RMW-07-15	BMW-06
MW-14	BMW-01	RMW-07-35	
RMW-01-17		RMW-09-15	
RMW-01-35		RMW-09-35	
RMW-02-13		RMW-10-15	
RMW-02-32		RMW-10-35	
RMW-02-50		RMW-13-35	
RMW-03-15		RMW-14-50	
RMW-08-15		BMW-03	
RMW-08-35		BMW-07	
RMW-12-32		BMW-08	
RMW-12-51		BPZ-01	

Note: Additionally, shallow groundwater is considered to be less than or equal to 25 feet bgs, middle depth is from 26 to 40 feet bgs, and deep groundwater is 41 feet bgs and greater.

During the quarterly groundwater sampling events, samples were collected for VOCs, SVOCs, organochlorine pesticides, PCBs, organophosphate pesticides, metals, cyanide, and dioxins/furans. Specific sample analysis lists for each quarter are presented in Table 12.

5.4.2.1 VOCs

Volatile organic compounds comprise the majority of widely distributed contaminants at the Site. VOCs were detected above screening levels in monitoring wells both on and down-gradient of the former AMCO facility. Generally, as indicated by data collected from on-facility well groups RMW-02 and RMW-12, the highest concentrations of VOCs occur at shallow depths in the central and southern portions of the former facility. VOC data from the deepest wells within the same two well groups indicate concentrations slightly above the laboratory reporting limit, when detected. Localized areas of elevated VOC concentrations have also been identified in shallow and mid-depth wells south of 3rd Street (RMW-10-15 and RMW-10-35).

All VOCs identified as key contaminants, with the exception of PCE, chloroform, and carbon tetrachloride, exceed the key contaminant risk criteria for groundwater. Trichloroethene, cis-1,2,dichloroethene, and vinyl chloride also exceeded risk criteria for soil. PCE was identified as a key contaminant because it is a parent chemical of analytes that exceed the risk criteria for soil and groundwater. Carbon tetrachloride and chloroform were identified as key contaminants based on their frequency of detection at concentrations above screening level in air, but were not detected at concentrations above screening level in groundwater. The distribution of key VOC contaminants detected above screening level is discussed in detail below:

5.4.2.1.1 1,2,4-Trimethylbenzene

Based on all quarterly RI groundwater data, 1,2,4-trimethylbenezene (1,2,4-TMB) was detected in 18 of 74 samples at concentrations ranging from 0.53 to 1,700 μg/L. Of the 18 detections, 13 were at concentrations above the screening level (SL=12 μg/L). The most elevated detections of 1,2,4-TMB are observed in shallow and mid-depth on-facility monitoring wells. 1,2,4-TMB was not detected at concentrations above the screening level in any off-facility wells. Isocontour maps of 1,2,4-TMB concentrations in shallow and mid-depth/deep groundwater from the third quarter of 2006 are provided in Figures 22a and 22b, respectively.

The most elevated concentrations of 1,2,4-TMB in shallow groundwater from the third quarter of 2006 are observed in on-facility wells RMW-02-13 and MW-12 at concentrations of 130 and 170 μg/L, respectively. 1,2,4-TMB was detected in one other on-facility well, RMW-01-17, at a concentration below the screening level. 1,2,4-TMB was not detected in any other shallow background, cross-gradient, down-gradient, or on-facility wells at concentrations above the screening level; therefore, the extent of 1,2,4-TMB in shallow groundwater has been horizontally delineated to the screening level.

Based on data from the third quarter of 2006, with the exception of mid-depth well RMW-02-32 (990 μg/L), vertical profile trends in the on-facility well groups indicate that concentrations of 1,2,4-TMB decrease with depth. 1,2,4-TMB was detected in mid-depth on-facility wells RMW-12-32 and RMW-01-35 at concentrations of 18 and 3.8 μg/L, respectively. 1,2,4-TMB was not detected in the deepest on-facility wells (RMW-02-50 and RMW-12-51). Further, 1,2,4-TMB was not detected in any other mid-depth/deep background, cross-gradient, down-gradient, or on-facility wells at concentrations above the screening level; therefore, horizontal and vertical delineation of 1,2,4-TMB in mid-depth/deep groundwater has been delineated to the screening level.

5.4.2.1.2 1,3,5-Trimethylbenzene

Based on all quarterly RI groundwater data, 1,3,5-TMB was detected in 19 of 74 samples at concentrations ranging from 0.2 to 2,500 μg/L. Of the 19 detections, 12 were at concentrations above the screening level (SL=12 μg/L). The most elevated detections of 1,3,5-TMB are observed in shallow and mid-depth on-facility monitoring wells. 1,3,5-TMB was not detected at concentrations above the screening level in any off-facility wells. Isocontour maps of 1,3,5-TMB concentrations in shallow and mid-depth/deep groundwater from the third quarter of 2006 are provided in Figures 23a and 23b, respectively.

The most elevated concentrations of 1,3,5-TMB in shallow groundwater from the third quarter of 2006 are observed in on-facility wells RMW-02-13 and MW-12, both with concentrations of 270 μg/L. 1,3,5-TMB was detected in one other on-facility well, RMW-01-17, at a concentration below the screening level. 1,3,5-TMB was detected in one down-gradient well, RMW-09-15, at a concentration below the screening level. 1,3,5-TMB was not detected in shallow background, cross-gradient, down-gradient, or on-facility wells at concentrations above the screening level; therefore, the extent of 1,3-5-TMB in shallow groundwater has been horizontally delineated to the screening level.

Based on data from the third quarter of 2006, with the exception of mid-depth well RMW-02-32 (2,500 μg/L), vertical profile trends in the on-facility well groups indicate that concentrations of 1,3,5-TMB decrease with depth. In addition to RMW-02-32, 1,3,5-TMB was detected in mid-depth on-facility wells RMW-12-32 (26 μg/L) and RMW-01-35 (12 μg/L). 1,3,5-TMB was not detected in the deepest on-facility wells (RMW-02-50 and RMW-12-51). Further, 1,3,5-TMB was not detected in any other mid-depth/deep background, cross-gradient, down-gradient, or on-facility wells at concentrations above the screening level; therefore, horizontal and vertical delineation of 1,3,5-TMB in mid-depth/deep groundwater has been delineated to the screening level.

5.4.2.1.3 Benzene

Based on all quarterly RI groundwater data, benzene was detected in 92 of 189 samples at concentrations ranging from 0.2 to 4,000 μg/L. Of the 92 detections, 58 were at concentrations above the screening level (SL=1.0 μg/L). The most elevated detections of benzene are observed in shallow and mid-depth on-facility monitoring wells; however, benzene was detected at concentrations above the screening level in shallow down-gradient wells BMW-03 and RMW-05-15, and mid-depth down-gradient wells RMW-09-35 and RMW-10-35. Isocontour maps of benzene concentrations in shallow and mid-depth/deep groundwater from the third quarter of 2006 are provided in Figures 24a and 24b, respectively.

The most elevated concentrations of benzene in shallow groundwater from the third quarter of 2006 are observed in on-facility wells RMW-02-13 (340 μg/L) and MW-12 (190 μg/L). Immediately down-gradient of the former facility, concentrations slightly above the laboratory reporting limit are observed in wells BMW-03 and RMW-05-15. Further down-gradient, benzene was not detected above the laboratory reporting limit. Shallow horizontal delineation can be illustrated as benzene concentrations were not detected at concentrations above the laboratory reporting limit in shallow background well BMW-06; shallow cross-gradient wells RMW-06-15, RMW-04-15, and BMW-01; or down-gradient wells RMW-07-15, RMW-09-15, BMW-08, and BPZ-01.

Based on data from the third quarter of 2006, vertical profile trends in the on-facility well groups indicate that concentrations of benzene decrease with depth. Benzene was not detected in the deepest on-facility well groups (RMW-02-50 and RMW-12-51). Benzene was detected in the mid-depth intervals of two down-gradient wells, RMW-09-35 and RMW-10-35, at concentrations slightly above the laboratory reporting limit. Horizontal delineation of benzene in mid-depth/deep groundwater can be illustrated as benzene was not detected in background well RMW-11-35, on-facility well RMW-08-35, or down-gradient wells RMW-07-35, RMW-14-50, and RMW-13-35. Benzene was not detected at concentrations above the screening level during the depth-discrete groundwater survey data from locations RGW-10, RGW-11, RGW-17 and RGW-04. Although the concentration of benzene in well RMW-10-35 (2.2 μg/L) is only slightly above the screening level (SL=1.0 μg/L), this detection indicates that benzene has not been fully delineated in the mid--depth groundwater down-gradient of RMW-10-35.

5.4.2.1.4 Cis-1,2-Dichloroethene

Based on all quarterly RI groundwater data, cis-1,2-DCE was detected in 116 of 188 samples at concentrations ranging from 0.2 to 90,000 μg/L. Of the 116 detections, 83 were at concentrations above the screening level (SL=6.0 μg/L). Cis-1,2-DCE was detected at concentrations above the screening level in several monitoring wells; however, the most elevated detections of cis-1,2-DCE are observed in shallow and mid-depth on-facility monitoring wells. Isocontour maps of cis-1,2-DCE concentrations in shallow and mid-depth/deep groundwater from the third quarter of 2006 are provided in Figures 25a and 25b, respectively.

The most elevated concentrations of cis-1,2-DCE in shallow groundwater from the third quarter of 2006 are observed in on-facility wells RMW-02-13 (8,900 μg/L) and MW-12 (25,000 μg/L). Immediately down-gradient of the former facility, in well BMW-03, the cis-1,2-DCE concentration is three orders of magnitude lower (70 μg/L). Further down-gradient, in RMW-10-15, the cis-1,2-DCE concentration increases to 390 μg/L. Shallow horizontal delineation to the screening level can be illustrated as cis-1,2-DCE concentrations were not detected in shallow background well BMW-06, on-facility well RMW-03-15, cross-gradient wells RMW-04-15 and BMW-01, and down-gradient wells RMW-07-15, BMW-08, and BPZ-01. Concentrations slightly above the laboratory reporting limit were detected in on-facility well RMW-01-17, cross-gradient well RMW-06-15, and down gradient well BMW-07.

Based on data from the third quarter of 2006, vertical profile trends in the central and southern portion of the former facility (RMW-02-50 and RMW-12-51) indicate that concentrations of cis-1,2-DCE decrease with depth; however, in other areas of the facility, an increase with depth is observed at on-facility well groups RMW-01-35 and RMW-08-35, and down-gradient well group RMW-09-35. Further down-gradient, concentrations increase slightly with depth at well groups RMW-14-50/BMW-07 and RMW-10-35. Lateral and vertical delineation in mid-depth/deep groundwater can be illustrated for cis-1,2-DCE in the eastern portion of the RI Study Area as concentrations were not detected above the screening level in background well RMW-11-35, on facility well RMW-02-50, and down-gradient well RMW-13-35. Further, cis-1,2-DCE was not detected at concentrations above the screening level during the depth-discrete groundwater survey data from locations RGW-10, RGW-17 and RGW-04. In the southwestern portion of the RI Study Area, cis-1,2-DCE in mid-depth/deep groundwater has not been delineated to the screening level.

5.4.2.1.5 Tetrachloroethene (PCE)

Based on all quarterly RI groundwater data, PCE was detected in 41 of 186 samples at concentrations ranging from 0.1 to 83 μg/L. Of the 41 detections, 10 were at concentrations above the screening level (SL=5.0 μg/L). The most elevated detection of PCE is observed in mid-depth on-facility monitoring well RMW-08-35; however, during the RI, PCE was detected in one other well, mid-depth down-gradient well RWM-07-35, at a concentration above the screening level. Isocontour maps of PCE concentrations in shallow and mid-depth/deep groundwater from the third quarter of 2006 are provided in Figures 26a and 26b, respectively.

PCE was not detected at concentrations above the screening level in any of the shallow groundwater monitoring wells during the third quarter of 2006. PCE was detected at concentrations below the screening level in two shallow, on-facility wells, RMW-02-13 (1.4 μg/L) and MW-12 (3.7 μg/L). PCE was detected in one shallow off-facility well, RMW-09-15 (down-gradient), at an estimated concentration of 0.23 μg/L.

The most elevated detection of PCE in deeper groundwater is observed in well RMW-07-35 (24 μg/L). PCE in mid-depth groundwater was detected at a concentration above the screening level in one on-facility well, RMW-08-35 (8.6 μg/L). PCE in mid-depth groundwater to the west of the former facility has not been delineated to the screening level.

5.4.2.1.6 Toluene

Based on all quarterly RI groundwater data, toluene was detected in 50 of 188 samples at concentrations ranging from 0.2 to 31,000 μg/L. Of the 50 detections, 23 were at concentrations above the screening level (SL=150 μg/L). The most elevated detections of toluene are observed in shallow and mid-depth on-facility monitoring wells. Toluene was not detected at concentrations above the screening level in any off-facility wells. Isocontour maps of toluene concentrations in shallow and mid-depth/deep groundwater from the third quarter of 2006 are provided in Figures 27a and 27b, respectively.

The most elevated concentrations of toluene in shallow groundwater from the third quarter of 2006 are observed in on-facility wells RMW-02-13 (12,000 μg/L) and MW-12 (6,700 μg/L). Toluene was detected in one other on-facility well, RMW-03-15 (1.8 μg/L), at a concentration below the screening level. Toluene was not detected at concentrations above the screening level in any shallow background, cross-gradient, or down-gradient wells; therefore, delineation of toluene in shallow groundwater to the screening level can be illustrated.

Based on data from the third quarter of 2006, vertical profile trends observed in the central and southern portion of the former facility, where elevated concentrations of toluene were detected in shallow groundwater (RMW-02-13 and MW-12 wells), indicate that concentrations of toluene decrease with depth. Toluene was detected at a concentration above the screening level in one deeper groundwater monitoring well, RMW-02-32 (6,100 μg/L). The horizontal and vertical extent of toluene has been delineated to the screening level in groundwater.

5.4.2.1.7 Trichloroethene (TCE)

Based on all quarterly RI groundwater data, TCE was detected in 89 of 187 samples at concentrations ranging from 0.26 to 160 μg/L. Of the 89 detections, 56 were at concentrations above the screening level (SL=5.0 μg/L). The most elevated concentrations of TCE were observed in mid-depth off-facility monitoring well RMW-10-35. TCE was also detected in off-facility deep monitoring well RMW-14-50 and several on-facility monitoring wells. Isocontour maps of TCE concentrations in shallow and deeper groundwater from the third quarter of 2006 are provided in Figures 28a and 28b, respectively.

The most elevated TCE concentrations from the third quarter of 2006 are observed in on-facility shallow wells RMW-02-13 (11 μg/L) and MW-12 (22 μg/L). Immediately down-gradient of the former facility, TCE was not detected in well RMW-05-15, and was detected at a concentration below screening level in BMW-03 (3.1 μg/L). Further down-gradient, concentrations similar to those observed on-facility were detected in RMW-10-15 (22 μg/L). Shallow horizontal delineation to the screening level can be illustrated as TCE concentrations were not detected at concentrations above the screening level in shallow background well BMW-06, on-facility well RMW-03-15, cross-gradient wells RMW-06-15, RMW-04-15, and BMW-01, and down-gradient wells RMW-07-15, RMW-05-15, BPZ-01, and BMW-01.

Based on data from the third quarter of 2006, vertical profile trends in the central portion of the former facility (RMW-02 well group) indicate that concentrations of TCE decrease with depth; however, an increase with depth is observed in nearly all other well groups within the RI Study Area. As observed from samples collected from the deepest on-facility wells, TCE was not detected in RMW-02-50 and was detected at a concentration below the screening level in well RMW-12-51 (2.2 μg/L). On-facility wells groups RMW-01, (R)MW-12, and RMW-08 each show an increasing trend with depth. Increases with depth were also observed at down-gradient well groups RMW-07 and RMW-14/BMW-07, while concentrations remained similar at well group RMW-09. The largest increase with depth is observed at well group RMW-10 where TCE was detected at a concentration of 140 μg/L, which is higher than any TCE concentration observed in on-facility wells. Lateral and vertical delineation in deeper groundwater can be illustrated for TCE in the eastern portion of the RI Study Area as concentrations were not detected above the screening level in background well RMW-11-35, on-facility wells RMW-02-32 and RMW-02-50, and down-gradient well RMW-13-35. Further, TCE was not detected at concentrations above the screening level during the depth-discrete groundwater survey data from locations RGW-10, RGW-11, RGW-17, and RGW-04. In the western portion of the RI Study Area, TCE in deeper groundwater has not been delineated to the screening level.

5.4.2.1.8 Vinyl Chloride

Based on all quarterly RI groundwater data, vinyl chloride was detected in 96 of 187 samples at concentrations ranging from 0.14 to 15,000 μg/L. Of the 96 detections, 87 were at concentrations above the screening level (SL=0.5 μg/L). The most elevated detections of vinyl chloride are observed in shallow and mid-depth on-facility monitoring wells. Vinyl chloride was detected at concentrations above the screening level in several shallow and deeper down-gradient wells, and one cross-gradient well (RMW-06-15). Isocontour maps of vinyl chloride concentrations in shallow and deeper groundwater from the third quarter of 2006 are provided in Figures 29a and 29b, respectively.

The most elevated concentrations of vinyl chloride in shallow groundwater from the third quarter of 2006 are observed in on-facility wells RMW-02-13 (1,400 μg/L) and MW-12 (1,700 μg/L). Vinyl chloride was detected at a concentration above the screening level in one other on-facility well, RMW-08-15 (16 μg/L). Vinyl chloride was not detected in any background or cross-gradient wells at concentrations above the laboratory reporting limit. Immediately down-gradient of the former AMCO facility, vinyl chloride was detected at concentrations two to three orders of magnitude lower than those observed on-facility. Vinyl chloride was detected at concentrations greater than the screening level in down-gradient wells BMW-03 (19 μg/L), RMW-09-15 (2.8 μg/L), and RMW-05-15 (3.7 μg/L).

Based on deeper on-facility groundwater data from the third quarter of 2006, vinyl chloride concentrations in wells RMW-08-35 (5.6 μg/L) and RMW-12-32 (210 μg/L) indicate a decreasing concentration trend with depth; however, an increasing trend with depth is observed in mid-depth wells at well groups RMW-01 and RMW-02. The most elevated detection of vinyl chloride is observed in well RMW-02-32 (15,000 μg/L). Concentrations in the deepest on-facility wells RMW-02-50 (1.6 μg/L) and RMW-12-51 (0.14 μg/L) indicate a decrease in concentration with respect to mid-depth wells at the same locations. Down-gradient of the former facility, an increasing trend with depth is observed at well groups RMW-09, RMW-10, and BMW-07/RMW-14.

In the third quarter of 2006, vinyl chloride was detected in the deepest well in the central portion of the facility, RMW-02-50, at a concentration (1.6 μg/L) close to the screening level (SL=0.5 μg/L). Although the concentration is above screening levels, vertical delineation can be inferred due to the presence of the regional aquitard at approximately 60 feet bgs. Horizontal delineation of vinyl chloride to the screening level in deeper groundwater can be inferred in the eastern portion of the RI Study Area based on the absence of the compound in background well RMW-11-35 and the pronounced concentrations in the central portion of the former facility (indicating a source area) combined with gradient considerations. Further, vinyl chloride was not detected at concentrations above the screening level during the depth-discrete groundwater survey data from locations RGW-10, RGW-17 and RGW-04. Neither horizontal nor vertical delineation of vinyl chloride in deeper groundwater has been achieved in the down-gradient portion of the RI Study Area.

5.4.2.2 SVOCs

Semi-volatile organic compounds have been detected above the laboratory reporting limit in the majority of groundwater monitoring wells. Several SVOCs have been detected at concentrations above respective screening levels in samples from on-facility, down-gradient, cross-gradient, and background groundwater monitoring wells; however, the areal occurrence of individual compounds is not continuous. All SVOC compounds are horizontally and vertically delineated to screening levels with the exception of isolated detections in down-gradient wells BPZ-01 and RMW-14-50.

PAHs including benzo(a)anthracene, benz(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, carbazole, and chrysene have been detected at concentrations above respective screening levels in the central area of the former facility (RMW-02-13) and in down-gradient well BPZ-01. None of these PAHs were detected above the reporting limit in MW-12, BMW-03 or RMW-05-15, which are down-gradient wells of corresponding depth located between RMW-02-13 and BPZ-01. Indeno(1,2,3-c,d)pyrene was detected at estimated concentrations slightly above screening level in on-facility well RMW-12-32 and down-gradient well BPZ-01. The PAH most widely detected at concentrations above screening level is dibenz(a,h)anthracene (SL= 0.0092 μg/L). The compound was detected in wells across the RI Study Area at similar concentrations above screening levels including up-gradient, background well RMW-11-35 (estimated concentration of 0.022 μg/L) and cross-gradient well RMW-06-15 (estimated concentration of 0.032 μg/L). The most elevated concentration of this compound is observed in down-gradient well RMW-14-50 (screened within deeper groundwater) at a concentration of 0.21 μg/L.

The only SVOC that exceeds the risk criteria for groundwater is naphthalene. Benzo(a)pyrene and 2methylanpthalene were identified as key contaminants because they exceed risk criteria for soil. 1,4-Dioxane was identified as a key contaminant based on the frequency of detection at concentrations above screening level in groundwater. Maps illustrating the distribution of key SVOC compounds in shallow and deeper groundwater are provided as Figures 30a and 30b, respectively. Detailed discussion of key SVOC contaminant distribution, based on data from the third quarter of 2006, is provided as follows:

5.4.2.2.1 1,4-Dioxane

The screening level for 1,4-dioxane in groundwater is 6.1 µg/L. Based on all quarterly RI groundwater data, the most elevated concentrations of 1,4-dioxane are observed in on-facility mid-depth wells RMW-02-32 and RMW-12-32. In addition to these wells, 1,4-dioxane was detected in several on-facility and down-gradient wells at concentrations greater than the screening level.

Based on data from the third quarter of 2006, 1,4-dioxane was detected at concentrations above the screening level in shallow, on-facility monitoring wells RMW-03-15 (29 µg/L), RMW-02-13 (35 µg/L), and MW-12 (28 µg/L). However, the most elevated concentrations of 1,4-dioxane in shallow groundwater are observed down-gradient of the facility in monitoring wells BMW-03 (220 µg/L) and RMW-09-15 (110 µg/L). 1,4-Dioxane was detected at concentrations above the screening level at all other down-gradient monitoring wells with the exception of RMW-07-15 (not detected) and BMW-08 (5.6 µg/L). Horizontal delineation of the compound can be illustrated to the east and west of the former facility based on observed concentrations in cross-gradient wells; however, horizontal delineation cannot be shown in the down-gradient direction.

The most elevated concentrations of 1,4-dioxane from the third quarter of 2006 are observed in deeper on-facility monitoring wells RMW-02-32 (1,600µg/L) and RMW-12-32 (1,100 µg/L). 1,4-Dioxane was not detected at concentrations greater than the laboratory reporting limit in the deepest wells at the same well groups, RMW-02-50 and RMW-12-51. 1,4-Dioxane was detected above the screening level in deeper down-gradient monitoring wells RMW-09-35 (18 µg/L) and RMW-10-35 (190 µg/L). Horizontal and vertical delineation of 1,4-dioxane to the screening level in deeper groundwater can be inferred east and west of the former facility based on observed concentrations in monitoring wells, the grab groundwater survey, and gradient considerations; however, horizontal delineation cannot be inferred in the down-gradient direction.

5.4.2.2.2 2-Methylnaphthalene

Based on all quarterly RI groundwater data, 2-methylnaphthalene was detected at concentrations greater than the screening level (SL=24 µg/L) in shallow and deeper on-facility wells only.

Based on data from the third quarter of 2006, 2-methylnaphthalene was detected at concentrations greater than the screening level in two shallow wells, RMW-02-13 (290 µg/L) and MW-12 (170 µg/L). In deeper groundwater, 2-methylnaphthalene was detected at concentrations greater than the screening level in one well, RMW-02-32 (190 µg/L). Horizontal and vertical delineation of 2-methylnaphthalene can be inferred in shallow and deeper groundwater.

5.4.2.2.3 Benzo(a)pyrene

Based on all quarterly RI groundwater data, the most elevated concentrations of benzo(a)pyrene, and the only detections at concentrations greater than the screening level (SL=0.2 µg/L), are observed in shallow on-facility wells RMW-02-13 and RMW-03-15.

Based on data from the third quarter of 2006, the only detections of benzo(a)pyrene in shallow groundwater were observed in on-facility well RMW-02-13 (0.5 µg/L) and down-gradient well BPZ-01 (0.094 µg/L). Benzo(a)pyrene was not detected above the laboratory reporting limit in any deeper groundwater monitoring wells. Horizontal and vertical delineation of benzo(a)pyrene can be inferred in shallow and deeper groundwater.

5.4.2.2.4 Naphthalene

The screening level for naphthalene is 0.093 μg/L. Based on all quarterly RI groundwater data, naphthalene was primarily detected in on-facility wells. The most elevated concentrations of naphthalene are observed in shallow on-facility monitoring wells; however, as observed in data from the second quarter of 2006, the compound was detected in down-gradient monitoring wells BMW-07, BMW-08, RMW-10-15, and RMW-14-50 at concentrations greater than the screening level.

Based on data from the third quarter of 2006, naphthalene was detected in groundwater at concentrations above screening levels in on-facility wells only. The most elevated concentrations of naphthalene were detected at shallow monitoring wells MW-12 (220 μg/L) and RMW-02-13 (140 μg/L). Naphthalene was also detected at a concentration above the screening level in shallow monitoring well RMW-08-15 (0.2 μg/L). Horizontal delineation of naphthalene can be inferred in shallow groundwater.

Based on data from the third quarter of 2006, naphthalene was detected in deeper groundwater at concentrations above the screening level in on-facility wells RMW-01-35 (0.12 μg/L), RMW-02-32 (67 μg/L), and RMW-12-32 (5.5 μg/L). Vertical profile trends within well groups indicate decreasing concentrations with depth. With the exception of the RMW-01 well group, the concentrations in the deepest wells were below the laboratory reporting limits. Based on observed concentrations and gradient considerations, horizontal and vertical delineation of naphthalene can be inferred.

5.4.2.3 Pesticides and PCBs

Based on all quarterly RI groundwater data, 20 pesticide compounds and one PCB compound were detected at concentrations above the laboratory reporting limit. Of these, 12 pesticide and one PCB compound were detected at concentrations greater than the screening level among background, on-facility, and down-gradient monitoring wells. Among the 13 compounds that exceed the screening level, none were detected at concentrations that exceed risk evaluation criteria. Aroclor 1260 is included as a key contaminant in groundwater because it exceeds the risk evaluation criteria for groundwater. DDT and dieldrin are included as key contaminants because they were detected in soil at concentrations above risk evaluation criteria.

Maps illustrating the distribution of key pesticide and PCB compounds in shallow and deeper groundwater are provided as Figures 31a and 31b, respectively. Detailed discussion of key pesticide and PCB contaminant distribution, based on data from the third quarter of 2006, is provided as follows:

5.4.2.3.1 Aroclor-1260

Laboratory analytical data for Aroclor-1260 from the third quarter of 2006 groundwater sampling event was rejected during data validation. The most recent valid dataset for Aroclor-1260 is from the first quarter of 2006. Based on all quarterly RI groundwater data, Aroclor-1260 was detected in one monitoring well, on-facility well RMW-02-13, at a maximum concentration of 6.3 μg/L. The screening level for Aroclor-1260 is 0.5 μg/L.

5.4.2.3.2 DDT

DDT was not detected in shallow or deeper groundwater at concentrations above the screening level (SL=0.2 μg/L) during the RI.

During the third quarter 2006 monitoring event, DDT was detected below the laboratory reporting limit in on-facility wells only. The most elevated concentrations of DDT were detected in two shallow on-facility wells, RMW-02-13 and MW-12, at estimated concentrations of 0.057 μg/L and 0.065 μg/L, respectively.

DDT was detected in one deeper on-facility monitoring well, RMW-12-32, at an estimated concentration of 0.0099 μg/L. DDT was not detected in the deepest well at the RMW-12 location.

5.4.2.3.3 Dieldrin

Based on all quarterly RI groundwater data, dieldrin was detected in shallow and deeper groundwater at concentrations above the screening level (SL=0.0042 μg/L) in on-facility and down-gradient monitoring wells. The lowest laboratory reporting limit achieved for dieldrin in groundwater during the RI is one order of magnitude higher than the screening level.

During the third quarter 2006 monitoring event, dieldrin was detected at estimated concentrations above the screening level in shallow on-facility wells MW-12 (0.67 μg/L), RMW-01-17 (0.094 μg/L), and RMW-02-13 (0.81 μg/L). Dieldrin was detected at estimated concentrations above the screening level in down-gradient monitoring wells BMW-03 (0.013 μg/L), RMW-09-15 (0.058 μg/L), and RMW-10-15 (0.23 μg/L).

Based on data from the third quarter of 2006, dieldrin was detected in deeper on-facility and down-gradient monitoring wells at concentrations above the screening level. Dieldrin was detected at estimated concentrations in on-facility mid-depth wells RMW-01-35 (0.014 μg/L), RMW-02-32 (0.093 μg/L), and RMW-12-32 (0.04 μg/L). Dieldrin was also detected in the deepest on-facility monitoring wells, RMW-02-50 (12 μg/L) and RMW-12-51 (0.35 μg/L). The remaining dieldrin concentrations detected above the screening level are observed in down-gradient wells RMW-07-35 (0.0092 μg/L) and RMW-10-35 (0.055 μg/L).

5.4.2.4 Inorganics (Metals and Cyanide)

During the RI, groundwater samples were analyzed for inorganic analytes including metals (total and dissolved) and cyanide. Hexavalent chromium was detected at one location, cross-gradient well RMW-06-15 (0.35 μg/L), at a concentration below the screening level (SL=50 μg/L). Cyanide was detected at four locations. The most elevated concentrations of cyanide were detected in samples from locations RMW-03-15 (62.9 μg/L) and RMW-08-35 (11.8 μg/L), which are below the screening level (SL=200 μg/L).

Throughout this section, unfiltered sample data (i.e., “total metals”) rather than filtered sample data (i.e., “dissolved metals”) are used to evaluate the distribution of metals in groundwater, as they typically represent the more conservative (i.e., higher concentration) data set. Arsenic is the only inorganic analyte included as a key contaminant because it was detected in groundwater at a concentration exceeding risk evaluation criteria; however, antimony, iron, lead, and manganese are also included as key contaminants. Antimony and iron are included as key contaminants because concentrations detected in on- facility soil samples exceed risk criteria. Lead is included because of elevated concentrations detected in residential soil samples. Manganese is included as a key contaminant due to the frequency of detection and its significance when evaluating naturally occurring degradation of chlorinated compounds. Elevated concentrations of iron and manganese in groundwater appear to both be the result of both natural occurrence and increased metals solubility due to the strongly reducing groundwater conditions resulting from microbial activity.

The only metal that exceeds the risk criteria for groundwater is arsenic. Antimony, lead, and iron were identified as key contaminants because they exceed risk criteria for soil. Manganese was identified as a key contaminant based on the frequency of detection at concentrations above screening level in groundwater. Maps illustrating the distribution of key metals in shallow and deeper groundwater are provided as Figures 32a and 32b, respectively. Detailed discussion of key metal distribution, based on data from the third quarter of 2006, is provided as follows:

5.4.2.4.1 Arsenic

Among all quarterly RI groundwater data, arsenic was detected in 109 of 110 samples, of which 64 were at concentrations greater than the screening level (SL=10 µg/L).

During the third quarter of 2006, the most elevated concentrations of arsenic in shallow groundwater were observed in down-gradient wells RMW-09-15 and RMW-10-15 at concentrations of 2,020 and 599 µg/L, respectively. Arsenic was detected above the screening level in all other shallow down-gradient monitoring wells with concentrations ranging from 15.4 to 157 µg/L. Arsenic was detected in all shallow background, cross-gradient, down-gradient, and on-facility wells.

The most elevated concentrations of arsenic in deeper groundwater are observed in down-gradient monitoring wells RMW-14-50 and RMW-10-35 at concentrations of 81.6 and 819 µg/L, respectively. Arsenic was detected in all deeper background, cross-gradient, down-gradient, and on-facility wells.

5.4.2.4.2 Antimony

Among all quarterly RI groundwater data, antimony was detected in 10 of 110 samples, of which one was at concentrations greater than the screening level (SL=6 µg/L).

During the third quarter of 2006, antimony was not detected above the screening level in any of the monitoring wells. Antimony was detected at two locations, RMW-03-15 (0.81 µg/L) and RMW-10-15 (2.1 µg/L); therefore, antimony in groundwater is not of primary concern.

5.4.2.4.3 Iron

Among all quarterly RI groundwater data, iron was detected in 103 of 110 samples, of which 24 were at concentrations greater than the screening level (SL=11 mg/L).

With the exception of BMW-03 and BMW-06, iron was detected in all shallow monitoring wells in the RI Study Area during the third quarter of 2006. Iron was detected above the screening level in shallow on-facility wells MW-12 and RMW-02-13 at concentrations of 69.8 and 26.3 mg/L, respectively. Iron was also detected at a concentration above the screening level in down-gradient shallow monitoring well BMW-08 at a concentration of 28.1 mg/L.

In deeper groundwater, iron was detected above the screening level in one on-facility monitoring well, RMW-02-32, at a concentration of 13.3 mg/L.

5.4.2.4.4 Lead

Among all quarterly RI groundwater data, lead was detected in 100 of 110 samples, of which 15 were at concentrations greater than the screening level (SL=15 μg/L).

During the third quarter of 2006, lead was detected in groundwater at a concentration above the screening level at one location in the RI Study Area. Lead was detected in shallow on-facility monitoring well RMW-03-15, at a concentration of 20.1 μg/L. Lead was detected below the screening level in other on-facility monitoring wells at concentrations ranging from 2.3 to 7.4 μg/L. The most elevated concentration of lead down-gradient is observed at shallow monitoring well BPZ-01 (8.2 μg/L). Lead was detected at concentrations below the reporting limit in shallow and deeper monitoring wells across the RI Study Area.

5.4.2.4.5 Manganese

Among all quarterly RI groundwater data, manganese was detected in 110 of 110 samples, of which 66 were at concentrations greater than the screening level (SL=880 μg/L).

During the third quarter of 2006, manganese was detected above the screening level in all shallow, on-facility and down-gradient wells, with the exception of BMW-08 and BPZ-01, at concentrations ranging from 901 μg/L (BMW-07) to 14,900 μg/L (RMW-09-15). The most elevated concentration of manganese in shallow groundwater, by an order of magnitude, is observed in down-gradient monitoring well RMW-09-15 (14,900 μg/L). Manganese was detected at concentrations below the screening level in all eastern cross-gradient wells and down-gradient wells BMW-08 and BPZ-01.

In deeper groundwater, manganese was detected above the screening level in one on-facility monitoring well, RMW-01-35, at a concentration of 2,460 μg/L. Manganese was detected above the screening level in down-gradient monitoring wells RMW-14-50 (45,700 μg/L), RMW-10-35 (22,200 μg/L), and RMW-13-35 (2,320 μg/L). A concentration greater than the screening level is observed in up-gradient, background monitoring well RMW-11-35 (1,350 μg/L).

5.4.2.5 Dioxins/Furans

Based on all quarterly RI groundwater data, the most elevated concentrations of dioxins/furans were detected in shallow on-facility monitoring well RMW-02-13. However, with the exception of RMW-03-15, dioxins/furans were also detected in the other on-facility monitoring wells. Dioxins/furans were also detected in wells BMW-08 and BPZ-01, located along the southern edge of the UPRR/Amtrak property, and RMW-06-15, located in the large vacant lot.

5.4.3 Summary Nature and Extent of Contaminants in Groundwater

A summary of conclusions based on the groundwater data collected during the RI is as follows:

- Contaminants detected at concentrations above screening levels include chlorinated hydrocarbons, petroleum hydrocarbons, SVOCs, organochlorine pesticides, PCBs, metals, and dioxins/furans.
- The highest concentration of contaminants is observed in shallow groundwater (less than 25 feet bgs) in the central and south-central areas of the former AMCO facility, west of the warehouse and office.
- Contaminant concentrations observed in shallow groundwater in the central and south-central areas of the former AMCO facility may indicate the presence of residual NAPL entrapped in soil pore spaces.
- Contaminant concentrations beneath the central and south-central portions of the former facility decrease rapidly with increasing depth. With the exception of one well, RMW-02-32, vertical contaminant concentration profiles within well groups do not indicate that any DNAPL has migrated into mid-depth or deeper zone groundwater. Concentrations in RMW-02-32 indicate that NAPL may have migrated to depths between 20 and 30 feet bgs.
- Contaminant concentrations observed in the deepest discrete depth samples and monitoring wells (>35 feet) are low or not detected. The investigation data collected do not indicate that DNAPL is present within 20 ft of the Older Bay Mud aquitard.

The fate and transport of contaminants in groundwater are discussed in Section 6.

5.5 Soil

Soil sampling and analysis are detailed in Section 4.3. Laboratory analyses for soil samples included VOCs, SVOCs, organochlorine pesticides, metals, and at select locations, dioxins/furans. A summary of the laboratory analytical data for on- and off-facility soil samples (including number of detections greater than screening level and ranges of detected concentrations) is provided in Table 21. The results from the residential soil sampling are presented in Tables 22a through 22f. Tables presenting all laboratory analytical results are included in Appendix E.

To present the distribution of contaminants in soil, the soil sampling locations are grouped into on-facility, off-facility, and residential areas, defined as follows:

On-Facility	Off-Facility			Residential
	Large Vacant Lot	Small Vacant Lot	Parking Area	
(1414 3rd St.)	(334-346 Center St.)	(324 Center St.)	(1448 3rd St.)	(Various Parcels)
RSB-01 – RSB-24[1]	RSB-25 – RSB-29	RSB-30	RSB-31 – RSB-33	326SSa – 326SSe
RSB-42	RSB-34 – RSB-41			356SSa – 326SSc
				360SSa, 360SSb
				1428SSa – 1428SSe
				1432SSa – 1432SSc
				1436SSa, 1436SSb

[1] Locations RSB-01, RSB-02, and RSB-12 through RSB-15 are considered to be representative of on-facility conditions. RSB-16 was not completed due to difficulty while coring the concrete in this area. No sample was collected at RSB-09 because the water table was above the bottom of the bottom of concrete. Due to drilling difficulties or inadequate sample volume, adjacent borings (designated with an “A”) were advanced at locations RSB-03, RSB-11, RSB-13, and RSB-14.

Soil sample collection depths and laboratory analyses are summarized in Section 4.3. The shallowest samples collected at each location are defined as “shallow soil”. Deeper samples collected at each location are defined as “deeper soil”. For on- and off-facility soil samples, shallow samples were generally collected between 1 and 2 feet below the bottom of concrete or bgs in unpaved areas. Deeper samples were generally collected 4 to 5 feet below the bottom of concrete or bgs in unpaved areas. For residential soils, shallow samples were collected from 0.5 to 1 foot bgs. Deeper residential soil samples were generally collected between 2.5 and 3 feet bgs, although one was collected between 2 and 2.5 feet due to obstructions.

During the RI, 39 contaminants were detected in soil at concentrations above screening levels. These compounds, which comprise the soil COCs for the Site, are presented in Table 23. Among soil samples collected from on-facility, off-facility, and residential areas, the distribution of contaminants can be summarized as follows:

- Thirty (30) VOCs were detected, of which 9 compounds were detected at concentrations above the screening level. VOCs were detected at concentrations above the screening level only at on-facility locations. Compounds detected at concentrations above the screening level, but not included as a key VOC contaminant, include 1,1-dichloroethane, 1,4-dichlorobenzene, and xylenes.

- Thirty-nine (29) SVOCs were detected, of which 10 compounds were detected at concentrations above the screening level. SVOCs were detected at concentrations above the screening level at various on-facility, off-facility, and residential locations. Compounds detected at concentrations above the screening level, but not included as a key SVOC contaminant include various PAH compounds, n-nitrosodi-n-propylamine, and pentachlorophenol.

- Twenty (20) pesticide and PCB compounds were detected, of which 6 compounds were detected at concentrations above the screening level. Pesticide and PCB compounds were detected at concentrations above the screening level at various on-facility, off-facility, and residential locations. Compounds detected at concentrations above the screening level, but not included as a key pesticide or PCB contaminant, include 4,4′-DDD, 4,4′-DDE, aldrin, Aroclor-1254, and heptachlor epoxide.

- Twenty-two (22) metals were detected, of which 7 were detected at concentrations above the screening level. Metals were detected at concentrations above the screening level at on-facility, off-facility, and residential locations. Chromium and thallium are the only metals detected at concentrations above the screening level but not included as key contaminants.
- Dioxin/furan compounds were detected in all 7 samples (on- and off-facility) submitted for analysis. Among both on-facility and off-facility locations, 5 compounds were detected at concentrations above the screening level. In addition, the calculated TEQ exceeded the screening level TEQ in five of the seven samples.

A detailed discussion of key soil contaminants, by area, is provided in the following subsections. Figures 33 through 50 summarize the concentrations of key contaminants detected at each location. Analytical results for shallow and deeper soil are presented on separate figures.

5.5.1 On-Facility Soil

Soil samples were collected from 24 locations installed on, or directly adjacent to, the former AMCO facility parcel. The majority of on-facility borings were advanced through the existing concrete or asphalt surface; however, surficial concrete or asphalt cover was not present at locations RSB-03, RSB-11, RSB-13, and RSB-14. All depths indicated are referenced from the top of unconsolidated material, immediately below the bottom of surficial concrete or asphalt. The majority of the key contaminants (see Section 5.2) were detected in on-facility soil samples above the respective screening levels and risk evaluation criteria. A detailed presentation of key contaminants, subdivided by chemical group, is provided in the following subsections.

5.5.1.1 VOCs

At the time of soil sample collection, the contract laboratory program (CLP) laboratory analyte list for EPA Method 8260 did not include 1,2,4-trimethylbenzene or 1,3,5-trimethylbenzene; therefore, the nature and extent of these compounds have not been evaluated in on-facility soil. In addition, chloroform and carbon tetrachloride were not detected in on-facility soil. The distributions of key VOCs detected in on-facility soil are summarized below.

5.5.1.1.1 Benzene

Benzene was detected at concentrations above the reporting limit in several shallow soil samples collected from the central and south central areas of the former facility. Benzene was detected in shallow soil at concentrations above the screening level (SL=640 μg/kg) at one on-facility location, RSB-24 (3,500 μg/kg). Benzene was not detected at concentrations above the screening level in any shallow soil samples collected along the boundary of the former facility parcel.

The distribution of benzene concentrations in deeper, on-facility soil corresponds with that observed in shallow soil. The compound was detected at a concentration above the screening level in two samples, RSB-22 (800 μg/kg) and RSB-23 (1,000 μg/kg). A deeper soil sample was not collected at RSB-24 due to the shallow occurrence of saturated soil at this location.

5.5.1.1.2 Cis-1,2-Dichloroethene

Cis-1,2-DCE was detected at concentrations above the reporting limit in most shallow soil samples collected from the central and south central areas of the former facility. However, the compound was detected above the screening level (SL=43,000 μg/kg) at only one location, RSB-24 (240,000 μg/kg). Cis-1,2-DCE was not detected at concentrations above the screening level in any shallow soil samples collected along the boundary of the former facility parcel.

The distribution of cis-1,2-DCE concentrations in deeper, on-facility soil generally corresponds with that observed in shallow soil. The compound was detected at a concentration above the screening level in one deeper soil sample, RSB-23 (190,000 μg/kg). A deeper soil sample was not collected at RSB-24 due to the shallow occurrence of saturated soil at this location.

5.5.1.1.3 Tetrachloroethene

PCE was detected at concentrations above the laboratory reporting limit in most shallow soil samples collected from the central and south central areas of the former facility; however, PCE was not detected at concentrations above the screening level (SL=480 μg/kg) in any of the on-facility shallow soil samples.

PCE was detected at concentrations above the reporting limit in three deeper, on-facility soil samples located in the central area of the former facility. The highest detected concentration, which is also the only detection of PCE above the screening level, was observed at location RSB-23 (1,400 μg/kg).

5.5.1.1.4 Toluene

Toluene was detected at concentrations above the reporting limit in several shallow soil samples collected from the central and south central areas of the former facility. Toluene was detected in shallow soil at concentrations above the screening level (SL=520,000 μg/kg) from one on-facility location, RSB-24 (530,000 μg/kg). Toluene was not detected at concentrations above the screening level in any shallow soil samples collected along the boundary of the former facility parcel.

The distribution of toluene concentrations in deeper, on-facility soil corresponds with that observed in shallow soil. The compound was detected at a concentration above the screening level in one deeper sample, RSB-23 (1,600,000 μg/kg).

5.5.1.1.5 Trichloroethene

TCE was detected in shallow soil at concentrations above the screening level (SL=53 μg/kg) at four locations along the western side of the existing warehouse and office. The most elevated concentration of TCE in shallow soil was observed at location RSB-24 (920 μg/kg). With the exception of location RSB-20, TCE was not detected at concentrations above the screening level in any shallow soil samples collected along the border of the former facility parcel.

The distribution of TCE concentrations in deeper, on-facility soil generally corresponds with that observed in shallow soil. The compound was detected at a concentration above the screening level in only one deeper soil sample, RSB-23 (7,300 µg/kg).

5.5.1.1.6 Vinyl Chloride

Vinyl chloride was detected in shallow soil at concentrations above the screening level (SL=79 µg/kg) at three locations west of the existing warehouse and office (RSB-20, RSB-23, and RSB-24) and one location in the central area of the parcel (RSB-22). The most elevated concentration of vinyl chloride in shallow soil was detected at location RSB-22 (2,200 µg/kg). With the exception of location RSB-20, vinyl chloride was not detected at concentrations above the screening level in any shallow soil samples collected along the border of the former facility parcel.

The distribution of vinyl chloride concentrations in deeper, on-facility soil corresponds with that observed in shallow soil. The compound was detected at a concentration above the screening level in two deeper soil samples, RSB-22 (130 µg/kg) and RSB-23 (330 µg/kg).

5.5.1.2 SVOCs

The distribution of key SVOCs in on-facility soil is summarized as follows:

5.5.1.2.1 1,4-Dioxane

1,4-Dioxane was not detected at concentrations above the screening level (SL=44,000 µg/kg) at any on-facility locations. 1,4-Dioxane was detected at one on-facility soil sample, the deeper sample at RSB-12 (1,500 µg/kg) at a concentration above the reporting limit.

5.5.1.2.2 2-Methylnaphthalene

2-Methylnaphthalene was detected at concentrations above the screening level (SL=150,000 µg/kg) in shallow soil collected at five locations in the central and south-central areas of the former facility to the west of the existing warehouse and office. The most elevated concentrations of the compound in on-facility shallow soil were observed at locations RSB-17 (380,000 µg/kg), RSB-20 (370,000 µg/kg), and RSB-22 (360,000 µg/kg). Concentrations of 2-Mehtylnaphthalene in shallow soil samples collected from the northern, eastern, and western boundary of the parcel were either not detected or detected slightly above the reporting limit (RSB-03 and RSB-05).

The distribution of 2-Methylnaphthalene concentrations in deeper, on-facility soil generally corresponds with that observed in shallow soil. The most elevated concentrations of 2-Methylnaphthalene were detected at locations RMW-22 and RMW-23, both at 6 feet bgs (550,000 µg/kg).

5.5.1.2.3 Benzo(a)pyrene

Benzo(a)pyrene was detected in two on-facility shallow soil samples on the northern fence line at concentrations that exceed the screening level (SL=62 µg/kg). The compound was detected in the samples from RSB-08 (500 µg/kg) and RSB-10 (130 µg/kg). Benzo(a)pyrene was not detected in any other on-facility soil samples; however, the laboratory reporting limit for all samples was above the screening level.

5.5.1.2.4 Naphthalene

Naphthalene was detected in on-facility shallow soil at concentrations above the screening level (SL=1,700 µg/kg) at all locations immediately west of the existing warehouse and office, and at three other locations in the central area of the former facility parcel. The most elevated concentration of naphthalene in shallow soil was observed at the southern location RSB-20 (80,000 µg/kg). With the exception of location RSB-20, naphthalene was not detected at concentrations above the reporting limit in any shallow soil samples collected along the border of the former facility parcel.

The distribution of naphthalene concentrations in deeper, on-facility soil generally corresponds with that observed in shallow soil. The most elevated concentration of naphthalene in deeper soil was detected at location RSB-23 at 6 feet bgs (65,000 µg/kg).

5.5.1.3 Pesticides and PCBs

The distribution of key pesticide and PCB compounds in on-facility soil is summarized as follows:

5.5.1.3.1 Aroclor-1260

Aroclor-1260 was detected in shallow soil at a concentration above the screening level (SL=220 µg/kg) at one on-facility location, RSB-22 (640 µg/kg). Aroclor-1260 was not detected at concentrations above the screening level in any shallow soil samples collected along the boundary of the former facility parcel; however, the reporting limits for samples from RSB-01 (northeastern area of the parcel), RSB-14, and RSB-20 (southeast area of the parcel) exceeded the screening level.

The distribution of Aroclor-1260 in deeper, on-facility soil corresponds with that observed in shallow soil. The only detection of Aroclor-1260 in deeper, on-facility soil was detected at location RSB-22 at 6 feet bgs (980 µg/kg); however, the reporting limits for deeper soil samples from RSB-14 and RSB-23 exceeded the screening level.

5.5.1.3.2 DDT

DDT was detected in one on-facility shallow soil sample, location RSB-01 (6,800 µg/kg), at a concentration above the screening level (SL=1,700 µg/kg). DDT was detected in several other on-facility shallow soils samples at concentrations below the screening level. Excluding the RSB-01 sample, the most elevated shallow soil concentrations of DDT are observed immediately west and east of the existing warehouse at locations RSB-14 and RSB-23 (560 µg/kg and 150 µg/kg, respectively).

The distribution of DDT concentrations in deeper, on-facility soil corresponds with that observed in shallow soil; however, DDT was not detected at concentrations above the screening level in any deeper, on-facility soil samples. The most elevated concentrations of the compound in deeper soil are observed in RSB-01 at 6 feet bgs (1,500 µg/kg) and RSB-14 at 5 feet bgs (140 µg/kg). The reporting limit associated with the sample from RSB-23 at 6 feet bgs is elevated and the nondetect result may not be representative of the absence of DDT.

Concentration data for DDT in off-facility soil is discussed in Section 5.5.2.3. Soil sample location RSB-01 is in close proximity to off-facility location RSB-27, which exhibits the highest concentrations of DDT observed in the RI Study Area (140,000 µg/kg).

5.5.1.3.3 Dieldrin

Dieldrin was detected in on-facility shallow soil at concentrations above the screening level (SL=30 µg/kg) at all sample locations in the central and south-central area of the former facility, west of the existing warehouse and office. The most elevated concentration of dieldrin in shallow soil was observed at location RSB-18 (2,400 µg/kg). Dieldrin was also detected at concentrations above the screening level at several sampling locations along the northern and eastern boundary of the parcel. The compound was detected above the reporting limit, but below the screening level at all sampling locations along the western boundary of the parcel.

The distribution of dieldrin concentrations in deeper, on-facility soil corresponds with that observed in shallow soil. The most elevated concentration of dieldrin in deeper soil was detected at location RSB-22 at 6 feet bgs (2,000 µg/kg).

5.5.1.4 Metals

The distribution of key metals in on-facility soil is summarized as follows:

5.5.1.4.1 Antimony

Antimony was detected in on-facility shallow soil at a concentration above the screening level (SL=31 mg/kg) at one location, RSB-04 (49 mg/kg), on the western border of the parcel. Antimony was detected in on-facility shallow soil at concentrations below the screening level at several other locations.

Antimony was detected in several deeper soil samples at concentrations above the reporting limit; however, the compound was not detected above the screening level in any deeper soil samples.

5.5.1.4.2 Arsenic

Arsenic was detected in on-facility soil at a concentration above the screening level (SL=22 mg/kg) at one location, RSB-01 (shallow soil, 22.3 mg/kg), in the northwestern corner of the former AMCO facility parcel. The concentrations detected in shallow soils ranged from 1.8 mg/kg (RSB-42) to 22.3 mg/kg (RSB-01). The concentrations detected in deeper soils ranged from 1.3 mg/kg (RSB-21 at 5 feet bgs and RSB-23 at 6 feet bgs) to 21 mg/kg (RSB-10 at 5 feet bgs). All detected concentrations of arsenic in on-facility soil are likely representative of background concentrations. San Francisco Bay Area background arsenic concentrations have been reported as 14 mg/kg (see Section 7).

5.5.1.4.3 Iron

Iron was detected in all on-facility shallow soil samples at concentrations above the laboratory reporting limit. At several locations, iron was detected at concentrations above the screening level (SL=23,000 mg/kg). Iron detections above screening level do not appear to be concentrated in any single area of the facility. The most elevated detection of iron in on-facility shallow soil was observed at RSB-24 (66,200 mg/kg). Iron was detected at concentrations above the screening level at several locations along the parcel boundary.

Iron was detected in all deeper, on-facility soil samples. With the exception of two soil samples collected from 5 feet bgs at locations RSB-10 (38,500 mg/kg) and RSB-12 (24,500 mg/kg), all concentrations detected were below the screening level.

5.5.1.4.4 Lead

Lead was detected in the majority of on-facility shallow soil samples at concentrations above the screening level (SL=194 mg/kg). The most elevated concentrations of lead in on-facility shallow soil were observed in the southern area at sampling locations RSB-19 and RSB-20 (1,180 mg/kg and 1,710 mg/kg, respectively). Concentrations of lead in all shallow soil samples collected along the northern and eastern boundary of the parcel were below the screening level; however, concentrations in the majority of samples collected along the southern and eastern boundary of the parcel were above the screening level.

Lead was detected in all deeper, on-facility soil samples. With the exception of three deeper soil samples collected from locations RSB-10, RSB-12, and RSB-13 (all at 5 feet bgs), all concentrations detected were below the screening level. The most elevated concentrations of lead in deeper soil were observed in the samples from locations RSB-10 and RSB-13 (1,200 mg/kg and 1,600 mg/kg, respectively).

5.5.1.4.5 Manganese

Manganese was detected in every on-facility shallow soil and deeper soil sample at concentrations ranging from 74.1mg/kg to 2,450 mg/kg. The most elevated concentrations of manganese detected, and the only samples that exceed the screening level (SL=1,800 mg/kg), were observed in the shallow soil at locations RSB-20 (2,250 mg/kg) and RSB-24 (2,450 mg/kg), which are adjacent to the existing office and warehouse. The most elevated concentration detected in deeper soil was observed at location RSB-10 at 5 feet bgs (452 mg/kg).

5.5.1.5 Dioxins/Furans

Shallow soil samples were collected for dioxin/furan analysis from on-facility borings near the north end of the warehouse (RSB-10, -11, -12, and -18), which is consistent with the location of the former ice house that burned. Based on the TEQ for all dioxins/furans, soil concentrations exceeded the TEQ screening level of 3.9 ng/kg at each location, except RSB-11. The most elevated TEQ is observed at location RSB-18 (72.8 ng/kg).

5.5.2 Off-Facility Soil

Soil samples were collected from 17 borings installed on off-facility parcels that do not contain residential structures. Off-facility parcels include the following areas west of the former facility:

- Large vacant lot located between 326 and 356 Center Street (13 borings)
- Small vacant lot located between 320 and 326 Center Street (1 boring)
- Parking area located between 1436 3rd Street and the workshop on the corner of Center Street and 3rd Street (3 borings)

All off-facility borings were installed through the existing concrete surface. All depths indicated are referenced from the top of unconsolidated material, immediately below the bottom of concrete. Detailed presentation of key contaminants, subdivided by chemical group, is provided in the following subsections.

5.5.2.1 VOCs

At the time of soil sample collection, the contract laboratory program (CLP) laboratory analyte list for EPA Method 8260 did not include 1,2,4-trimethylbenzene or 1,3,5-trimethylbenzene; therefore, the nature and extent of these compounds have not been evaluated in on-facility soil. In addition, chloroform and carbon tetrachloride were not detected in on-facility soil. The distributions of key VOCs detected in on-facility soil are summarized below.

5.5.2.1.1 Benzene

Benzene was not detected in any off-facility soil samples at concentrations above the laboratory reporting limit. The laboratory reporting limit did not exceed the screening level (SL=640 μg/kg) for any off-facility samples.

5.5.2.1.2 Cis-1,2-Dichloroethene

Cis-1,2-DCE was not detected at concentrations above the screening level (SL=43,000 μg/kg) in any off-facility soil samples. The compound was detected slightly above and below the laboratory reporting limit in several off-facility shallow soil and deeper soil samples. The most elevated concentrations of cis-1,2-DCE in shallow soil were observed at location RSB-38 (44 μg/kg) and in deeper soil at location RSB-27 at 6 feet bgs (37 μg/kg).

5.5.2.1.3 Tetrachloroethene

PCE was not detected at concentrations above the screening level (SL=480 μg/kg) in any off-facility soil samples. The compound was detected in only one off-facility soil sample (shallow soil at RSB-27) at a concentration equal to the reporting limit (11 μg/kg).

5.5.2.1.4 Toluene

Toluene was not detected at concentrations above the screening level (SL=520,000 μg/kg) in any off-facility soil samples. The most elevated concentration of toluene in off-facility soil was observed in shallow soil from location RSB-38 (170 μg/kg).

5.5.2.1.5 Trichloroethene

TCE was not detected at concentrations above the screening level (SL=53 μg/kg) in any off-facility soil samples. The compound was detected below the reporting limit in three shallow soil samples. The most elevated concentration of PCE in off-facility soil is observed in the shallow soil at locations RSB-26 and RSB-38 (4 μg/kg). PCE was not detected in deeper soil.

5.5.2.1.6 Vinyl Chloride

Vinyl chloride was not detected at concentrations above the screening level (SL=79 μg/kg) in any off-facility soil samples. The compound was detected in only one off-facility soil sample (RSB-36 at 6 feet bgs) at a concentration of 1 μg/kg (below the reporting limit).

5.5.2.2 SVOCs

The distribution of key SVOCs in on-facility soil is summarized as follows:

5.5.2.2.1 1,4-Dioxane

1,4-Dioxane was not detected in any off-facility soil samples at concentrations above the laboratory reporting limit. The reporting limit did not exceed the screening level (SL=44,000 μg/kg) for any off-facility samples.

5.5.2.2.2 2-Methylnaphthalene
2-Methylnaphthalene was not detected at concentrations above the screening level (SL=150,000 μg/kg) in any off-facility soil samples. The compound was detected in several off-facility soil samples at concentrations above the reporting limit. The most elevated concentration of 2-Methylnaphthalene in shallow soil was observed at location RSB-35 (4,600 μg/kg) and in deeper soil at location RSB-33 at 5.5 feet bgs (2,100 μg/kg).

5.5.2.2.3 Benzo(a)pyrene
Benzo(a)pyrene was detected in the shallow soil at concentrations above the screening level (SL=62 μg/kg) at four locations in the large vacant lot and two locations in the parking area. The most elevated concentration in the large vacant lot is observed at location RSB-40 (1,400 μg/kg) and in the parking area at location RSB-33 (2,600 μg/kg). The compound was not detected in shallow soil samples collected from the small vacant lot.

The distribution of benzo(a)pyrene in deeper, off-facility soil is similar to that observed in the shallow soil. The compound was detected at concentrations above the screening level at two deeper locations in the large vacant lot and one location in the parking area. The most elevated concentration in the large vacant lot was observed at location RSB-25 at 6 feet bgs (790 μg/kg) and in the parking area at location RSB-33 at 5.5 feet bgs (8,900 μg/kg). The concentration detected in the soil sample at location RSB-33 at 5.5 feet bgs was the highest concentration of benzo(a)pyrene detected in soil during the RI.

5.5.2.2.4 Naphthalene
Naphthalene was not detected at concentrations above the screening level (SL=1,700 μg/kg) in any off-facility soil samples. The compound was detected below the screening level in several shallow soil samples and one deeper soil sample. The most elevated concentration of naphthalene in shallow soil was observed at location RSB-35 (600 μg/kg) and in deeper soil at location RSB-33 at 5.5 feet bgs (870 μg/kg).

5.5.2.3 Pesticides and PCBs

The distribution of key pesticide and PCB compounds in on-facility soil is summarized as follows:

5.5.2.3.1 Aroclor-1260
Aroclor-1260 was not detected at concentrations that exceed the screening limit (220 μg/kg) in any off-facility soil samples. The most elevated concentration of Aroclor-1260 was observed in shallow soil from location RMW-34 (33 μg/kg). The reporting limit for five shallow soil samples, and one deeper soil sample from the central and southeastern portions of the large vacant lot, exceeded the screening level.

5.5.2.3.2 DDT
DDT was detected at concentrations above the screening level (SL=1,700 μg/kg) in three off-facility shallow soil samples from the large vacant lot. The most elevated concentrations of DDT in off-facility shallow soil, and in any RI soil sample, were observed at locations RSB-27 (140,000 μg/kg) and RSB-36 (27,000 μg/kg). Shallow soil DDT concentrations were not detected above the screening level in samples from the small vacant lot or the parking area.

The distribution of DDT in deeper, off-facility soil is similar to that observed in the shallow soil. The most elevated concentrations of DDT in off-facility deeper soil, and in the RI Study

Area, were observed at locations RSB-27 at 6 feet bgs (3,100 µg/kg) and RSB-36 at 6 feet bgs (2,800 µg/kg).

5.5.2.3.3 Dieldrin

Dieldrin was detected above the screening level (SL=30 µg/kg) in the shallow soil at location RSB-36 (86 µg/kg), which is near the center of the large vacant lot. The compound was not detected above the screening level in any other soil sample; however, it was detected below the screening level in several samples. The most elevated dieldrin concentration in deeper soil was observed at location RSB-33 (in the parking area) at 5.5 feet bgs (10 µg/kg).

5.5.2.4 Metals

The distribution of key metals in on-facility soil is summarized as follows:

5.5.2.4.1 Antimony

Antimony was detected in the majority of off-facility soil samples. The most elevated concentration of antimony detected during the RI, and the only off-facility concentration that exceeds the screening level (SL=31 mg/kg), was observed in the shallow soil sample at location RSB-33 (216 mg/kg). The most elevated concentration in deeper, off-facility soil was also observed at location RSB-33 at 5.5 feet bgs (3.6 mg/kg).

5.5.2.4.2 Arsenic

Arsenic was detected in soil at three off-facility locations (RSB-28, RSB-35, and RSB-37) at concentrations that exceed the screening level (SL=22 mg/kg). The most elevated concentration of arsenic in off-facility shallow soil was observed at location RSB-28 (53.7 mg/kg) along the southern boundary of the large vacant lot. Arsenic was not detected at a concentration above the screening level in deeper off-facility soil. The most elevated concentration of arsenic in deeper, off-facility soil was observed at location RSB-37 at 6 feet bgs (20.2 mg/kg), which is also in the large vacant lot. San Francisco Bay Area background arsenic concentrations have been reported as 14 mg/kg (see Section 7).

5.5.2.4.3 Iron

Iron was detected in all off-facility soil samples at concentrations above the laboratory reporting limit. Iron was detected at concentrations exceeding the screening level (SL=23,000 mg/kg) in seven off-facility shallow soil samples, collected from locations in the eastern portion of the large vacant lot and from the parking area, with the most elevated concentration occurring at location RSB-33 (74,500 mg/kg), which is in the parking area.

Detections of iron at concentrations above the screening level are less prevalent in deeper, off-facility soil. Iron was detected at a concentration exceeding the screening limit in one off-facility deeper soil sample, RSB-25 at 6 feet bgs (37,300 mg/kg). RSB-25 is located along the northern boundary of the large vacant lot.

5.5.2.4.4 Lead

Lead was detected in all off-facility soil samples at concentrations above the reporting limit. Lead was detected in 11 of 17 off-facility shallow soil samples at concentrations above the screening level (SL=194 mg/kg). The most elevated detections in off-facility shallow soil were observed in the large vacant lot at locations RSB-25 and RSB-26 (5,130 mg/kg and 2,150 mg/kg, respectively) and in the parking area at locations RSB-31 and RSB-33

(2,170 mg/kg and 1,140 mg/kg, respectively). The shallow soil detection at location RSB-25 was the most elevated concentration of lead detected in soil during the RI.

Detections of lead at concentrations above the screening level were less prevalent in deeper, off-facility soil. Lead was detected at concentrations that exceed the screening level in two samples from the large vacant lot, RSB-25 at 6 feet bgs (226 mg/kg) and RSB-26 at 6 feet bgs (347 mg/kg). Lead was not detected at concentrations that exceed the screening level in deeper soil samples from the parking area.

5.5.2.4.5 Manganese

Manganese was detected in all off-facility soil samples; however, manganese was not detected at concentrations above the screening level (SL=1,800 mg/kg) in any off-facility soil samples. The most elevated concentrations of manganese in off-facility shallow soil were observed at location RSB-33 (1,110 µg/kg) and in deeper soil at location RSB-38 at 6 feet bgs (477 µg/kg). RSB-33 is located in the southern portion of the parking area, and RSB-38 is located along the northern boundary of the large vacant lot.

5.5.2.5 Dioxins/Furans

Shallow soil samples were collected for dioxin/furan analysis from all three borings in the parking area (RSB-31, -32, and -33). Based on the TEQ for all dioxins/furans, soil concentrations exceeded the TEQ screening level of 3.9 ng/kg only in the easternmost boring, RSB-31(28.61 ng/kg).

5.5.3 Residential Soil

Soil was sampled at six residential parcels in the immediate vicinity of the facility, as described in Section 4.3.3. Samples were analyzed for VOCs, SVOCs, organochlorine pesticides and PCBs, and metals. The results from the residential soil sampling event are presented in Tables 22a through 22f.

All residential soil borings were completed in areas where there was no concrete or asphalt surface cover. Shallow samples were collected from 0.5 to 1 foot bgs; deeper samples were generally collected from between 2.5 and 3 feet bgs, although one sample was collected from between 2 and 2.5 feet bgs due to obstructions. Subsequent to the collection of the residential soil samples, a soil removal action to address high concentrations of lead in soil was performed at residential properties adjacent to and near the former AMCO facility. These properties include 1428, 1432, and 1436 3rd Street, and 320, 326, 356, 360, and 366/368 Center Street. The soil was excavated until the confirmation sampling indicated that the remaining soil was below the site-specific action level of 390 mg/kg, or to a 3-foot maximum depth. The excavation depth was generally between one and three feet. Small areas were excavated to a depth of less than 1 foot in locations where valuable trees or plants might have been damaged by deeper excavation. As a result, the samples collected during the RI are no longer representative of the soil conditions at these properties. Appendix F includes documentation related to the soil removal action.

Detailed presentation of key contaminants, subdivided by parcel address, is provided in the following subsections.

5.5.3.1 1428 3rd Street

Five borings were advanced for soil sample collection at this parcel. Four borings (1428SSa, 1428SSb, 1428SSd, and 1428SSe) were advanced along the common boundary of this parcel and that of the former facility, and one boring (1428SSc) was advanced in the approximate center of the yard. Soil sample analytical results for key contaminants are summarized as follows:

- VOCs were not detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Benzo(a)pyrene was detected at concentrations greater than the screening level (SL=62 µg/kg) in soil samples collected from each location. The most elevated concentration was observed in the shallow soil at location 1428SSb (9,200 µg/kg). No other key SVOCs were detected above the screening levels on this parcel.
- DDT was detected at a concentration greater than the screening level (SL=1,700 µg/kg) in shallow soil from location 1428SSb (1,800 µg/kg). No other key pesticide or PCB compounds were detected above the screening levels at 1428SSb or any other location on this parcel.
- Metals detected at concentrations greater than the screening levels include antimony (SL=31 mg/kg), arsenic (SL=22 mg/kg), iron (SL=23,000 mg/kg), and lead (SL=194 mg/kg).
  - Antimony was detected at concentrations greater than the screening level in soil samples from locations 1428SSb and 1428SSe. The most elevated concentration of antimony was observed in shallow soil at location 1428SSe (77.4 mg/kg).
  - Arsenic was detected at a concentration greater than the screening level in shallow soil at location 1428SSe (35.1 mg/kg).
  - Iron was detected at concentrations greater than the screening level in soil samples from locations 1428SSb, 1428SSc, and 1428SSd. The most elevated concentration of iron was detected in deeper soil at location 1428SSc (51,000 mg/kg).
  - Lead was detected at concentrations greater than the screening level in soil samples from each location. The most elevated concentrations of lead were observed in shallow soil at locations 1428SSb (2,320 mg/kg) and 1428SSd (2,920 mg/kg), and in deeper soil at location 1428SSc (4,170 mg/kg).

5.5.3.2 1432 3rd Street

Three borings were advanced for soil sample collection at this parcel. Two borings (1432SSa and 1432SSb) were advanced along the common boundary of this parcel and that of the former facility, and one boring (1432SSc) was advanced in a vegetable bed along the central portion of the eastern parcel boundary. The most elevated concentrations of all contaminants were observed in the samples from locations 1432SSa and 1432SSb. Soil sample analytical results for key contaminants are summarized as follows:

- VOCs were not detected at concentrations greater than the screening levels in soil samples collected from this parcel.

- Key SVOCs detected at concentrations greater than the screening level include benzo(a)pyrene (SL=62 µg/kg) and naphthalene (SL=1,700 µg/kg).
  - Benzo(a)pyrene was detected at concentrations greater than the screening level in soil samples collected from each location. The most elevated concentrations were observed in the shallow soil at locations 1432SSa (1,900 µg/kg) and 1432SSb (2,800 µg/kg).
  - Naphthalene was detected at concentrations greater than the screening level in the shallow soil at location 1432SSb (2,800 µg/kg).
- DDT was detected at a concentration greater than the screening level (SL=1,700 µg/kg) in shallow soil from location 1432SSb (3,100 µg/kg). No other key pesticide or PCB compounds were detected above the screening levels at 1432SSb or any other location on this parcel.
- Metals detected at concentrations greater than the screening levels include iron (SL=23,000 mg/kg) and lead (SL=194 mg/kg).
  - Iron was detected at a concentration greater than the screening level in shallow soil at location 1432SSb (28,200 mg/kg).
  - Lead was detected at concentrations greater than the screening level in all soil samples collected at this parcel. The most elevated concentration of lead was observed in shallow soil at location 1432SSc (2,280 mg/kg).

5.5.3.3 1436 3rd Street

Two borings were advanced for soil sample collection at this parcel. One boring (1436SSa) was advanced in a vegetable bed along the central portion of the western parcel boundary, and one boring (1436SSb) was advanced in the center of the yard, adjacent to a lemon tree. Contaminants were detected at concentrations above screening levels in all samples collected on this parcel. Soil sample analytical results for key contaminants are summarized as follows:

- VOCs were not detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Benzo(a)pyrene was detected at concentrations greater than the screening level (SL=62 µg/kg) in all samples collected. The most elevated concentrations were observed in the shallow soil at both locations, 1436SSa (2,400 µg/kg) and 1436SSb (1,200 µg/kg). No other key SVOCs were detected above the screening levels on this parcel.
- Dieldrin was detected at a concentration greater than the screening level (SL=30 µg/kg) in shallow soil at both locations, 1436SSa (1,000 µg/kg) and 1436SSb (36 µg/kg). No other key pesticide or PCB compounds were detected above the screening levels at either location on this parcel.
- Metals detected at concentrations greater than the screening levels include iron (SL=23,000 mg/kg) and lead (SL=194 mg/kg).

- Iron was detected at a concentration greater than the screening level (SL=23,000 mg/kg) in shallow soil at both locations, 1436SSa (23,500 mg/kg) and 1436SSb (27,700 mg/kg).
- Lead was detected at concentrations greater than the screening level in all soil samples collected at this parcel. The most elevated concentration of lead was observed in shallow soil at both locations, 1436SSa (2,910 mg/kg) and 1436SSb (3,630 mg/kg).

5.5.3.4 320 Center Street

The property owner did not grant access for sampling at this parcel; therefore, no analytical results are available.

5.5.3.5 326 Center Street

Five borings were advanced for soil sample collection at this parcel. Four borings (326SSa, 326SSb, 326SSc, and 326SSd) were advanced along the common boundary of this parcel and that of the large vacant lot, and one boring (326SSe) along the common boundary of this parcel and that of the former facility. At this parcel, the types of contaminants detected at concentrations greater than screening levels include SVOCs, pesticides, and metals. Soil sample analytical results for key contaminants are summarized as follows:

- VOCs were not detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Benzo(a)pyrene was detected at concentrations greater than the screening level (SL=62 µg/kg) in samples collected from each location, except 326SSb. The most elevated concentrations were observed in the shallow (220 µg/kg) and deeper (270 µg/kg) soil samples collected at location 326SSd. No other key SVOCs were detected above the screening levels on this parcel.
- Pesticides detected at concentrations greater than the screening levels include DDT (SL=1,700 µg/kg) and dieldrin (SL=30 µg/kg).
  - DDT was detected at concentrations greater than the screening level in all samples from locations 326SSc and 326SSd. These sampling locations are in close proximity to off-facility location RSB-27, where DDT was detected at the most elevated concentration in the RI Study Area. DDT was detected in shallow and deeper soil at location 326SSc at concentrations of 3,100 µg/kg and 4,400 µg/kg, respectively. DDT was detected in shallow and deeper soil at location 326SSd at concentrations of 2,200 µg/kg and 3,000 µg/kg, respectively
  - Dieldrin was detected at a concentration greater than the screening level in shallow soil from location 326SSc (160 µg/kg).
- Metals detected at concentrations greater than the screening levels include arsenic (SL=22 mg/kg), iron (SL=23,000 mg/kg), and lead (SL=194 mg/kg).
  - Arsenic was detected at concentrations greater than the screening level in shallow (451 mg/kg) and deeper (125 mg/kg) soil at location 326SSd.

- Iron was detected at a concentration greater than the screening level in shallow soil at location 326SSd (25,400 mg/kg).
- Lead was detected at concentrations greater than the screening level in all samples collected from this parcel except 326SSa (deeper soil). The most elevated concentrations of lead were observed in shallow soil from location 326SSd (28,600 mg/kg) and deeper soil from location 326SSe (53,000 mg/kg).

5.5.3.6 356 Center Street

Three borings were advanced for soil sample collection at this parcel. One boring (356SSa) was advanced in a small yard behind the house, and two borings (356SSb and 356SSc) were advanced in the dirt floor of a recently vacated chicken coop. All three locations are situated along the common boundary of this parcel and that of the large vacant lot. At this parcel, the types of contaminants detected at concentrations greater than screening levels include SVOCs and metals. Soil sample analytical results for key contaminants are summarized as follows:

- VOCs were not detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Benzo(a)pyrene was detected at concentrations greater than the screening level (SL=62 μg/kg) in shallow soil from locations 356SSa (430 μg/kg) and 356SSb (190 μg/kg). No other key SVOCs were detected above the screening levels on this parcel.
- No key pesticide or PCB compounds were detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Lead was detected at concentrations greater than the screening level (SL=194 mg/kg) in all soil samples collected at this parcel except 356SSc (deeper soil). The most elevated concentration of lead was observed in shallow soil from location 356SSa (822 mg/kg). No other key metals were detected at concentrations greater than the screening levels at this parcel.

5.5.3.7 360 Center Street

Two borings were advanced for soil sample collection at this parcel. One boring (360SSa) was advanced along the northern parcel boundary, and one boring (360SSb) was advanced in the southeastern corner. At this parcel, the types of contaminants detected at concentrations greater than screening levels include SVOCs, PCBs (Aroclor-1254), and metals. Soil sample analytical results for key contaminants are summarized as follows:

- VOCs were not detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Benzo(a)pyrene was detected at concentrations greater than the screening level (SL=62 μg/kg) in all soil samples collected at this parcel except 360SSb (deeper soil). The most elevated concentration of benzo(a)pyrene was observed in shallow soil from 360SSb (320 μg/kg). No other key SVOCs were detected above the screening levels on this parcel.

- No key pesticide or PCB compounds were detected at concentrations greater than the screening levels in soil samples collected from this parcel.
- Lead was detected at concentrations greater than the screening level (SL=194 mg/kg) in all soil samples collected at this parcel. The most elevated concentration of lead was observed in shallow soil from location 360SSa (2,230 mg/kg). No other key metals were detected above the screening levels on this parcel.

5.5.4 Summary of Nature and Extent of Contamination in Soil

The fate and transport of contaminants in soil is discussed in Section 6. A summary of conclusions based on the soil data collected during the RI is as follows:

- Contaminants detected in the soil in the RI Study Area at concentrations above the screening levels include VOCs (including both fuel hydrocarbons and chlorinated hydrocarbons), SVOCs, pesticides, PCBs, metals, and dioxins/furans.
- The most elevated concentrations of contaminants were typically observed in the shallower soil samples. When detected, concentrations in deeper soil samples were generally lower than those observed in shallower samples.
- The most elevated concentrations of chlorinated and petroleum hydrocarbons are observed in the central and south-central areas of the former AMCO facility, immediately west of the warehouse and office.
- VOC compounds were not detected in soil samples collected from any of the residential parcels at concentrations greater than the screening levels.
- The PAH compound benzo(a)pyrene was widely detected in off-facility and residential soil samples at concentrations greater than the screening limit. However, with the exception of samples along the northern boundary of the former AMCO facility parcel, the compound was not detected in on-facility soil samples. This may be due to the elevated detection limit (above screening level) for PAH compounds in the on-facility samples.
- The most elevated concentrations of pesticide compounds (greater than the screening levels) were detected in the central portion of the former facility parcel (dieldrin) and in the southeastern area of the large vacant lot (DDT). Pesticides were detected at concentrations above the screening level in soil samples collected from all residential parcels, except 356 Center Street, where all detections were below the screening levels.
- Key metals arsenic, lead, and iron were widely detected in soil samples collected from on-facility, off-facility, and residential locations.
  - Arsenic was detected above the screening level in every soil sample collected; however, concentrations detected across the RI Study Area are generally less than or equal to background concentrations typical of the San Francisco Bay Area with the exception of the sample collected location 326SSd. Arsenic was detected at concentrations greater than background in shallow (451 mg/kg) and deeper (125 mg/kg) soil at this location.

  - The most elevated concentrations of lead were observed in soil samples collected from residential and off-facility parcels.
  - Elevated concentrations of iron were widely distributed among samples collected from on-facility, off-facility, and residential locations. With the exception of the most elevated concentration observed at locations RSB-24 and RSB-33, detected concentrations of iron may be representative of background levels.

- The most elevated concentrations of dioxin/furan compounds were observed in the area of the burned ice house (on-facility, RSB-18). Elevated concentrations of dioxin/furan compounds were also observed in the parking area (RSB-33).

5.6 Soil Gas

Soil gas characterization activities include the on- and off-facility grab soil gas sampling (i.e., soil gas survey), permanent soil gas probe sampling, and residential grab soil gas sampling. The soil gas survey was conducted once during one event from September to October 2004 (concurrent with Phase I soil sample collection). As part of the RI, the residential grab soil gas sampling, permanent soil gas probe sampling, and residential air sampling (discussed in Section 5.7) have been conducted over three separate events, during which all sampling activities were conducted concurrently.

As discussed in Section 4.5.1, grab soil gas survey samples were collected on a roughly 50 foot grid throughout the RI Study Area. Sample locations were modified based on unfavorable ground conditions and underground utilities. Subsequent to the soil gas survey, permanent soil gas probes were installed along the eastern parcel boundary of the former facility and throughout the utility corridor along 3rd Street and Center Street. During residential grab soil gas sampling events, temporary probes were installed at one or two select locations to facilitate sample collection. On-facility, off-facility, and residential soil gas sampling locations are detailed as follows:

On-Facility		Off-Facility		Residential
Survey Locations	**Permanent Probes**	**Survey Locations**	**Permanent Probes**	**(various parcels)**
RSB-01 – RSB-24[1]	RSP-01 – RSP-07	RSG-25 – RSG-41	RSP-08 – RSP-12	326SG
RSB-42				356SG
				360SGa – 360SGc
				1428SG
				1432SGa, 1432SGb
				1436SG
				PP-E, -NW, -SW

[1] Locations RSG-01, RSG-02, and RSG-12 through RSG-15 are considered to be representative of on-facility conditions. RSG-16 was not sampled due to difficulty coring the concrete in this area.

The distribution of VOCs as observed from data collected during the soil gas survey and the most recently obtained residential grab and permanent soil gas probe sampling dataset (November 2006), is presented in the following subsections. As discussed in Section 4.5, soil gas survey samples were analyzed for VOCs using an on-site mobile laboratory and all other soil gas samples were analyzed for VOCs using a fixed-based laboratory. Naphthalene, though identified as a key SVOC contaminant, was included on the fixed-base laboratory analyte list and not the mobile laboratory analyte list; therefore, the distribution of this compound is not addressed by the soil gas survey.

5.6.1 Soil Gas Survey

Soil gas survey data are considered to be screening level data, as samples were not collected from a permanent sampling point (i.e., well or probe) and the data are not reproducible. Among samples collected during the soil gas survey, 28 VOCs were detected, of which 22 compounds were detected at concentrations above the screening levels. A summary of the soil gas survey laboratory analytical data (including number of detections greater than screening level and ranges of detected concentrations) is provided in Table 24. Laboratory analytical results for the soil gas survey are included in Appendix E.

Consistent with soil and shallow groundwater contaminant data, the highest concentrations of fuel and chlorinated hydrocarbons were detected at on-facility locations in the central, south-central, and eastern boundary areas of the former facility parcel. Off-facility, fuel and chlorinated hydrocarbons were detected at concentrations greater than the screening levels at several locations in the large vacant lot and one location (RSG-33) in the parking area. VOCs were not detected in soil gas from the location on the small vacant lot (RSG-30). The distribution of key contaminants, as defined in Section 5.2, in on-facility and off-facility soil gas is presented in the following subsections. Figures 51 through 58 summarize the concentrations of individual key contaminants detected at each location.

5.6.1.1 On-Facility Soil Gas Survey

Soil gas survey samples were collected from 24 borings installed on, or directly adjacent to, the former facility parcel. The majority of on-facility borings were installed through the existing concrete or asphalt shallow; however, neither surficial concrete nor asphalt was present at locations RSG-03, RSG-11, RSG-13, and RSG-14. The distribution of key contaminants detected above the screening levels in samples collected during the on-facility soil gas survey is as follows:

5.6.1.1.1 1,2,4-Trimethylbenzene

1,2,4-Trimethylbenzene was detected at concentrations above the screening level (SL=62 $\mu g/m^3$) at two on-facility soil gas survey locations. The compound was detected in samples from locations RSG-06 (66 $\mu g/m^3$) and RSG-23 (110 $\mu g/m^3$).

5.6.1.1.2 1,3,5-Trimethylbenzene

1,3,5-Trimethylbenzene was detected at concentration above the screening level (SL=62 $\mu g/m^3$) at one on-facility soil gas survey location, RSG-23 (160 $\mu g/m^3$).

5.6.1.1.3 Benzene

Benzene was widely detected in on-facility soil gas survey samples at concentrations exceeding the screening level (SL=2.5 $\mu g/m^3$). The most elevated concentrations of benzene were observed in the central area of the former facility, west of the warehouse, at locations RSG-22 (36,000 $\mu g/m^3$) and RSG-24 (29,000 $\mu g/m^3$). Away from the vicinity of the warehouse, detected concentrations of benzene in on-facility soil gas were two to three orders of magnitude lower.

5.6.1.1.4 Chloroform

Chloroform was detected at concentrations above the screening level (SL=0.83 µg/m^3) at two on-facility soil gas survey locations. The compound was detected in samples from locations RSG-13 and RSG-14, both at a concentration of 55 µg/m^3. RSG-13 and RSG-14 are both located along the parcel boundary between the warehouse and Mandela Parkway.

5.6.1.1.5 Cis-1,2-Dichloroethene

Cis-1,2-DCE was detected in 11 on-facility soil gas survey samples at concentrations exceeding the screening level (SL=370 µg/m^3). The most elevated concentrations of cis-1,2-DCE were observed in the central area of the former facility, west of the warehouse, at locations RSG-23 (810,000 µg/m^3) and RSG-24 (6,900,000 µg/m^3). Away from the vicinity of the warehouse, cis-1,2-DCE was detected above the screening level at one on-facility soil gas survey location, RSG-01 (6,200 µg/m^3).

5.6.1.1.6 Tetrachloroethene

PCE was detected in 9 on-facility soil gas survey samples at concentrations exceeding the screening level (SL=3.2 µg/m^3). The most elevated concentration of PCE was observed in the vicinity of the warehouse, at location RSG-13 (2,400 µg/m^3). Away from the vicinity of the warehouse, PCE was detected above the screening level at two on-facility soil gas survey location, RSG-01 (80 µg/m^3) and RSG-05 (1,000 µg/m^3).

5.6.1.1.7 Toluene

Toluene was detected in five on-facility soil gas survey samples at concentrations exceeding the screening level (SL=4,000 µg/m^3). All detections above the screening level are observed in samples collected from locations in the central area of the former facility, west of the warehouse. The most elevated concentrations of toluene in on-facility soil gas were at locations RSG-23 (600,000 µg/m^3) and RSG-24 (440,000 µg/m^3).

5.6.1.1.8 Trichloroethene

TCE was detected in 15 on-facility soil gas survey samples at concentrations exceeding the screening level (SL=0.17 µg/m^3). The most elevated concentrations of TCE were observed in the central area of the former facility, west of the warehouse, at locations RSG-23 (4,000 µg/m^3) and RSG-24 (5,700 µg/m^3). Away from warehouse, the most elevated concentrations were observed at locations RSG-05 (2,500 µg/m^3) and RSG-06 (1,300 µg/m^3).

5.6.1.1.9 Vinyl Chloride

Vinyl chloride was detected in 14 on-facility soil gas survey samples at concentrations exceeding the screening level (SL=1.1 µg/m^3). The most elevated concentrations of vinyl chloride were observed in the central area of the former facility, west of the warehouse, at locations, and RSG-22 (780,000 µg/m^3), RSG-23 (430,000 µg/m^3), and RSG-24 (1,500,000 µg/m^3). Away from the vicinity of the warehouse, vinyl chloride was detected above the screening level at one on-facility soil gas survey location, RSG-01 (13,000 µg/m^3).

5.6.1.2 Off-Facility Soil Gas Survey

Soil gas survey samples were collected from 17 off-facility borings installed on the large vacant lot, small vacant lot, and parking area parcels (as defined in Section 5.5.2). Key soil gas contaminants 1,2,4-trichlorobenzene, 1,3,5-trichlorobenzene, and chloroform were not detected at concentrations above the screening levels in off-facility soil gas survey samples. Chloroform was not detected above the reporting limits. 1,2,4-trichlorobenzene and 1,3,5-trichlorobenzene were detected at estimated concentrations below the laboratory reporting limit. The distribution of key contaminants detected above the screening levels in samples collected during the off-facility soil gas survey is as follows:

5.6.1.2.1 Benzene

Benzene was detected in 12 off-facility soil gas survey samples collected from the large vacant lot at concentrations exceeding the screening level (SL=2.5 μg/m^3). Benzene was not detected at concentrations above the screening level in the small vacant lot or the parking area. The most elevated concentration of benzene in off-facility soil gas was observed in the southwestern area of the large vacant lot, at location RSG-34 (220 μg/m^3).

5.6.1.2.2 Cis-1,2-Dichloroethene

Cis-1,2-DCE was detected in four off-facility soil gas survey samples collected from the large vacant lot, and one sample collected from the parking area, at concentrations exceeding the screening level (SL=370 μg/m^3). The most elevated concentrations of cis-1,2-DCE were observed in the northern and southern areas of the large vacant lot at locations RSG-27 (4,700 μg/m^3) and RSG-38 (5,200 μg/m^3), respectively.

5.6.1.2.3 Tetrachloroethene

PCE was detected in three off-facility soil gas survey samples collected from the large vacant lot at concentrations exceeding the screening level (SL=3.2 μg/m^3). PCE was not detected at concentrations above the screening level in the small vacant lot or the parking area. PCE was detected at locations RSG-27 (190 μg/m^3), RSG-36 (210 μg/m^3), and RSG-37 (23 μg/m^3).

5.6.1.2.4 Toluene

Toluene was detected in one off-facility soil gas survey sample collected from the large vacant lot at concentrations exceeding the screening level (SL=4,000 μg/m^3). Toluene was not detected at concentrations above the screening level in the small vacant lot or the parking area. Toluene was detected at location RSG-38 (12,000 μg/m^3).

5.6.1.2.5 Trichloroethene

TCE was detected in seven off-facility soil gas survey samples collected from the large vacant lot and one sample collected from the parking area at concentrations exceeding the screening level (SL=0.17 μg/m^3). The most elevated concentrations of TCE were observed in the southeastern area of the large vacant lot at locations RSG-26 (270 μg/m^3) and RSG-27 (410 μg/m^3).

5.6.1.2.6 Vinyl Chloride

Vinyl chloride was detected in eight off-facility soil gas survey samples collected from the large vacant lot, and one sample collected from the parking area, at concentrations exceeding the screening level (SL=1.1 μg/m^3). The most elevated concentrations of vinyl chloride in off-facility soil gas were observed in the south-central area of the large vacant lot, at locations RSG-34 (7,900 μg/m^3) and RSG-36 (1,300 μg/m^3).

5.6.2 Permanent Soil Gas Probes

Soil gas samples were collected from seven on-facility (RSP-01 through RSP-07) and five off-facility (RSP-08 through RSP-12) soil gas probes during three separate sampling events. Among samples from all three events, 36 VOC compounds were detected, of which 16 compounds were detected at concentrations above the screening levels. A summary of the soil gas laboratory analytical data for each event (including number of detections greater than screening level and ranges of detected concentrations) and all laboratory analytical results are provided in Tables 25a through 25c. Laboratory analytical results for the soil gas probes are included in Appendix E.

Each permanent soil gas probe was installed through the existing concrete or asphalt surface cover. Soil gas samples collected from the permanent probes were analyzed for VOCs by a fixed-base laboratory capable of lower reporting limits than those achieved by the mobile laboratory during the soil gas survey. On- and off-facility soil gas laboratory analytical data are summarized in the following subsections. Due to the volume of available data, the discussion is focused on data from the most recent sampling event (November 2006); however, with the exception of RSP-08, which is located in the former extraction trench, the nature and extent are relatively consistent from event to event. The concentrations of several VOC compounds, including some key contaminants, have decreased significantly over the three sampling events. Key contaminants detected in soil gas probes during the November 2006 event at concentrations greater than the screening levels are summarized on Figure 59.

5.6.2.1 On-Facility Permanent Soil Gas Probes

Several key contaminants were detected at concentrations above the screening levels in on-facility soil gas probe samples. Key contaminants 1,2,4-trimethylbenzene, carbon tetrachloride, and naphthalene were not detected at concentrations above the reporting limit. 1,3,5-trimethylbenzene and toluene were detected at concentrations above the laboratory reporting limit, but below screening levels. The distributions of key contaminants detected in on-facility soil gas probes at concentrations greater than the screening levels are as follows:

5.6.2.1.1 Benzene

Benzene was detected at concentrations above the screening level (SL=2.5 μg/m^3) in samples collected from two on-facility soil gas probes, RSP-01 (210 μg/m^3) and RSP-04 (22 μg/m^3).

5.6.2.1.2 Chloroform

Chloroform was detected at concentrations above the screening level (SL=0.83 μg/m^3) in samples collected from all on-facility soil gas probes except RSP-01. The most elevated concentrations were observed in probes located in the southern portion of the former facility; specifically, probes RSP-05 (29 μg/m^3), RSP-06 (17 μg/m^3), and RSP-07 (36 μg/m^3).

5.6.2.1.3 Cis-1,2-Dichloroethene

Cis-1,2-DCE was detected at concentrations above the screening level (SL=370 μg/m^3) in samples collected from on-facility soil gas probes RSP-01 (42,000 μg/m^3), RSP-05 (380 μg/m^3), and RSP-07 (22,000 μg/m^3).

5.6.2.1.4 Tetrachloroethene

PCE was detected at concentrations above the screening level (SL=3.2 μg/m^3) in samples collected from all on-facility, permanent soil gas probes except RSP-03 and RSP-04. The most elevated concentrations were observed in probes RSP-01 (12,000 μg/m^3), RSP-05 (8,400 μg/m^3), and RSP-07 (3,400 μg/m^3), which are located in both the northern and southern portions of the former facility.

5.6.2.1.5 Trichloroethene

TCE was detected at concentrations above the screening level (SL=0.17 μg/m^3) in samples collected from all on-facility soil gas probes. The most elevated concentrations were observed in probes RSP-01 (1,700 μg/m^3), RSP-05 (9,500 μg/m^3), and RSP-07 (5,000 μg/m^3). Concentrations observed in samples from other locations were one to four orders of magnitude lower than that observed in RSP-01, RSP-05, and RSP-07.

5.6.2.1.6 Vinyl Chloride

Vinyl chloride was detected at concentrations above the screening level (SL=1.1 μg/m^3) in samples collected from two on-facility soil gas probes. Vinyl chloride was detected in samples from probes RSP-01 (2,800 μg/m^3) and RSP-04 (20 μg/m^3).

5.6.2.2 Off-Facility Permanent Soil Gas Probes

The majority of key contaminants were not detected at concentrations above the screening levels in off-facility soil gas probes. Key contaminants 1,2,4-trichlorobenzene, 1,3,5-trichlorobenzene, benzene, and vinyl chloride were not detected at concentrations above the laboratory reporting limit. Cis-1,2-DCE and naphthalene were detected at estimated concentrations below the reporting limit. The distribution of key contaminants detected in off-facility soil gas probes at concentrations greater than the screening levels is as follows:

5.6.2.2.1 Chloroform

Chloroform was detected at concentrations above the screening level (SL=0.83 μg/m^3) in the sample collected from RSP-08 (8.8 μg/m^3). Chloroform was not detected above the reporting limit in any other off-facility soil gas probe samples.

5.6.2.2.2 Tetrachloroethene

PCE was detected in samples from all off-facility soil gas probe samples at concentrations exceeding the screening level (SL=3.2 μg/m^3) except RSP-08. The most elevated concentrations of PCE were detected at locations RSP-11 (110 μg/m^3) and RSP-12 (96 μg/m^3).

5.6.2.2.3 Trichloroethene

TCE was detected in one off-facility soil gas probe sample at a concentration exceeding the screening level (SL=0.17 μg/m^3). TCE was detected at location RSP-11 (0.29 μg/m^3). TCE was not detected above the reporting limit in any other off-facility soil gas probe samples.

5.6.3 Residential Soil Gas

Grab soil gas samples were collected from residential parcels located in the immediate vicinity of the former AMCO facility and from South Prescott Park during three events. Soil gas results from the most current residential sampling event (November 2006) are presented in Tables 26a through 26f. Results from all residential sampling events are included in Appendix E.

The most elevated concentrations of VOCs detected in grab soil gas samples collected from residential parcels were observed in samples collected at parcels 1428 3rd Street and 326 Center Street. The concentrations of VOCs detected in on-facility soil gas probes adjacent to these residential parcels, RSP-05 (adjacent to 1428 3rd Street) and RSP-01 (adjacent to 326 Center Street), were generally two or more orders of magnitude higher than in grab samples from the respective residences. As observed from residential grab soil gas samples collected from all three sampling events, key contaminants detected at concentrations above the screening levels and the maximum detected concentrations are summarized as follows:

- Benzene: 14 $\mu g/m^3$ (location PP-SW, May 2005)
- Chloroform: 99 $\mu g/m^3$ (location PP-SE, September 2004)
- PCE: 680 $\mu g/m^3$ (location 326SG, September 2004)
- TCE: 230 $\mu g/m^3$ (location 1428G, September 2004)

The detailed discussion in this section describes the most current dataset (November 2006); however, data from May 2005 is presented for residential parcel 326 Center Street as access to this parcel was not secured prior to the November 2006 sampling event.

Key contaminants detected in residential gas during November 2006 at concentrations greater than the screening levels are summarized on Figure 59. The majority of key soil gas contaminants were not detected above the screening levels in November 2006 grab soil gas samples collected from residential soil parcels and South Prescott Park (categorized as residential). Naphthalene was not detected above the reporting limit in any of the residential soil gas samples. Vinyl chloride, carbon tetrachloride, and 1,3,5-trimethylbenzene were detected at estimated concentrations below the reporting limit. Key contaminants that were detected in residential soil gas samples above the reporting limit but below the screening levels include benzene, cis-1,2-DCE, and toluene. The distribution of key contaminants detected at concentrations above the screening levels in the most recently collected residential soil gas samples (chloroform, PCE, and TCE) is presented in the following subsections.

5.6.3.1 1428 3rd Street

The most elevated concentrations of key contaminants in residential soil gas were detected in samples from the single grab soil gas sampling location at this residence (located in the backyard). Key contaminants detected in soil gas from this residence at concentrations below the screening levels include benzene, cis-1,2-DCE, and toluene. Key contaminants detected at concentrations above screening levels at this residence include:

5.6.3.1.1 Chloroform

Chloroform was detected at a concentration above the screening level (SL=0.83 $\mu g/m^3$) at location 1428SG (9 $\mu g/m^3$).

5.6.3.1.2 Tetrachloroethene
PCE was detected at a concentration above the screening level (SL=3.2 μg/m^3) at location 1428SG (42 μg/m^3).

5.6.3.1.3 Trichloroethene
TCE was detected at a concentration above the screening level (SL=0.17 μg/m^3) at location 1428SG (98 μg/m^3).

5.6.3.2 1432 3rd Street

Two grab soil gas sampling locations are present at this residence. One location is between the main structure and a smaller structure in the backyard (1432SGa), and one location is behind the smaller structure (1432SGb). Key contaminants detected in soil gas from this residence at concentrations below the screening levels include benzene, toluene, and vinyl chloride. Key contaminants detected at concentrations above screening levels at this residence include:

5.6.3.2.1 Chloroform
Chloroform was detected at a concentration above the screening level (SL=0.83 μg/m^3) at locations 1432SGa (1.4 μg/m^3) and 1432SGb (1.6 μg/m^3).

5.6.3.2.2 Tetrachloroethene
PCE was detected at a concentration above the screening level (SL=3.2 μg/m^3) at location 1432SGb (11 μg/m^3). PCE was detected above the reporting limit, but below the screening level at location 1432SGa (2.9 μg/m^3).

5.6.3.3 1436 3rd Street

A single grab soil gas sampling location is present at this residence (located in the backyard). Key contaminants detected in soil gas from this residence at concentrations below the screening levels include benzene (estimated below the reporting limit), PCE, and toluene. The only key contaminants detected at concentrations above screening levels at this residence was chloroform:

5.6.3.3.1 Chloroform
Chloroform was detected at a concentration above the screening level (SL=0.83 μg/m^3) at location 1436SG (1.6 μg/m^3).

5.6.3.4 320 Center Street

Access to this residential parcel was not granted by the owner; therefore, samples were not collected.

5.6.3.5 326 Center Street

A single grab soil gas sampling location is present at this residence (located in a planter in the northeastern area of the parcel). A soil gas sample was not collected during the Phase 3 event because access to the parcel could not be secured; therefore, data from the soil gas sample collected during Phase 2 (May 2005) are presented. All key contaminants detected in this sample were at concentrations exceeding the screening levels. Key contaminants detected at concentrations above screening levels at this residence include:

5.6.3.5.1 Chloroform

Chloroform was detected at a concentration above the screening level (SL=0.83 μg/m^3) at location 326SG (1.8 μg/m^3).

5.6.3.5.2 Tetrachloroethene

PCE was detected at a concentration above the screening level (SL=3.2 μg/m^3) at location 326SG (46 μg/m^3).

5.6.3.6 356 Center Street

A single grab soil gas sampling location is present at this residence (located in the backyard). Key contaminants detected in soil gas from this residence at concentrations below the screening levels include benzene and toluene. Key contaminants detected at concentrations above screening levels at this residence include:

5.6.3.6.1 Chloroform

Chloroform was detected at a concentration above the screening level (SL=0.83 μg/m^3) at location 356SG (1.2 μg/m^3).

5.6.3.6.2 Tetrachloroethene

PCE was detected at a concentration above the screening level (SL=3.2 μg/m^3) at location 356SG (3.3 μg/m^3).

5.6.3.7 360 Center Street

Three grab soil gas sampling locations are present at this residence (locations 360SGa, 360SGb, and 360SGc are in the backyard). Key contaminants detected in soil gas from this residence at concentrations below the screening levels include 1,2,4-TMB, 1,3,5-TMB, benzene, carbon tetrachloride, PCE, toluene, and TCE. Chloroform was the only key contaminant detected at concentrations above screening levels at this residence.

5.6.3.7.1 Chloroform

Chloroform was detected at concentrations above the screening level (SL=0.83 μg/m^3) at locations 360SGa (2 μg/m^3) and 360SGb (3.9 μg/m^3).

5.6.3.8 South Prescott Park

Three grab soil gas sampling locations are present at South Prescott Park (locations PP-NW, PP-SW, and PP-E are positioned around the periphery of the play structure area). Key contaminants detected in soil gas from South Prescott Park at concentrations below the screening levels include 1,3,5-TMB (estimated below the reporting limit), benzene, and toluene. Key contaminants detected at concentrations above screening levels at this residence include:

5.6.3.8.1 Chloroform

Chloroform was detected at a concentration above the screening level (SL=0.83 μg/m^3) at location PP-E (61 μg/m^3).

5.6.3.8.2 Tetrachloroethene

PCE was detected at a concentration above the screening level (SL=3.2 μg/m^3) at location PP-E (7.6 μg/m^3).

5.6.3.8.3 Trichloroethene

TCE was detected at a concentration above the screening level (SL=0.17 μg/m³) at location PP-E (0.42 μg/m³).

5.7 Air

Crawlspace (where applicable) and ambient air samples were collected from residential parcels (including South Prescott Park) located in the immediate vicinity of the former facility during three separate events, as detailed in Section 4.6.2. In addition to the residential crawlspace and ambient air sampling, on-facility crawlspace air sampling was conducted at the existing office on the former facility parcel during the November 2006 residential sampling event. All samples were analyzed for VOCs using method 8260 SIM. This section presents the most current dataset (November 2006); however, data from May 2005 are presented for residential parcel 326 Center St. as access to this parcel was not secured prior to the November 2006 sampling.

Crawlspace and ambient air samples were collected concurrently with residential grab soil gas and permanent soil gas probe (on- and off-facility) sampling events. During each sampling event, a morning (AM) and an afternoon (PM) background ambient air sample was collected several blocks from the former facility, near the intersection of 3rd Street and Lewis Street. Sampling locations for crawlspace and ambient air are summarized as follows:

Crawlspace Air	Ambient Air	Background Ambient Air[1]
326CA	326AA	329BA
1414CAa	356AA	322BA
1414CAb	360AA	
1428CAa	1428AA	
1428CAb	1432AA	
1428CAc	1436AA	
1432CA	PP-AA	

[1] The background ambient air sampling location was located adjacent to the parcel at 329 Lewis Street (329BA) for September 2004 and November 2006 sampling events, but was moved across the street to 322 Lewis Street (322BA) for the May 2005 sampling event due to logistical requirements.

Crawlspace and ambient air results from the most current residential sampling event (November 2006) are presented in Tables 27a through 27f. Results from all residential sampling events are included in Appendix E. Key contaminants detected in air during November 2006 at concentrations greater than the screening levels are summarized on Figure 60.

5.7.1 Background Ambient Air

Background ambient air samples were collected near the corner of Lewis and 3rd Street to provide a basis for comparison among crawlspace and ambient air samples, and ambient neighborhood conditions. Background air samples were collected near enough to the Site to be representative of ambient air concentrations in the neighborhood while not being measurably affected by contaminants potentially originating from the former facility parcel. Additional West Oakland background ambient air data collected in December 2002 from the Oakland-Filbert ambient air sampling station is provided for comparison. This sampling station, which is located approximately 1.5 miles northeast of the former facility parcel, is managed by the Bay Area Air Quality Management District (BAAQMD).

As observed from background ambient air samples collected from all three sampling events, key contaminants (as defined in Section 5.2) detected at concentrations above the screening levels and the maximum detected concentrations are summarized as follows:

5.7.1.1 Benzene

Benzene was detected in the AM (0.97 $\mu g/m^3$) and PM (0.69 $\mu g/m^3$) background samples at concentrations that exceed the screening level (SL=0.25 $\mu g/m^3$). Benzene was detected in West Oakland ambient air at a concentration of 0.96 $\mu g/m^3$ during the December 2002 BAAQMD sampling.

5.7.1.2 Carbon Tetrachloride

Carbon tetrachloride was detected in the AM (0.48 $\mu g/m^3$) and PM (0.45 $\mu g/m^3$) background samples at concentrations that exceed the screening level (SL=0.13 $\mu g/m^3$). Carbon tetrachloride was detected in West Oakland ambient air at a concentration of 0.69 $\mu g/m^3$ during the December 2002 BAAQMD sampling.

5.7.1.3 Chloroform

Chloroform was detected in the AM (0.1 $\mu g/m^3$) and PM (0.091 $\mu g/m^3$) background samples at estimated concentrations that exceed the screening level (SL=0.083 $\mu g/m^3$). Chloroform was not detected above the reporting limit (10 $\mu g/m^3$), which is approximately two orders of magnitude higher than the screening level, in West Oakland ambient air during the December 2002 BAAQMD sampling.

5.7.1.4 Naphthalene

Naphthalene was not detected at a concentration exceeding the reporting limit (4.5 $\mu g/m^3$) in the November 2006 background ambient air samples; however, given the laboratory method used for sample analysis, the reporting limit for naphthalene is two orders of magnitude higher than the screening level (SL=0.056 $\mu g/m^3$). During the May 2005 sampling event, different sampling and laboratory analytical methods were used to achieve laboratory reporting limits below the screening level. During this event, the most elevated concentration of naphthalene in background ambient air was detected in the PM sample (0.09 $\mu g/m^3$), which exceeds the screening level.

5.7.1.5 Tetrachloroethene

PCE was detected in the AM (0.42 $\mu g/m^3$) background sample at a concentration that exceeds the screening level (SL=0.32 $\mu g/m^3$); however, the compound was detected in the PM (0.31 $\mu g/m^3$) background sample at a concentration slightly below the screening level.

5.7.1.6 Trichloroethene

TCE was detected in the AM (0.22 $\mu g/m^3$) and PM (0.069 $\mu g/m^3$) background samples at concentrations that exceed the screening level (SL=0.017 $\mu g/m^3$). TCE was detected in West

Oakland ambient air at a concentration of 0.96 µg/m^3 during the December 2002 BAAQMD sampling. TCE was not detected above the reporting limit (0.43 µg/m^3), which is approximately one order of magnitude higher than the screening level, in West Oakland ambient air during the December 2002 BAAQMD sampling.

5.7.1.7 Vinyl Chloride

Vinyl chloride was not detected in the background samples at concentrations above the reporting limit (the most elevated reporting limit among background samples was 0.048 µg/m^3).

5.7.2 On-facility Crawlspace Air

On-facility crawlspace air sampling was conducted at the existing office on the former facility parcel during November 2006. Two sampling locations, 1414CAa and 1414CAb, were identified in the northeastern and southeastern areas of the office portion of the warehouse building, respectively. Key contaminants detected in on-facility crawlspace air samples at concentrations below the screening levels include 1,2,4-TMB, 1,3,5-TMB, and toluene. Key contaminants detected at concentrations above the screening levels are summarized as follows:

5.7.2.1 Benzene

Benzene was detected at concentrations exceeding the screening level (SL=0.25 µg/m^3) in both on-facility crawlspace air samples 1414CAa (0.99 µg/m^3) and 1414CAb (0.55 µg/m^3). The magnitude of benzene concentrations observed in these crawlspace air samples is comparable to concentrations observed in the background ambient air samples.

5.7.2.2 Carbon Tetrachloride

Carbon tetrachloride was detected at concentrations exceeding the screening level (SL=0.13 µg/m^3) in both on-facility crawlspace air samples 1414CAa (0.47 µg/m^3) and 1414CAb (0.38 µg/m^3). The magnitude of carbon tetrachloride concentrations observed in these crawlspace air samples is comparable to concentrations observed in the background ambient air samples.

5.7.2.3 Chloroform

Chloroform was detected at concentrations exceeding the screening level (SL=0.083 µg/m^3) in both on-facility crawlspace air samples 1414CAa (0.66 µg/m^3) and 1414CAb (0.22 µg/m^3). Chloroform concentrations observed in these crawlspace air samples are within an order of magnitude higher than concentrations observed in the background ambient air samples (0.091 µg/m^3 to 0.1 µg/m^3).

5.7.2.4 Cis-1,2-dichloroethene

Cis-1,2-DCE was detected at a concentration exceeding the screening level (SL=37 µg/m^3) in on-facility crawlspace air sample 1414CAa (400 µg/m^3). The compound was detected at a concentration less than the screening level in the sample from location 1414CAb (7.7 µg/m^3). Among ambient air background samples from all three events, cis-1,2-DCE was not detected at concentrations above the reporting limit (the most elevated reporting limit among background samples was 0.14 µg/m^3).

5.7.2.5 Naphthalene

Naphthalene was detected at concentrations exceeding the screening level (SL=0.056 μg/m^3) in both on-facility crawlspace air samples 1414CAa (0.41 μg/m^3) and 1414CAb (0.53 μg/m^3). Naphthalene was not detected at concentrations above the reporting limit (2.6 μg/m^3) in the background ambient air samples from the November 2006 sampling event; however, among background samples from all three events, naphthalene concentrations observed in these crawlspace air samples are one order of magnitude higher than concentrations observed in the most elevated background concentration detected (0.09 μg/m^3).

5.7.2.6 Tetrachloroethene

PCE was detected at concentrations exceeding the screening level (SL=0.32 μg/m^3) in both on-facility crawlspace air samples 1414CAa (19 μg/m^3) and 1414CAb (3 μg/m^3). PCE concentrations observed in these crawlspace air samples exceed concentrations observed in the November 2006 background sample by one to two orders of magnitude.

5.7.2.7 Trichloroethene

TCE was detected at concentrations exceeding the screening level (SL=0.017 μg/m^3) in both on-facility crawlspace air samples 1414CAa (26 μg/m^3) and 1414CAb (3.1 μg/m^3). TCE concentrations observed in these crawlspace air samples exceed concentrations observed in the November 2006 background sample by two to three orders of magnitude.

5.7.2.8 Vinyl Chloride

Vinyl chloride was detected at concentrations exceeding the screening level (SL=0.11 μg/m^3) in both on-facility crawlspace air samples 1414CAa (1.8 μg/m^3) and 1414CAb (7.6 μg/m^3). Among ambient air background samples from all three events, vinyl chloride was not detected at concentrations above the reporting limit (the most elevated reporting limit among background samples was 0.46 μg/m^3).

5.7.3 Residential Ambient and Crawlspace Air

As observed from residential ambient and crawlspace air samples collected from all three sampling events, key contaminants, as defined in Section 5.2, detected at concentrations above the screening levels and the maximum detected concentrations are summarized as follows:

Key Contaminants	Ambient Air	Location, Sampling Event Date	Crawlspace Air	Location, Sampling Event Date
1,2,4-Trimethylbenzene	23 μg/m^3	(1428AA, Sept. 2004)	31 μg/m^3	(1432CA, Sept. 2004)
1,3,4-Trimethylbenzene	8 μg/m^3	(1428AA, Sept. 2004)	11 μg/m^3	(1432CA, Sept. 2004)
Benzene	5.6 μg/m^3	(1428AA, Sept. 2004)	16 μg/m^3	(1432CA, Sept. 2004)
Carbon Tetrachloride	0.83 μg/m^3	(360AA, May 2005)	0.63 μg/m^3	(1428CA, May 2005)
Chloroform	0.51 μg/m^3	(PP-AA, Nov. 2006)	0.47 μg/m^3	(1428CA, Sept. 2004)
Naphthalene	0.46 μg/m^3	(1432AA, Nov. 2006)	0.58 μg/m^3	(1428CA, Nov. 2006)
Tetrachloroethene	2.2 μg/m^3	(1428AA, Sept. 2004)	4.8 μg/m^3	(1428CA, Nov. 2006)
Toluene	34 μg/m^3	(360AA, Nov. 2006)	77 μg/m^3	(1432AA, Sept. 2004)

Key Contaminants	Ambient Air	Location, Sampling Event Date	Crawlspace Air	Location, Sampling Event Date
1,2,4-Trimethylbenzene	23 μg/m³	(1428AA, Sept. 2004)	31 μg/m³	(1432CA, Sept. 2004)
1,3,4-Trimethylbenzene	8 μg/m³	(1428AA, Sept. 2004)	11 μg/m³	(1432CA, Sept. 2004)
Benzene	5.6 μg/m³	(1428AA, Sept. 2004)	16 μg/m³	(1432CA, Sept. 2004)
Trichloroethene	0.23 μg/m³	(360AA, Nov. 2006)	0.36 μg/m³	(1432CA, Sept. 2004)
Vinyl Chloride	0.7 μg/m³	(1436AA, Nov. 2006)	10 μg/m³	(1428CA, Nov. 2006)

Key contaminants detected in the most recently collected residential ambient and crawlspace samples (November 2006) at concentrations below the screening levels include 1,2,4-TMB, 1,3,5-TMB, and toluene. The distribution of key contaminants detected at concentrations above the screening levels in residential ambient and crawlspace samples from the November 2006 sampling event is presented in the following subsections.

5.7.3.1 1428 3rd Street

Three crawlspace air sampling locations (1428CAa, 1428CAb, and 1428CAc) and one ambient air sampling location (1428AA) are located on this parcel. Crawlspace air sampling location 1428CAa is located beneath the kitchen and was sampled during all events. Crawlspace air sampling location 1428CAb, which is located beneath the bedroom closet, was sampled during September 2004 only. Repairs made to the floor of the house by the homeowner prevented access to location 1428CAb during May 2005 and November 2006. During these sampling events, crawlspace air sampling location 1428CAc, which is located beneath the northernmost room in the residence, was sampled instead of 1428CAb. Ambient air sampling location 1428AA is located directly behind the residence, in the backyard.

Key contaminants 1,2,4-TMB, 1,3,5-TMB, cis-1,2,-DCE, and toluene were detected in the crawlspace air and ambient air samples at concentrations below the respective screening levels. Cis-1,2-DCE was not detected at concentrations above the reporting limit in crawlspace air and ambient air samples collected at this parcel. Key contaminants detected at concentrations above screening levels at this residence include the following:

5.7.3.1.1 Benzene

Benzene was detected at a concentration exceeding the screening level (SL=0.25 μg/m³) in the ambient air sample collected at location 1428AA (0.85 μg/m³).

Benzene was detected at concentrations exceeding the screening level (SL=0.25 μg/m³) in crawlspace air samples 1428CAa (0.49 μg/m³) and 1428CAc (0.51 μg/m³).

The magnitude of benzene concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.1.2 Carbon Tetrachloride

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m³) in the ambient air sample collected at location 1428AA (0.46 μg/m³).

Carbon tetrachloride was detected at concentrations exceeding the screening level (SL=0.13 μg/m^3) in crawlspace air samples 1428CAa (0.46 μg/m^3) and 1428CAc (0.44 μg/m^3).

The magnitude of carbon tetrachloride concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.1.3 Chloroform

Chloroform was detected at a concentration exceeding the screening level (SL=0.056 μg/m^3) in the ambient air sample collected at location 1428AA (0.14 μg/m^3).

Chloroform was detected at concentrations exceeding the screening level (SL=0.056 μg/m^3) in crawlspace air samples 1428CAa (0.23 μg/m^3) and 1428CAc (0.22 μg/m^3).

The magnitude of chloroform concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.1.4 Naphthalene

Naphthalene was not detected at a concentration exceeding the reporting limit (2.6 μg/m^3) in the ambient air sample collected at location 1428AA; however, given the laboratory method used for sample analysis, the reporting limit for naphthalene is two orders of magnitude higher than the screening level (SL=0.056 μg/m^3). During the May 2005 sampling event, different sampling and laboratory analytical methods were used to achieve reporting limits below the screening level. During this event, naphthalene was detected at a concentration exceeding the screening level in the ambient air sample collected at location 1428AA (0.12 μg/m^3). This concentration is slightly greater than the range of naphthalene concentrations detected in background samples (0.043 to 0.09 μg/m^3) from the same event.

Naphthalene was detected at an estimated concentration exceeding the screening level (SL=0.056 μg/m^3) in crawlspace air sample 1428CAa (0.58 μg/m^3). Naphthalene was not detected above the reporting limit (3.9 μg/m^3) in crawlspace air sample 1428CAc.

The magnitude of naphthalene concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples. However, elevated laboratory reporting limits associated with samples analyzed for naphthalene prevents the complete evaluation of the compound's occurrence with respect to the screening level in residential crawlspace air and ambient air.

5.7.3.1.5 Tetrachloroethene

PCE was detected at a concentration equal to the screening level (SL=0.32 μg/m^3) in the ambient air sample collected at location 1428AA (0.32 μg/m^3).

PCE was detected at concentrations exceeding the screening level (SL=0.32 μg/m^3) in crawlspace air samples 1428CAa (0.58 μg/m^3) and 1428CAc (4.8 μg/m^3).

The magnitude of PCE concentrations observed in ambient air and crawlspace air sample 1428CAa is comparable to concentrations observed in the background ambient air samples;

however, the concentration detected in the crawlspace air sample from location 1428CAc is an order of magnitude higher than that observed in background ambient air.

5.7.3.1.6 Trichloroethene

TCE was detected at a concentration exceeding the screening level (SL=0.017 µg/m^3) in the ambient air sample collected at location 1428AA (0.09 µg/m^3).

TCE was detected at concentrations exceeding the screening level (SL=0.017 µg/m^3) in crawlspace air samples 1428CAa (0.21 µg/m^3) and 1428CAc (0.23 µg/m^3).

The magnitude of TCE concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.1.7 Vinyl Chloride

Vinyl chloride was not detected at a concentration exceeding the screening level (SL=0.11 µg/m^3) in the ambient air at this parcel.

Vinyl chloride was detected at concentrations exceeding the screening level (SL=0.11 µg/m^3) in crawlspace air samples 1428CAa (1.5 µg/m^3) and 1428CAc (10 µg/m^3).

Vinyl chloride was not detected in background ambient air at concentrations above the reporting limit (0.048 µg/m^3), which is two to three orders of magnitude lower than the concentrations detected in the crawlspace air samples.

5.7.3.2 1432 3rd Street

One crawlspace air sampling location (1432CA) and one ambient air sampling location (1432AA) are located on this parcel. The crawlspace air sampling location is located along the eastern wall of the primary residence and the ambient air sample location is located in the backyard of the primary residence.

Key contaminants 1,2,4-TMB, 1,3,5-TMB, cis-1,2,-DCE, and toluene were detected in the crawlspace air and ambient air samples at concentrations below the respective screening levels. Key contaminants detected at concentrations above screening levels at this residence include the following:

5.7.3.2.1 Benzene

Benzene was detected at a concentration exceeding the screening level (SL=0.25 µg/m^3) in the ambient air sample collected at location 1432AA (0.81 µg/m^3).

Benzene was detected at a concentration of 0.19 µg/m^3 in the crawlspace air sample from location 1432CA, which does not exceed the screening level (SL=0.25 µg/m^3).

The magnitude of benzene concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.2.2 Carbon Tetrachloride

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 µg/m^3) in the ambient air sample collected at location 1432AA (0.45 µg/m^3).

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m^3) in crawlspace air sample 1432CA (0.48 μg/m^3).

The magnitude of carbon tetrachloride concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.2.3 Chloroform

Chloroform was detected at a concentration exceeding the screening level (SL=0.083 μg/m^3) in the ambient air sample collected at location 1432AA (0.15 μg/m^3).

Chloroform was detected at a concentration exceeding the screening level (SL=0.056 μg/m^3) in crawlspace air sample 1432CA (0.33 μg/m^3).

The magnitude of chloroform concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.2.4 Naphthalene

Naphthalene was detected at an estimated concentration exceeding the screening level (SL=0.056 μg/m^3) in ambient air sample 1432AA (0.46 μg/m^3), which is comparable to concentrations observed in the background ambient air samples.

Naphthalene was not detected at a concentration exceeding the reporting limit (4.4 μg/m^3) in the crawlspace air sample collected at location 1432CA; however, the laboratory reporting limit for naphthalene is two orders of magnitude higher than the screening level (SL=0.056 μg/m^3). During the May 2005 sampling event, different sampling and laboratory analytical methods were used to achieve reporting limits below the screening level. During this event, naphthalene was detected at a concentration exceeding the screening level in the ambient air sample collected at location 1432AA (0.27 μg/m^3). This concentration is slightly greater than the range of naphthalene concentrations detected in background samples (0.043 to 0.09 μg/m^3) of from the same event.

5.7.3.2.5 Tetrachloroethene

PCE was detected at a concentration of 0.3 μg/m^3 in the ambient air sample from location 1432AA, which does not exceed the screening level (SL=0.32 μg/m^3).

PCE was detected at a concentration exceeding the screening level (SL=0.32 μg/m^3) in crawlspace air samples 1432CAa (0.37 μg/m^3).

The magnitude of PCE concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.2.6 Trichloroethene

TCE was detected at a concentration exceeding the screening level (SL=0.017 μg/m^3) in the ambient air sample collected at location 1432AA (0.079 μg/m^3).

TCE was detected at a concentration exceeding the screening level (SL=0.017 μg/m^3) in crawlspace air sample 1432CA (0.14 μg/m^3).

The magnitude of TCE concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.2.7 Vinyl Chloride

Vinyl chloride was not detected at a concentration exceeding the screening level (SL=0.11 μg/m^3) in the ambient air at this parcel.

Vinyl chloride was detected at a concentration exceeding the screening level (SL=0.11 μg/m^3) in crawlspace air sample 1432CA (2.8 μg/m^3).

Vinyl chloride was not detected in background ambient air at concentrations above the reporting limit (0.048 μg/m^3), which is two orders of magnitude lower than the concentration detected in the crawlspace air sample.

5.7.3.3 1436 3rd Street

One ambient air sampling location (1436AA) is located in the backyard of this parcel. Since the residence on this parcel was constructed with a slab-on-grade foundation with no crawlspace, a crawlspace air sample was not collected at this parcel.

Key contaminants 1,2,4-TMB, 1,3,5-TMB, cis-1,2,-DCE, PCE, and toluene were detected in the ambient air sample at concentrations below the respective screening levels. Key contaminants detected at concentrations above screening levels at this residence include the following:

5.7.3.3.1 Benzene

Benzene was detected at a concentration exceeding the screening level (SL=0.25 μg/m^3) in the ambient air sample collected at location 1436AA (1.2 μg/m^3). The magnitude of the benzene concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.3.2 Carbon Tetrachloride

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m^3) in the ambient air sample collected at location 1436AA (0.48 μg/m^3). The magnitude of the carbon tetrachloride concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.3.3 Chloroform

Chloroform was detected at a concentration exceeding the screening level (SL=0.083 μg/m^3) in the ambient air sample collected at location 1436AA (0.14 μg/m^3). The magnitude of the chloroform concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.3.4 Naphthalene

Naphthalene was not detected at a concentration exceeding the reporting limit (4.5 μg/m^3) in the ambient air sample collected at location 1436AA; however, given the laboratory method used for sample analysis, the reporting limit for naphthalene is two orders of magnitude higher than the screening level (SL=0.056 μg/m^3). During the May 2005 sampling event, different sampling and laboratory analytical methods were used to achieve reporting limits below the screening level. During this event, naphthalene was detected at a concentration exceeding the screening level in the ambient air sample collected at location 1436AA (0.069 µg/m^3). This concentration is within the background range (0.043 to 0.09 µg/m^3) of naphthalene from the same event.

5.7.3.3.5 Trichloroethene

TCE was detected at a concentration exceeding the screening level (SL=0.017 µg/m^3) in the ambient air sample collected at location 1436AA (0.17 µg/m^3). The magnitude of the TCE concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.3.6 Vinyl Chloride

Vinyl chloride was detected at a concentration exceeding the screening level (SL=0.11 µg/m^3) in the ambient air sample collected at location 1436AA (0.7 µg/m^3). Vinyl chloride was not detected in background ambient air at concentrations above the reporting limit (0.048 µg/m^3), which is one order of magnitude lower than the concentration detected in the ambient air at this parcel.

5.7.3.4 320 Center Street

Crawlspace and ambient air samples were not sampled at 320 Center Street.

5.7.3.5 326 Center Street

One crawlspace air sampling location (326CA) and one ambient air sampling location (326AA) are located on this parcel. The crawlspace air sampling location is located beneath the central area of the residence and the ambient air sample location is located in the backyard. Access to this parcel could not be secured prior to the November 2006 sampling event; therefore, the most current data set is from the May 2005 sampling event.

Key contaminants cis-1,2-DCE and vinyl chloride were not detected in the crawlspace air and ambient air samples at concentrations above the laboratory reporting limits. TCE was not detected at concentrations above the reporting limit in the crawlspace air or ambient air samples; however, for both samples, the reporting limits were greater than the screening level. Naphthalene was detected in ambient air at a concentration below the screening level, but not detected above the reporting limit in crawlspace air (the laboratory reporting limit is greater than the screening level). Key contaminants 1,2,4-TMB, 1,3,5-TMB, PCE, and toluene were detected in the crawlspace air and ambient air samples at concentrations below the respective screening levels. Key contaminants detected at concentrations above screening levels at this residence include the following:

5.7.3.5.1 Benzene

Benzene was detected at a concentration exceeding the screening level (SL=0.25 µg/m^3) in the ambient air sample collected at location 326AA (0.42 µg/m^3).

Benzene was detected at a concentration exceeding the screening level (SL=0.25 µg/m^3) in crawlspace air sample 326CA (0.51 µg/m^3).

The magnitude of benzene concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.5.2 Carbon Tetrachloride

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m^3) in the ambient air sample collected at location 326AA (0.53 μg/m^3).

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m^3) in crawlspace air sample 326CA (0.55 μg/m^3).

The magnitude of carbon tetrachloride concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.5.3 Chloroform

Chloroform was detected at an estimated concentration exceeding the screening level (SL=0.083 μg/m^3) in the ambient air sample collected at location 326AA (0.1 μg/m^3).

Chloroform was detected at an estimated concentration exceeding the screening level in crawlspace air sample 326CA (0.099 μg/m^3).

The magnitude of chloroform concentrations observed in ambient and crawlspace air samples collected at this parcel is comparable to concentrations observed in the background ambient air samples.

5.7.3.6 356 Center Street

Crawlspace and ambient air samples were not sampled at 356 Center Street.

5.7.3.7 360 Center Street

One ambient air sampling location (360AA) is located in the backyard of this parcel. The residence on this parcel was constructed with a slab-on-grade foundation with no crawlspace; therefore, a crawlspace air sample was not collected at this parcel.

Key contaminants 1,2,4-TMB, 1,3,5-TMB, and toluene were detected in the ambient air sample at concentrations below the respective screening levels. Cis-1,2-DCE and vinyl chloride were not detected at concentrations above the reporting limits. Key contaminants detected at concentrations above screening levels at this residence include the following:

5.7.3.7.1 Benzene

Benzene was detected at a concentration exceeding the screening level (SL=0.25 μg/m^3) in the ambient air sample collected at location 360AA (1.2 μg/m^3). The magnitude of the benzene concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.7.2 Carbon Tetrachloride

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m^3) in the ambient air sample collected at location 360AA (0.46 μg/m^3). The magnitude of the carbon tetrachloride concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.7.3 Chloroform

Chloroform was detected at an estimated concentration exceeding the screening level (SL=0.083 μg/m^3) in the ambient air sample collected at location 360AA (0.16 μg/m^3). The magnitude of the chloroform concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.7.4 Naphthalene

Naphthalene was not detected at a concentration exceeding the reporting limit (4.5 μg/m^3) in the ambient air sample collected at location 360AA; however, given the laboratory method used for sample analysis, the reporting limit for naphthalene is two orders of magnitude higher than the screening level (SL=0.056 μg/m^3). During the May 2005 sampling event, different sampling and laboratory analytical methods were used to achieve reporting limits below the screening level. During this event, naphthalene was detected at a concentration below the screening level in the ambient air sample collected at location 360AA (0.041 μg/m^3). This concentration is slightly greater than the range of naphthalene concentrations detected in background samples (0.043 to 0.09 μg/m3) from the same event.

5.7.3.7.5 Tetrachloroethene

PCE was detected at an estimated concentration exceeding the screening level (SL=0.32 μg/m^3) in the ambient air sample collected at location 360AA (0.4 μg/m^3). The magnitude of the PCE concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.7.6 Trichloroethene

TCE was detected at a concentration exceeding the screening level (SL=0.017 μg/m^3) in the ambient air sample collected at location 1432AA (0.23 μg/m^3). The magnitude of the TCE concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.8 South Prescott Park Ambient Air

One ambient air sampling location (PP-AA) is located in the eastern portion of the Park, near the RMW-09 monitoring well group.

Key contaminants 1,2,4-TMB, 1,3,5-TMB, and toluene were detected in the ambient air sample at concentrations below the respective screening levels. Cis-1,2-DCE and vinyl chloride were not detected at concentrations above the reporting limits. Naphthalene was not detected in the ambient air sample at a concentration above the reporting level; however, for naphthalene, the reporting limit is two orders of magnitude greater than the screening level. Ambient air sampling location PP-AA was not included for low reporting limit sampling for naphthalene during the May 2005 sampling event. Key contaminants detected at concentrations above screening levels at South Prescott Park include the following:

5.7.3.8.1 Benzene

Benzene was detected at a concentration exceeding the screening level (SL=0.25 μg/m^3) in the ambient air sample collected at location PP-AA (0.86 μg/m^3). The magnitude of the benzene concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.8.2 Carbon Tetrachloride

Carbon tetrachloride was detected at a concentration exceeding the screening level (SL=0.13 μg/m^3) in the ambient air sample collected at location PP-AA (0.48 μg/m^3). The magnitude of the carbon tetrachloride concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.8.3 Chloroform

Chloroform was detected at an estimated concentration exceeding the screening level (SL=0.083 µg/m^3) in the ambient air sample collected at location PP-AA (0.51 µg/m^3). The magnitude of the chloroform concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.8.4 Tetrachloroethene

PCE was detected at an estimated concentration exceeding the screening level (SL=0.32 µg/m^3) in the ambient air sample collected at location PP-AA (0.42 µg/m^3). The magnitude of the PCE concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.7.3.8.5 Trichloroethene

TCE was detected at a concentration exceeding the screening level (SL=0.017 µg/m^3) in the ambient air sample collected at location 1432AA (0.087 µg/m^3). The magnitude of the TCE concentration observed in this sample is comparable to concentrations observed in the background ambient air samples.

5.8 Produce

Produce samples were analyzed for VOCs, as well as arsenic, lead, and total chromium. As presented in Section 5.5.3, co-located soil samples were collected at select produce sampling locations to allow for comparison of contaminant concentrations between the two media. Further discussion is provided in Section 7, Human Health Risk Assessment. Produce samples were collected from four of the nearby residences where produce was present and access to the parcel was secured. Results of the produce sampling are presented in Table 28. Laboratory analytical results for produce samples collected from each residential parcel are discussed in the following subsections.

5.8.1 1432 3rd Street

Samples, one each of fig, grape, tomato, and pomegranate, were collected at this parcel. With the exception of the fig sample, VOCs were not detected in any of the produce samples collected at this parcel.

The fig sample contained concentrations of chromium (0.79 mg/kg), lead (0.28 mg/kg), and methyl acetate (0.053 mg/kg).

The pomegranate sample contained concentrations of arsenic (0.08 mg/kg), chromium (0.49 mg/kg), and lead (0.16 mg/kg).

The grape sample contained concentrations of chromium (0.44 mg/kg) and lead (0.86 mg/kg).

The tomato sample contained concentrations of chromium (0.88 mg/kg) and lead (0.75 mg/kg).

5.8.2 1436 3rd Street

One sample of green chili peppers, partially-dried red peppers, mint, tomatillos, tomatoes, lemons, and bell peppers were collected at this parcel. The green chilies, red chilies, mint, tomatoes, and tomatillos were growing in one bed located along the common eastern boundary with 1448 3rd Street. With the exception of methyl acetate, detections in the red chili and mint samples, VOCs were not detected in any of the produce samples collected at this parcel.

The green chili sample at this residence contained concentrations of lead (0.68 mg/kg) and chromium (0.15 mg/kg).

The red chili sample contained concentrations of arsenic (0.07 mg/kg), lead (0.77 mg/kg), chromium (0.39 mg/kg), and methyl acetate (0.13 mg/kg).

The mint sample contained concentrations of chromium (1.07 mg/kg), lead (8.47 mg/kg), and methyl acetate (0.19 mg/kg).

The tomatillo sample contained concentrations of chromium (0.68 mg/kg) and lead (0.65 mg/kg).

The tomato sample contained concentrations of arsenic (0.06 mg/kg), chromium (0.73 mg/kg), and lead (1 mg/kg).

The lemon sample contained concentrations of chromium (0.7 mg/kg) and lead (0.19 mg/kg).

The bell pepper sample contained concentrations of chromium (0.58 mg/kg) and lead (0.13 mg/kg).

5.8.3 356 Center Street

One sample of apple was collected at this parcel. The apple sample at this residence contained concentrations of chromium (0.3 mg/kg) and lead (0.3 mg/kg). VOCs were not detected in the apple sample.

5.8.4 360 Center Street

Samples, one each of apple, cactus (fruiting body portion), and blackberry, were collected at this parcel. The blackberry sample was a composite from two bushes, one growing on the central portion of the northern fence and one growing on the eastern fence. With the exception of the detection of styrene in the cactus sample, VOCs were not detected in any of the produce samples collected at this parcel.

The apple sample contained concentrations of arsenic (0.07 mg/kg), chromium (0.46 mg/kg), and lead (0.23 mg/kg).

The cactus sample contained concentrations of chromium (0.75 mg/kg), lead (2.7 mg/kg), and styrene (0.022 mg/kg).

The blackberry sample contained concentrations of chromium (0.66 mg/kg) and lead (3.27 mg/kg).

6.0 Contaminant Fate and Transport

This section describes the fate and transport of chemicals originating from primary and secondary sources at the Site and its vicinity.

6.1 Source Areas and Release Mechanisms

The Conceptual Site Model (CSM) for the AMCO Chemical Superfund Site describes the occurrence and migration of chemicals from site-related sources to potential human and ecological receptors (Figure 61). The known and potential contaminant sources, including both site-related and off-site sources, and associated release mechanisms are described below. The CSM is discussed further in Section 7.0.

6.1.1 Primary Contaminant Sources

Primary contaminant sources are from industrial operations both on and off-facility, as well as potential residential activities at the nearby parcels. The history and types of materials handled at the on-facility and off-facility locations are described in Section 1.4.

6.1.1.1 Industrial Sources (On- and Off- Facility)

Based on facility records, previous reports, and an analysis of historical aerial photographs completed by EPA in September 2003 and March 2007 (EPA 2003a and 2007), potential primary sources from industrial operations included (see Figure 3):

- **Railcars and Trucks:** Many products were delivered to the facility by trucks and rail cars either in bulk (i.e., tanker cars) or separately packaged containers (e.g., drums). Former railroad spurs, which ran along the southern edge of the UPRR/Amtrak property, entered the former AMCO facility property from the south paralleling both sides of the warehouse at the facility. In addition, a rail yard was located east of the former facility property across Nelson Mandela Parkway.

- **USTs:** Underground storage tanks (USTs) were located in the south-central portion of the facility. In addition, four USTs were located on property formerly owned by Southern Pacific Railroad. Two of these USTs were located in the southeast quadrant of the intersection of 3rd Street and the former Cypress Street alignment. A third tank was located at 1401 3rd Street, just south of the former AMCO facility property. The fourth tank was located in what is now South Prescott Park.

- **ASTs:** A row of above ground storage tanks (ASTs) was located west of the warehouse, another row of ASTs was located west and parallel to the north end of the warehouse, and a single AST was located in the western corner of the facility adjacent to 320 Center and 1432 3rd Street. In addition, in a 1958 aerial photograph, two ASTs were present at an industrial facility at 1401 3rd Street, in what is now the UPRR yard.

- **Underground Piping:** Underground piping was known to have been used to distribute products throughout the facility. This underground piping was encountered during RI drilling activities, and plugged ends of the piping can be still seen at the ground surface.

- **Drums:** Drums likely have been handled throughout the facility and in a large portion of the off-facility locations. Drums have been noted at the following locations:
  - Scattered locations throughout the facility (historical aerial photographs)
  - At the 1448 3rd Street parking lot along the fence adjacent to 1436 3rd Street
  - In the junkyard located on the 1401 3rd Street property
  - In a broad contiguous area that included areas west and north of the former ice house, including much of the current BART Parking Lot, and portions of the southern half and northeast quadrant of the Large Vacant Lot (The scrap metal yard was identified as "possibly" containing drums.)
- **Former Ice House**: This fire-damaged structure in the northeast corner of the facility potentially could have been a source of partial combustion products, including PAHs and dioxins/furans.
- **Scrap Metal Operations**: Handling of scrap metal at most or all of the on-facility and off-facility parcels may have contributed to elevated metals concentration in soil. In addition, some scrap metals may have contained oily compounds that contributed PAHs to surface soils. Specific areas where metal scrapping operations are believed or known to have occurred are:
  - AMCO Facility: DC Metals used the facility property, along with the vacant lots on Center Street, as a scrap-metals yard from 1989 to 1998.
  - Alexander's Ragtime Salvage: This metal scrapping operation occupied the parcel directly north of the AMCO facility (i.e., BART lot) and the northeastern corner of the large vacant lot. Based on aerial photographs, it may have spilled over onto the northern edge of the AMCO facility. Alexander's Ragtime Salvage operated roughly concurrently with AMCO operations.
  - Bobo's Junkyard (1401 3rd Street): This metal scrapping operation occupied the area including South Prescott Park and portions of the UPRR yard now underneath the I-880 freeway. Bobo's Junkyard operated from approximately 1976 to 1988.
  - 1448 3rd Street: Between the early 1960s and 1998, DC Metals began using the warehouse and yard for metal storage. It is believed that the warehouse also housed a small machine shop.
- **Foundry:** The Oscar Lehnus Foundry operated on the parcel just west of Center Street and just north of 3rd Street beginning in approximately 1960. The foundry ceased daily operations in 2001 or 2002; however, infrequent small foundry work continued through February 2007. Operations consisted of sand-casting cast-iron parts and "red bronze," which contained approximately 5 percent lead. Foundry sand was mixed with clay and often had oil applied to it. The clay and oil helped the sand keep the molded shapes into which molten metal was poured. The sand became blackened by the burning and the oil and took on the appearance of rich organic soil. Based on interviews conducted by EPA, the foundry produced approximately 5 gallons of spent foundry sand per month. The sand was hauled off-site for disposal, although some still exists inside the foundry

building. Although spent foundry sand was not found in any of the soil borings drilled during the RI, it is possible that lead contaminated soils may have spread from the foundry to nearby parcels via windblown dust and stormwater runoff.

6.1.1.2 Non-Industrial Sources

In addition, the non-industrial use of various materials on the nearby parcels may be primary sources of contaminants. These potentially include:

- **Paint**: In older neighborhoods, lead in soil is often elevated due to usage of lead-based paint before it was banned in 1978. In neighborhoods many decades old, such as the South Prescott neighborhood where the Site is located, lead levels are often very high due to accumulation over time.
- **Household pesticides and chemicals:** Various pesticides containing arsenic, DDT, and/or dieldrin were commonly available for household use. Use or improper disposal may have contributed to pesticide and possibly dioxin contamination.
- **Motor oil and gasoline:** Improper disposal of spent motor oil or leakage from parked cars may have contributed to PAH contamination in soil. In an historic aerial photograph, numerous cars were parked in the Large Vacant Lot between the one residence that remained on this parcel at that time and the residence at 356 Center Street.

6.1.1.3 Regional Non-Point Sources

The primary sources of contamination found on-site are identified above. However, it is also important to consider regional non-point sources of contamination when evaluating Site data. This includes atmospheric deposition of particulate contaminants and pollutants in air.

Contaminants likely to have been deposited from regional activities include: (1) lead from the historic use of leaded gasoline in automobiles; (2) soot containing PAHs from burning of diesel and other heavy fuels from the nearby freeway, railroad yard, and port; and (3) roadway dust that often includes material from abraded tires, potentially asbestos-containing brake pads, and metals from engine wear.

Elevated levels of various VOCs have been detected in background air, ambient Site air, and crawlspace air. Because of the proximity of many industrial facilities and the freeway, and the high mobility of air as a media, it is likely many of the contaminants in air at the Site are from regional air contamination. This is considered particularly likely since many of the VOCs of concern and naphthalene are detected in background samples collected several blocks from the Site. The exchange between crawlspace and ambient air creates uncertainty as to what extent detections of VOCs in crawlspace air are associated with Site contamination or associated with West Oakland background concentrations.

6.1.2 Secondary Sources

Secondary contaminant sources are the result of past contaminant releases from the primary contaminant sources. The secondary sources that have been identified consist of:

- **NAPL:** Spills and leaks from storage and conveyance units on the facility (tanks, drums, and/or underground piping) appear to have resulted in the accumulation of NAPL in the subsurface. As described in Section 5, the NAPL was found in the central area of the facility and consists predominantly of VOCs, but contains significant concentrations of SVOCs, organochlorine pesticides, and dioxins/furans. This NAPL serves as a continuing source of contamination as chemicals in the NAPL in contact with groundwater dissolve into the groundwater, and as the volatile compounds in the NAPL volatilize into soil gas and air.

- **Groundwater:** Due to the shallowness of the water table in the area, spills and leaks from underground storage and conveyance units may have resulted in the release of contaminants directly into groundwater. Groundwater itself can serve as a source of contamination via volatilization of VOCs to soil gas and air.
- **Soil:** Spills and leaks from aboveground storage units, as well as debris from scrap metal and foundry operations and the burning of the former ice house, appear to have resulted in the contamination of surface soil. Spills and leaks from cars and the use of household chemicals may also have contributed to soil contamination on the residential parcels. Depending on their chemical properties, the contaminants in soil can further contaminate soil gas and air (via volatilization or dust emissions) and groundwater (via fluctuations in the water table and infiltration/percolation of rainwater).

6.2 Contaminant Distribution in Site Media

The current distributions of contaminants, in relation to suspected source areas, are summarized below.

6.2.1 VOCs

Key VOCs found at the Site include chlorinated solvents and petroleum hydrocarbons. Summary figures showing the distributions of VOCs in groundwater, soil and soil gas are provided as Figures 62a through 62e. The contours in Figures 62a and 62b are intended to show the general distribution of VOCs present in the groundwater at concentrations above screening levels. These figures do not show the concentration or location of an individual VOC, but rather represent the greatest exceedance of screening level for all VOCs in groundwater. Similarly, the color dots and associated numbers in Figures 62c through 62e represent the greatest exceedance of screening level of all VOCs in soil and soil gas.

The presence of free-phase product and the concentrations of VOCs detected in soil, groundwater, and soil gas indicate that the primary area of release for these compounds was in the central portion of the facility, west of the warehouse. This corresponds with the known locations of former ASTs, USTs, and buried distribution piping (see Figure 3).

A secondary source or sources of VOC contamination may have been present in the southeastern portion of the large vacant lot on Center Street. Although no VOCs have been detected at concentrations above screening levels in soil at this parcel, soil gas concentrations indicate the presence of chlorinated solvents and petroleum hydrocarbons. Groundwater monitoring wells are not located in the area of the highest soil gas concentrations; however, grab samples from the groundwater survey indicate the presence of TCE and its degradation products in shallow groundwater in this area, and in deeper groundwater down-gradient of this area. Historical aerial photographs indicate the presence of drums stored in this area.

A secondary source of VOC contamination appears to have been present at the UPRR/Amtrak yard south of the facility, far down-gradient of the main VOC contamination originating from the facility. Data indicating that a secondary source of contamination may be present at the UPRR/Amtrak yard include:

- Elevated concentrations of chlorinated solvents, higher than those found up-gradient of this area, were detected in shallow groundwater at well RMW-10-15.
- VOC concentrations detected in the shallow grab groundwater sample from RGW-16, located near RMW-10, indicate that VOC concentrations in this area are up to an order of magnitude greater than in RGW-09 and RGW-14, both of which are up-gradient of RGW-16 but down-gradient of the former AMCO facility.
- Three VOC compounds (1,2-dibromo-3-chloropropane, ethyl tert-butyl ether, and bromodichloromethane) were detected in the RMW-10 wells and/or RGW-16 that were not detected at any other locations; a fourth VOC (cis-1,3-dichloropropene) that was detected in both the RMW-10 wells and RGW-16 was detected only at one additional well, RMW-14-50, which is also located on the UPRR/Amtrak yard.
- This location corresponds to the approximate historical locations of two ASTs identified in a 1958 aerial photograph.
- Elevated concentrations of VOCs were noted in this area in the 1995 APEX Site Investigation Report (APEX 1995).

6.2.2 SVOCs

Key SVOCs found at the Site include 1,4-dioxane, naphthalene, 2-methylnaphthalene, and benzo(a)pyrene. Summary figures showing the distributions of SVOCs in groundwater and soil are provided as Figures 63a through 63c.

The distribution of SVOCs in groundwater is consistent with that of VOCs, with the highest concentrations occurring beneath the known locations of former ASTs, USTs, and buried distribution piping. This suggests that SVOCs, particularly 1,4-dioxane which was used as a stabilizer in chlorinated solvents, were released to groundwater in mixture with VOCs. In soil, elevated SVOCs are widespread, including residential properties. The soil contamination likely reflects surface spills and deposits via various industrial and residential activities. Naphthalene and 2-methylnaphthalene are components of fossil fuels. Benzo(a)pyrene is a partial combustion byproduct associated with fires, used motor oil, and some organic-compound manufacturing processes.

6.2.3 Pesticides and PCBs

Key pesticides and PCBs found at the Site include DDT, dieldrin, and Arochlor-1260. Summary figures showing the distributions of pesticides and PCBs in groundwater and soil are provided as Figures 64a through 64c.

The distribution of pesticides, with the exception of DDT, and PCBs in groundwater is consistent with that of VOCs, with the highest concentrations occurring beneath the known locations of former ASTs, USTs, and buried distribution piping. This suggests that pesticides and PCBs were released to groundwater in mixture with VOCs, which is consistent with the common practice of formulating organo-chlorine pesticides (e.g., DDT and dieldrin) with petroleum fuels and PCBs typically as an additive to oils. In soil, elevated concentrations of dieldrin were found in the central portion of the facility, and at the residential properties at 326 Center Street (along the boundary with the large vacant lot) and 1436 3rd Street (along the boundary with the parking lot at 1448 3rd Street). The highest concentrations of DDT were in the southern portion large vacant lot and the adjacent property, as well as along the boundary between the former AMCO facility and the residential properties at 1428 and 1432 3rd Street. The elevated concentrations of pesticides outside the facility could reflect the handling or storage (drums) of these products in the large vacant lot or along the facility perimeter.

6.2.4 Metals

Key metals found at the Site include arsenic, iron, manganese, lead, and antimony. Summary figures showing the distributions of metals in groundwater and soil are provided as Figures 65a through 65c.

The distributions of metals in groundwater and soil do not correspond with the distributions of other contaminants. Metals may have originated from metal scrapping operations, the nearby foundry, lead-based paint, and regional non-point sources. In groundwater, the elevated levels of iron (dissolved ferrous iron) and manganese are consistent with and indicative of areas with high rates of biodegradation.

6.2.5 Dioxins/Furans

Dioxins/furans are produced by partial combustion of hydrocarbons in the presence of chlorine compounds or as a byproduct in the manufacture of various pesticides. Dioxins/furans were found in the LNAPL sample, consistent with presence of organochlorine pesticides, and in soil at most of the locations near the former burnt ice house and the 1448 3rd Street parking lot. In groundwater, the most elevated concentrations of dioxins/furans were found in the central portion of the former AMCO facility, consistent with the LNAPL locations.

6.3 Fate and Transport Processes

Once released into the environment, contaminants may undergo various processes that affect their fate and transport. These processes include:

- Bulk product flow
- Dissolution
- Advection/Dispersion/Diffusion
- Sorption
- Volatilization
- Abiotic degradation
- Biodegradation

Bulk product flow in this case refers to the movement of NAPL, where there is little or no separation of the individual compounds from the product mixture, and the infiltration rate is usually fast relative to the dissolution rate. Many compounds that are insoluble and immobile in water are soluble in free-phase product and will migrate along with the bulk flow. As bulk product migrates through the soil column, surface tension between the product and air/water causes a small amount (tiny droplets known as "ganglia") of the product mass to be retained in the soil pore space (i.e., the small spaces between soil grains). The bulk product retained by the soil is known as "residual saturation." If the density of the bulk product is less than the density of water (i.e., LNAPL), the product tends to "float" along the interface between the saturated and unsaturated zones and spread horizontally. In contrast, organic liquids with a density greater than water (DNAPL) will migrate downward through the aquifer under the influence of gravity. Downward migration ceases when the free-phase product becomes entrapped in the soil pore space and remains as residual saturation, or in some cases when a relatively impermeable surface, such as an aquitard, is encountered. Bulk product present both as floating product and residual saturation can act as a continuing source of contamination as individual compounds dissolve into groundwater and/or volatilize into soil gas.

Dissolution is the process by which a chemical is transferred from a solid phase (in soil) or a non-aqueous phase liquid (NAPL) to the dissolved phase (in groundwater). Dissolution can occur when contaminants in soil or bulk NAPL come in direct contact with water through the downward percolation of rainwater or direct contact between groundwater and NAPL (both floating NAPL or residual saturation below the water table). .

Advection, dispersion, and diffusion are all processes that describe the movement of dissolved contaminants in flowing groundwater. Through these processes, the dissolved contaminants migrate from the source area to affect a larger area in groundwater.

Sorption is a process by which chemicals from an aqueous solution or vapor phase adhere to the surfaces of vadose zone soil or aquifer materials (Fetter 1994). The adsorptive properties of organic chemicals and the natural organic content of soil greatly affect the transport behavior of most organic chemicals. Chemicals with very strong adsorptive properties are relatively immobile and will not be transported a significant distance from the source. In contrast, chemicals that adhere weakly to soil can be transported large distances from the source. Most dissolved organic compounds have moderate to strong adsorptive potentials, and as a consequence the migration rate of these compounds is retarded relative to the groundwater velocity.

Volatilization is the process by which a chemical is transferred from soil or groundwater into the vapor phase. Volatile chemicals in soil gas migrate primarily by diffusion, and in this way from the subsurface to crawlspace, indoor, or ambient air.

Abiotic degradation and biodegradation are both processes that act to reduce the total mass of a specific organic contaminant. These processes transform the original contaminant to another chemical. In some cases, more harmful substances are produced. In other cases, high toxicity chemicals are reduced to innocuous substances.

Abiotic degradation includes hydrolysis, which is the alteration of a chemical's structure by its contact with water. Biodegradation processes include aerobic biodegradation, which is the predominant biodegradation mechanism for petroleum hydrocarbons, and reductive dechlorination, which is the predominant biodegradation mechanism for chlorinated solvents. At sites with mixed petroleum hydrocarbons, certain chlorinated solvents, and anaerobic (low-oxygen) conditions, such as the AMCO Site, petroleum hydrocarbons are degraded as a "food" substrate (electron donor) and the chlorinated solvents are degraded as a respiration substrate (electron acceptor). These biodegradation mechanisms are further explained in Appendix G.

6.4 Fate and Transport of Site Contaminants

The contamination found at the Site and its vicinity is a result of industrial operations and residential activities that occurred over many years. The contaminants originated from a wide range of sources, as described in Section 6.1. Contaminants consisting of chlorinated hydrocarbons, petroleum hydrocarbons, SVOCs, metals, PCBs, organochlorine pesticides, and dioxins/furans are now found in the soil, groundwater, and soil gas beneath the Site and vicinity.

The specific fate and transport mechanisms influencing the contaminants are dependent on the contaminants' chemical properties. The behaviors of the various types of contaminants in the impacted media are discussed below.

6.4.1 Volatile Organic Compounds

As a class, VOCs tend to have moderate to high sorption potentials (to organic matter in soil), low to moderate solubilities, and moderate to high volatilities. If released to soil, most VOCs will dissolve into groundwater to some degree, and due to adsorption to soil organic matter their migration rates will be retarded relative to groundwater flow rates. Once dissolved, most VOCs, including chlorinated solvents and petroleum hydrocarbons, will often undergo biodegradation. Some VOCs will degrade abiotically. Volatilization from soil and water is an important fate process for VOCs.

VOCs comprise the majority of the NAPL observed in the concrete rubble beneath the facility. VOCs in the NAPL will migrate via bulk flow, as described in detail in Section 6.3. Based on field observations and concentration trends in groundwater, it appears that DNAPL is only present as residual contamination to a maximum depth of approximately 35 feet bgs or dissolved in the floating product (LNAPL). Discrete depth sample and deeper well data do not indicate that DNAPL has migrated below approximately 35 feet bgs.

Dissolved VOCs will migrate in groundwater via advection, dispersion, and diffusion. As described in Section 3.6.2, linear groundwater flow velocity in the shallower portion of the aquifer (0 to 25 feet bgs) is estimated to be in the range of 0.33 to 7.5 feet per year (ft/yr), whereas in the mid/deep intervals (below 25 feet bgs), linear flow velocity is estimated to be 8.6 to 48 ft/yr. Vertical gradients in the aquifer are minimal (see Section 3.6.2); therefore, groundwater transport is primarily lateral. Due to the propensity of most VOCs to adsorb to soil organic matter, VOC migration via advection is retarded relative to groundwater flow rates.

In addition, all the VOCs that have been identified as key contaminants (see Section 5.2) are susceptible to biotic and/or abiotic degradation in the subsurface. There is strong evidence that a significant amount of biodegradation is occurring, particularly in the main portion of the VOC plume, and that it is a key process limiting plume migration. At the leading edge the increasing trends of a few VOCs at some locations indicate that under current conditions biodegradation alone may not be sufficient to fully control the plume. At the leading edge of the plume the current mix of constituents and natural groundwater chemistry is reducing the rate of natural biodegradation. A detailed discussion of the evidence of biodegradation for these key VOCs is presented in Appendix G.

Due to the shallowness of the water table beneath the Site, volatilization of dissolved VOC contaminants into soil gas and air is an important concern. Volatilization into soil gas is also likely to be occurring directly from the LNAPL present beneath the central area of the former facility, and less significantly, from soil and groundwater contamination. At the residential properties, VOC volatilization into soil gas appears to be almost exclusively from groundwater; however, volatilization from contaminated soil along the perimeter of the former AMCO facility may also be contributing to VOCs in soil gas in the adjacent residential properties. Elevated concentrations of VOCs have been detected in the crawlspaces beneath the office building at the facility and the residences at 1428 and 1432 3rd Street and 326 and 360 Center Street. These elevated levels of VOCs in soil gas and crawlspace air have the potential to impact indoor air. The migration of volatilized VOCs may also be contributing to ambient (outdoor) air contamination; however, it is difficult to determine how much air contamination is from site-related sources as opposed to background sources in the South Prescott neighborhood. Potential background sources of the VOCs in air include various industrial activities in West Oakland, as well as exhaust from the nearby freeway, port, and rail yard.

6.4.2 Semi-Volatile Organic Compounds

Typical characteristics of SVOCs include very low to moderate volatility, low water solubility, and high propensity to adsorb onto soil organic matter. As a result, most SVOCs are fairly persistent in soil. If released into groundwater, SVOCs will tend to adsorb onto the aquifer matrix and be fairly immobile. The usually large, complex structure and generally low water solubility – the latter reducing the bio-availability – of these compounds typically result in relatively low biodegradation rates. Abiotic degradation is not a significant fate process for SVOCs in the subsurface.

1,4-Dioxane has an unusually high solubility and low adsorption potential for an SVOC, and is therefore very mobile in the subsurface. In addition, it is very slow to biodegrade and is considered recalcitrant in the environment. These properties correlate with the widespread presence of 1,4-dioxane in Site groundwater.

Naphthalene has a relatively high vapor pressure for an SVOC. Volatilization of naphthalene in soil and groundwater into soil gas and air is a concern at the Site. Naphthalene has been detected above screening levels in the crawlspace beneath the office building at the facility and the residence at 1428 3rd Street, and in ambient air samples at surrounding parcels. However, the presence of comparable levels of naphthalene in regional background air suggests that there are significant other sources of naphthalene in the West Oakland area.

6.4.3 Pesticides and PCBs

Typical characteristics of organochlorine pesticides and PCBs include high adsorption potentials, low solubilities, and low volatilization potential. If released into the subsurface, organochlorine pesticides and PCBs will tightly adsorb onto soil particles and/or the aquifer matrix and will be rendered relatively immobile. The lower chlorinated PCBs have a slightly higher water solubility than the higher chlorinated PCBs and may dissolve slowly in groundwater. Organochlorine pesticides and PCBs are highly resistant to degradation, although DDT may partially dechlorinate to DDE and DDD under anaerobic conditions (though these byproducts have roughly equal toxicities to DDT).

The highly immobile and persistent characteristics of organochlorine pesticides and PCBs are reflected in the Site data, which show that the extents of these compounds are limited to the immediate vicinities of the historic suspected source areas.

6.4.4 Metals

The fate and transport of metals in the environment is complex. Many metals, such as arsenic, iron, and manganese, can exist in multiple oxidation states, with each form exhibiting different properties. In general, however, metals deposited to soil will normally be retained at the soil surface via adsorption and precipitation. The degree of metal retention in soil depends on soil properties such as pH, reduction-oxidation (redox) potential, and organic matter content. Changes in the soil environment over time, such as the degradation of organic matter, and changes in pH or redox potential, may in turn affect the mobility of metals. Metals, unlike organic compounds, do not degrade in the environment.

Although arsenic, iron, manganese, antimony, and lead are all prevalent in Site soil, only arsenic, iron, and manganese are prevalent in groundwater. This suggests that under current conditions, antimony and lead are immobilized in soil. Arsenic concentrations in soil were generally within the range of background concentrations, suggesting that the arsenic concentrations in groundwater are associated with naturally occurring arsenic in soil, not from an obvious anthropogenic source(s). Soluble forms of iron (ferrous iron) and manganese are byproducts released from the biodegradation of organic contaminants that is occurring at the Site (see Appendix G).

6.4.5 Dioxins/Furans

Dioxins have an extremely high propensity to adsorb onto soil organic matter. If released into the subsurface, dioxins will tightly adsorb onto soil particles and/or the aquifer matrix and will be rendered immobile. Volatilization of dioxins can occur, but is mitigated by adsorption. Dioxins are generally recalcitrant to biodegradation.

Furans have a higher mobility than dioxins due to their higher volatility and solubility and lower adsorption potential. Biodegradation is typically very slow, and therefore is not an important fate process for furans.

6.5 Summary of Contaminant Fate and Transport Evaluation

Key points from the contaminant fate and transport evaluation are as follows:

- The “floating” LNAPL contains a significant portion of the contaminant mass at the Site. The LNAPL is a continuing source for VOCs, SVOCs, pesticides, and dioxins/furans in the soil and groundwater.
- Residual NAPL trapped in soil pore space is the other major source of VOC contamination at the Site. This residual/entrapped NAPL is an ongoing source of VOCs to groundwater and possibly soil gas.

- The VOCs identified as key contaminants are undergoing significant biodegradation to lesser-chlorinated compounds in groundwater. Despite the continuing release of these VOCs from ongoing secondary sources (NAPL and soil), biodegradation is causing significant mass reduction in the main portion of the plume, resulting in relatively stable concentrations over time. However, concentrations and overall proportions of a few lesser-chlorinated solvents appear to be increasing at some far down-gradient locations, probably due to the continued dechlorination of source compounds.
- The VOC contamination retained in NAPL, soil and groundwater is acting as a continuing secondary source for volatilization into soil gas and air.
- 1,4-Dioxane has been found in shallow and deeper groundwater both underneath and down-gradient of the facility. Because 1,4-dioxane is highly mobile and recalcitrant (i.e., does not degrade easily), it is expected to continue migrating in groundwater via advection, dispersion, and diffusion.
- Naphthalene has been detected above screening levels in the crawlspace beneath the office building at the facility and the residence at 1428 3rd Street, and in ambient air samples at surrounding parcels. However, the presence of comparable levels of naphthalene in regional background air suggests that there are significant other sources of naphthalene in the West Oakland area.
- Metals are relatively immobile in the environment; exceptions under current Site conditions are arsenic, iron, and manganese, which are prevalent in groundwater. Arsenic concentrations in soil were generally within the range of background concentrations, suggesting that the arsenic concentrations in groundwater are associated with naturally occurring arsenic in soil, not from an obvious anthropogenic source(s). Soluble forms of iron and manganese are byproducts released from the biodegradation of organic matter evidently occurring at the Site.
- The remaining SVOCs, organochlorine pesticides, PCBs, and dioxins have limited mobility in the environment (i.e., are retained in soil), and the observed distribution of these compounds appears to be confined to the immediate vicinities of their historic suspected source areas.

7.0 Human Health Risk Assessment

This section presents the methodology, findings, and conclusions of the Human Health Risk Assessment (HHRA) prepared as part of the RI for the Site. The HHRA includes a quantitative evaluation of the potential adverse health effects to people from exposure to hazardous chemicals in soil at the former AMCO facility and adjacent parcels (on- and off-facility locations) and in groundwater at the Site. In addition, a vapor intrusion evaluation of potential exposure to contaminated crawlspace and ambient air was performed for the on-facility office building and residential homes near (on the same block as) the former AMCO facility and South Prescott Park. Screening level evaluations were performed to assess potential exposure to contaminated soil and homegrown produce at the residential properties. Results from the HHRA will be one of the factors that EPA uses to determine if cleanup actions are warranted at the Site. This section summarizes the full HHRA, which is included as Appendix H.

An ecological risk assessment (ERA) was not performed at the Site. Due to the residential and industrial land use in the vicinity of the former AMCO facility, there are no significant populations of ecological receptors or individuals of special status species on the Site. In addition, there are no reasonable and unambiguous pathways for contaminant transport from the Site to any wildlife or sensitive habitats, including Oakland harbor (EPA 2004d). Under current conditions, birds and small mammals may be exposed to site-related chemicals that have been taken up by homegrown produce. This pathway, while potentially complete, was not quantitatively evaluated in this HHRA and is considered to be insignificant compared to exposure by other receptors (humans) and pathways.

7.1 Previous Health Studies

Several previous studies evaluating potential health issues associated with the Site were reviewed to provide relevant background and Site history. These studies are briefly described below.

7.1.1 Public Health Assessment

The California Department of Health Services (CDHS) prepared a Public Health Assessment (PHA) for the AMCO Chemical Superfund Site under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) (CDHS 2005). A PHA is conducted to evaluate potential adverse health impacts to people coming into contact with chemicals at hazardous waste sites. A health assessor derives an estimated dose of the substances that people in the community might be exposed to; this dose is compared to regulatory standards.

Using available data, CDHS concluded that the Site has four complete exposure pathways, two potentially complete exposure pathways, and four pathways that can be eliminated from consideration**.** Findings from the PHA helped define sampling areas for the RI.

7.1.2 National Air Toxics Assessment

In June 2009, EPA released the results of its national-scale assessment of 2002 air toxics emissions, which consisted of an evaluation of 180 air pollutants (http://www.epa.gov/ttn/atw/nata2002/). A subset of 2002 National Air Toxics Assessment (NATA) results for census tract 06001401900 includes the vicinity of the former AMCO facility (Oakland, CA). Attribution of air pollution sources can be challenging in industrial areas such as West Oakland which have multiple potential release points. Despite this limitation, the NATA study provides an indication of the background level for some chemicals of concern for the Site.

7.1.3 Preliminary Endangerment Assessment

In September 2001, the 7th Street McClymonds Corridor Neighborhood Improvement Initiative prepared a Preliminary Endangerment Assessment (PEA) for the Site (7th Street 2001). The objectives of the PEA included identification of potential pathways for human exposure, calculations of cancer risk and non-cancer health hazard for each of the contaminated media, and recommendations for further remedial action.

Results from this assessment indicate that exposure to contaminated groundwater represents nearly all the cancer risk and over 90 percent of the non-cancer hazard. The primary contributor to risk is vinyl chloride. The potential excess cancer risk for the Site calculated using the California EPA DTSC PEA methodology is 2.7×10^{-1}, or nearly three cancers per ten persons with lifetime exposure to the Site. This is thousands of times higher than the target risk level of 1×10^{-6} (one per million persons with lifetime exposure). Similarly, the non-cancer hazard index (HI) for the Site is calculated to be 940, nearly 1000 times higher than the generally acceptable HI of 1.

7.1.4 Preliminary Assessment and Site Investigation Report

EPA released a Preliminary Assessment and Site Investigation (PA/SI) Report in 2001 (E&E 2001) based on data from groundwater, soil, and air sampling conducted in December 1998, September 1999, and April 2000. These sampling events occurred after the shutdown of groundwater and soil vapor treatment systems following community concern over potential exposure to contaminants from the system's exhaust stack.

Results from the PA/SI indicate the presence of significant concentrations of vinyl chloride and other chemicals in soil and groundwater on and near the former AMCO facility. Sampling at nearby homes documented the presence of very low levels of vinyl chloride in crawlspace air and soil gas in September 1999. However, vinyl chloride was not detected in either soil gas or crawlspace air in sampling conducted in April 2000.

7.1.5 The West Oakland Environmental Indicators Project

The former AMCO facility is located in West Oakland, approximately one block south of the West Oakland BART Station. In 2002, a collaboration of grassroots advocacy groups, community residents, and a research organization released an independent report, "Neighborhood Knowledge for Change: The West Oakland Environmental Indicators Project". The research described focuses on 17 indicators of environmental conditions in West Oakland. Indicators assess issues ranging from air pollution and toxic contamination to gentrification and voting (Pacific Institute for Studies in Development, Environment, and Security 2002).

One of the findings detailed in this report indicates that approximately 82 percent of those who live in West Oakland are within 1/8 mile of an industrial area. Compared with residents of Oakland, those living in West Oakland face far more exposure to toxic chemicals. In addition, children in West Oakland are seven times more likely to be hospitalized for asthma than the average child in the state of California.

7.2 Risk Assessment Methodology

This HHRA was prepared in a manner consistent with EPA's *Risk Assessment Guidance for Superfund, Part A* (EPA 1989), *Part B* (EPA 1991), *Part E* (EPA 2004c), and *Part F* (EPA 2009) and supporting documents and guidelines published by the California Environmental Protection Agency. The assumptions provided by EPA guidance documents and incorporated into this HHRA are conservative and thus, health-protective.

This HHRA is a baseline evaluation which assumes exposure to contaminated media under baseline conditions without consideration of future remediation or natural attenuation of chemicals.

7.2.1 Data Collection and Data Evaluation

Samples of environmental media such as soil, water, air, and homegrown produce were collected to characterize the nature and extent of contamination at a site as well as for use in the risk assessment. The data evaluation step consists of reviewing and evaluating available data. Data evaluation allows for the identification of constituents of potential concern (COPCs). In addition to new data, data from previous investigations were reviewed to gain a better understanding of the Site characteristics. With the exception of residential soil sampling, homegrown produce sampling, and facility office crawlspace sampling, which were not included the original scope of the field investigation, the sampling activities were performed in accordance with the methods and rationale described in the SAP. EPA added sampling of residential soil, homegrown produce, and facility crawlspace air to the RI based on information collected during the course of the RI. The rationale for the additional sampling is described in Section 4.

Soil data were evaluated separately for each of the on- and off-facility locations, as well as the residential locations. A quantitative risk evaluation was performed using soil data from on- and off-facility exposure areas and using all of the groundwater data as one data grouping. A vapor intrusion evaluation was performed using crawlspace and ambient air data. A screening level risk evaluation was performed using residential soil and homegrown produce data.

All chemicals reported in at least one sample at concentrations greater than the sample detection limit were included as COPCs. Chemicals were not excluded based on comparison to background concentrations. The approach used to evaluate COPCs is appropriate for a conservative baseline HHRA. Table 29 presents the COPCs for each media.

7.2.1.1 Quantitative Risk Evaluation

The soil evaluation for the on- and off-facility exposure areas, was based on soil data collected from depths of approximately 1 to 5 feet below the bottom of the concrete. A non-engineered concrete cap exists over the majority of the former AMCO facility and varies from 6 inches to more than 40 inches thick. In accordance with the SAP, shallow soil samples were generally collected from between 1 and 2 feet below the concrete or below ground surface in unpaved areas. The groundwater evaluation was based on six quarters of groundwater monitoring data.

Exposure point concentrations (EPCs) were calculated for soil, groundwater, crawlspace air, and ambient air data. For each data grouping, the EPC was either the 95 percent upper confidence limit on the mean (95 UCL) or the maximum detected concentration for chemicals with the 95 UCL exceeding the maximum concentration.

Ambient air and crawlspace air samples were collected from six residential properties and South Prescott Park. Soil gas samples were also collected from on- and off-facility locations and from permanent soil gas probes installed along 3rd and Center Streets. In addition, crawlspace air samples were collected from the office on the former AMCO facility property. Soil gas and crawlspace air samples were collected to determine whether preferential migration pathways are present and to assess the potential for vapor intrusion.

7.2.1.2 Screening Level Risk Evaluation

Soil samples used in the screening level risk evaluation were collected from six residential properties near or adjacent to the former AMCO facility. Soil samples were collected from between 0.5 and 3 feet bgs. Subsequent to the collection of the residential soil samples, a soil removal action was performed at residential properties on the same block as the former AMCO facility. These properties include 1428, 1432, and 1436 3rd Street, and 320, 326, 356, 360, and 366/368 Center Street. The soil was generally excavated to depths of between one and three feet. Small areas were excavated to a depth of less than 1 foot in locations where valuable trees or plants might have been damaged by deeper excavation. As a result, the samples collected during the RI are no longer representative of the soil conditions at these properties.

To evaluate the potential for chemical exposure through ingestion of homegrown produce, produce samples were collected from four residences that have gardens and fruit trees. A soil removal action has been performed at the properties where produce samples were collected; therefore, samples collected during the RI may no longer be representative of conditions at these properties.

7.2.2 Exposure Assessment

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of exposure. Exposure assessments may consider past, present, and future exposures, using varying assessment techniques for each phase. The objective of the exposure assessment is to estimate the type and magnitude of exposures to COPCs that are present at or migrating from a site.

The three primary steps in exposure assessment are site characterization, exposure pathway identification and quantification of exposure. A conceptual site model is a tool used to assist with the identification of potential exposure media, human receptors and exposure pathways. The CSM, summarized in Figure 61, indicates complete and potentially complete exposure pathways under current and reasonably likely future conditions. An exposure pathway is defined as complete when each of the five elements of a complete pathway is present:

- A source of contaminants (e.g., drums)
- A release mechanism (e.g., spills)
- An exposure medium (e.g., groundwater)
- A receptor (e.g., on-site workers, off-site residents)
- A route of exposure (e.g., incidental ingestion, direct contact)

The CSM is based on a current understanding of Site conditions, uses, and reasonably likely future uses, and may change in the future based on Site development plans. The Site is currently used for commercial/industrial purposes while the adjacent areas include residential, commercial and recreational land uses (South Prescott Park). Since this neighborhood is zoned for mixed land uses, residential and commercial/industrial land uses are hypothetically possible anywhere within the study area in the future.

7.2.2.1 Exposed Populations

Potentially exposed populations include on-site commercial/industrial workers, construction workers, and future residents (adults and children), as well as current off-site residents. Exposure assumptions for both future residents and current and future workers are presented in Table 30 for exposure to soil. Exposure assumptions for exposure to groundwater for future residents and current and future trench workers are presented on Tables 31 and 32, respectively.

The potential exposure pathways identified and evaluated for the former AMCO facility include direct contact (incidental ingestion, dermal contact) with soil and groundwater, inhalation of dusts and vapors, and vapor intrusion of VOCs from the subsurface into the office and residences. For residents, ingestion of chemicals in homegrown produce was also considered. Table 33 summarizes the EPCs for each on- and off-facility soil dataset. Table 34 summarizes the EPCs for the groundwater dataset. Table 35 summarizes the EPCs for the crawlspace air and ambient air datasets.

7.2.2.2 Exposure Pathways

Potentially complete pathways at the Site may be associated with contaminated soil and groundwater. Potential pathways that were evaluated as part of this risk assessment are summarized below.

Quantitative Risk Evaluation

On-facility and Off-facility Soil:

- Current and future construction worker (incidental ingestion, direct contact, dust and vapor inhalation)

- Current and future outdoor worker (incidental ingestion, direct contact, outdoor dust and vapor inhalation)

- Hypothetical future on-site resident (incidental ingestion, direct contact, and outdoor dust and vapor inhalation)

The majority of on-facility and off-facility areas are currently covered with concrete or structures with few small areas of exposed soil (see Figure 8). However, for this assessment it was assumed that no pavement would be present to preclude direct contact with soil.

Groundwater:

- Current and future resident (ingestion, dermal contact)
- Current and future construction/excavation worker (dermal contact while working in a trench, vapor inhalation from groundwater in the trench)

It is extremely unlikely that residents would drink groundwater underneath the Site in the future; however, in accordance with input from the community and regulatory agencies, the potential risk of using groundwater underneath the Site as drinking water is evaluated.

Crawlspace and Ambient Air:

- Current and future resident (indoor vapor inhalation)
- Current and future indoor worker (indoor vapor inhalation)

Screening Level Risk Evaluation

The screening level risk evaluation was performed for the current or future off-site resident or park user. Potential pathways include:

- Soil (incidental ingestion, direct contact, outdoor dust and vapor inhalation, indoor vapor inhalation)
- Homegrown Produce (ingestion of homegrown produce)

Exposure to groundwater from private irrigation well at 1436 3rd Street may also occur. A summary of the results from samples collected at the irrigation well is presented in Table 36.

Quantification of exposure includes evaluation of exposure parameters that describe the exposed population (e.g., contact rate, exposure frequency and duration, and body weight). Each exposure parameter in the equation has a range of values. The reasonable maximum exposure (RME) risk estimate was used in the HHRA. An RME is the “highest exposure that is reasonably expected to occur” and is estimated using a combination of average and upper-bound values of human exposure parameters (EPA 1989).

Chemical intake is calculated by using an appropriate equation that divides exposure variables by an averaging time. For non-carcinogenic compounds, the averaging time equals the exposure duration; whereas for carcinogenic compounds, the averaging time used is a lifetime, assumed to be 70 years (EPA 1989).

7.2.3 Toxicity Assessment

The purpose of the toxicity assessment is to weigh available evidence regarding the potential for particular contaminants to cause adverse health effects in exposed individuals and to provide, where possible, an estimate of the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects. EPA has performed the toxicity assessment step for numerous chemicals and has made available the resulting toxicity information and toxicity values which have undergone extensive peer review. The derivation of toxicity values is a complex process which must evaluate many factors relating to toxicological data including the type of exposure route, duration of exposure, dose administered, physiology of the species tested, and the type of adverse health effect observed. Uncertainty and modifying factors are commonly applied to toxicity values in order to account for uncertainties inherent in the process of relating laboratory toxicity data to relevant human exposure levels.

Cancer and non-cancer effects are evaluated differently within the toxicity assessment process. For many non-carcinogenic effects, protective mechanisms are believed to exist that must be overcome before the adverse effect is manifested. A reference dose, or RfD, is the toxicity value used most often in evaluating non-carcinogenic effects. Because variability exists in the human population, attempts are made to identify a sub-threshold level protective of sensitive individuals in the population. For most chemicals, this level can only be estimated.

Carcinogenesis, unlike many non-carcinogenic health effects, is generally thought to be a phenomenon for which risk evaluation based on presumption of a threshold is inappropriate. For carcinogens, EPA assumes that a small number of molecular events can evoke changes in a single cell that can lead to uncontrolled cellular proliferation and eventually to a clinical state of disease. For carcinogenic effects, EPA uses a two-part evaluation in which the substance first is assigned a weight-of-evidence classification, and then a cancer slope-factor (CSF) is calculated.

EPA has established a hierarchy of toxicity values to be used in the risk assessment process (EPA 2003b). The primary source for the toxicity values used in this baseline HHRA are published in EPA's Integrated Risk Information System (IRIS). Other sources, including those provided in the EPA Regional Screening Levels table, were used for chemicals lacking IRIS toxicity values. Child reference doses from California's Office of Environmental Health Hazard Assessment (OEHHA) were applied to the child hazard calculations (OEHHA 2006). The RfDs and CSFs for chemicals of potential concern are presented in Table 37.

Exposure to lead in soil is evaluated by comparing a lead EPC to the residential (80 mg/kg) or industrial (320 mg/kg) California Human Health Screening Level (CHHSL). As a result, in the following sections, the health effects associated with lead are discussed separately from the cancer risks and non-cancer hazards for all other contaminants.

7.2.4 Risk Characterization

The risk characterization step integrates the exposure assessment and toxicity assessments into quantitative and qualitative expressions of risk. To characterize potential non-carcinogenic effects, comparisons are made between estimated intakes of substances and toxicity values. Potential carcinogenic effects are evaluated by calculating probabilities that an individual will develop cancer over a lifetime of exposure based on projected intakes and chemical-specific dose-response information. Non-carcinogenic health effects are expressed in terms of HI while carcinogenic effects are expressed in terms of an excess lifetime cancer risk (ELCR). Cancer and non-cancer effects are calculated for each chemical and for each exposure pathway. The risks and hazards for individual compounds are added together to determine an overall health effect.

In this assessment, ELCR and non-cancer HI are presented for both residential and industrial/commercial receptors for each on- and off-facility area in soil and site-wide for groundwater (see Figure 2 for locations). Human health risks were compared against EPA's target risk range of 10^{-6} to 10^{-4} for cancer risks and the HI benchmark of 1 for non-cancer hazards (EPA 1991). Locations with site-specific excess lifetime cancer risk less than 10^{-6} or HI less than 1 are characterized as not posing a threat to human health for the evaluated receptors and pathways. Because the neighborhood surrounding the Site is a vulnerable community, EPA has elected to use an excess lifetime cancer risk of 10^{-6} as the point at which action will be required at this Site. Risk and hazard results for exposure to soil at the on- and off-facility locations are presented in Table 38. Risk and hazard results for exposure to groundwater are presented in Table 39. Risk and hazard results for the vapor intrusion evaluation are presented in Table 40.

For the screening level evaluation, residential soil sample results were compared to background levels and EPA's residential soil RSLs. Homegrown produce sample results were compared to levels found in relevant scientific literature.

7.3 Results of Quantitative Risk Evaluation

7.3.1 Soil

The ELCRs and HIs for on- and off-facility soil exposure areas are calculated based on all detected compounds except lead. The health effects from lead are evaluated by comparing the EPC for each exposure area to the industrial CHHSL (in areas zoned for industrial use) or residential CHHSL (in residential areas). As a result, in the following sections, the health effects associated with lead are discussed separately from the cancer risks and non-cancer hazards for all other contaminants.

7.3.1.1 Former AMCO Facility

The chemicals that contribute the most to the cancer risk and non-cancer hazards in this area are vinyl chloride, xylenes, naphthalene, 2-methylnaphthalene, manganese, aluminum, cadmium, aldrin and dieldrin.

For the industrial worker RME scenario, the ELCR is 1×10^{-4} for exposure to shallow soil and 1×10^{-4} for exposure to deep soil. HIs for exposure to both the shallow soil and deep soil are 1.

For the construction worker RME scenario, the ELCR is 1×10^{-5} for exposure to both shallow and deep soil. The HI for exposure to shallow soil is 23 and the HI for exposure to deep soil is 20. For the future on-site residential RME scenario, for both shallow and deep soil the ELCR is 3×10^{-4}. The HI for a child is 10 for exposure to shallow soil and 11 for exposure to deep soil. For the adult, the HIs for exposure to the shallow and deep soil are 1 and 2, respectively. The lead EPC for shallow soil is 640 mg/kg and for deep soil 605 mg/kg; both of these concentrations exceed both the residential and industrial CHHSLs for lead.

7.3.1.2 Parking Lot

The chemicals that contribute the most to the risk in the parking lot are lead, arsenic, benzo(a)pyrene, cadmium, and antimony.

For the industrial worker RME scenario, the ELCR is $5x10^{-5}$ for exposure to shallow soil and $1x10^{-4}$ for exposure to deep soil. The HIs are 1 for exposure to both shallow and deep soil.

For the construction worker RME scenario, the ELCR is $9x10^{-6}$ for exposure to shallow soil and $2x10^{-5}$ for exposure to deep soil. HIs for exposure to the shallow and deep soil are 30 and 25, respectively. For the future on-site residential RME scenario, the ELCR is $2x10^{-4}$ for exposure to shallow soil and $4x10^{-4}$ for exposure to deep soil. The HI for the child is 26 for exposure to shallow soil and 25 for exposure to deep soil. For the adult, HIs for exposure to both the shallow and deep soil are 1.

The lead EPC for shallow soil is 2,170 mg/kg and for deep soil 1,450 mg/kg; both of these concentrations exceed the residential and industrial CHHSLs for lead.

7.3.1.3 Large Vacant Lot

The chemicals that contribute the most to the risks and hazards at the large vacant lot are lead, arsenic, DDT and benzo(a)pyrene.

For the industrial worker RME scenario, the ELCR is $6x10^{-5}$ for exposure to shallow soil and $4x10^{-5}$ for exposure to deep soil. HIs for exposure to both the shallow and deep soil HIs are less than 1.

For the construction worker RME scenario, the ELCR is $1x10^{-5}$ for exposure to shallow soil and $7x10^{-6}$ for exposure to deep soil. The HI for exposure to shallow soil is 12, and the HI for exposure to deep soil HI is 10.

For the future on-site residential RME scenario, the ELCR is $2x10^{-4}$ for exposure to shallow soil and $1x10^{-4}$. The HI for the child is 10 for exposure to shallow soil and 7 for exposure to deep soil. For the adult, the HIs for exposure to both the shallow and deep soil are less than 1.

The lead EPC for shallow soil is 4,360 mg/kg and for deep soil 2,750 mg/kg; both of these concentrations exceed the residential and industrial scenario CHHSLs for lead.

7.3.1.4 Small Vacant Lot

Due to the shallow water table at this exposure area, only shallow soil samples were collected. The chemicals that contribute the most to the risks and hazards at the small vacant lot are arsenic, dieldrin, DDT, aluminum, and cadmium.

For the industrial worker RME scenario, the ELCR is $4x10^{-5}$ for exposure to shallow soil. The HI is less than 1.

For the construction worker RME scenario, the ELCR for exposure to shallow soil is $7x10^{-6}$. The HI for exposure to shallow soil is 1.

For the potential on-site residential RME scenario, the ELCR for exposure to shallow soil is $1x10^{-4}$. The HI for exposure to shallow soil for the child is 12. For the adult the HI is less than 1.

The lead EPC for shallow soil is 386 mg/kg, which exceeds the residential and industrial CHHSLs for lead.

7.3.2 Groundwater

The chemicals that contribute the most to the risk through exposure to groundwater are vinyl chloride, arsenic, benzene, cis-1, 2-dichloroethene, benzo(a)pyrene, and aroclor-1260.

For the potential residential RME scenario, the ELCR is $7x10^{-2}$ for exposure to groundwater. The HI for the child is 628; and the HI for the adult is 262. In addition, at the request of the community's technical advisor, a trench worker's risk from dermal contact with groundwater underneath the Site and inhalation of VOCs from groundwater while working in a trench was evaluated. For the trench worker RME scenario, the ELCR is $1x10^{-4}$ for exposure to groundwater. The HI for the trench worker is 34.

An evaluation of vapor intrusion using groundwater data was not conducted, however, it is acknowledged that in a worst case scenario, the risks and hazards may be as high as when residential use of the groundwater is considered. As stated above, the cancer risks estimated for future residents using the groundwater as drinking water in the home ranges from $1x10^{-4}$ to $7x10^{-2}$, which is significantly above the risk management range and clearly unacceptable. Hazard indices are also significantly above the non-cancer threshold of 1.

7.3.3 Vapor Intrusion Evaluation

The assessment has been revised to include a quantitative evaluation of the risks and hazards posed by the presence of VOCs in crawlspace air and ambient air. Soil vapor and groundwater data have been used as lines of evidence that vapor intrusion is occurring but have not been quantitatively evaluated. An evaluation of vapor intrusion using groundwater data was not conducted; however, it is acknowledged that in a worst case scenario, the risks and hazards may be as high as when residential use of the groundwater is considered. The cancer risks estimated for future residents using the groundwater as drinking water in the home ranges from $1x10^{-4}$ to $7x10^{-2}$, which is significantly above the risk management range and clearly unacceptable. The HI for a child is 628 and for an adult is 262, which are also significantly above the non-cancer threshold of 1.

A summary of the potential cancer risks and non-cancer hazards for each property is provided in Table 40. The risk calculation spreadsheets are provided in Attachment 3 to Appendix H. The following sections provide a summary of the findings for each property.

7.3.4 1414 3rd Street

Crawlspace air was measured at two locations in the office building at 1414 3rd Street. Appendix H, Figure 5 presents the sampling locations and exceedances of screening levels. All estimated risks and hazards were calculated based on detected VOCs. The potential cancer risk for an office worker is 6×10^{-5}. The main contributors to potential cancer risk are carbon tetrachloride (35 percent) and vinyl chloride (18 percent). The carbon tetrachloride EPC (6.05 $\mu g/m^3$) was influenced by one high result (17 $\mu g/m^3$) measured during the September 2007 sampling event. There is uncertainty associated with this result because carbon tetrachloride was detected in the field duplicate at 0.45 $\mu g/m^3$ and all of the other carbon tetrachloride results from the office were below 1 $\mu g/m^3$. The vinyl chloride EPC (1.62 $\mu g/m^3$) is influenced by one sample result (November 2006) where it was detected at

7.6 μg/m^3. The vinyl chloride results from the other locations and other sampling events were below 2 μg/m^3. The non-cancer HI for this office worker is 0.6, which is below the non-cancer threshold of 1.

Ambient air has not been sampled on the 1414 3rd Street property and soil gas has not been sampled since 2004 except for RSP-07. Vinyl chloride has been sporadically detected at RSP-07 but carbon tetrachloride has not been found above screening levels at this location. Carbon tetrachloride has been detected at low levels in the background samples but vinyl chloride has not been found. Both compounds have been detected in groundwater. It is unclear whether these compounds are entering the crawlspace air through vapor intrusion.

In the indoor air samples, only PCE was detected above its screening level (for an industrial worker). The PCE concentration found at air sample location CMI-IA02 is 2.2 μg/m^3 which is just above the industrial RSL of 2.1 μg/m^3. The other indoor air sample location (CMI-IA01) had a PCE concentration of 1.2 μg/m^3. PCE was also detected in the crawlspace air samples (1.2 to 19 μg/m^3) and soil gas samples collected around the warehouse, indicating that vapor intrusion is a possible source.

7.3.5 1428 3rd Street

Crawlspace and ambient air data were collected and evaluated at this residence. The potential cancer risk from exposure to crawlspace air is 3×10^{-4}. The primary contributor to risk from inhalation of crawlspace air is vinyl chloride (61 percent). The EPC (1.58 μg/m^3) for vinyl chloride is influenced by one sampling event (November 2006) where it was detected at 10 μg/m^3 at one location and 1.5 μg/m^3 at a second crawlspace location. All other crawlspace sampling results indicated vinyl chloride was either not detected or detected at much lower concentrations.

The potential cancer risk from ambient air at this residence is 2×10^{-4}. The primary contributors to risk are naphthalene (47 percent) and benzene (25 percent). The EPC for naphthalene (5.72 μg/m^3) in ambient air is influenced by the sample result from December 2008 when it was detected at 16 μg/m^3. There is uncertainty associated with this result because all of the other ambient air results from this location were either not detected or below 1 μg/m^3, and because naphthalene was not detected in the field duplicate (<4.1 μg/m^3) of this sample.

For crawlspace air the non-cancer HI is 7. The primary non-cancer contributors to the HI are 1,2,4-trimethylbenzene (65 percent) and 1,3,5-trimethylbenzene (21 percent). The HI for exposure to ambient air is 4. The main non-cancer contributor for ambient air is naphthalene (46 percent).

The indoor air samples showed exceedances of screening levels for several VOCs (Appendix H, Figure 6); however, the concentrations are similar or less than the concentrations found in crawlspace air, with the exception of one sample with a high concentration of PCE. The PCE concentration found in the other eight air samples collected both downstairs and upstairs in this home is less than 5 μg/m^3. Since PCE has been found in the soil gas and crawlspace air, it's possible that PCE from the Site is contributing to some of the PCE in the indoor air. However, the one high detection of PCE may be coming from an indoor source since it's been detected at much lower levels in the crawlspace.

A comparison of EPCs for crawlspace air and ambient air data indicates that the primary contributor (vinyl chloride) to cancer risk in the crawlspace were found at concentrations greater than 10 times levels detected in ambient air. Vinyl chloride was detected in two of six soil gas samples at very low concentrations (0.024 $\mu g/m^3$ and 0.009 $\mu g/m^3$). These results suggest vapor intrusion is occurring for vinyl chloride.

EPCs of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene were lower in crawlspace air than ambient air. These compounds were each detected in only one sample at levels below the laboratory reporting limit (J qualified). Naphthalene was not detected above the detection limit in any of the soil gas samples. The lines of evidence suggest that the trimethylbenzenes and naphthalene are not entering the crawlspace through vapor intrusion but may be coming from an ambient source.

7.3.6 1432 3rd Street

Crawlspace and ambient air data were collected and evaluated at this residence. The potential cancer risk from exposure to crawlspace air is 6×10^{-4}. The primary contributors to risk from inhalation of crawlspace air are vinyl chloride (54 percent) and benzene (34 percent). The vinyl chloride EPC (2.8 $\mu g/m^3$) is the maximum detected concentration from the sample collected in November 2006. The other crawlspace air samples at this location indicated vinyl chloride concentrations of less than 0.2 $\mu g/m^3$. The benzene EPC (16 $\mu g/m^3$) is the maximum detected concentration (collected in September 2004). The other crawlspace air samples collected from this location indicated benzene concentrations at less than 2 $\mu g/m^3$.

The potential cancer risk from inhalation of ambient air is 4×10^{-5}. The primary contributors to risk are benzene (27 percent) and naphthalene (28 percent). Vinyl chloride was detected in both of the June 2009 ambient air samples collected at 0.11 $\mu g/m^3$ and 0.12 $\mu g/m^3$.

Exposure to crawlspace air results in a HI of 8. The primary contributors to the HI are 1,2,4-trimethylbenzene (55 percent) and 1,3,5-trimethylbenzene (23 percent). The EPCs for both of these chemicals were influenced by elevated concentrations detected in September 2004. The HI from inhalation of ambient air is 0.8, which is less than the non-cancer threshold of 1.

The chemicals that contributed the most to risk from exposure to crawlspace air (vinyl chloride, benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene) were not detected at levels of concern in the indoor air. Benzene barely exceeded its screening level in one indoor air sample (detected at 0.32 $\mu g/m^3$, screening level 0.31 $\mu g/m^3$) and was found at levels consistent with the ambient and background air. As described in Section 5.7 naphthalene was detected in one air sample location at a high level. Although naphthalene has been sporadically detected in the soil gas samples collected in backyards, it was found at much lower levels, indicating a possible indoor source for the high level of naphthalene detected in the living room area.

Vinyl chloride was detected in soil gas at this location during three sampling events. It was detected at 1.1 $\mu g/m^3$ and at 0.014 $\mu g/m^3$ in October 2008. In November 2006, it was detected at 0.014 $\mu g/m^3$ and in June 2009, it was detected at 0.024 $\mu g/m^3$. These vinyl chloride concentrations are below soil gas screening levels. Benzene was detected in four of five sampling events at concentrations ranging from 0.32 to 1 $\mu g/m^3$, also below soil gas screening levels. 1,2,4-trimethylbenzene was detected at least once during four of five sampling events at concentrations ranging from 0.15 to 6.5 μg/m^3. 1,3,5-Trimethylbenzene was detected during the September 2007, October 2008, and June 2009 sampling events at concentrations of 0.13 and 6 μg/m^3. Because the levels of these compounds in soil gas are less than the concentrations found in crawlspace air, it is unlikely these compounds in the crawlspace air are solely from vapor intrusion.

7.3.7 1436 3rd Street

The foundation at 1436 3rd Street is slab on grade so crawlspace samples could not be collected at this residence. In indoor air, several VOCs were detected above their screening levels. The VOCs which exceeded their screening levels by the largest margin include chloroform and naphthalene. Chloroform levels in ambient air ranged from 0.09 to 0.39 μg/m^3. The concentrations of chloroform found in soil gas (1.6 to 7.6 μg/m^3) are much higher than the levels found in indoor air (ND to 3 μg/m^3), which indicates that vapor intrusion may be occurring for chloroform. Naphthalene levels in ambient air have ranged from 0.069 to 0.62 μg/m^3. Naphthalene concentrations in soil gas ranged from ND to 1.3 μg/m^3 and in indoor air from ND to 1.2 μg/m^3. It is unclear whether the naphthalene is coming from the soil gas or an indoor source.

Potential risks were calculated from exposure to ambient air at this residence. The potential cancer risk from inhalation of ambient air is 1×10^{-4}. The primary contributors to risk from inhalation of ambient air are vinyl chloride (58 percent) and benzene (13 percent). Vinyl chloride was only detected once at 0.7 μg/m^3 out of the six ambient air samples and this detected concentration was selected as the EPC. Exposure to ambient air resulted in a HI of 0.8, which is below the non-cancer threshold of 1. Vinyl chloride has never been detected in the background air samples collected from the upwind location. However, the benzene concentrations found in the ambient air samples at this residence (0.24 to 0.8 μg/m^3) are similar to the benzene concentrations in background (0.26 to 1.5 μg/m^3).

A review of soil gas data from this location indicates that vinyl chloride was detected in one of five soil samples (October 2008) at 1.1 μg/m^3. Benzene was detected in four of five soil gas samples at concentrations ranging from 0.61 to 1.2 μg/m^3.

7.3.8 320 Center Street

Crawlspace and ambient air data were collected and evaluated at this residence. Potential cancer risks from exposure to crawlspace air is 5×10^{-5}. The primary contributors to risk from inhalation of crawlspace air are benzene (29 percent) and 1,2-dichloroethane (23 percent).

Potential cancer risk from exposure to ambient air is 6×10^{-5}. The primary contributors to risk from inhalation of ambient air are naphthalene (43 percent) and benzene (26 percent). Naphthalene was only detected once out of five times, at 1.9 μg/m^3 in June 2009. Exposure to crawlspace air results in an HI of 0.6 and exposure to ambient air is 1, which do not exceed the non-cancer threshold of 1.

A comparison of EPCs in crawlspace air and ambient air indicates that benzene concentrations are similar in the two media. 1,2-Dichloroethane was detected at 15 times greater concentration in crawlspace air than in ambient air. Naphthalene has not been detected in crawlspace air. Soil gas samples indicated the presence of benzene at 1.1 μg/m^3 and 1,2-dichloroethane at 0.026 at μg/m^3 which is much lower than the concentrations found in crawlspace air (benzene at 0.3 to 2 μg/m^3 and 1,2-dichloroethane at 0.037 to 1.2 μg/m^3), which suggests that these VOCs are not coming from vapor intrusion but may be from an indoor or outdoor source.

Benzene and 1,2-dichloroethane were also detected above screening levels in the indoor air samples. The levels of benzene detected in indoor air are similar to the levels found in the outdoor air and background. The levels of 1,2-dichloroethane found in indoor air are higher than the levels found in the crawlspace samples. This may indicate that these VOCs are not coming from vapor intrusion but from an outdoor or indoor source.

7.3.9 326 Center Street

Crawlspace and ambient air data were collected and evaluated at this residence. Potential cancer risk from exposure to crawlspace air is 8×10^{-5}. The primary contributors to risk from inhalation of crawlspace air are 1,2-dichloroethane (22 percent), benzene (15 percent), and 1,4-dichlorobenzene (14 percent). The EPC (2.3 μg/m^3) for 1,4-dichlorobenzene is influenced by one sampling event (September 2004) when it was detected at 6 μg/m^3. For 1,2-dichloroethane and benzene, the highest concentrations were detected during the same sampling event (October 2008). Potential cancer risk from exposure to ambient air is 3×10^{-5}. The primary contributor to risk from inhalation of ambient air is benzene (37 percent). Exposure to crawlspace air results in a HI of 0.5, and exposure to ambient air results in a HI of 0.4. For both exposures, the HI is below the non-cancer threshold of 1.

A comparison of EPCs in crawlspace air and ambient air indicates that 1,4-dichlorobenzene and 1,2-dichloroethane were detected at approximately 9 and 15 times higher concentrations in crawlspace air than in ambient air, respectively. Benzene was detected at a similar concentration in crawlspace air and ambient air.

A review of soil gas data indicates that benzene and 1,2-dichloroethane were each detected in two of four samples. Benzene was detected at 0.46 and 0.58 μg/m^3. 1,2-Dichloroethane was detected at 0.023 and 0.054 μg/m^3; both levels are below the laboratory reporting limit. Carbon tetrachloride was detected once (September 2007) at 0.46 μg/m^3. 1,4-Dichloro-benzene was not detected in soil gas. The lines of evidence for these compounds (low soil gas concentrations, ambient air less than crawlspace air) indicate that vapor intrusion is not occurring into the crawlspace, but there may be an indoor source of VOCs at this residence.

Four indoor air samples were collected in the upstairs unit. 1,2-Dichloroethane, benzene, and 1,4-dichlorobenzene were detected in the indoor air at levels that exceed screening levels. The levels of benzene and 1,4-dichlorobenzene are consistent with the levels of these VOCs found in the outdoor air (2004 through 2008). Access to sample the outdoor air and soil gas was not granted for the June 2009 sampling event.

7.3.10 337 Center Street

Crawlspace samples were not collected at this residence. Concentrations of VOCs detected in the indoor air are similar to the concentrations found in the outdoor air and background air samples. Some of the VOCs that exceed screening levels include benzene and naphthalene. There is not a strong indication that these compounds are coming from vapor intrusion as the concentrations found in the soil gas sample collected from the backyard are either less than those found indoors or not detected. Also, the highest naphthalene concentration was found in a sample collected from the upstairs unit, which may indicate an indoor source. Chloroform was detected at a higher concentration in the soil gas sample than in the indoor air samples, which may indicate vapor intrusion is occurring.

7.3.11 356 Center Street

Crawlspace samples were not collected at this residence. The VOCs which are most above their screening levels include benzene, naphthalene, and 1,2,4-trimethylbenzene. Although these VOCs are significantly higher than the soil gas sample result, Appendix H, Figure 9 shows that historically, benzene was detected above screening levels in the soil gas. The levels of naphthalene and 1,2,4-trimethylbenzene in soil gas do not indicate that vapor intrusion is occurring.

7.3.12 360 Center Street

The foundation at 360 Center Street appears to be slab on grade. No crawlspace samples were collected at this residence. Risks were calculated for exposure to ambient air. The potential cancer risk from inhalation of ambient air is 4×10^{-5}. The primary contributors to risk from inhalation of ambient air are benzene (41 percent) and carbon tetrachloride (27 percent). The highest concentration for each of these chemicals was measured in October 2008. Exposure to ambient air results in a HI of 1. The primary contributor to this HI is 1,2,4-trimethyl-benzene (62 percent).

A review of soil gas data indicates that benzene was detected in 14 of 16 soil gas samples at concentrations ranging from 0.36 to 3.6 µg/m^3. Carbon tetrachloride was detected in 8 of 16 samples at 0.22 to 1.1 µg/m^3, and 1,2,4-trimethylbenzene was detected in 9 of 16 samples at 0.21 to 5.7 µg/m^3.

Several VOCs were detected above their screening levels in indoor air. The VOCs that exceeded their screening levels by the largest margin include benzene and naphthalene. The range of benzene concentrations detected in indoor air is 0.32 to 1.2 µg/m^3, which falls within the range of benzene concentrations detected in outdoor air (0.28 to 2 µg/m^3). Only one of the four air samples detected naphthalene. Naphthalene was also detected at similar levels in the soil gas samples collected in the backyard of this residence. Vapor intrusion is a possible source of the naphthalene in indoor air.

7.3.13 366 Center Street

Crawlspace samples were not collected at this residence. The VOCs that exceeded their screening levels by the largest margin are benzene and naphthalene. Naphthalene was detected in only one of the four indoor air samples and was not detected in the soil gas or ambient air samples. Benzene was detected at higher concentrations in the indoor samples than in the soil gas sample or ambient air sample. This indicates that these VOCs may be present in the indoor air due to an indoor source.

7.3.14 South Prescott Park

Risks and hazards were calculated for exposure to ambient air at South Prescott Park. The cancer risk from inhalation of ambient air is 3×10^{-5}. The primary contributors to the potential cancer risk from inhalation of ambient air are benzene (34 percent), carbon tetrachloride (31 percent) and chloroform (11 percent). Exposure to ambient air results in a HI of 0.5, which is less than the non-cancer threshold of 1.

A review of soil gas data indicates that benzene was detected in 19 of 22 soil gas samples collected from 3 locations (PP-NW, PP-SW, and PP-E) at levels ranging from 0.4 to 14 µg/m^3. Carbon tetrachloride was detected in 13 of 22 samples at 0.064 to 3.9 µg/m^3; and chloroform was detected in 15 of 22 samples at 0.66 to 590 µg/m^3.

7.3.15 Background

Ambient air samples measured at three locations (322, 323, and 329 Lewis Street) were used to evaluate background ambient air concentrations. Inhalation of background ambient air results in a cancer risk of 3×10^{-5} and a HI of 0.5. The primary contributors to potential cancer risk from inhalation of background ambient air are benzene (31 percent), carbon tetrachloride (29 percent) and naphthalene (17 percent). The similarity between the risks and hazards for background and the risks and hazards near the Site indicates that air quality is poor in the whole area due to other sources of contamination than the Site.

7.4 Results for Screening Level Risk Evaluation

7.4.1 Residential Soil

Several chemicals exceed screening levels in residential soil samples. Lead exceeds the site-specific screening level for soil at each of the residential properties. PAHs, pesticides (DDT, DDE, dieldrin, and heptachlor epoxide), antimony, and iron also exceed soil screening levels in at least one property.

Subsequent to the collection of the residential soil samples, a soil removal action to address high lead concentrations in the soil was performed at residential properties adjacent to and near the former AMCO facility. As a result, the soil samples collected at the residential properties during the RI are no longer representative of the soil conditions at these properties.

In 2009, soil samples were collected during installation of additional monitoring wells. Tables showing the results of this soil sampling are compared with screening levels and are presented in Attachment 4 of Appendix H.

7.4.2 Homegrown Produce

To evaluate the ingestion of homegrown produce pathway, 15 fruits and vegetables from four gardens were collected and analyzed for selected metals (arsenic, chromium, and lead) and VOCs. Analytical results reflect a combination of soil and dust deposited on the plant surface and uptake from soil into the edible portions of the plants.

Of the 47 VOCs analyzed, only methyl acetate and styrene were detected. Methyl acetate was detected in figs, mint, and red chilies. Styrene was detected only in cactus. Both methyl acetate and styrene have been found in ripening produce in concentrations ranging from 0.04 to 0.24 mg/kg (Heikes et al. 1995). VOCs including methyl acetate are naturally produced by ripening fruits at less than 1 mg/kg (Fountain et al. 1984).

Plants grown in lead-contaminated soils can accumulate lead from the adherence of dust and translocation into the plant tissue. Lead in soil tends to concentrate in plant roots and is not readily taken up into the edible portion of plants (Finster et al. 2004). The contribution of garden vegetables to lead ingestion is also affected by vegetable preparation (e.g., washing, peeling).

Concentrations of lead in produce at residential properties adjacent to the AMCO facility ranged from 0.16 to 8.47 mg/kg. None of the produce samples were rinsed or washed before analysis, so the lead concentrations could reflect dust or soil deposited on the plant surfaces rather than concentrations taken up from the soil. The highest lead concentrations in produce were detected in mint at 8.47 mg/kg. By comparison, a field study published by Finster et al. (2003) reported lead levels in produce up to 81 mg/kg. Lead concentrations from soil samples collected in the same residential gardens ranged from 1,060 to 2,910 mg/kg.

An estimate of lead consumption by a child drinking tea made using mint leaves with this maximum concentration resulted in a calculated intake of 0.847 μg lead/day. This intake is below the USFDA Provisional Total Tolerable Intake Levels (PTTIL) of 6 μg lead/day for children up to 6 years of age.

Other metals analyzed in produce include arsenic and chromium. Arsenic concentrations in produce ranged from 0.06 to 0.08 mg/kg, which is well below the arsenic screening level for soil (non-cancer endpoint of 22 mg/kg). Chromium concentrations in produce ranged from 0.39 to 1.07 mg/kg, which is well below the chromium screening level for soil (210 mg/kg).

Similar to the residential soil screening level evaluation, subsequent to the collection of the produce samples, a soil removal action to address high lead concentrations in the soil was performed at residential properties adjacent to and near the former AMCO facility. As a result, the produce samples collected at the residential properties during the RI are no longer representative of the conditions at these properties.

7.5 Uncertainty Evaluation

An uncertainty evaluation describes uncertainties associated with a risk assessment, including data gaps in toxicological or exposure assessment information and the conservative assumptions or scientific judgments used to bridge these data gaps. Uncertainties, which arise at every step in the risk assessment process, are evaluated to provide an indication of the relative degree of conservatism associated with a risk estimate (EPA 1992b).

Risk estimates are calculated by combining data, assumptions about individual receptor's exposures to impacted media, and toxicity data. Uncertainties within a risk assessment can be grouped into the three main categories described below.

7.5.1 Environmental Sampling and Analysis

The environmental sampling at a site is one source of uncertainty in the evaluation. The number and location of samples at each exposure area are considered adequate for the calculation of EPCs at most of the industrial areas and for groundwater. However, for the small vacant lot and the parking lot, the number of samples varied from 2 to 6 for each of the chemicals analyzed. This sample size is less than what is generally needed to calculate a 95 UCL; therefore, the maximum concentration was used to represent the chemicals at these locations. A larger sample size would allow for the calculation of a more representative EPC and thus decrease uncertainty regarding chemical concentrations used for risk assessment at these locations.

Errors in sampling results can arise from the field sampling, laboratory analyses, and data analyses. Errors in laboratory analysis procedures are possible, although the impacts of these sorts of errors on the risk estimates are likely to be low.

Because of the long history of industrial use at the Site and the associated history of construction and filling, all primary sources may not have been identified. Hot spots and localized areas of contamination in soil or soil vapor may remain unknown in on-facility and off-facility areas. If such conditions exist, there is a potential for underestimation of risk.

7.5.2 Exposure Pathways and Assumptions

Uncertainties can arise from the types of exposures examined, the points of potential human exposure, the concentrations of COPCs at the points of human exposure, and the intake assumptions. For instance, exposure parameters (e.g., exposure frequency, exposure duration, soil ingestion rates, skin surface areas) are selected as RME assumptions, resulting in overestimation of risk for most potential receptors.

The exposure pathways selected are another source of uncertainty. Exposure routes that were not considered in this evaluation could exist for a particular activity. Such exposures, however, are expected to be lower than the risks associated with the pathways considered. Dermal exposure has greater uncertainty resulting from uncertainty in several of the inputs including the amount of skin surface area available for exposure and the degree to which soil adheres to skin. Uncertainty in the inhalation route results from the method used for estimating resuspended dust from soil concentrations.

Characteristics of COPCs can also present a source of uncertainty. For instance, the amount of a given COPC absorbed into the body may be quite different from the amount of chemical that is actually contacted (i.e., bioavailability).

7.5.3 Toxicity Criteria and Factors

The availability and quality of toxicological data is another source of uncertainty in the risk assessment. Uncertainties associated with animal and human studies may have influenced the toxicity criteria. Carcinogenic criteria are classified according to the amount of evidence available that suggests human carcinogenicity. In the establishment of the non-carcinogenic criteria, conservative multipliers, known as uncertainty and modifying factors, are used.

A number of chemicals detected in Site media do not have established toxicity criteria. Toxicity values based on surrogate chemicals with similar structural and behavioral properties were used where appropriate. If a surrogate chemical was not available, these chemicals were not evaluated quantitatively. A list of chemicals used as surrogates is presented in Table 41.

7.5.4 Vapor Intrusion Evaluation

- Soil gas samples collected in the yards of the homes sampled could not be collected at DTSC's recommended depth of at least 5 feet below ground surface because of the shallow groundwater in the area. Soil gas collected at less than 5 feet below ground surface may be influenced by outdoor air being pulled in by the sample collection pump. This outdoor air would cause the sample results to not accurately represent the levels of VOCs in the soil gas. In addition, the soil gas samples were collected in the backyards, in some cases several feet away from the structures. Therefore, there is uncertainty associated with the relationship between the soil gas and crawlspace air or indoor air data.

- Indoor air sampling was conducted only once in June 2009. Although multiple indoor air samples were collected within each home/office, the indoor air sampling data represents a snapshot in time. As shown by the crawlspace air and ambient air data, the VOC concentrations vary widely from sampling event to sampling event. In addition, it was unusually warm (for the Bay Area) on the days that the sampling was conducted, and many homes had open windows. This condition may not accurately represent VOC concentrations when the windows are closed.
- Groundwater samples were not collected on the residential properties but in areas surrounding the residential properties, so assessment of the correlation between the contamination coming from the Site and the VOCs found in the homes has uncertainties associated with it. New monitoring wells are being installed at locations closer to the residents to better understand the relationship between the groundwater, soil gas, and air sampling results.
- There is uncertainty with the toxicity values used to evaluate trichloroethylene. EPA has proposed more stringent TCE toxicity values which are pending review (EPA 2009d). This compound is a contaminant of concern in the groundwater at the Site but is not a major contributor to risk through the vapor intrusion pathway. Therefore, revising the toxicity values for TCE will not significantly affect the conclusions.

7.6 Summary and Conclusions

Consistent with the conceptual site model, the predominant exposure pathways for workers at the AMCO Site are incidental ingestion of soil, inhalation of particulates and vapors, and dermal contact with soil. Current and future residents in the vicinity may be exposed to contaminants through the same pathways described for workers. Groundwater at the Site is not currently used as a potable water source, nor is it likely to be in the future. However, should groundwater be used as a potable water source, residents could be exposed to contaminants through ingestion of groundwater and dermal contact with groundwater while showering. Vapor intrusion of VOCs from groundwater into indoor air is also an issue at this Site.

7.6.1 Quantitative Risk Estimates

Human health risks were compared against EPA's target risk range of 10^{-6} to 10^{-4} for cancer risks and the HI benchmark of 1 for non-cancer hazards (EPA 1991). Locations with site-specific excess lifetime cancer risk less than 10^{-6} or HI less than 1 are characterized as not posing a threat to human health for the evaluated receptors and pathways. Because the neighborhood surrounding the Site is a vulnerable community, EPA has elected to use an excess lifetime cancer risk of 10^{-6} as the point at which action will be required at this Site.

7.6.1.1 Soil

Soil samples were divided into the following four exposure areas: former AMCO facility, parking lot, large vacant lot, and small vacant lot. Risk and hazard estimates for each receptor and exposure area are discussed below.

Industrial Worker: Estimated cancer risks are at the upper end of the risk range for exposure to either shallow or deep soil at each of the four exposure areas. HIs were either equal to or below the threshold of 1 at each of the four exposure areas. Lead EPCs associated with the on- and off-facility locations range from 386 mg/kg to 4,360 mg/kg, which exceed the industrial CHHSL for lead in soil of 320 mg/kg.

Construction Worker: Estimated cancer risks were within the risk range of 10^{-6} to 10^{-4} for exposure to shallow or deep soil at each of the four exposure areas. The HIs exceed the non-cancer threshold of 1 at all four exposure areas.

Future Residents: Estimated cancer risks exceeded or are at the upper end of the risk range for exposure to shallow or deep soil at all four exposure areas. HIs also exceed the non-cancer threshold of 1 at all four of the exposure areas. Lead EPCs at the on- and off-facility locations, which range from 386 mg/kg to 4,360 mg/kg, all exceed the residential CHHSL for lead in soil of 80 mg/kg.

7.6.1.2 Groundwater

The cancer risks and non-cancer HIs are above the risk range when residential use of groundwater is considered. However, it is unlikely that groundwater will be used as a source of drinking water.

7.6.1.3 Vapor Intrusion Evaluation

To assess the potential human health risks and hazards associated with VOCs migrating from the groundwater into the office at the former AMCO facility and into nearby residences, crawlspace and ambient air sampling was performed over nine sampling events from September 2004 through June 2009. At 320 Center Street, only five sampling events occurred because the owner did not give permission until August 2008.

In addition to the crawlspace and ambient air sampling, the June 2009 sampling event included indoor air sampling at some of the nearby residences and the office at the former AMCO facility. None of the VOCs detected have concentrations that are above the acute reference concentrations, indicating that there is no immediate health threat to residents or workers.

Because indoor air data were collected only once, these data represent a snapshot in time; therefore they were not used directly in the risk and hazard calculations, but were compared to the crawlspace and ambient air data, as well as to the screening levels in Attachment 4. Crawlspace air is thought to be less affected by the lifestyle choices of the building's occupants, such as household product use and smoking, than indoor air. The evaluation of the results of crawlspace air data is considered easier to interpret than indoor air sampling results (DTSC 2005).

7.6.1.4 Industrial Exposure Evaluation

Potential cancer risks and non-cancer hazards were calculated using industrial worker exposure assumptions for the 1414 3rd Street office. Crawlspace air is used to represent the air that could potentially be inhaled by the workers in their offices. Potential cancer risk from exposure to VOCs in crawlspace air at the office building is 6×10^{-5}. The main contributors to the cancer risk are carbon tetrachloride (35 percent) and vinyl chloride (18 percent). The non-cancer HI is below 1 for exposure by an indoor worker.

7.6.1.5 Residential Exposure Evaluation

All non-facility locations (residential parcels, South Prescott Park, background) were evaluated using residential exposure assumptions. Crawlspace and ambient air is used to represent the air that could potentially be inhaled by the residents inside and outside the living spaces of their homes. Potential cancer risks are within the risk management range at all residences for crawlspace and ambient air with the exception of two of the residential properties for crawlspace (1428 3rd Street and 1432 3rd Street) and one for ambient air (1428 3rd Street). These are also the only locations having non-cancer HIs greater than 1.

Potential cancer risks from inhalation of crawlspace air ranged from 5×10^{-5} to 3×10^{-4}. The primary chemical contributors to risk from inhalation of crawlspace air are vinyl chloride, benzene, 1,2-dichloroethane, carbon tetrachloride, and 1,4-dichlorobenzene at the four residences where crawlspace air and ambient air were collected. Crawlspace air HIs range from 0.5 to 8. The primary contributors to the HI in crawlspace air at the two locations that have HIs that exceed 1 are 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.

Potential cancer risks from inhalation of ambient air ranged from 2×10^{-5} to 2×10^{-4}. The primary contributors to risk from inhalation of ambient air are naphthalene, benzene, carbon tetrachloride, and vinyl chloride. Vinyl chloride is only a primary contributor at one property: 1436 3rd Street. The HI from exposure to ambient air exceeds 1 at 1428 3rd Street (HI=4). Naphthalene (47 percent), 1,2,4-trimethylbenzene (18 percent), and 1,3,5-trimethyl-benzene (18 percent) are the primary contributors to the ambient air HI.

The background cancer risk estimated using the Lewis Street ambient air data is 3×10^{-5}. The primary contributors to the background cancer risk estimate include benzene (31 percent), carbon tetrachloride (29 percent) and naphthalene (17 percent). The background non-cancer HI (0.5) is less than the non-cancer threshold of 1.

As a precautionary measure, mitigation systems were installed in several residences near the Site based on the results of the vapor intrusion assessment.

7.6.2 Screening Level Evaluation

7.6.2.1 Residential Soil

At each of the residential properties, lead exceeds the site-specific screening level for soil based on residential exposure. PAHs, pesticides (DDT, DDE, dieldrin, and heptachlor epoxide), antimony, and iron also exceed soil screening levels in at least one property.

Subsequent to the collection of the residential soil samples, a soil removal action was performed at residential properties adjacent to and near the former AMCO facility. As a result, the samples residential soil samples collected during the RI are no longer representative of the soil conditions at these properties.

7.6.2.2 Homegrown Produce

The detection of TCE, PCE, and vinyl chloride in shallow groundwater and the potential migration of contaminated shallow groundwater into residential areas containing fruit trees prompted concerns that TCE, PCE, vinyl chloride, and other VOCs could be taken up and transferred into edible fruit or vegetables. None of these chemicals were detected in the fruits and vegetables sampled from adjacent gardens.

Concentrations of metals and VOCs in sampled fruits and vegetables are below levels of concern for ingestion. Of the 47 VOCs analyzed for, only methyl acetate and styrene were detected. Arsenic concentrations in produce range from 0.06 to 0.08 mg/kg, which is well below the arsenic screening level for soil (non-cancer endpoint of 22 mg/kg). Chromium concentrations in produce range from 0.39 to 1.07 mg/kg, which is well below the chromium screening level for soil (210 mg/kg). Lead concentrations in produce range from 0.16 to 8.47 mg/kg. These lead concentrations are well below the screening level for soil (194 mg/kg including the ingestion produce).

Because produce samples were analyzed for VOCs as well as metals, none of the produce samples were rinsed or washed before analysis. As a result, the metals concentrations could reflect dust or soil deposited on the plant surfaces in addition to metals that were taken up through the root system.

8.0 Conclusions

During the RI, 98 contaminants of concern were identified at the Site, with 96 COCs identified in groundwater and 39 COCs identified in soil. The following is a summary of the conclusions from RI:

- Contaminants of concern at the Site include VOCs (primarily chlorinated and petroleum hydrocarbons), SVOCs, organochlorine pesticides, PCBs, metals, and dioxins/furans. Of these, VOCs are considered the most mobile class of contaminants because of their high volatility (tendency to migrate into soil gas and air) and solubility (tendency to dissolve into and migrate with groundwater).
- Several feet of LNAPL were observed floating on groundwater beneath the central area of the former AMCO facility. The LNAPL consists primarily of VOCs, including tetrachloroethene (PCE) and trichloroethene (TCE), but also contains SVOCs, pesticides, and dioxins/furans. The LNAPL is serving as the primary continuing source of contamination to groundwater, soil, and soil gas.
- The highest concentrations of contaminants in groundwater and soil gas (primarily VOCs) were generally observed in the central and south-central areas of the former AMCO facility, corresponding with the known locations of former chemical storage units and buried distribution piping. However, other distinct areas of elevated contamination concentrations in groundwater and soil gas were observed beneath the large vacant lot on Center Street and beneath the UPRR/Amtrak yard south of the facility, suggesting that separate releases of contaminants have occurred in these areas.
- Groundwater contaminant concentrations beneath the central and south-central portions of the former facility decrease rapidly with depth. The concentrations in the deepest monitoring wells at the Site are low or below detection levels, indicating that dense non-aqueous-phase liquid (DNAPL) has not migrated below approximately 35 feet bgs at the Site.
- The VOCs identified as key contaminants (chlorinated solvents and petroleum hydrocarbons) are undergoing significant biodegradation in groundwater. However, data suggests that the down gradient edge of the VOC plume is expanding despite the naturally occurring biodegradation.
- 1,4-Dioxane, a highly mobile and recalcitrant contaminant, has widely migrated in groundwater from the Site, and it is expected to continue migrating. Other contaminants mobilized in groundwater are soluble arsenic, iron, and manganese. Other metals, organochlorine pesticides, PCBs, and dioxins/furans generally have limited mobility in the environment, and the extents of these compounds are limited to the immediate vicinities of their historic suspected source areas.
- Through the reporting period included in RI report, the lateral extent of groundwater contamination in the mid and deeper zones has not been fully delineated to the current

screening levels. To further characterize the lateral and vertical extent of contamination in groundwater, additional wells were constructed in December 2009 (see Appendix A).

- Because the neighborhood surrounding the Site is a vulnerable community, EPA has elected to use an excess lifetime cancer risk of 10^{-6} as the point at which action will be required at this Site.
- Several contaminants in groundwater currently exceed risk criteria for the ingestion pathway; however, groundwater is not currently used nor is it likely to be used in the future as a source of drinking water.
- The distributions of contaminants in soil are less centralized and more widespread than in groundwater, suggesting multiple industrial, non-industrial, and non-point sources. Many contaminants in soil, particularly lead, exceed risk criteria for industrial and residential receptors.
- Elevated lead concentrations were detected at several residential properties adjacent to or near the former AMCO facility. The concentrations of lead detected in the soil posed an immediate risk to residents, particularly children. A soil removal action to address the lead contamination was performed at all residential parcels occupying the same block as the former AMCO facility.
- Several VOCs were detected above screening levels in crawlspace air, indicating that vapor intrusion is occurring. No VOC detections exceeded acute reference concentrations, indicating that there is no immediate health threat to residents. The source of the VOCs in the homes is difficult to determine. As a precautionary measure, mitigation systems were installed in several residences near the Site based on the results of the vapor intrusion assessment.
- The assessment has been revised to include a quantitative evaluation of the risks and hazards posed by the presence of VOCs in crawlspace air and ambient air. Soil vapor and groundwater data have been used as lines of evidence that vapor intrusion is occurring but have not been quantitatively evaluated. An evaluation of vapor intrusion using groundwater data was not conducted; however, it is acknowledged that in a worst case scenario, the risks and hazards may be as high as when residential use of the groundwater is considered. The cancer risks estimated for future residents using the groundwater as drinking water in the home ranges from $1x10^{-4}$ to $7x10^{-2}$, which is significantly above the risk management range and clearly unacceptable. The HI for a child is 628 and for an adult is 262, which are also significantly above the non-cancer threshold of 1.
- At the former AMCO facility and off-facility locations, the concentrations of several contaminants in soil, soil gas, and groundwater would pose an unacceptable risk to Site workers. However, the current concrete pavement at the former AMCO facility and off-facility locations provides a protective layer that isolates current workers from the contaminated soil, soil gas, and groundwater underneath.
- Several VOCs were detected above screening levels, but within the acceptable risk range in crawlspace air samples collected from the facility office. No VOC detections exceeded

acute reference concentrations, indicating that there is no immediate health threat to workers.

- Concentrations of metals and VOCs in sampled homegrown produce are below levels of concern for ingestion.

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Tables

TABLE 1
List of Compounds Known to Have Been Bought/Sold at the AMCO Facility
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

VOCs	SVOCs	Organochlorine Pesticides	Organophosphate Pesticides	Petroleum Based Organic Mixtures	Other Organic Compounds	Natural Extract Products	Organic Mixtures	Inorganics	Organic Acids	Unknown/Other
Benzene	Creosote	DDT	Diazinon	Brake fluid	Butyratic dope	Linseed oil	Detergent (non-ionic)	Amonium carbonate	Acetic acid	Carbon remover
Cyclohexane[a]	Naphthenes[a]	Dieldrin	Malathion	Fog oil[d]	Butyl cellulose	Pine oil	Dry cleaning solvent	Amonium hydroxide	Citric acid	Cutting fluid
Dichloromethane		Lindane (γ-BHT)		Gasoline (unleaded)	Cyclohexylamine[f]	Safflower oil	Epoxy thinner	Cupric sulfate	Oxalic acid	Deicing/Defrosting fluid
Ethylbenzene[a]				Kerosene	Diethylaminoethanol[f]	Sesame oil	Graphite	Ferric chloride	Polyvinyl acid (granular)	Deicing/Defrosting & Anti-Icing compound
Methylene chloride				Penetrating oil	Ethylene glycol	Tallow	Stoddard solvent[g]	Lime	Steric acid	Dust mop treating compound
o-Dichlorobenzene[b]				Petroatum[e]	Glycols (other)	Turpentine		Magnesium chloride		Rat poison[j]
Toluene					Isopropyl alcohol			Magnesium oxide		
Trichloroethene					Methanol			Orthophosphate acid		
Methyl ethyl ketone[c]				Turbine oil	Morpholine[f]			Persulfate[h]		
Xylenes					Paraffin (wax)			Sodium chromate		
					Polyurathane			Sodium hypochlorite		
					Propylene glycol			Sodium silicate		
					Tricresyl phosphate			Sodium thiosulfate		
					Triethanolamine[f]					

Notes:
[a] As a common component of Stoddard Solvent
[b] Also known as 1,2-dichlorobenzene
[c] As a common component of expoxy thinner
[d] Typically a mixture of alaphatic petroleum oils.
[e] Also known as Petroleum Jelly
[f] No approved test method.
[g] Typically a mixture including long-chain paraffins, naphthenes, cyclohexane, and ethylbenzene
[h] Exists as ionic compound. Associated cation not identified in records.
[j] Composition unknown, although arsenic based rat poisons were common through the 1960s.

DDT = Dichloro diphenyl trichloroethane
SVOCs = Semi-volatile organic compounds
VOCs = Volatile organic compounds

Sources:
List of compounds generated using the partial records available, including (SAIC 2004):
- AMCO 1965-66 batchbook
- AMCO 1971-1992 batchbook
- Hazardous Material Information System database maintained by the United States Army's Material Command Logistics Support Agency, Storage & Containerization Center, Packaging & Transportation Division

TABLE 2
Summary of Investigations Prior to EPA Involvement
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Date	Contractor	Activity	Types of Samples Collected	Analyses Performed	Maximum Detected Concentrations of Key Compounds
Mar-86	Engineering-Science	Site investigation for AMCO	Surface soil samples from 6 locations within AMCO property	VOCs, Oil and Grease, metals	VC: ND 1,1,1-TCA: 25,500 ug/kg 1,1-DCA: 2,100 ug/kg
May-95	Smith-Reidel	Investigation for PG&E utility work	Soil samples from 8 locations (4 borings located on Third Street south of site)	Gasoline, other total extractable petroleum hydrocarbons, BTEX, and organochlorine pesticides	Gasoline and BTEX (concentrations unknown)
Jun-95	Smith-Reidel	Investigation for PG&E utility work	Soil samples from 3 hand-auger borings on Third Street south of site	VOCs	VC: 120 ug/kg BTEX, 1,1,1-TCA, 1,1-DCA, and c-1,2-DCE also detected. NAPL discovered in trench.
Jun-95	CET Environmental Services	Investigation for PG&E utility work	Soil samples from 6 locations on Center Street between Third and Fifth Streets	VOCs	VC: ND
Dec-95	APEX Environmental Recovery	Investigation for Caltrans Cypress Construction project	Soil samples from 5 locations on Third Street and 1 location on Mandela Parkway - 4 borings to depths of 10 feet and 2 borings to depth of 55 feet	VOCs	VC: 540 ug/kg c-1,2-DCE: 18,000 ug/kg PCE: 1,900 ug/kg
			Groundwater samples from 5 locations on Third Street and 1 location on Mandela Parkway - 4 borings to depths of 10 feet and 2 borings to depth of 55 feet	VOCs	VC: 44,000 ug/L c-1,2-DCE: 81,000 ug/L t-1,2-DCE: 290 ug/L PCE: 3 ug/L 1,1,1-TCA: 1,500 ug/L
Jul-96	BSK & Associates	Investigation for DC Metals	Soil samples from 4 locations to maximum depths of 10 feet.	VOCs	VC: 1,000 ug/kg c-1,2-DCE: 22,000 ug/kg
			Groundwater samples from 4 locations at depths of 5 to 8 feet bgs	VOCs	VC: 0.98 ug/L c-1,2-DCE: 5,900 ug/L t-1,2-DCE: 79 ug/L
Aug-96	CET Environmental Services	Investigation for PG&E utility work	Soil samples from 5 borings, completed from eight to 16 feet bgs	VOCs	VC: 170 ug/kg c-1,2-DCE: 12,000 ug/kg t-1,2-DCE: 220 ug/kg PCE: 600 ug/kg TCE: 260 ug/kg
			Groundwater samples from 2 borings and 1 utility vault on sidewalk	VOCs	VC: 290 ug/L c-1,2-DCE: 120 ug/L t-1,2-DCE: 2.6 ug/L

NOTES:
NAPL = non-aqueous phase liquid
VOCs = Volatile organic compounds
SVOCs = Semivolatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
c-1,2-DCE = cis-1,2-dichloroethene
t-1,2-DCE = trans-1,2-dichloroethene
1,1,1-TCA = 1,1,1-trichloroethane
1,1-DCA = 1,1-dichloroethane
VC = vinyl chloride
ND = Not detected
ug/kg = micrograms per kilogram
ug/L = micrograms per liter

TABLE 3
Summary of EPA Investigations Conducted To Date
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Date	Contractor	Activity	Types of Samples Collected	Analyses Performed	Maximum Detected Concentrations of Key Compounds
Oct/Nov-96	E&E	Removal Assessment	Soil gas samples onsite and near residential properties	Vinyl Chloride only	VC: 5,300 ppbv
Feb-97	E&E	Removal Action	Five shallow monitoring wells (MW-11 through MW-14) installed and sampled.	VOCs, SVOCs, metals	PCE: 20,000 ug/L TCE: 310,000 ug/L c-1,2-DCE: 20,000 ug/L VC: 5,400 ug/L Benzene: 1,200 ug/L Naphthalene: 710 ug/L Arsenic: 43.6 ug/L Chromium: 2,380 ug/L Lead: 1,220 ug/L
Jun-97	E&E	Removal Action	Groundwater samples collected from MW-11 through MW-14	VOCs, SVOCs	PCE: 6,000 ug/L TCE: 250,000 ug/L c-1,2-DCE: 28,000 ug/L VC: 4,900 ug/L Benzene: 1,200 ug/L Naphthalene: 370 ug/L
Sep-97	E&E	Removal Action	Groundwater samples collected from MW-11 through MW-14	VOCs, SVOCs	PCE: 3,300 ug/L TCE: 200,000 ug/L c-1,2-DCE: 54,000 ug/L VC: 6,100 ug/L Benzene: 330 ug/L Naphthalene: 340 ug/L
Oct-1997	E&E	Removal Action	Soil gas samples from 12 onsite locations	VOCs	TCE: 120,000 ppbv VC: 2,200,000 ppbv Benzene: 15,000 ppbv
Dec-98	E&E	PA/SI	Soil gas samples from 13 locations. Three (3) permanent soil gas probes installed onsite.	VOCs	TCE: 1,100 ppbv VC: 1,100,000 ppbv Benzene: 3,100 ppbv
			Groundwater samples collected from MW-11 through MW-14	VOCs, SVOCs, metals	PCE: 8,200 ug/L TCE: 190,000 ug/L c-1,2-DCE: 110,000 ug/L VC: 19,000 ug/L Benzene: ND Naphthalene: 57,000 ug/L Arsenic: 130 ug/L Chromium: 1,100 ug/L Lead: 92 ug/L
Sep-99	E&E	PA/SI	Soil gas samples from 3 permanent probes onsite	VOCs	TCE: 5.7 ppbv VC: 71 ppbv Benzene: 160 ppbv
			Soil gas, crawlspace air, and ambient air samples at adjacent residences	Vinyl Chloride only	VC: 0.045 ppbv in crawlspace air sample
			Soil samples collected from 16 onsite borings at depths of 2,5, and/or 10 feet.	VOCs	PCE: 100,000 ug/kg TCE: 1,700,000 ug/kg c-1,2-DCE: 660,000 ug/kg VC: 5,100 ug/kg Benzene: 6,200 ug/kg
			One soil sample collected at Prescott Park at depth of 2 feet.	VOCs	Xylenes: 6.9 ug/kg

TABLE 3
Summary of EPA Investigations Conducted To Date
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Date	Contractor	Activity	Types of Samples Collected	Analyses Performed	Maximum Detected Concentrations of Key Compounds
Apr-00	E&E	PA/SI	Soil gas sample from 1 permanent probe (others inaccessible)	VOCs	TCE: ND VC: 820 ppbv Benzene: 57 ppbv
			Soil gas, crawlspace air, and ambient air samples at adjacent residences	Vinyl Chloride only	VC: ND
			Soil samples collected from six borings, at 5-foot intervals to depths ranging from 30 to 45 feet bgs. Seven (7) surface soil samples collected at depths of six inches to 2 feet bgs from backyards at 1428 and 1432 Third Streets	VOCs, metals*	PCE: 3,700 ug/kg TCE: 170,000 ug/kg c-1,2-DCE: 170,000 ug/kg VC: 81 ug/kg Lead: 40,800 ug/kg
			Groundwater samples collected from MW-12 through MW-14. Groundwater grab samples collected from 6 temporary borings on or near site, at various depths from 5 to 40 feet bgs	VOCs, metals*	PCE: 860 ug/L TCE: 150,000 ug/L c-1,2-DCE: 130,000 ug/L VC: 22,000 ug/L Benzene: ND Arsenic: 303 ug/L Chromium: 6,950 ug/L Lead: 498 ug/L
Aug-02	CH2M HILL	Routine Site Monitoring	Soil gas sample from one permanent probe (others inaccessible)	VOCs	TCE: 4.9 ppbv VC: 92 ppbv Benzene: 90 ppbv
			Soil gas, crawlspace air, and ambient air samples at adjacent residences	Vinyl Chloride only	VC: ND
			Groundwater samples collected from MW-12 through MW-14 and wells on the neighboring property at 1301 Third Street	VOCs	PCE: 690 ug/L TCE: 150,000 ug/L c-1,2-DCE: 230,000 ug/L VC: 14,000 ug/L Benzene: 820 ug/L

NOTES:
The dual phase groundwater and soil gas treatment system operated from January 1997 to July 1998.
Monitoring wells MW-10 and MW-11 were destroyed during construction of the Cypress Freeway and Prescott Park.
Light non-aqueous phase liquid is present in MW-13 and MW-14. Maximum detected concentrations in groundwater may reflect a mixture of groundwater and NAPL concentrations.
* Metals data collected in April 2000 was from one boring only
PA/SI = Preliminary Assessment/Site Investigation
VOCs = Volatile organic compounds
SVOCs = Semivolatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
c-1,2-DCE = cis-1,2-dichloroethene
VC = vinyl chloride
ND = Not detected
ppbv = parts per billion by volume
ug/kg = micrograms per kilogram
ug/L = micrograms per liter

TABLE 4

Industrial and Irrigation Wells Within One Mile of Former Facility

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Figure 2-12 No.	Township/Range	Section	Address (Oakland)	Northing	Easting	Drill Date	Elevation (ft msl)	Total Depth (ft)	Water Depth (ft)	Diameter (inches)	Use
1	1S / 4W	27L 1	1614 Campbell Street	122292936	37813706	---	---	200	4	---	Industrial
2	1S / 4W	27Q 1	Union & 14th Street	122287600	37810700	---	17	55	8	---	Irrigation
3	1S / 4W	34F 2	1384 5th Street	122290625	37802676	Nov-46	10	350	43	12	Industrial
4	1S / 4W	34F 4	1384 5th Street	122290625	37802676	Aug-69	10	400	---	12	Industrial
5	1S / 4W	34J 2	715 4th Street	122281742	37799206	Feb-78	11	108	10	10	Industrial
6	1S / 4W	35M 2	424 MLK Jr. Way	122277180	37799079	---	---	---	---	---	---
--- [a]	1S / 4W	34F 3	Middle Harbor Rd.	122311450	37807600	---	---	---	82	---	Industrial
--- [a]	1S / 4W	34P 1	Adeline Street	122274650	37839450	---	---	504	79	---	Industrial
--- [a]	1S / 4W	34P 2	Adeline Street	122274650	37839450	---	---	273	98	---	Industrial

NOTES:
ft = feet
msl = mean sea level

See Figure 11 for approximate locations.

[a] Not enough information available to determine specific location of well

TABLE 5
Total Dissolved Solids Concentration in Selected Wells
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Well ID	Sample Date	Event	Sample Type	Result (mg/L)	Exceeds RWQCB Criteria (3,000 mg/L)	Exceeds US EPA Criteria (10,000 mg/L)
North of 3rd Street						
BMW-06	10-Jan-06	4Q2006	NS	2,800		
MW-12	23-Jan-06	4Q2006	NS	1,400		
RMW-01-17	22-Mar-05	1Q2005	NS	730		
RMW-02-13	23-Jan-06	4Q2006	NS	2,800		
RMW-02-50	23-Jan-06	4Q2006	NS	1,000		
RMW-03-15	15-Mar-05	1Q2005	NS	3,600	X	
RMW-04-15	12-Jan-06	4Q2006	NS	1,100		
RMW-06-15	15-Mar-05	1Q2005	NS	1,600		
RMW-07-15	11-Jan-06	4Q2006	NS	810		
RMW-07-35	11-Jan-06	4Q2006	NS	980		
RMW-08-35	19-Jan-06	4Q2006	NS	1,200		
RMW-08-35	19-Jan-06	4Q2006	FD	1,300		
RMW-11-35	10-Jan-06	4Q2006	NS	1,400		
RMW-12-51	20-Jan-06	4Q2006	NS	810		
RMW-12-51	20-Jan-06	4Q2006	FD	810		
South of 3rd Street						
BMW-01	12-Jan-06	4Q2006	NS	3,100	X	
BMW-08	13-Jan-06	4Q2006	NS	53,000	X	X
RMW-10-15	16-Mar-05	1Q2005	NS	3,400	X	
RMW-10-15	16-Mar-05	1Q2005	FD	3,500	X	
RMW-10-35	18-Jan-06	4Q2006	NS	24,000	X	X
RMW-13-35	12-Jan-06	4Q2006	NS	16,000	X	X
RMW-14-50	13-Jan-06	4Q2006	NS	17,000	X	X

Notes:

FD = field duplicate
mg/L = milligrams per liter
NS = normal sample
RWQCB = California Regional Water Quality Control Board, San Francisco

TABLE 6
Soil Physical Parameter Testing Results
Remedial Investigation Report
AMCO Chemical Superfund Site; Oakland, California

							METHODOLOGY										
		ASTM 2487-92	ASTM D422-63				ASTM D2216	API RP40		API RP40			EPA E415.1	API RP40		ASTM D5084	
										Porosity, %Vb				25.0 psi Confining Stress			
													Total Organic Carbon	Effective Permeability to Air		Effective Permeability to Water	Effective Hydraulic Conductivity
Sample Location ID	Depth (ft)	USCS Soil Class[1]	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Moisture Content (%)	Bulk Density (g/cm^2)	Specific Gravity	Total	Air Filled	Water Filled	(%)	(milli-darcy)	(cm/s)	(milli-darcy)	(cm/s)
RMW-03	3	SM	0	62	23	15	--	1.67	2.62	36.5	8.3	28.1	1.5	--	--	--	--
RMW-07	3	SM	0	70	19	11	--	1.78	2.67	33.1	7.8	25.3	0.73	--	--	--	--
RMW-08	3	SM	0	62	29	9	--	1.53	2.61	41.6	4.9	36.6	3.6	--	--	--	--
RMW-08	10	SM	0	73	17	10	19.1	1.60	--	40.0	--	--	0.1	2.91	5.37E-07	1.71	1.64E-06
RMW-08	25	SM	0	75	14	10	18.1	1.73	--	35.5	--	--	ND (0.14)	13.6	2.52E-06	4.93	4.74E-06
RMW-08	45	SP- SM	0	90	6	3	14.8	1.68	--	37.6	--	--	ND (0.14)	337	6.21E-05	288	2.76E-04
RMW-09	10	SM	0	65	22	13	17.5	1.66	--	37.9	--	--	0.19	31.3	2.68E-05	2.43	2.33E-06
RMW-09	25	SP-SM	0	86	9	5	20.0	1.68	--	37.2	--	--	0.14 [3]	16.5	3.04E-06	1.74	1.67E-06
RMW-10	45	SP- SM	0	92	5	3	17.9	1.59	--	41.3	--	--	ND (0.15)	365	6.74E-05	293	2.81E-04

Notes:

SM = silty sand
SP = sand, poorly graded
SP-SM = sand, poorly graded - silty sand (transitional)

% = percent
%Vb = percent based on bulk volume

% wt = percent by weight
API = American Petroleum Institute
ASTM = American Society of Testing and Materials
cm/s = centimeters per second
ft = feet
g/cm^3 = grams per cubic centimeter
J = estimated
psi = pounds per square inch (pressure)

TABLE 7
Slug Test Results
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Well ID	Screen Interval (ft bgs)	Test ID	Initial Displacement (S_o) (ft)	Well Radius $r_{(w/c)}$ (ft)	Screen Interval (L) (ft)	Water Column (H) (ft)	Hydraulic Conductivitiy (K) (cm/s)	Hydraulic Conductivitiy (K) (ft/d)	Y-intercept[1] (y_o) (ft)	Specific Storage[2] (S_s) (ft^{-1})	Analytical Solution Method [3]
RMW-03-15	5-15	in_1	1.649	0.083333	10	12.25	8.7E-07	2.5E-03	1.127		Bouwer-Rice
		out_1	1.709	0.083333	10	12.25	2.1E-06	5.9E-03	1.418		Bouwer-Rice
						Log Mean =	1.4E-06	3.8E-03			
RMW-07-15	5-15	in_1	1.781	0.083333	10	11.54	1.7E-04	0.49	1.305		Bouwer-Rice
		in_2	1.916	0.083333	10	11.54	1.6E-04	0.46	1.286		Bouwer-Rice
		out_1	2.238	0.083333	10	11.54	2.2E-04	0.61	2.132		Bouwer-Rice
		out_2	2.410	0.083333	10	11.54	2.2E-04	0.64	2.13		Bouwer-Rice
						Log Mean =	1.9E-04	0.54			
RMW-08-15	5-15	in_1	2.043	0.083333	10	10.42	4.8E-04	1.4	1.999		Bouwer-Rice
		in_2	2.018	0.083333	10	10.42	5.4E-04	1.5	2.108		Bouwer-Rice
		out_1	1.587	0.083333	10	10.42	3.4E-04	1.0	1.594		Bouwer-Rice
		out_2	1.643	0.083333	10	10.42	3.1E-04	0.87	1.799		Bouwer-Rice
						Log Mean =	4.1E-04	1.15			
RMW-08-35	25-35	in_1	4.272	0.083333	10	28.24	2.3E-03	6.4		1.8E-03	KGS
		in_2	3.399	0.083333	10	28.24	2.8E-03	7.8		2.1E-04	KGS
		out_1	2.846	0.083333	10	28.24	2.5E-03	7.1		3.2E-05	KGS
		out_2	2.736	0.083333	10	28.24	2.4E-03	6.9		4.9E-05	KGS
						Log Mean =	2.5E-03	7.05			

TABLE 7
Slug Test Results
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Well ID	Screen Interval (ft bgs)	Test ID	Initial Displacement (S_o) (ft)	Well Radius $r_{(w/c)}$ (ft)	Screen Interval (L) (ft)	Water Column (H) (ft)	Hydraulic Conductivitiy (K) (cm/s)	(ft/d)	Y-intercept[1] (y_o) (ft)	Specific Storage[2] (S_s) (ft^{-1})	Analytical Solution Method [3]
RMW-09-15	5-15	in_1	1.601	0.083333	10	11.64	7.2E-05	0.20	1.059		Bouwer-Rice
		in_2	1.632	0.083333	10	11.64	8.3E-05	0.24	1.213		Bouwer-Rice
		out_1	1.724	0.083333	10	11.64	7.6E-05	0.22	1.544		Bouwer-Rice
		out_2	1.762	0.083333	10	11.64	8.9E-05	0.25	1.602		Bouwer-Rice
						Log Mean =	8.0E-05	0.23			
RMW-09-35	25-35	in_1	2.062	0.083333	10	31.51	2.8E-03	7.9	2.302		Bouwer-Rice
		in_2	4.259	0.083333	10	31.51	2.7E-03	7.7	2.22		Bouwer-Rice
		out_1	3.325	0.083333	10	31.51	2.4E-03	6.8	2.043		Bouwer-Rice
		out_2	2.459	0.083333	10	31.51	2.9E-03	8.2	2.181		Bouwer-Rice
						Log Mean =	2.7E-03	7.6			
RMW-10-15	5-15	in_1	1.839	0.083333	10	11.36	5.5E-05	0.16	NA	1.7E-03	KGS
		in_2	1.998	0.083333	10	11.36	7.2E-05	0.21	NA	2.0E-03	KGS
		out_1	1.710	0.083333	10	11.36	5.0E-05	0.14	NA	5.0E-04	KGS
		out_2	1.817	0.083333	10	11.36	4.9E-05	0.14	NA	9.0E-04	KGS
						Log Mean =	5.6E-05	0.16			
RMW-10-35	25-35	in_1	2.414	0.083333	10	30.50	1.4E-03	4.0	2.561		Bouwer-Rice
		in_2	2.292	0.083333	10	30.50	1.4E-03	4.0	2.521		Bouwer-Rice
		out_1	2.325	0.083333	10	30.50	1.4E-03	3.9		1.2E-04	KGS
		out_2	2.283	0.083333	10	30.50	1.6E-03	4.4		3.3E-05	KGS
						Log Mean =	1.4E-03	4.1			

TABLE 7
Slug Test Results
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Well ID	Screen Interval (ft bgs)	Test ID	Initial Displacement (S_o) (ft)	Well Radius $r_{(w/c)}$ (ft)	Screen Interval (L) (ft)	Water Column (H) (ft)	Hydraulic Conductivitiy (K) (cm/s)	Hydraulic Conductivitiy (K) (ft/d)	Y-intercept[1] (y_o) (ft)	Specific Storage[2] (S_s) (ft^{-1})	Analytical Solution Method [3]

Notes:

[1] Y-intercept is a fitting parameter and does not indicate any physical property

[2] Specific storage indicates volume of water released from storage from unit volume of aquifer in response to unit decrease in head. For purposes of slug testing accuracy specifc storage value is not useable and effectively is a fitting parameter.

[3] Bouwer-Rice = Bouwer, H. and R.C. Rice, 1976. "A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells." *Water Resources Research* vol. 12, no. 3, pp. 423-428.

KGS = KGS Model: Hyder, Z, J.J. Butler, Jr., C.D. McElwee and W. Liu, 1994. "Slug tests in partially penetrating wells." *Water Resources Research* vol. 30, no. 11, pp. 2945-2957.

cm/s = centimeters per second
ft = feet
ft bgs = feet below ground surface
ft/d = feet per day
ft^{-1} = reciprocal feet

S^s = specific storage

TABLE 8
Analytes By Media
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Media	VOCs[b]	SVOCs	Naphthalene Only[c] (SVOC)	Organochlorine Pesticides	Organophosphorus Pesticides & PCBs	Metals	Dioxin/ Furans	Hexavalent Chromium	Total Dissolved Solids[d]	pH & Flash Point	Cyanide	Dissolved Gasses[e]	Anions[e]
NAPL (Product in MW-14)	X	X		X		X	X			X			
Soil	X	X		X		X	X[c]						
Groundwater (Grab)[a]	X												
Groundwater (Private Well)	X	X		X	X	X		X			X		
Groundwater (Monitoring Wells)	X	X		X	X	X	X	X	X		X	X	X
Soil Gas	X												
Crawl Space Air	X												
Ambient Air	X		X										

[a] Grab groundwater sampling methods significantly limit sample volume which restricts potential analyses.
[b] List of analytes may vary by event, media, and/or specific method.
[c] Limited to locations where site history indicates potential presence of dioxins and furans
[d] Total dissolved solids does not represent a contaminant, but rather is an indicator of general water quality and potential beneficial uses of sampled groundwater.
[e] Dissolved gasses and anions do not represent contaminants, but are useful for evaluating the natural attenuation processes.

TABLE 9
Grab Groundwater Sampling Depths
Remedial Investigation Report
AMCO Chemical Superfund Site; Oakland, California

Activity/ Description	**Boring**																
	RGW-01	**RGW-02**	**RGW-03**	**RGW-04**	**RGW-05**	**RGW-06**	**RGW-07**	**RGW-08**	**RGW-09**	**RGW-10**	**RGW-11**	**RGW-12**	**RGW-13**	**RGW-14**	**RGW-15**	**RGW-16**	**RGW-17**
Lithology Logging Method	CPT	CPT	CPT	CPT	CPT	CPT	CPT	CPT	CPT	CPT	CPT	DP-Visual	DP-Visual	DP-Visual	DP-Visual	CPT	CPT
Sampling Depths (ft bgs)	17	12	17	20	15	22	12	30	15	32	10	24	22	9	16	7	15
	30	20	37	30	25	29	25	38	25	40	22	34	32	16	29	17	25
	40	32	58		35	40	35	44	35	50	40	44	42	26	36	39	35
	50	42					43		45				50	36	43	47	45
	60	50					55		55				58	46			
		58							65								
Lithology Total Depth (ft bgs)	62.3	64.5	76.8	76.8	62.7	64.0	67.8[a]	80.1	65.8[a]	51.5[a]	53.0	49.0[a]	62.2	49.0[a]	43.0[a]	50.0[a]	50.0[a]
Aquitard Encountered	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓				

Notes:
[a] Boring terminated due to refusal or soil heave.
CPT = cone penetrometer testing
DP-Visual = direct push coring - visual soil logging
ft bgs = feet below ground surface

TABLE 10
Groundwater Monitoring Well Locations - Rationale
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Location	Position	Screening Interval(s)	Rationale	
RMW-01	On-facility	S, M	Monitor concentrations within plume	VOCs not detected above screening level during grab groundwater sampling.
RMW-02	On-facility, primary source area	S, M, D	Vertically delineate source area	A water table well (LNAPL sampling) was originally planned for this area, but could not be installed due to the shallow depth to groundwater.
RMW-03	On-facility, up-gradient	S	Define up-gradient shallow plume boundary.	VOCs not detected above screening level at any depth during grab groundwater sampling.
RMW-04	Cross-gradient, east	S	Define shallow plume boundary; sentry monitoring	VOCs detected above screening levels only in shallow interval during grab groundwater sampling.
RMW-05	Down-gradient	S	Define shallow plume boundary; sentry monitoring	VOCs not detected above screening level at any depth during grab groundwater sampling.
RMW-06	Cross-gradient, northwest	S	Define shallow plume boundary; sentry monitoring	VOCs not detected above screening level at any depth during grab groundwater sampling.
RMW-07	Down-gradient	S, M	Define plume boundary; sentry monitoring	VOCs not detected above screening level in deep interval during grab groundwater sampling in this area.
RMW-08	On-facility	S, M	Monitor concentrations within plume	VOCs not detected above screening level in deep interval during grab groundwater sampling in this area.
RMW-09	Down-gradient	S, M	Monitor down-gradient area of plume	Monitor groundwater quality in western (upgradient) area of the park.
RMW-10	Down-gradient	S, M	Confirm elevated VOC concentrations	Historic groundwater "hot spot" based on grab sampling and previous investigations
RMW-11	Up-gradient	M	Provide up-gradient water quality	BMW-06 provides shallow upgradient water quality
RMW-12	Down-gradient	M, D	Vertically delineate plume	Located adjacent to MW-12, which is screened in the shallow zone.
RMW-13	Down-gradient	M	Define plume boundary; sentry monitoring	VOCs detected above screening levels only in shallow and mid-depth intervals upgradient of this location; mid-depth interval is of higher permeability than shallow.
RMW-14	Down-gradient	D	Monitor deep groundwater in the down-gradient portion of plume.	Located adjacent to BMW-07, which is screened in the shallow zone.

S = shallow (<25 feet bgs)
M = mid-depth (26-35 feet bgs)
D = deep (>35 feet bgs)

TABLE 11
Well Construction Details
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Well ID	Ground Surface (ft msl) NGVD88	Top of Casing (ft msl) NGVD88	Northing NAD83 Zone 3	Easting NAD83 Zone 3	Casing Diameter (inches)	Casing Material	Casing Gauge (schedule)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	Borehole Total Depth (ft bgs)
EPA Owned Wells Installed During RI Investigation										
RMW-01-17	11.22	13.64	2119692.69	6043062.76	4	PVC	40	7	17	17
RMW-01-35	11.04	14.30	2119695.12	6043054.44	4	PVC	40	25	35	40
RMW-02-13	10.74	10.50	2119728.98	6043136.09	4	PVC	40	3	13	13
RMW-02-32	11.21	10.91	2119749.92	6043138.76	4	PVC	40	22	32	32
RMW-02-50	11.07	10.67	2119738.81	6043138.41	4	PVC	40	40	50	50
RMW-03-15	10.43	10.00	2119832.19	6043245.05	4	PVC	40	5	15	15
RMW-04-15	10.09	12.82	2119603.90	6043231.73	4	PVC	40	5	15	15
RMW-05-15	9.27	8.90	2119502.68	6043116.85	4	PVC	40	5	15	15
RMW-06-15	10.68	10.47	2119932.56	6042961.31	4	PVC	40	5	15	15
RMW-07-15	10.45	10.10	2119756.17	6042936.12	4	PVC	40	5	15	15
RMW-07-35	10.42	10.08	2119746.02	6042933.47	4	PVC	40	25	35	35
RMW-08-15	11.76	14.61	2119857.71	6043054.37	4	PVC	40	5	15	15
RMW-08-35	11.73	14.60	2119849.49	6043052.90	4	PVC	40	25	35	46.5
RMW-09-15	10.26	12.74	2119597.79	6042947.48	4	PVC	40	5	15	15
RMW-09-35	10.33	13.22	2119597.79	6042939.14	4	PVC	40	25	35	36
RMW-10-15	9.74	12.89	2119513.81	6042979.03	4	PVC	40	5	15	15
RMW-10-35	9.77	12.75	2119526.34	6042980.61	4	PVC	40	25	35	46.5
RMW-11-35	8.52	8.25	2119928.89	6043326.95	4	PVC	40	25	35	35
RMW-12-32	9.44	9.04	2119625.72	6043111.43	4	PVC	40	27	32	32
RMW-12-51	9.27	8.94	2119628.72	6043101.57	4	PVC	40	41	51	53
RMW-13-35	10.38	13.08	2119397.02	6042992.94	4	PVC	40	25	35	35
RMW-14-50	10.39	13.56	2119578.17	6042842.31	4	PVC	40	40	50	50
EPA Owned Wells Installed Prior to RI Investigation										
MW-12	9.44	9.16	2119622.25	6043122.35	4	PVC	40	NA	19.5	NA
MW-13	NA	8.12 [a]	NA	NA	4	PVC	NA	NA	NA	NA
MW-14	10.82	10.56	2119728.90	6043152.75	4	PVC	40	NA	21	NA
Union Pacific Railroad Owned Wells										
BMW-01	9.12	11.50	2119493.12	6043239.56	4	PVC	40	5	22	22
BMW-03	10.25	13.54	2119584.64	6043032.70	4	PVC	40	7	22	22
BMW-06	8.87	8.40	2119704.12	6043318.26	4	PVC	40	9	29	29
BMW-07	10.41	13.14	2119577.93	6042830.73	4	PVC	40	10	20	20
BMW-08	10.19	13.16	2119461.92	6042863.79	4	PVC	40	9.5	19.5	20
BPZ-01	10.30	12.61	2119430.96	6043040.68	2	PVC	40	12	17	18

Notes:

[a] Based on previous survey.

Except where noted, all survey information based on surveys conducted on April 8 and October 18, 2005.

ft msl feet mean sea level
ft bgs feet below ground surface
PVC polyvinyl chloride
NA not available

TABLE 12
Groundwater Monitoring Analytes by Event
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

	Potential Contaminants											Natural Attenuation Parameters			Water Quality Indicators		
Event	**VOCs & Fuel Oxygenates**	**1,2,4- &1,3,5-Trimethyl-benzene[b]**	**SVOCs[c]**	**1,4-Dioxane only**	**Metals (Total)**	**Metals (Dissolved)**	**Organo-chlorine Pesticides & PCBs**	**Organo-phosphorus Pesticides**	**Chromi um (IV)**	**Cyanide**	**Dioxins/ Furans**	**Dissolved Gases**	**Anions**	**Field Parameters[e]**	**Total Dissolved Solids**	**Total Organic Carbon**	**Hardness (as $CaCO_3$)**
1Q 2005	X	P	X		X	P	P		P	P	P	X	X	X	P	P	P
2Q 2005	X			X			X					X	X	X			
3Q 2005	X		X		X	X	X	X				X	X	X			
4Q 2005[a]	X		X		X[d]	X[d]	X				P	X	X	X	P		
1Q 2006	X	P					P					X	X	X			
2Q 2006	X	X										X	X	X			
3Q2006	X	X	X		X	X	X				X	X	X	X			

Notes:
[a] Sampling conducted during January 2006
[b] 1,2,4-Trimethylbenzene is a VOC; however, this compound is not a standard USEPA analyte for Method 8260. Results for this compound are not reported unless separately and specifically requested.
[c] Including 1,4-Dioxane.
[d] Including Silicon
[e] Field chemical parameters include pH, temperature, specific conductivity, dissolved oxygen concentration, oxidation reduction potential (ORP), turbidity, alkalinity, carbon dioxide concentration, and ferrous iron concentration.

X = All wells analyzed for indicated compounds
P = Only selected wells analyzed for indicated analyte.
PCBs = polychlorinated biphenyls
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds

TABLE 13
Results Summary - Field Parameters
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Location / Event	BMW-01	BMW-03	BMW-06	BMW-07	BMW-08	BPZ-01	MW-12	RMW-01-17	RMW-01-35	RMW-02-13	RMW-02-32	RMW-02-50	RMW-03-15	RMW-04-15	RMW-05-15	RMW-06-15	RMW-07-15
			Analytical Results																
Alkalinity, phenolphthalein	mg/L	2005qtr1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		2005qtr2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		2005qtr3	ND	ND	ND	ND	ND	---	ND	ND	ND	ND	ND	ND	---	ND	ND	ND	ND
		2005qtr4	ND	ND	ND	ND	ND	---	ND	ND	ND	ND	ND	ND	---	ND	ND	ND	ND
		2006qtr1	ND	ND	ND	ND	ND	---	ND	ND	ND	ND	ND	ND	---	ND	ND	ND	ND
		2006qtr2	ND	ND	ND	ND	ND	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		2006qtr3	ND	ND	ND	ND	ND	---	ND	---	ND	ND	ND	ND	---	ND	ND	ND	ND
Alkalinity, total (as CaCO3)	mg/L	2005qtr1	1,040	520	320	460	ND	ND	440	480	660	780	1,140	320	1,260	560	1,740	1,320	740
		2005qtr2	940	320	300	320	ND	ND	660	660	840	1,700	2,060	560	640	480	1,480	1,140	270
		2005qtr3	940	700	320	1,600	2,380	---	660	640	980	1,060	1,760	132	---	320	1,680	1,100	460
		2005qtr4	1,200	620	320	620	2,800	---	1,040	600	800	1,500	2,280	440	---	610	1,180	1,320	660
		2006qtr1	1,280	880	360	760	3,300	---	740	620	700	1,240	2,280	460	960	540	144	1,280	680
		2006qtr2	660	750	460	2,200	3,800	---	720	660	1,020	1,260	2,440	520	1,120	480	636	1,360	700
		2006qtr3	1,200	820	440	560	2,640	---	620	---	1,000	1,180	1,700	420	---	360	1,560	1,280	580
Carbon Dioxide	mg/L	2005qtr1	500	1,250	254	636	ND	ND	411	616	346	1,360	1,760	228	718	336	669	758	443
		2005qtr2	321	1,130	194	442	ND	ND	ND	370	1,360	910	830	94	714	140	746	758	840
		2005qtr3	661	881	264	556	ND	---	ND	376	428	160	456	132	---	256	836	792	326
		2005qtr4	412	1,440	240	380	2,370	---	ND	320	368	1,000	436	122	---	264	540	612	284
		2006qtr1	344	1,320	218	380	ND	---	1,230	240	320	1,000	650	204	500	265	892	100	300
		2006qtr2	404	476	260	584	2,700	---	800	340	440	800	340	200	388	220	1,100	600	320
		2006qtr3	400	1,700	152	204	---	---	220	---	296	352	68	124	---	100	660	88	126
Dissolved oxygen	mg/L	2005qtr1	3.4	0.05	1.6	0.22	1.01	0.96	0.19	0.25	0.9	0.73	1.72	0.04	0.1	2.18	2.07	0.29	1.41
		2005qtr2	0.06	0.2	0.19	0.13	1.76	3.73	0.19	0.11	0.21	0.29	0.2	0.2	3.64	0.22	0.2	0.21	0.03
		2005qtr3	0.77	0.24	3.44	0.37	1.07	---	0.67	0.96	0.29	0.37	0.29	0.53	---	0.07	0.03	2.92	1.26
		2005qtr4	0.49	0.7	0.5	0.13	0.96	---	0.7	1.14	0.93	1.02	1.15	0.64	---	0.33	0.3	0.53	1.41
		2006qtr1	4.75	0.62	0.32	0.45	0.21	---	0.58	2.32	0.44	0.66	0.49	0.73	---	0.38	5.69	0.57	3.55
		2006qtr2	0.22	0.04	0.91	0.04	0.57	---	0.18	0.18	0.06	0.03	0.41	0.09	---	0.49	0.01	1.16	0.43
		2006qtr3	2.01	2.26	0.1	---	0.47	---	0.2	0.62	2.58	2.45	0.19	8.4	---	0.02	2.12	1.76	1.49
Ferrous iron	mg/L	2005qtr1	ND	ND	ND	0.46	ND	ND	30	1.32	0.13	3.6	ND	ND	ND	ND	0.03	2.18	ND
		2005qtr2	1.13	ND	ND	0.53	ND	ND	14.4	5.75	0.28	21.6	6.65	0.02	1.17	0.24	1.17	4.1	0.51
		2005qtr3	0.12	ND	0.01	ND	20.7	---	30.4	4.95	0.35	24.7	4.84	0.01	---	ND	0.67	1.41	ND
		2005qtr4	0.27	0.03	ND	0.04	20.5	---	30.9	7.5	0.18	15.2	3.48	0.08	---	0.15	2.81	0.52	ND
		2006qtr1	0.04	0.11	0.06	0.16	20.7	---	56	8.88	0.56	14.7	2.48	ND	0.04	0.02	1.02	0.15	0.13
		2006qtr2	0.02	0.01	ND	0.43	20.4	---	62.1	6.7	0.64	8	1.2	ND	3.1	0.03	10.2	0.22	0.1
		2006qtr3	0.09	ND	ND	0.36	9.08	---	64.2	---	0.66	13.4	74	ND	---	ND	2.7	1.61	0.06
Oxidation-reduction potential	mV	2005qtr1	-4.7	164	119	-8.3	-456	-391	-151	-91.3	-65.8	-206	-91.7	31.4	-16.1	58.4	-25.7	-107	75.1
		2005qtr2	-89.7	79.9	36.4	-9.9	-216	-159	-116	-107	-2.5	-169	-160	36.2	30.4	13	-97.5	-118	-8.6
		2005qtr3	-72.2	-54.4	110	-177	-150	---	-110	-146	21.2	-166	-152	46.3	---	176	-102	-23.9	-149
		2005qtr4	-35	116	86.8	-26.4	-157	---	-110	-82.2	-68.1	-200	-190	116	---	140	-149	110	63.4
		2006qtr1	-25.4	-24.7	150	10.8	-42.9	---	-36.7	-30.6	4.2	-165	-161	-35	---	97.1	-48	18.9	236
		2006qtr2	-52.1	-33.1	91.9	-28.2	-149	---	-136	-38.5	-33.9	-69.6	-184	12.9	---	87.6	-46.2	-37.3	19.5
		2006qtr3	-101	138	-41.5	-9	-266	---	-118	-88.5	-52.2	-171	-135	120	---	-52.1	-179	-50.4	23.7
pH	pH unit	2005qtr1	7.22	7.5	6.88	6.75	6.72	7.46	6.56	6.7	6.76	6.88	8.86	6.89	6.88	7.02	7.31	6.84	6.86
		2005qtr2	7.53	6.62	7.19	6.88	6.99	7.2	6.44	6.88	6.64	6.88	7.29	6.95	6.92	7.24	7.29	6.98	6.94
		2005qtr3	7.29	6.73	6.61	7.14	6.42	---	6.79	6.2	6.01	6.83	7.17	7.51	---	7.7	7.09	6.88	6.48
		2005qtr4	7.11	6.55	7.01	6.74	6.77	---	6.44	6.77	6.9	6.95	7.19	7.3	---	7.25	6.91	6.32	6.8
		2006qtr1	7.18	6.54	6.81	7.41	6.38	---	6.31	6.75	7.74	7.92	8.6	6.97	---	7.02	6.52	7.33	7.07
		2006qtr2	7.29	6.83	6.89	7.04	6.74	---	6.27	7.4	7.45	7.02	7.27	7.06	---	7.15	7.1	6.86	6.55
		2006qtr3	7.48	6.86	7	6.92	6.9	---	6.44	6.84	6.41	6.9	7.27	7.1	---	7.41	7.19	6.65	6.71

TABLE 13
Results Summary - Field Parameters
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		Location	BMW-01	BMW-03	BMW-06	BMW-07	BMW-08	BPZ-01	MW-12	RMW-01-17	RMW-01-35	RMW-02-13	RMW-02-32	RMW-02-50	RMW-03-15	RMW-04-15	RMW-05-15	RMW-06-15	RMW-07-15
Analyte	**Units**	**Event**	**Analytical Results**																
Salinity	%	2005qtr1	2.45	3.42	2.64	3.81	34	11.4	0.98	0.59	0.82	1.79	2.94	0.78	1.53	1.08	2.26	1.11	0.61
		2005qtr2	2.6	3.96	2.62	4.32	37.8	17.3	1.16	0.69	1.01	2.1	3.3	0.92	1.58	0.87	2.33	1.14	0.6
		2005qtr3	3.8	1.7	3.55	4.43	40.5	---	1.28	0.59	1.05	2.26	3.52	0.92	---	0.83	2.19	1.27	0.58
		2005qtr4	3.33	5.52	2.89	4.32	46.7	---	1.5	0.8	0.97	2.76	3.74	1.04	---	1.25	2.04	1.58	0.64
		2006qtr1	2.47	8.46	2.76	3.9	46.8	---	1.17	0.62	0.8	2.35	3.16	1	---	1.25	2.02	1.37	0.66
		2006qtr2	2.65	2.84	3.27	2.07	30.4	---	0.78	0.48	1.03	1.39	2.14	0.6	---	1.08	1.4	0.95	0.49
		2006qtr3	3.34	6.03	3.69	3.17	39.6	---	1.15	0.64	2.58	4.27	7.34	1.73	---	0.95	1.86	1.26	0.65
Specific conductance	mS/cm	2005qtr1	4.56	6.09	4.9	5.61	50.5	19	1.62	1.17	1.61	3.25	5.41	1.54	2.92	2.09	4.22	2.17	1.05
		2005qtr2	4.1	5.98	4.5	6.42	49.1	23.3	2.02	1.23	1.7	3.69	5.29	1.58	2.76	1.46	3.87	2.08	1.07
		2005qtr3	6.08	3.02	5.99	6.78	53.9	---	2.25	1.13	1.81	3.84	5.78	1.6	---	1.46	3.81	2.33	1.01
		2005qtr4	4.95	8.02	4.65	6	57.2	---	2.45	1.33	16.8	4.35	5.94	1.73	---	2.04	3.21	2.58	1.1
		2006qtr1	3.76	11.7	4.52	5.68	55.8	---	1.86	1	1.3	3.87	5.03	1.69	---	1.96	3.16	2.27	1.07
		2006qtr2	4.23	4.48	5.69	3.27	40.8	---	1.38	0.86	1.78	2.54	3.64	1.09	---	1.85	2.51	1.88	0.888
		2006qtr3	5.31	9	6.16	4.83	49.8	---	2.02	1.11	4.07	6.94	11.2	2.87	---	1.65	3.31	2.34	1.19
Temperature	°C	2005qtr1	16.4	15.9	19	15.7	16.5	16.1	17	15.4	16.6	16.5	18.2	18.2	20.2	16.6	16.8	18.6	17.3
		2005qtr2	17.2	15.9	19.8	15.9	18.1	16.3	19	19.3	17.9	21.4	18.5	18.5	20.3	17.3	19.1	21.6	19.3
		2005qtr3	18.6	17	21	17.2	19.1	---	20.2	22.5	18.6	20.2	19.7	19	---	19.2	21.1	22.4	20.9
		2005qtr4	15.2	15.8	18.4	15.5	16.4	---	17.5	16.8	16.8	17.2	18.4	17.3	---	17	16.3	17.3	17
		2006qtr1	15.5	14.7	19	14.8	14.7	---	15.6	14.8	15.5	18.3	18	18	---	15.2	16	17.7	15.7
		2006qtr2	17.8	17.5	22.2	16.7	18.4	---	19.2	19.5	18.8	23	20	19.7	---	18.5	21.2	25	19.9
		2006qtr3	18.1	17.1	20.6	16.2	16.7	---	20.1	18	17.1	19.9	18.8	18.3	---	19	21.8	22.9	21.1
Turbidity	NTU	2005qtr1	30.7	1.2	1.5	25.9	4.4	48.3	25.9	150	2	31.3	2.2	1.6	49.2	35.1	5.6	79.8	42.5
		2005qtr2	25.9	16.8	0.3	21.2	31	88.1	16.9	65.5	1	103	182	0.8	175	60	23.4	45.2	9.9
		2005qtr3	11.9	-1.4	7	13.5	17.7	---	14.8	35.9	6	88.3	5.8	4.4	---	5.4	3	96.3	10
		2005qtr4	19.5	1.7	2.3	217	40.1	---	-33.9	44.1	25.7	20	134	20.5	---	19.8	12.9	26.8	10.7
		2006qtr1	12.3	0.6	2.9	131	15.2	---	31.2	26.8	16	43.8	22.4	10	---	13.4	7.7	18.1	2.7
		2006qtr2	37.2	3	1.3	208	15.2	---	22.7	5.8	6.9	45.1	22.3	6.9	---	64.2	11.9	4.9	ND
		2006qtr3	2.1	16.6	ND	1.3	1.9	---	2.3	38.8	14.8	16.6	6.8	0.2	---	2.6	1.9	17.3	1.6

Notes:

mg/L	milligrams per liter
mV	millivolts
mS/cm	millisiemens per centimenter
°C	degrees Celcius
NTU	Nephelometric Turbidity Unit
---	not collected
ND	not detected

TABLE 14
Soil and Soil Gas Grab Sampling Details
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	RSB-01 RSG-01	RSB-02 RSG-02	RSB-03 RSG-03	RSB-04 RSG-04	RSB-05 RSG-05	RSB-06 RSG-06	RSB-07 RSG-07	RSB-08 RSG-08	RSB-09 RSG-09	RSB-10 RSG-10	RSB-11 RSG-11	RSB-12 RSG-12	RSB-13 RSG-13	RSB-14 RSG-14	RSB-15 RSG-15	RSB-16 RSG-16	RSB-17 RSG-17	RSB-18 RSG-18	RSB-19 RSG-19	RSB-20 RSG-20	RSB-21 RSG-21
Concrete Thickness (ft)	1.0	1.0	1.0	2.0	1.0	1.0	2.5	3.0	4.0	0.5	0.0	0.25	0.0	0.0	0.25	>2[b]	3.0	2.0	0.3	0.5	0.3
Soil Sample Interval(s) (ft bgs)	2-3 5-6	1-2	4-5	2.5-3.5 FD 6-7 FD	2-3 6-7	2-3 FD	3.5-4.5	4-5	--[a]	4-5	1-2	4-5	1-2	4-5	1-2	--[b]	4-5	3-4 FD 6-7	1-2	1.5-2.5	0.5-1.5
Soil Gas Sample Depth (ft bgs)	3.6-4.0	3.6-4.0	2.6-3	4.6-5	3.6-4	3.6-4	5.1-5.5	5.6-6	--[a]	2.5-3	2.6-3	2.6-3	2.6-3	2.6-3	2.6-3	--[b]	5.6-6	4.6-5	2.6-3	3.1-3.5	2.6-3
Depth to Saturated Soil (ft bgs)									4.0[a]							--[b]					
Total Depth (ft bgs)	8.0	9.0	8.0	10.0	9.0	9.0	10.5	11.0	8.0	8.0	8.0	8.0	8.0	8.0	3.5	2	11.0	10.0	8.0	8.5	12.0

Notes:
[a] Saturated soil at bottom of concrete. In accordance with SAP no soil or soil gas results reported.
[b] Layer of debris located under 2 feet of concrete, and debris layer underlain by more concrete. Unable to drill or core past debris layer, so no sampling conducted at this location.
FD = field duplicate
ft = feet
ft bgs = feet below ground surface

TABLE 14
Soil and Soil Gas Grab Sampling Details
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

	RSB-22 RSG-22	RSB-23 RSG-23	RSB-24 RSG-24	RSB-25 RSG-25	RSB-26 RSG-26	RSB-27 RSG-27	RSB-28 RSG-28	RSB-29 RSG-29	RSB-30 RSG-30	RSB-31 RSG-31	RSB-32 RSG-32	RSB-33 RSG-33	RSB-34 RSG-34	RSB-35 RSG-35	RSB-36 RSG-36	RSB-37 RSG-37	RSB-38 RSG-38	RSB-39 RSG-39	RSB-40 RSG-40	RSB-41 RSG-41	RSB-42 RSG-42
Concrete Thickness (ft)	1.0	0.75	0.8	0.8	0.8	0.8	0.8	0.8	1.0	0.8	0.75	0.5	1.0	1.0	1.0	1.5	1.0	1.0	0.5	1.1	3.0
Soil Sample Interval(s) (ft bgs)	2-3 5-6	1-2 5-6	2-3 FD	2-3 5-6	2-3 5-6	2-3 5-6	2-3 5-6	2-3 5-6	2-3	2-3 5-6	2-3 5-6	1.5-2.5 4.5-5.5	2-3	2-3	2-3 5-6	2.5-3.5 FD 5-6	2-3 5-6	2-3	1.5-2.5	2-3	4-5
Soil Gas Sample Depth (ft bgs)	3.6-4	3.8-4.2	3.5-3.9	3.6-4	3.4-3.8	3.4-3.8	3.4-3.8	3.4-3.8	3.6-4	3.4-3.8	3.6-4	3.1-3.5	3.6-4	3.6-4	3.6-4	4.1-4.5	3.6-4	3.6-4	3.1-3.5	3.6-4	5.4-6
Depth to Saturated Soil (ft bgs)																					
Total Depth (ft bgs)	9.0	8.75	8.8	8.8	8.8	8.8	8.8	8.8	9.0	8.8	9.0	8.5	9.0	9.0	9.0	9.5	9.0	9.0	8.5	9.1	7.0

Notes:
[a] Saturated soil at bottom of concrete. In accordance with SAP no soil or soil gas results reported.
[b] Layer of debris located under 2 feet of concrete, and debris layer underlain by more concrete. Unable to drill or core past debris layer, so no sampling conducted at this location.
FD = field duplicate
ft = feet
ft bgs = feet below ground surface

TABLE 15
Water Level Measurements and Groundwater Elevations
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Well ID	Event	Date	MP Elevation (feet MSL NGVD 88)	Water Level Measurement (feet BMP)	Groundwater Elevation (feet)
BMW-01	2005qtr1	22-Mar-05	11.50	5.39	6.11
	2005qtr2	20-Jun-05		7.01	4.49
	2005qtr3	07-Oct-05		6.29	5.21
	2005qtr4	16-Jan-06		5.65	5.85
	2006qtr1	07-Apr-06		5.52	5.98
	2006qtr2	26-Jun-06		5.98	5.52
	2006qtr3	02-Oct-06		6.61	4.89
BMW-03	2005qtr1	22-Mar-05	13.54	7.53	6.01
	2005qtr2	20-Jun-05		8.08	5.46
	2005qtr3	07-Oct-05		8.77	4.77
	2005qtr4	16-Jan-06		8.08	5.46
	2006qtr1	07-Apr-06		7.83	5.71
	2006qtr2	26-Jun-06		8.21	5.33
	2006qtr3	02-Oct-06		8.90	4.64
BMW-06	2005qtr1	22-Mar-05	8.40	1.52	6.88
	2005qtr2	20-Jun-05		2.31	6.09
	2005qtr3	07-Oct-05		2.97	5.43
	2005qtr4	10-Jan-06		1.65	6.75
	2006qtr1	07-Apr-06		1.75	6.65
	2006qtr2	26-Jun-06		2.34	6.06
	2006qtr3	02-Oct-06		3.12	5.28
BMW-07	2005qtr1	22-Mar-05	13.14	7.17	5.97
	2005qtr2	20-Jun-05		8.02	5.12
	2005qtr3	07-Oct-05		8.70	4.44
	2005qtr4	16-Jan-06		7.57	5.57
	2006qtr1	07-Apr-06		7.40	5.74
	2006qtr2	26-Jun-06		8.11	5.03
	2006qtr3	02-Oct-06		8.90	4.24
BMW-08	2005qtr1	22-Mar-05	13.16	7.34	5.82
	2005qtr2	20-Jun-05		8.04	5.12
	2005qtr3	07-Oct-05		8.84	4.32
	2005qtr4	16-Jan-06		7.65	5.51
	2006qtr1	07-Apr-06		7.20	5.96
	2006qtr2	26-Jun-06		8.02	5.14
	2006qtr3	02-Oct-06		8.85	4.31
BPZ-01	2005qtr1	22-Mar-05	12.61	6.81	5.80
	2005qtr2	20-Jun-05		7.40	5.21
	2005qtr3	07-Oct-05		8.00	4.61
	2005qtr4	16-Jan-06		7.13	5.48
	2006qtr1	07-Apr-06		6.72	5.89
	2006qtr2	26-Jun-06		8.20	4.41
	2006qtr3	02-Oct-06		8.14	4.47

TABLE 15
Water Level Measurements and Groundwater Elevations
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Well ID	Event	Date	MP Elevation (feet MSL NGVD 88)	Water Level Measurement (feet BMP)	Groundwater Elevation (feet)
MW-12	2005qtr2	20-Jun-05	9.20	3.68	5.52
	2005qtr3	07-Oct-05		4.24	4.96
	2005qtr4	16-Jan-06		3.47	5.73
	2006qtr1	07-Apr-06		3.30	5.90
	2006qtr2	26-Jun-06		3.71	5.49
	2006qtr3	02-Oct-06		4.34	4.86
RMW-01-17	2005qtr1	22-Mar-05	13.64	6.74	6.90
	2005qtr2	20-Jun-05		7.87	5.77
	2005qtr3	07-Oct-05		8.75	4.89
	2005qtr4	16-Jan-06		7.09	6.55
	2006qtr1	07-Apr-06		6.75	6.89
	2006qtr2	26-Jun-06		7.93	5.71
	2006qtr3	02-Oct-06		8.41	5.23
RMW-01-35	2005qtr1	22-Mar-05	14.30	7.58	6.72
	2005qtr2	20-Jun-05		8.56	5.74
	2005qtr3	07-Oct-05		9.30	5.00
	2005qtr4	16-Jan-06		7.92	6.38
	2006qtr1	07-Apr-06		7.67	6.63
	2006qtr2	26-Jun-06		8.59	5.71
	2006qtr3	02-Oct-06		9.34	4.96
RMW-02-13	2005qtr1	22-Mar-05	10.50	3.26	7.24
	2005qtr2	20-Jun-05		4.08	6.42
	2005qtr3	07-Oct-05		5.03	5.47
	2005qtr4	16-Jan-06		3.51	6.99
	2006qtr1	07-Apr-06		4.70	5.80
	2006qtr2	26-Jun-06		3.16	7.34
	2006qtr3	02-Oct-06		5.19	5.31
RMW-02-32	2005qtr1	22-Mar-05	10.91	3.88	7.03
	2005qtr2	20-Jun-05		4.90	6.01
	2005qtr3	07-Oct-05		5.50	5.41
	2005qtr4	16-Jan-06		4.28	6.63
	2006qtr1	07-Apr-06		3.87	7.04
	2006qtr2	26-Jun-06		4.92	5.99
	2006qtr3	02-Oct-06		5.66	5.25
RMW-02-50	2005qtr1	22-Mar-05	10.67	3.65	7.02
	2005qtr2	20-Jun-05		4.64	6.03
	2005qtr3	07-Oct-05		5.35	5.32
	2005qtr4	16-Jan-06		4.09	6.58
	2006qtr1	07-Apr-06		3.76	6.91
	2006qtr2	26-Jun-06		4.66	6.01
	2006qtr3	02-Oct-06		5.45	5.22

TABLE 15
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Well ID	Event	Date	MP Elevation (feet MSL NGVD 88)	Water Level Measurement (feet BMP)	Groundwater Elevation (feet)
RMW-03-15	2005qtr1	22-Mar-05	10.00	2.43	7.57
	2005qtr2	20-Jun-05		2.91	7.09
	2005qtr3	07-Oct-05		4.66	5.34
	2005qtr4	16-Jan-06		2.67	7.33
	2006qtr1	07-Apr-06		2.15	7.85
	2006qtr2	26-Jun-06		3.30	6.70
	2006qtr3	02-Oct-06		4.95	5.05
RMW-04-15	2005qtr1	22-Mar-05	12.82	6.59	6.23
	2005qtr2	20-Jun-05		7.23	5.59
	2005qtr3	07-Oct-05		7.57	5.25
	2005qtr4	16-Jan-06		6.96	5.86
	2006qtr1	07-Apr-06		6.71	6.11
	2006qtr2	26-Jun-06		7.16	5.66
	2006qtr3	02-Oct-06		7.84	4.98
RMW-05-15	2005qtr1	22-Mar-05	8.90	2.80	6.10
	2005qtr2	20-Jun-05		3.37	5.53
	2005qtr3	07-Oct-05		3.85	5.05
	2005qtr4	16-Jan-06		3.11	5.79
	2006qtr1	07-Apr-06		2.81	6.09
	2006qtr2	26-Jun-06		3.37	5.53
	2006qtr3	02-Oct-06		4.07	4.83
RMW-06-15	2005qtr1	22-Mar-05	10.47	2.24	8.23
	2005qtr2	20-Jun-05		3.50	6.97
	2005qtr3	07-Oct-05		5.23	5.24
	2005qtr4	16-Jan-06		2.92	7.55
	2006qtr1	07-Apr-06		2.35	8.12
	2006qtr2	26-Jun-06		4.30	6.17
	2006qtr3	02-Oct-06		5.29	5.18
RMW-07-15	2005qtr1	22-Mar-05	10.10	3.14	6.96
	2005qtr2	20-Jun-05		4.50	5.60
	2005qtr3	07-Oct-05		5.25	4.85
	2005qtr4	16-Jan-06		3.56	6.54
	2006qtr1	07-Apr-06		3.25	6.85
	2006qtr2	26-Jun-06		4.54	5.56
	2006qtr3	02-Oct-06		5.40	4.70
RMW-07-35	2005qtr3	07-Oct-05	10.08	5.20	4.88
	2005qtr4	16-Jan-06		3.79	6.29
	2006qtr1	07-Apr-06		3.50	6.58
	2006qtr2	26-Jun-06		4.56	5.52
	2006qtr3	02-Oct-06		5.40	4.68

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Water Level Measurements and Groundwater Elevations
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Well ID	Event	Date	MP Elevation (feet MSL NGVD 88)	Water Level Measurement (feet BMP)	Groundwater Elevation (feet)
RMW-08-15	2005qtr1	22-Mar-05	14.61	6.49	8.12
	2005qtr2	20-Jun-05		8.32	6.29
	2005qtr3	07-Oct-05		9.23	5.38
	2005qtr4	16-Jan-06		6.92	7.69
	2006qtr1	07-Apr-06		6.25	8.36
	2006qtr2	26-Jun-06		8.30	6.31
	2006qtr3	02-Oct-06		9.29	5.32
RMW-08-35	2005qtr1	22-Mar-05	14.60	7.12	7.48
	2005qtr2	20-Jun-05		8.52	6.08
	2005qtr3	07-Oct-05		9.25	5.35
	2005qtr4	16-Jan-06		7.67	6.93
	2006qtr1	07-Apr-06		7.23	7.37
	2006qtr2	26-Jun-06		8.53	6.07
	2006qtr3	02-Oct-06		9.31	5.29
RMW-09-15	2005qtr1	22-Mar-05	12.74	6.69	6.05
	2005qtr2	20-Jun-05		7.47	5.27
	2005qtr3	07-Oct-05		8.20	4.54
	2005qtr4	16-Jan-06		7.16	5.58
	2006qtr1	07-Apr-06		6.80	5.94
	2006qtr2	26-Jun-06		7.58	5.16
	2006qtr3	02-Oct-06		8.46	4.28
RMW-09-35	2005qtr1	22-Mar-05	13.22	6.86	6.36
	2005qtr2	20-Jun-05		7.78	5.44
	2005qtr3	07-Oct-05		8.45	4.77
	2005qtr4	16-Jan-06		7.29	5.93
	2006qtr1	07-Apr-06		7.00	6.22
	2006qtr2	26-Jun-06		7.84	5.38
	2006qtr3	02-Oct-06		8.60	4.62
RMW-10-15	2005qtr1	22-Mar-05	12.89	6.71	6.18
	2005qtr2	20-Jun-05		7.51	5.38
	2005qtr3	07-Oct-05		8.37	4.52
	2005qtr4	16-Jan-06		7.14	5.75
	2006qtr1	07-Apr-06		6.70	6.19
	2006qtr2	26-Jun-06		7.53	5.36
	2006qtr3	02-Oct-06		8.22	4.67
RMW-10-35	2005qtr1	22-Mar-05	12.75	7.08	5.67
	2005qtr2	20-Jun-05		7.91	4.84
	2005qtr3	07-Oct-05		8.46	4.29
	2005qtr4	16-Jan-06		7.43	5.32
	2006qtr1	07-Apr-06		7.15	5.60
	2006qtr2	26-Jun-06		7.84	4.91
	2006qtr3	02-Oct-06		8.55	4.20

TABLE 15
Water Level Measurements and Groundwater Elevations
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Well ID	Event	Date	MP Elevation (feet MSL NGVD 88)	Water Level Measurement (feet BMP)	Groundwater Elevation (feet)
RMW-11-35	2005qtr3	07-Oct-05	8.25	2.30	5.95
	2005qtr4	16-Jan-06		1.01	7.24
	2006qtr1	07-Apr-06		0.65	7.60
	2006qtr2	26-Jun-06		1.67	6.58
	2006qtr3	02-Oct-06		2.46	5.79
RMW-12-32	2005qtr3	11-Oct-05	9.04	3.99	5.05
	2005qtr4	16-Jan-06		4.06	4.98
	2006qtr1	07-Apr-06		4.95	4.09
	2006qtr2	26-Jun-06		3.68	5.36
	2006qtr3	02-Oct-06		4.51	4.53
RMW-12-51	2005qtr3	11-Oct-05	8.94	3.85	5.09
	2005qtr4	16-Jan-06		2.70	6.24
	2006qtr1	07-Apr-06		2.40	6.54
	2006qtr2	26-Jun-06		3.19	5.75
	2006qtr3	02-Oct-06		3.89	5.05
RMW-13-35	2005qtr3	07-Oct-05	13.08	8.48	4.60
	2005qtr4	16-Jan-06		7.44	5.64
	2006qtr1	07-Apr-06		7.32	5.76
	2006qtr2	26-Jun-06		7.93	5.15
	2006qtr3	02-Oct-06		8.67	4.41
RMW-14-50	2005qtr3	07-Oct-05	13.56	9.27	4.29
	2005qtr4	16-Jan-06		8.08	5.48
	2006qtr1	07-Apr-06		7.85	5.71
	2006qtr2	26-Jun-06		8.66	4.90
	2006qtr3	02-Oct-06		9.43	4.13

Notes:
MP well measurement point, typically top of PVC well casing
MSL Mean Sea Level
BMP below measurement point

TABLE 16a
Groundwater Screening Levels
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Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	µg/L	0.43	EPA Region 9 Tap Water PRG	
1,1,1-Trichloroethane	µg/L	200	CA Primary MCL	
1,1,2,2-Tetrachloroethane	µg/L	1	CA Primary MCL	
1,1,2-Trichloroethane	µg/L	5	CA/EPA Primary MCL	
1,1-Dichloroethane	µg/L	5	CA Primary MCL	
1,1-Dichloroethene	µg/L	6	CA Primary MCL	
1,1-Dichloropropene		NDRI		Not detected, SL not required
1,2,3-Trichlorobenzene	µg/L	7.2	Surrogate	1,2,4-Trichlorobenzene was used as the surrogate
1,2,3-Trichloropropane	µg/L	0.0056	EPA Region 9 Tap Water PRG	
1,2,4-Trichlorobenzene	µg/L	5	CA Primary MCL	
1,2,4-Trimethylbenzene	µg/L	12	EPA Region 9 Tap Water PRG	
1,2-Dibromo-3-chloropropane	µg/L	0.2	CA/EPA Primary MCL	
1,2-Dibromoethane	µg/L	0.05	CA/EPA Primary MCL	
1,2-Dichlorobenzene	µg/L	600	CA/EPA Primary MCL	
1,2-Dichloroethane	µg/L	0.5	CA Primary MCL	
1,2-Dichloropropane	µg/L	5	CA/EPA Primary MCL	
1,3,5-Trimethylbenzene	µg/L	12	EPA Region 9 Tap Water PRG	
1,3-Dichlorobenzene	µg/L	180	EPA Region 9 Tap Water PRG	
1,3-Dichloropropane	µg/L	120	EPA Region 9 Tap Water PRG	
1,4-Dichlorobenzene	µg/L	5	CA Primary MCL	
1,4-Dioxane (p-dioxane)	µg/L	6.1	EPA Region 9 Tap Water PRG	
2,2-Dichloropropane	µg/L	0.16	Surrogate	1,2-Dichloropropane was used as the surrogate
2-Chlorotoluene	µg/L	120	EPA Region 9 Tap Water PRG	
2-Hexanone	µg/L	2,000	Surrogate	Methyl isobutyl ketone was used as the surrogate
4-Chlorotoluene		NDRI		Not detected, SL not required
Acetone	µg/L	5,500	EPA Region 9 Tap Water PRG	
Benzene	µg/L	1	CA Primary MCL	
Bromobenzene	µg/L	20	EPA Region 9 Tap Water PRG	
Bromochloromethane		NDRI		Not detected, SL not required
Bromodichloromethane	µg/L	100	EPA Primary MCL	
Bromoform	µg/L	100	EPA Primary MCL	
Bromomethane	µg/L	8.7	EPA Region 9 Tap Water PRG	
Carbon disulfide	µg/L	1,000	EPA Region 9 Tap Water PRG	
Carbon tetrachloride	µg/L	0.5	CA Primary MCL	
Chlorobenzene	µg/L	70	CA Primary MCL	
Chloroethane	µg/L	4.6	EPA Region 9 Tap Water PRG	
Chloroform	µg/L	100	CA/EPA Primary MCL	
Chloromethane	µg/L	160	EPA Region 9 Tap Water PRG	
cis-1,2-Dichloroethene	µg/L	6	CA Primary MCL	
cis-1,3-Dichloropropene	µg/L	0.5	CA Primary MCL	
Cyclohexane	µg/L	10,000	EPA Region 9 Tap Water PRG	
Dibromochloromethane	µg/L	100	CA/EPA Primary MCL	
Dibromomethane	µg/L	61	EPA Region 9 Tap Water PRG	
Ethyl tert-butyl ether	µg/L	11		
Ethyl thiocyanate		NDRI		Not detected, SL not required
Ethylbenzene	µg/L	700	CA/EPA Primary MCL	
Freon 11	µg/L	150	CA Primary MCL	
Freon 12	µg/L	390	EPA Region 9 Tap Water PRG	
Freon 113	µg/L	1,200	CA Primary MCL	
Hexachlorobutadiene	µg/L	0.86	EPA Region 9 Tap Water PRG	
Isopropyl ether	µg/L	11	Surrogate	Methyl tertbutyl ether (MTBE) was used as the surrogate

TABLE 16a
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Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
Isopropylbenzene (cumene)	µg/L	660	EPA Region 9 Residential Tap Water PRG	
Methyl acetate	µg/L	6,100	EPA Region 9 Tap Water PRG	
Methyl ethyl ketone	µg/L	7,000	EPA Region 9 Tap Water PRG	
Methyl isobutyl ketone	µg/L	2,000	EPA Region 9 Tap Water PRG	
Methyl tert-butyl ether	µg/L	13	CA Primary MCL	
Methylcyclohexane	µg/L	5,200	EPA Region 9 Tap Water PRG	
Methylene chloride	µg/L	5	CA/EPA Primary MCL	
Naphthalene	µg/L	0.093	EPA Region 9 Tap Water PRG	CAL-modified PRG
n-Butylbenzene	µg/L	240	EPA Region 9 Tap Water PRG	
n-Propylbenzene	µg/L	240	EPA Region 9 Tap Water PRG	
p-Cymene (p-isopropyltoluene)	µg/L	660	Surrogate	Cumene (isopropylbenzene) was used as the surrogate
sec-Butylbenzene	µg/L	240	EPA Region 9 Tap Water PRG	
Styrene	µg/L	100	EPA Region 9 Tap Water PRG	
tert-Amyl methyl ether	µg/L	11		
tert-Butyl alcohol	µg/L	1,800	Surrogate	Isobutanol was used as the surrogate
tert-Butylbenzene	µg/L	240	EPA Region 9 Tap Water PRG	
Tetrachloroethene	µg/L	5	CA/EPA Primary MCL	
Toluene	µg/L	150	CA Primary MCL	
trans-1,2-Dichloroethene	µg/L	10	CA Primary MCL	
trans-1,3-Dichloropropene	µg/L	0.5	CA Primary MCL	
Trichloroethene	µg/L	5	CA/EPA Primary MCL	
Vinyl chloride	µg/L	0.5	CA Primary MCL	
Xylenes, total	µg/L	1,750	CA Primary MCL	
Semivolatile Organic Compounds				
1,1'-Biphenyl	µg/L	300	EPA Region 9 Tap Water PRG	
1,2,4,5-Tetrachlorobenzene	µg/L	11	EPA Region 9 PRG	
1,2,4-Trichlorobenzene	µg/L	5	CA Primary MCL	
1,2-Dichlorobenzene	µg/L	600	CA/EPA Primary MCL	
1,3-Dichlorobenzene	µg/L	180	EPA Region 9 Tap Water PRG	
1,4-Dichlorobenzene	µg/L	5	CA Primary MCL	
1,4-Dioxane (p-dioxane)	µg/L	6.1	EPA Region 9 Tap Water PRG	
2,2'-Oxybis(1-Chloropropane)	µg/L	0.01	Surrogate	bis(2-Chloroethyl)ether was used as the surrogate
2,3,4,6-Tetrachlorophenol		NDRI		Not detected, SL not required
2,4,5-Trichlorophenol	µg/L	3,600	EPA Region 9 Tap Water PRG	
2,4,6-Trichlorophenol	µg/L	0.96	EPA Region 9 Tap Water PRG	CAL-modified PRG
2,4-Dichlorophenol	µg/L	110	EPA Region 9 Tap Water PRG	
2,4-Dimethylphenol	µg/L	730	EPA Region 9 Tap Water PRG	
2,4-Dinitrophenol	µg/L	73	EPA Region 9 Tap Water PRG	
2,4-Dinitrotoluene	µg/L	73	EPA Region 9 Tap Water PRG	
2,6-Dinitrotoluene	µg/L	36	EPA Region 9 Tap Water PRG	
2-Chloronaphthalene	µg/L	490	EPA Region 9 Tap Water PRG	
2-Chlorophenol	µg/L	30	EPA Region 9 Tap Water PRG	
2-Methylnaphthalene	µg/L	24	Calculated PRG	Based on surrogate toxic information
2-Methylphenol	µg/L	1,800	EPA Region 9 Tap Water PRG	
2-Nitroaniline	µg/L	110	EPA Region 9 Tap Water PRG	
2-Nitrophenol		NDRI		Not detected, SL not required
3&4-Methylphenol	µg/L	180	Surrogate	4-methylphenol was used as the surrogate
3,3'-Dichlorobenzidine	µg/L	0.15	EPA Region 9 Tap Water PRG	
3-Nitroaniline		NDRI		Not detected, SL not required
4,6-Dinitro-2-methylphenol		NDRI		Not detected, SL not required

TABLE 16a
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Analyte	Units	Screening Level	Source	Notes
Semivolatile Organic Compounds				
4-Bromophenylphenyl ether		NDRI		Not detected, SL not required
4-Chloro-3-methylphenol	µg/L	1,800	Surrogate	3-methylphenol was used as the surrogate
4-Chloroaniline	µg/L	150	EPA Region 9 Tap Water PRG	
4-Chlorophenylphenyl ether		NDRI		Not detected, SL not required
4-Methylphenol	µg/L	180	EPA Region 9 Tap Water PRG	
4-Nitroaniline		NDRI		Not detected, SL not required
4-Nitrophenol	µg/L	73	Surrogate	2,4-Dinitrophenol was used as the surrogate
Acenaphthene	µg/L	370	EPA Region 9 Tap Water PRG	
Acenaphthylene	µg/L	180	Surrogate	Pyrene was used as the surrogate
Acetophenone	µg/L	150,000	Surrogate	Benzoic acid was used as the surrogate
Anthracene	µg/L	1,800	EPA Region 9 Tap Water PRG	
Atrazine	µg/L	3	CA/EPA Primary MCL	
Benzaldehyde	µg/L	3,600	EPA Region 9 Tap Water PRG	
Benzo(a)anthracene	µg/L	0.092	EPA Region 9 Tap Water PRG	
Benzo(a)pyrene	µg/L	0.2	CA/EPA Primary MCL	
Benzo(b)fluoranthene	µg/L	0.092	EPA Region 9 Tap Water PRG	
Benzo(g,h,i)perylene	µg/L	180	Surrogate	Pyrene was used as the surrogate
Benzo(k)fluoranthene	µg/L	0.056	EPA Region 9 Tap Water PRG	CAL-modified PRG
Benzyl butyl phthalate	µg/L	7,300	EPA Region 9 Tap Water PRG	
bis(2-Chloroethoxy)methane	µg/L	0.01	Surrogate	bis(2-Chloroethyl)ether was used as the surrogate
bis(2-Chloroethyl)ether	µg/L	0.01	EPA Region 9 Tap Water PRG	
bis(2-Chloroisopropyl)ether		NDRI		Not detected, SL not required
bis(2-Ethylhexyl)phthalate	µg/L	4.8	EPA Region 9 Tap Water PRG	
Caprolactam	µg/L	18,000	EPA Region 9 Tap Water PRG	
Carbazole	µg/L	3.4	EPA Region 9 Tap Water PRG	
Chrysene	µg/L	0.56	EPA Region 9 Tap Water PRG	CAL-modified PRG
Dibenz(a,h)anthracene	µg/L	0.0092	EPA Region 9 Tap Water PRG	
Dibenzofuran	µg/L	12	EPA Region 9 Tap Water PRG	
Diethylphthalate	µg/L	29,000	EPA Region 9 Tap Water PRG	
Dimethylphthalate	µg/L	360,000	EPA Region 9 Tap Water PRG	
Di-n-butyl phthalate	µg/L	3,600	EPA Region 9 Tap Water PRG	
Di-n-octyl phthalate	µg/L	1,500	EPA Region 9 Tap Water PRG	
Diphenylamine		NDRI		Not detected, SL not required
Fluoranthene	µg/L	1,500	EPA Region 9 Tap Water PRG	
Fluorene	µg/L	240	EPA Region 9 Tap Water PRG	
Hexachlorobenzene	µg/L	1	CA/EPA Primary MCL	
Hexachlorobutadiene	µg/L	0.86	EPA Region 9 Tap Water PRG	
Hexachlorocyclopentadiene	µg/L	50	CA/EPA Primary MCL	
Hexachloroethane	µg/L	4.8	EPA Region 9 Tap Water PRG	
Indeno(1,2,3-c,d)pyrene	µg/L	0.092	EPA Region 9 Tap Water PRG	
Isophorone	µg/L	71	EPA Region 9 Tap Water PRG	
Naphthalene	µg/L	0.093	EPA Region 9 Tap Water PRG	CAL-modified PRG
Nitrobenzene	µg/L	3.4	EPA Region 9 Tap Water PRG	
N-Nitrosodi-n-propylamine	µg/L	0.0096	EPA Region 9 Tap Water PRG	
N-Nitrosodiphenylamine	µg/L	14	EPA Region 9 Tap Water PRG	
Pentachlorophenol	µg/L	1	EPA Region 9 Tap Water PRG	
Phenanthrene	µg/L	180	Surrogate	Pyrene was used as the surrogate
Phenol	µg/L	11,000	EPA Region 9 Tap Water PRG	
Pyrene	µg/L	180	EPA Region 9 Tap Water PRG	
Metals				
Aluminum	µg/L	1,000	CA Primary MCL	
Antimony	µg/L	6	CA/EPA Primary MCL	

TABLE 16a
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Analyte	Units	Screening Level	Source	Notes
Metals				
Arsenic	µg/L	10	EPA Primary MCL	
Barium	µg/L	1,000	CA Primary MCL	
Beryllium	µg/L	4	CA/EPA Primary MCL	
Boron	µg/L	7,300	EPA Region 9 Tap Water PRG	
Cadmium	µg/L	5	CA/EPA Primary MCL	
Chromium	µg/L	50	CA Primary MCL	
Cobalt	µg/L	730	EPA Region 9 Tap Water PRG	
Copper	µg/L	1,300	CA/EPA Primary MCL	
Lead	µg/L	15	CA/EPA Primary MCL	
Manganese	µg/L	880	EPA Region 9 Tap Water PRG	
Mercury	µg/L	2	CA/EPA Primary MCL	
Molybdenum	µg/L	180	EPA Region 9 Tap Water PRG	
Nickel	µg/L	100	CA Primary MCL	
Selenium	µg/L	50	CA/EPA Primary MCL	
Silicon		NA		SL not required
Silver	µg/L	180	EPA Region 9 Tap Water PRG	
Thallium	µg/L	2	CA/EPA Primary MCL	
Vanadium	µg/L	36	EPA Region 9 Tap Water PRG	
Zinc	µg/L	11,000	EPA Region 9 Tap Water PRG	
Calcium		NA		Essential nutrient; SL not required
Iron	µg/L	11,000	EPA Region 9 Tap Water PRG	
Magnesium		NA		Essential nutrient; SL not required
Potassium		NA		Essential nutrient; SL not required
Sodium		NA		Essential nutrient; SL not required
Cyanide				
Cyanide	µg/L	200	CA/EPA Primary MCL	
Hexavalent Chromium				
Chromium, hexavalent	µg/L	50	CA Primary MCL	(1)
Metals (Dissolved)				
Aluminum (Dissolved)	µg/L	1,000	CA Primary MCL	
Antimony (Dissolved)	µg/L	6	CA/EPA Primary MCL	
Arsenic (Dissolved)	µg/L	10	EPA Primary MCL	
Barium (Dissolved)	µg/L	1,000	CA Primary MCL	
Beryllium (Dissolved)	µg/L	4	CA/EPA Primary MCL	
Boron (Dissolved)	µg/L	7,300	EPA Region 9 Tap Water PRG	
Cadmium (Dissolved)	µg/L	5	CA/EPA Primary MCL	
Chromium (Dissolved)	µg/L	50	CA Primary MCL	
Cobalt (Dissolved)	µg/L	730	EPA Region 9 Tap Water PRG	
Copper (Dissolved)	µg/L	1,300	CA/EPA Primary MCL	
Lead (Dissolved)	µg/L	15	CA/EPA Primary MCL	
Manganese (Dissolved)	µg/L	880	EPA Region 9 Tap Water PRG	
Mercury (Dissolved)	µg/L	2	CA/EPA Primary MCL	
Molybdenum (Dissolved)	µg/L	180	EPA Region 9 Tap Water PRG	
Nickel (Dissolved)	µg/L	100	CA Primary MCL	
Selenium (Dissolved)	µg/L	50	CA/EPA Primary MCL	
Silicon (Dissolved)		NA		SL not required
Silver (Dissolved)	µg/L	180	EPA Region 9 Tap Water PRG	
Thallium (Dissolved)	µg/L	2	CA/EPA Primary MCL	
Vanadium (Dissolved)	µg/L	36	EPA Region 9 Tap Water PRG	
Zinc (Dissolved)	µg/L	11,000	EPA Region 9 Tap Water PRG	
Calcium (Dissolved)		NA		Essential nutrient; SL not required
Iron (Dissolved)	µg/L	11,000	EPA Region 9 Tap Water PRG	

TABLE 16a
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Analyte	Units	Screening Level	Source	Notes
Metals (Dissolved)				
Magnesium (Dissolved)		NA		Essential nutrient; SL not required
Potassium (Dissolved)		NA		Essential nutrient; SL not required
Sodium (Dissolved)		NA		Essential nutrient; SL not required
Organochlorine Pesticides/PCBs				
4,4'-DDD	µg/L	0.28	EPA Region 9 Tap Water PRG	
4,4'-DDE	µg/L	0.2	EPA Region 9 Tap Water PRG	
4,4'-DDT	µg/L	0.2	EPA Region 9 Tap Water PRG	
Aldrin	µg/L	0.004	EPA Region 9 Tap Water PRG	
alpha-BHC	µg/L	0.011	EPA Region 9 Tap Water PRG	
alpha-Chlordane	µg/L	0.1	CA Primary MCL	
Aroclor-1016	µg/L	0.5	EPA Primary MCL	
Aroclor-1221	µg/L	0.5	EPA Primary MCL	
Aroclor-1232	µg/L	0.5	EPA Primary MCL	
Aroclor-1242	µg/L	0.5	EPA Primary MCL	
Aroclor-1248	µg/L	0.5	EPA Primary MCL	
Aroclor-1254	µg/L	0.5	EPA Primary MCL	
Aroclor-1260	µg/L	0.5	EPA Primary MCL	
beta-BHC	µg/L	0.037	EPA Region 9 Tap Water PRG	
delta-BHC	µg/L	0.011	Surrogate	alpha-BHC was used as the surrogate
Dieldrin	µg/L	0.0042	EPA Region 9 Tap Water PRG	
Endosulfan I	µg/L	220	EPA Region 9 Tap Water PRG	
Endosulfan II	µg/L	220	EPA Region 9 Tap Water PRG	
Endosulfan sulfate	µg/L	220	Surrogate	Endosulfan was used as the surrogate
Endrin	µg/L	2	CA Primary MCL	
Endrin aldehyde	µg/L	11	Surrogate	Endrin was used as the surrogate
Endrin ketone	µg/L	11	Surrogate	Endrin was used as the surrogate
gamma-BHC	µg/L	0.052	EPA Region 9 Tap Water PRG	
gamma-Chlordane	µg/L	0.1	CA Primary MCL	
Heptachlor	µg/L	0.01	CA Primary MCL	
Heptachlor epoxide	µg/L	0.01	EPA Region 9 Tap Water PRG	
Methoxychlor	µg/L	30	CA Primary MCL	
PCB-1262 (Aroclor 1262)		NDRI		Not detected, SL not required
PCB-1268 (Aroclor 1268)		NDRI		Not detected, SL not required
Toxaphene	µg/L	3	EPA Region 9 Tap Water PRG	
Organophosphorus Pesticides				
Azinphos methyl		NDRI		Not detected, SL not required
Bolstar		NDRI		Not detected, SL not required
Chlorpyrifos	µg/L	110	EPA Region 9 PRG	
Coumaphos		NDRI		Not detected, SL not required
Demeton, Total		NDRI		Not detected, SL not required
Diazinon	µg/L	33	EPA Region 9 PRG	
Dichlorvos (DDVP)	µg/L	0.23	EPA Region 9 PRG	
Dimethoate	µg/L	7.3	EPA Region 9 PRG	
Disulfoton	µg/L	1.5	EPA Region 9 PRG	
EPN		NDRI		Not detected, SL not required
Ethion		NDRI		Not detected, SL not required
Ethoprop		NDRI		Not detected, SL not required
Fensulfothion		NDRI		Not detected, SL not required
Fenthion		NDRI		Not detected, SL not required
Malathion	µg/L	730	EPA Region 9 PRG	
Merphos	µg/L	1.1	EPA Region 9 PRG	
Mevinphos		NDRI		Not detected, SL not required

TABLE 16a
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Analyte	Units	Screening Level	Source	Notes
Organophosphorus Pesticides				
Monocrotophos		NDRI		Not detected, SL not required
Naled	µg/L	73	EPA Region 9 PRG	
Parathion, ethyl		NDRI		Not detected, SL not required
Parathion, methyl		NDRI		Not detected, SL not required
Pendimethalin		NDRI		Not detected, SL not required
Phorate	µg/L	7.3	EPA Region 9 PRG	
Ronnel	µg/L	1,800	EPA Region 9 PRG	
S-ethyl di-N,N-propylthiocarbamate (EPT		NDRI		Not detected, SL not required
Stirophos (Tetrachlorvinphos)		NDRI		Not detected, SL not required
Sulfotep		NDRI		Not detected, SL not required
Tetraethyl pyrophosphite (TEPP)		NDRI		Not detected, SL not required
Tokuthion (Protothiofos)		NDRI		Not detected, SL not required
Tributyl phosphorotrithioate (DEF)		NDRI		Not detected, SL not required
Trichloronate		NDRI		Not detected, SL not required
Trifluralin		NDRI		Not detected, SL not required
Dioxins/Furans (2)				
1,2,3,4,6,7,8-HpCDD	pg/L	45	TEF Calculation	
1,2,3,4,6,7,8-HpCDF	pg/L	45	TEF Calculation	
1,2,3,4,7,8,9-HpCDF	pg/L	45	TEF Calculation	
1,2,3,4,7,8-HxCDD	pg/L	4.5	TEF Calculation	
1,2,3,4,7,8-HxCDF	pg/L	4.5	TEF Calculation	
1,2,3,6,7,8-HxCDD	pg/L	4.5	TEF Calculation	
1,2,3,6,7,8-HxCDF	pg/L	4.5	TEF Calculation	
1,2,3,7,8,9-HxCDD	pg/L	4.5	TEF Calculation	
1,2,3,7,8,9-HxCDF	pg/L	4.5	TEF Calculation	
1,2,3,7,8-PeCDD	pg/L	0.45	TEF Calculation	
1,2,3,7,8-PeCDF	pg/L	9	TEF Calculation	
2,3,4,6,7,8-HxCDF	pg/L	4.5	TEF Calculation	
2,3,4,7,8-PeCDF	pg/L	0.9	TEF Calculation	
2,3,7,8-TCDD	pg/L	0.45	EPA Region 9 Tap Water PRG	Listed in EPA Region 9 Tap Water PRG list as Dioxin
2,3,7,8-TCDF	pg/L	4.5	TEF Calculation	
HPCDD (total)		NA		SL not required
HPCDF (total)		NA		SL not required
HxCDD (total)		NA		SL not required
HxCDF (total)		NA		SL not required
OCDD	pg/L	4,500	TEF Calculation	
OCDF	pg/L	4,500	TEF Calculation	
PeCDD (total)		NA		SL not required
PeCDF (total)		NA		SL not required
TCDD (total)		NA		SL not required
TCDF (total)		NA		SL not required
TEQ WHO-98		NA		SL not required
Anions				
Chloride		NA		Water Quality Indicator, SL not required
Nitrate as Nitrogen		NA		Natural Attenuation Parameter, SL not required
Nitrite as Nitrogen		NA		Natural Attenuation Parameter, SL not required
Sulfate		NA		Natural Attenuation Parameter, SL not required
Dissolved Gases				
Ethane		NA		Natural Attenuation Parameter, SL not required
Ethene		NA		Natural Attenuation Parameter, SL not required
Methane		NA		Natural Attenuation Parameter, SL not required

TABLE 16a
Groundwater Screening Levels
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Analyte	Units	Screening Level	Source	Notes
Water Quality Indicators				
Hardness (as CaCO3)		NA		Water Quality Indicator, SL not required
Total Dissolved Solids		NA		Water Quality Indicator, SL not required
Total Organic Carbon		NA		Water Quality Indicator, SL not required

Notes:

In general, screening levels are the lower of the Federal or California Primary MCL, or EPA Region 9 tap water PRG, if Primary MCL is not available.

EPA Region 9 PRGs were last updated in October 2004.

(1) Because there is no MCL for hexavalent chromium, the CA Primary MCL for total chromium is used; the EPA Region 9 Tap Water PRG for hexavalent chromium is 110 µg/L.

(2) Dioxin/Furan screening levels calculated using Toxicity Equivalency Factors (EPA, 2000)

MCL Maximum Contaminant Level
NA not applicable
NDRI not detected in groundwater during the Remedial Investigation phase
PRG Preliminary Remediation Goal
TEF Toxicity Equivalence Factor
µg/L micrograms per liter
mg/L milligrams per liter
pg/L picograms per liter

TABLE 16b
Soil Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
1,1,1-Trichloroethane	µg/kg	1,200,000	EPA Region 9 Residential Soil PRG	
1,1,2,2-Tetrachloroethane	µg/kg	410	EPA Region 9 Residential Soil PRG	
1,1,2-Trichloroethane	µg/kg	730	EPA Region 9 Residential Soil PRG	
1,1-Dichloroethane	µg/kg	2,800	EPA Region 9 Residential Soil PRG	CAL-modified PRG
1,1-Dichloroethene	µg/kg	120,000	EPA Region 9 Residential Soil PRG	
1,1-Dichloropropene		NDRI		Not detected, SL not required
1,2,3-Trichlorobenzene	µg/kg	62,000	Surrogate	1,2,4-Trichlorobenzene was used as the surrogate
1,2,3-Trichloropropane		NDRI		Not detected, SL not required
1,2,4-Trichlorobenzene	µg/kg	62,000	EPA Region 9 Residential Soil PRG	
1,2,4-Trimethylbenzene		NDRI		Not detected, SL not required
1,2-Dibromo-3-chloropropane	µg/kg	30	EPA Region 9 Residential Soil PRG	CAL-modified PRG
1,2-Dibromoethane	µg/kg	32	EPA Region 9 Residential Soil PRG	
1,2-Dichlorobenzene	µg/kg	600,000	EPA Region 9 Residential Soil PRG	
1,2-Dichloroethane	µg/kg	280	EPA Region 9 Residential Soil PRG	
1,2-Dichloropropane	µg/kg	340	EPA Region 9 Residential Soil PRG	
1,3-Dichlorobenzene	µg/kg	530,000	EPA Region 9 Residential Soil PRG	
1,3-Dichloropropane		NDRI		Not detected, SL not required
1,4-Dichlorobenzene	µg/kg	3,400	EPA Region 9 Residential Soil PRG	
1,4-Dioxane (p-dioxane)	µg/kg	44,000	EPA Region 9 Residential Soil PRG	
2-Hexanone		NDRI		Not detected, SL not required
Acetone	µg/kg	14,000,000	EPA Region 9 Residential Soil PRG	
Benzene	µg/kg	640	EPA Region 9 Residential Soil PRG	
Bromochloromethane		NDRI		Not detected, SL not required
Bromodichloromethane	µg/kg	820	EPA Region 9 Residential Soil PRG	
Bromoform	µg/kg	62,000	EPA Region 9 Residential Soil PRG	
Bromomethane	µg/kg	3,900	EPA Region 9 Residential Soil PRG	
Carbon disulfide	µg/kg	360,000	EPA Region 9 Residential Soil PRG	
Carbon tetrachloride	µg/kg	250	EPA Region 9 Residential Soil PRG	
Chlorobenzene	µg/kg	150,000	EPA Region 9 Residential Soil PRG	
Chloroethane	µg/kg	3,000	EPA Region 9 Residential Soil PRG	
Chloroform	µg/kg	940	EPA Region 9 Residential Soil PRG	CAL-modified PRG
Chloromethane	µg/kg	47,000	EPA Region 9 Residential Soil PRG	
cis-1,2-Dichloroethene	µg/kg	43,000	EPA Region 9 Residential Soil PRG	
cis-1,3-Dichloropropene	µg/kg	780	EPA Region 9 Residential Soil PRG	
Cyclohexane	µg/kg	140,000	EPA Region 9 Residential Soil PRG	
Dibromochloromethane	µg/kg	1,100	EPA Region 9 Residential Soil PRG	
Ethyl tert-butyl ether	µg/kg	32,000	Surrogate	Methyl tertbutyl ether (MTBE) was used as the surrogate
Ethylbenzene	µg/kg	400,000	EPA Region 9 Residential Soil PRG	
Freon 11	µg/kg	390,000	EPA Region 9 Residential Soil PRG	
Freon 12	µg/kg	94,000	EPA Region 9 Residential Soil PRG	
Freon 113	µg/kg	5,600,000	EPA Region 9 Residential Soil PRG	
Isopropyl ether		NDRI		Not detected, SL not required
Isopropylbenzene (cumene)	µg/kg	570,000	EPA Region 9 Residential Soil PRG	
Methyl acetate	µg/kg	22,000,000	EPA Region 9 Residential Soil PRG	
Methyl ethyl ketone	µg/kg	22,000,000	EPA Region 9 Residential Soil PRG	
Methyl isobutyl ketone	µg/kg	5,300,000	EPA Region 9 Residential Soil PRG	
Methyl tert-butyl ether	µg/kg	32,000	EPA Region 9 Residential Soil PRG	
Methylcyclohexane	µg/kg	2,600,000	EPA Region 9 Residential Soil PRG	
Methylene chloride	µg/kg	9,100	EPA Region 9 Residential Soil PRG	
Styrene	µg/kg	1,700,000	EPA Region 9 Residential Soil PRG	

TABLE 16b
Soil Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
tert-Amyl methyl ether	µg/kg	32,000	Surrogate	Methyl tertbutyl ether (MTBE) was used as the surrogate
tert-Butyl alcohol	µg/kg	13,000,000	Surrogate	Isobutanol was used as the surrogate
Tetrachloroethene	µg/kg	480	EPA Region 9 Residential Soil PRG	
Toluene	µg/kg	520,000	EPA Region 9 Residential Soil PRG	
trans-1,2-Dichloroethene	µg/kg	69,000	EPA Region 9 Residential Soil PRG	
trans-1,3-Dichloropropene	µg/kg	780	EPA Region 9 Residential Soil PRG	
Trichloroethene	µg/kg	53	EPA Region 9 Residential Soil PRG	
Vinyl chloride	µg/kg	79	EPA Region 9 Residential Soil PRG	
Xylenes, total	µg/kg	270,000	EPA Region 9 Residential Soil PRG	
Semivolatile Organic Compounds				
1,1'-Biphenyl	µg/kg	3,000,000	EPA Region 9 Residential Soil PRG	
1,2,4,5-Tetrachlorobenzene	µg/kg	3,200	EPA Region 9 Residential Soil PRG	
1,4-Dioxane (p-dioxane)	µg/kg	44,000	EPA Region 9 Residential Soil PRG	
2,2'-Oxybis(1-Chloropropane)	µg/kg	220	Surrogate	bis(2-Chloroethyl)ether was used as the surrogate
2,3,4,6-Tetrachlorophenol		NDRI		Not detected, SL not required
2,4,5-Trichlorophenol	µg/kg	6,100,000	EPA Region 9 Residential Soil PRG	
2,4,6-Trichlorophenol	µg/kg	6,100	EPA Region 9 Residential Soil PRG	
2,4-Dichlorophenol	µg/kg	180,000	EPA Region 9 Residential Soil PRG	
2,4-Dimethylphenol	µg/kg	1,200,000	EPA Region 9 Residential Soil PRG	
2,4-Dinitrophenol	µg/kg	120,000	EPA Region 9 Residential Soil PRG	
2,4-Dinitrotoluene	µg/kg	120,000	EPA Region 9 Residential Soil PRG	
2,6-Dinitrotoluene	µg/kg	61,000	EPA Region 9 Residential Soil PRG	
2-Chloronaphthalene	µg/kg	4,900,000	EPA Region 9 Residential Soil PRG	
2-Chlorophenol	µg/kg	63,000	EPA Region 9 Residential Soil PRG	
2-Methylnaphthalene	µg/kg	150,000	Calculated PRG	Based on surrogate toxic information
2-Methylphenol	µg/kg	3,100,000	EPA Region 9 Residential Soil PRG	
2-Nitroaniline	µg/kg	180,000	EPA Region 9 Residential Soil PRG	
2-Nitrophenol		NDRI		Not detected, SL not required
3,3'-Dichlorobenzidine	µg/kg	1,100	EPA Region 9 Residential Soil PRG	
3-Nitroaniline	µg/kg	18,000	EPA Region 9 Residential Soil PRG	
4,6-Dinitro-2-methylphenol		NDRI		Not detected, SL not required
4-Bromophenylphenyl ether		NDRI		Not detected, SL not required
4-Chloro-3-methylphenol	µg/kg	3,100,000	Surrogate	3-methylphenol was used as the surrogate
4-Chloroaniline	µg/kg	240,000	EPA Region 9 Residential Soil PRG	
4-Chlorophenylphenyl ether		NDRI		Not detected, SL not required
4-Methylphenol	µg/kg	310,000	EPA Region 9 Residential Soil PRG	
4-Nitroaniline	µg/kg	23,000	EPA Region 9 Residential Soil PRG	
4-Nitrophenol	µg/kg	120,000	Surrogate	2,4-Dinitrophenol was used as the surrogate
Acenaphthene	µg/kg	3,700,000	EPA Region 9 Residential Soil PRG	
Acenaphthylene	µg/kg	2,300,000	Surrogate	Pyrene was used as the surrogate
Acetophenone	µg/kg	100,000,000	Surrogate	Benzoic acid was used as the surrogate
Anthracene	µg/kg	22,000,000	EPA Region 9 Residential Soil PRG	
Atrazine	µg/kg	2,200	EPA Region 9 Residential Soil PRG	
Benzaldehyde	µg/kg	6,100,000	EPA Region 9 Residential Soil PRG	
Benzo(a)anthracene	µg/kg	620	EPA Region 9 Residential Soil PRG	
Benzo(a)pyrene	µg/kg	62	EPA Region 9 Residential Soil PRG	
Benzo(b)fluoranthene	µg/kg	620	EPA Region 9 Residential Soil PRG	
Benzo(g,h,i)perylene	µg/kg	2,300,000	Surrogate	Pyrene was used as the surrogate
Benzo(k)fluoranthene	µg/kg	380	EPA Region 9 Residential Soil PRG	CAL-modified PRG
Benzyl butyl phthalate	µg/kg	12,000,000	EPA Region 9 Residential Soil PRG	
bis(2-Chloroethoxy)methane	µg/kg	220	Surrogate	bis(2-Chloroethyl)ether was used as the surrogate

TABLE 16b
Soil Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Semivolatile Organic Compounds				
bis(2-Chloroethyl)ether	µg/kg	220	EPA Region 9 Residential Soil PRG	
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	EPA Region 9 Residential Soil PRG	
Caprolactam	µg/kg	31,000,000	EPA Region 9 Residential Soil PRG	
Carbazole	µg/kg	24,000	EPA Region 9 Residential Soil PRG	
Chrysene	µg/kg	3,800	EPA Region 9 Residential Soil PRG	CAL-modified PRG
Dibenz(a,h)anthracene	µg/kg	62	EPA Region 9 Residential Soil PRG	
Dibenzofuran	µg/kg	150,000	EPA Region 9 Residential Soil PRG	
Diethylphthalate	µg/kg	49,000,000	EPA Region 9 Residential Soil PRG	
Dimethylphthalate	µg/kg	100,000,000	EPA Region 9 Residential Soil PRG	
Di-n-butyl phthalate	µg/kg	6,100,000	EPA Region 9 Residential Soil PRG	
Di-n-octyl phthalate	µg/kg	2,400,000	EPA Region 9 Residential Soil PRG	
Fluoranthene	µg/kg	2,300,000	EPA Region 9 Residential Soil PRG	
Fluorene	µg/kg	2,700,000	EPA Region 9 Residential Soil PRG	
Hexachlorobenzene	µg/kg	300	EPA Region 9 Residential Soil PRG	
Hexachlorobutadiene	µg/kg	6,200	EPA Region 9 Residential Soil PRG	
Hexachlorocyclopentadiene	µg/kg	370,000	EPA Region 9 Residential Soil PRG	
Hexachloroethane	µg/kg	35,000	EPA Region 9 Residential Soil PRG	
Indeno(1,2,3-c,d)pyrene	µg/kg	620	EPA Region 9 Residential Soil PRG	
Isophorone	µg/kg	510,000	EPA Region 9 Residential Soil PRG	
Naphthalene	µg/kg	1,700	EPA Region 9 Residential Soil PRG	CAL-modified PRG
Nitrobenzene	µg/kg	20,000	EPA Region 9 Residential Soil PRG	
N-Nitrosodi-n-propylamine	µg/kg	69	EPA Region 9 Residential Soil PRG	
N-Nitrosodiphenylamine	µg/kg	99,000	EPA Region 9 Residential Soil PRG	
Pentachlorophenol	µg/kg	3,000	EPA Region 9 Residential Soil PRG	
Phenanthrene	µg/kg	2,300,000	Surrogate	Pyrene was used as the surrogate
Phenol	µg/kg	18,000,000	EPA Region 9 Residential Soil PRG	
Pyrene	µg/kg	2,300,000	EPA Region 9 Residential Soil PRG	
Metals				
Aluminum	mg/kg	76,000	EPA Region 9 Residential Soil PRG	
Antimony	mg/kg	31	EPA Region 9 Residential Soil PRG	
Arsenic	mg/kg	0.062 / 22	EPA Region 9 Residential Soil PRG	0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.
Barium	mg/kg	5,400	EPA Region 9 Residential Soil PRG	
Beryllium	mg/kg	150	EPA Region 9 Residential Soil PRG	
Cadmium	mg/kg	37	EPA Region 9 Residential Soil PRG	
Chromium	mg/kg	210	EPA Region 9 Residential Soil PRG	
Cobalt	mg/kg	900	EPA Region 9 Residential Soil PRG	
Copper	mg/kg	3,100	EPA Region 9 Residential Soil PRG	
Lead	mg/kg	194 / 340	DTSC's Lead Risk Assessment Spreadsheet Version 7	194 mg/kg: including homegrown produce pathway; 340 mg/kg: excluding homegrown produce pathway.
Manganese	mg/kg	1,800	EPA Region 9 Residential Soil PRG	
Mercury	mg/kg	23	EPA Region 9 Residential Soil PRG	
Nickel	mg/kg	1,600	EPA Region 9 Residential Soil PRG	
Selenium	mg/kg	390	EPA Region 9 Residential Soil PRG	
Silver	mg/kg	390	EPA Region 9 Residential Soil PRG	
Thallium	mg/kg	5.2	EPA Region 9 Residential Soil PRG	
Vanadium	mg/kg	78	EPA Region 9 Residential Soil PRG	
Zinc	mg/kg	23,000	EPA Region 9 Residential Soil PRG	
Calcium		NA		Essential nutrient; SL not required
Iron	mg/kg	23,000	EPA Region 9 Residential Soil PRG	
Magnesium		NA		Essential nutrient; SL not required

TABLE 16b
Soil Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Metals				
Potassium		NA		Essential nutrient; SL not required
Sodium		NA		Essential nutrient; SL not required
Organochlorine Pesticides/PCBs				
4,4'-DDD	µg/kg	2,400	EPA Region 9 Residential Soil PRG	
4,4'-DDE	µg/kg	1,700	EPA Region 9 Residential Soil PRG	
4,4'-DDT	µg/kg	1,700	EPA Region 9 Residential Soil PRG	
Aldrin	µg/kg	29	EPA Region 9 Residential Soil PRG	
alpha-BHC	µg/kg	90	EPA Region 9 Residential Soil PRG	
alpha-Chlordane	µg/kg	1,600	EPA Region 9 Residential Soil PRG	
Aroclor-1016	µg/kg	3,900	EPA Region 9 Residential Soil PRG	
Aroclor-1221	µg/kg	220	EPA Region 9 Residential Soil PRG	
Aroclor-1232	µg/kg	220	EPA Region 9 Residential Soil PRG	
Aroclor-1242	µg/kg	220	EPA Region 9 Residential Soil PRG	
Aroclor-1248	µg/kg	220	EPA Region 9 Residential Soil PRG	
Aroclor-1254	µg/kg	220	EPA Region 9 Residential Soil PRG	
Aroclor-1260	µg/kg	220	EPA Region 9 Residential Soil PRG	
beta-BHC	µg/kg	320	EPA Region 9 Residential Soil PRG	
delta-BHC	µg/kg	90	Surrogate	alpha-BHC was used as the surrogate
Dieldrin	µg/kg	30	EPA Region 9 Residential Soil PRG	
Endosulfan I	µg/kg	370,000	EPA Region 9 Residential Soil PRG	
Endosulfan II	µg/kg	370,000	EPA Region 9 Residential Soil PRG	
Endosulfan sulfate	µg/kg	370,000	Surrogate	Endosulfan was used as the surrogate
Endrin	µg/kg	18,000	EPA Region 9 Residential Soil PRG	
Endrin aldehyde	µg/kg	18,000	Surrogate	Endrin was used as the surrogate
Endrin ketone	µg/kg	18,000	Surrogate	Endrin was used as the surrogate
gamma-BHC	µg/kg	440	EPA Region 9 Residential Soil PRG	
gamma-Chlordane	µg/kg	1,600	EPA Region 9 Residential Soil PRG	
Heptachlor	µg/kg	110	EPA Region 9 Residential Soil PRG	
Heptachlor epoxide	µg/kg	53	EPA Region 9 Residential Soil PRG	
Methoxychlor	µg/kg	310,000	EPA Region 9 Residential Soil PRG	
PCB-1262 (Aroclor 1262)		NDRI		Not detected, SL not required
PCB-1268 (Aroclor 1268)		NDRI		Not detected, SL not required
Toxaphene	µg/kg	440	EPA Region 9 Residential Soil PRG	
Dioxins/Furans (1)				
1,2,3,4,6,7,8-HpCDD	ng/kg	390	TEF Calculation	
1,2,3,4,6,7,8-HpCDF	ng/kg	390	TEF Calculation	
1,2,3,4,7,8,9-HpCDF	ng/kg	390	TEF Calculation	
1,2,3,4,7,8-HxCDD	ng/kg	39	TEF Calculation	
1,2,3,4,7,8-HxCDF	ng/kg	39	TEF Calculation	
1,2,3,6,7,8-HxCDD	ng/kg	39	TEF Calculation	
1,2,3,6,7,8-HxCDF	ng/kg	39	TEF Calculation	
1,2,3,7,8,9-HxCDD	ng/kg	39	TEF Calculation	
1,2,3,7,8,9-HxCDF	ng/kg	39	TEF Calculation	
1,2,3,7,8-PeCDD	ng/kg	3.9	TEF Calculation	
1,2,3,7,8-PeCDF	ng/kg	78	TEF Calculation	
2,3,4,6,7,8-HxCDF	ng/kg	39	TEF Calculation	
2,3,4,7,8-PeCDF	ng/kg	7.8	TEF Calculation	
2,3,7,8-TCDD	ng/kg	3.9	EPA Region 9 Residential Soil PRG	Listed in EPA Region 9 Residential Soil PRG list as Dioxin
2,3,7,8-TCDF	ng/kg	39	TEF Calculation	
OCDD	ng/kg	39,000	TEF Calculation	
OCDF	ng/kg	39,000	TEF Calculation	

Notes:

(1) Dioxin/Furan screening levels calculated using Toxicity Equivalency Factors (EPA 2000)

EPA Region 9 PRGs were last updated in October 2004.

DTSC	Department of Toxic Substances Control
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
PRG	Preliminary Remediation Goal
TEF	Toxicity Equivalence Factor
mg/kg	milligrams per kilogram
ng/kg	nanograms per kilogram

TABLE 16c
Soil Gas Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
1,1,1-Trichloroethane	µg/m³	23,000	10 x EPA Region 9 Ambient Air PRG	
1,1,2,2-Tetrachloroethane	µg/m³	0.33	10 x EPA Region 9 Ambient Air PRG	
1,1,2-Trichloroethane	µg/m³	1.2	10 x EPA Region 9 Ambient Air PRG	
1,1-Dichloroethane	µg/m³	12	10 x EPA Region 9 Ambient Air PRG	CAL-modified PRG
1,1-Dichloroethene	µg/m³	2,100	10 x EPA Region 9 Ambient Air PRG	
1,2,4-Trichlorobenzene	µg/m³	37	10 x EPA Region 9 Ambient Air PRG	
1,2,4-Trimethylbenzene	µg/m³	62	10 x EPA Region 9 Ambient Air PRG	
1,2-Dibromoethane	µg/m³	0.034	10 x EPA Region 9 Ambient Air PRG	
1,2-Dichlorobenzene	µg/m³	2,100	10 x EPA Region 9 Ambient Air PRG	
1,2-Dichloroethane	µg/m³	0.74	10 x EPA Region 9 Ambient Air PRG	
1,2-Dichloropropane	µg/m³	0.99	10 x EPA Region 9 Ambient Air PRG	
1,3,5-Trimethylbenzene	µg/m³	62	10 x EPA Region 9 Ambient Air PRG	
1,3-Butadiene	µg/m³	0.11	10 x EPA Region 9 Ambient Air PRG	CAL-modified PRG
1,3-Dichlorobenzene	µg/m³	1,100	10 x EPA Region 9 Ambient Air PRG	
1,4-Dichlorobenzene	µg/m³	3.1	10 x EPA Region 9 Ambient Air PRG	
1,4-Dioxane (p-dioxane)	µg/m³	6.1	10 x EPA Region 9 Ambient Air PRG	
2,2,4-Trimethylpentane	µg/m³	2,100	Surrogate	n-Hexane was used as the surrogate
2-Hexanone		NDRI		Not detected, SL not required
3-Chloropropene	µg/m³	10	10 x EPA Region 9 Ambient Air PRG	
4-Ethyltoluene	µg/m³	1,100	Surrogate	Xylenes was used as the surrogate
Acetone	µg/m³	33,000	10 x EPA Region 9 Ambient Air PRG	
Benzene	µg/m³	2.5	10 x EPA Region 9 Ambient Air PRG	
Benzyl chloride	µg/m³	0.4	10 x EPA Region 9 Ambient Air PRG	
Bromodichloromethane	µg/m³	1.1	10 x EPA Region 9 Ambient Air PRG	
Bromoform	µg/m³	17	10 x EPA Region 9 Ambient Air PRG	
Bromomethane	µg/m³	52	10 x EPA Region 9 Ambient Air PRG	
Carbon disulfide	µg/m³	7,300	10 x EPA Region 9 Ambient Air PRG	
Carbon tetrachloride	µg/m³	1.3	10 x EPA Region 9 Ambient Air PRG	
Chlorobenzene	µg/m³	620	10 x EPA Region 9 Ambient Air PRG	
Chloroethane	µg/m³	23	10 x EPA Region 9 Ambient Air PRG	
Chloroform	µg/m³	0.83	10 x EPA Region 9 Ambient Air PRG	
Chloromethane	µg/m³	950	10 x EPA Region 9 Ambient Air PRG	
cis-1,2-Dichloroethene	µg/m³	370	10 x EPA Region 9 Ambient Air PRG	
cis-1,3-Dichloropropene	µg/m³	4.8	10 x EPA Region 9 Ambient Air PRG	
Cyclohexane	µg/m³	62,000	10 x EPA Region 9 Ambient Air PRG	
Dibromochloromethane	µg/m³	0.8	10 x EPA Region 9 Ambient Air PRG	
Ethanol	µg/m³	18,000	Surrogate	Methanol was used as the surrogate
Ethylbenzene	µg/m³	11,000	10 x EPA Region 9 Ambient Air PRG	
Freon 11	µg/m³	7,300	10 x EPA Region 9 Ambient Air PRG	
Freon 12	µg/m³	2,100	10 x EPA Region 9 Ambient Air PRG	
Freon 113	µg/m³	310,000	10 x EPA Region 9 Ambient Air PRG	
Freon 114	µg/m³	310,000	Surrogate	Freon 113 was used as the surrogate
Freon 134a	µg/m³	310,000	Surrogate	Freon 113 was used as the surrogate
Hexachlorobutadiene	µg/m³	0.86	10 x EPA Region 9 Ambient Air PRG	
Isopropanol	µg/m³	11,000	Surrogate	Isobutanol was used as the surrogate
Isopropylbenzene (cumene)	µg/m³	4,000	10 x EPA Region 9 Ambient Air PRG	
Methyl ethyl ketone	µg/m³	51,000	10 x EPA Region 9 Ambient Air PRG	
Methyl isobutyl ketone	µg/m³	31,000	10 x EPA Region 9 Ambient Air PRG	
Methyl tert-butyl ether	µg/m³	74	10 x EPA Region 9 Ambient Air PRG	
Methylene chloride	µg/m³	41	10 x EPA Region 9 Ambient Air PRG	
Naphthalene	µg/m³	0.56	10 x EPA Region 9 Ambient Air PRG	CAL-modified PRG
n-Heptane	µg/m³	2,100	Surrogate	n-Hexane was used as the surrogate

TABLE 16c
Soil Gas Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
n-Propylbenzene	µg/m³	1,500	10 x EPA Region 9 Ambient Air PRG	
Styrene	µg/m³	11,000	10 x EPA Region 9 Ambient Air PRG	
Tetrachloroethene	µg/m³	3.2	10 x EPA Region 9 Ambient Air PRG	
Tetrahydrofuran	µg/m³	9.9	10 x EPA Region 9 Ambient Air PRG	
Toluene	µg/m³	4,000	10 x EPA Region 9 Ambient Air PRG	
Total hexanes	µg/m³	2,100	Surrogate	n-Hexane was used as the surrogate
trans-1,2-Dichloroethene	µg/m³	730	10 x EPA Region 9 Ambient Air PRG	
trans-1,3-Dichloropropene	µg/m³	4.8	10 x EPA Region 9 Ambient Air PRG	
Trichloroethene	µg/m³	0.17	10 x EPA Region 9 Ambient Air PRG	
Vinyl acetate	µg/m³	2,100	10 x EPA Region 9 Ambient Air PRG	
Vinyl chloride	µg/m³	1.1	10 x EPA Region 9 Ambient Air PRG	
Xylenes, m & p	µg/m³	1,100	10 x EPA Region 9 Ambient Air PRG	
Xylenes, o	µg/m³	1,100	10 x EPA Region 9 Ambient Air PRG	
Xylenes, total	µg/m³	1,100	10 x EPA Region 9 Ambient Air PRG	

Notes:

EPA Region 9 ambient air PRGs were last updated in October 2004 and are based on target cancer risk level of 10-6 or a noncancer hazard quotient of 1.

Screening levels for soil gas are calculated by multiplying ambient air PRGs by an attenuation factor of 10 (EPA 2002).

NDRI not detected in soil gas during the Remedial Investigation phase

PRG Preliminary Remediation Goal

µg/m³ micrograms per cubic meter

TABLE 16d
Ambient and Crawlspace Air Screening Levels
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Source	Notes
Volatile Organic Compounds				
1,1,1-Trichloroethane	µg/m³	2,300	EPA Region 9 Ambient Air PRG	
1,1,2,2-Tetrachloroethane	µg/m³	0.033	EPA Region 9 Ambient Air PRG	
1,1,2-Trichloroethane	µg/m³	0.12	EPA Region 9 Ambient Air PRG	
1,1-Dichloroethane	µg/m³	1.2	EPA Region 9 Ambient Air PRG	CAL-modified PRG
1,1-Dichloroethene	µg/m³	210	EPA Region 9 Ambient Air PRG	
1,2,4-Trichlorobenzene	µg/m³	3.7	EPA Region 9 Ambient Air PRG	
1,2,4-Trimethylbenzene	µg/m³	6.2	EPA Region 9 Ambient Air PRG	
1,2-Dibromoethane	µg/m³	0.0034	EPA Region 9 Ambient Air PRG	
1,2-Dichlorobenzene	µg/m³	210	EPA Region 9 Ambient Air PRG	
1,2-Dichloroethane	µg/m³	0.074	EPA Region 9 Ambient Air PRG	
1,2-Dichloropropane	µg/m³	0.099	EPA Region 9 Ambient Air PRG	
1,3,5-Trimethylbenzene	µg/m³	6.2	EPA Region 9 Ambient Air PRG	
1,3-Dichlorobenzene	µg/m³	110	EPA Region 9 Ambient Air PRG	
1,4-Dichlorobenzene	µg/m³	0.31	EPA Region 9 Ambient Air PRG	
1,4-Dioxane (p-dioxane)	µg/m³	0.61	EPA Region 9 Ambient Air PRG	
Benzene	µg/m³	0.25	EPA Region 9 Ambient Air PRG	
Bromomethane	µg/m³	5.2	EPA Region 9 Ambient Air PRG	
Carbon tetrachloride	µg/m³	0.13	EPA Region 9 Ambient Air PRG	
Chlorobenzene	µg/m³	62	EPA Region 9 Ambient Air PRG	
Chloroethane	µg/m³	2.3	EPA Region 9 Ambient Air PRG	
Chloroform	µg/m³	0.083	EPA Region 9 Ambient Air PRG	
Chloromethane	µg/m³	95	EPA Region 9 Ambient Air PRG	
cis-1,2-Dichloroethene	µg/m³	37	EPA Region 9 Ambient Air PRG	
cis-1,3-Dichloropropene	µg/m³	0.48	EPA Region 9 Ambient Air PRG	
Ethylbenzene	µg/m³	1,100	EPA Region 9 Ambient Air PRG	
Freon 11	µg/m³	730	EPA Region 9 Ambient Air PRG	
Freon 12	µg/m³	210	EPA Region 9 Ambient Air PRG	
Freon 113	µg/m³	31,000	EPA Region 9 Ambient Air PRG	
Freon 114	µg/m³	31,000	Surrogate	Freon 113 was used as the surrogate
Hexachlorobutadiene	µg/m³	0.086	EPA Region 9 Ambient Air PRG	
Methyl tert-butyl ether	µg/m³	7.4	EPA Region 9 Ambient Air PRG	
Methylene chloride	µg/m³	4.1	EPA Region 9 Ambient Air PRG	
Naphthalene	µg/m³	0.056	EPA Region 9 Ambient Air PRG	CAL-modified PRG
Styrene	µg/m³	1,100	EPA Region 9 Ambient Air PRG	
Tetrachloroethene	µg/m³	0.32	EPA Region 9 Ambient Air PRG	
Toluene	µg/m³	400	EPA Region 9 Ambient Air PRG	
trans-1,2-Dichloroethene	µg/m³	73	EPA Region 9 Ambient Air PRG	
trans-1,3-Dichloropropene	µg/m³	0.48	EPA Region 9 Ambient Air PRG	
Trichloroethene	µg/m³	0.017	EPA Region 9 Ambient Air PRG	
Vinyl chloride	µg/m³	0.11	EPA Region 9 Ambient Air PRG	
Xylenes, m & p	µg/m³	110	EPA Region 9 Ambient Air PRG	
Xylenes, o	µg/m³	110	EPA Region 9 Ambient Air PRG	
Xylenes, total	µg/m³	110	EPA Region 9 Ambient Air PRG	

Notes:

EPA Region 9 ambient air PRGs were last updated in October 2004 and are based on target cancer risk level of 10-6 or a noncancer hazard quotient of 1.

Cal-modified PRG - calculated by using a more conservative toxicity value than is presented in the USEPA Region 9 PRG Tables, resulting in a more conservative PRG

NA not applicable
NDRI not detected in ambient or crawlspace air during the Remedial Investigation phase
PRG Preliminary Remediation Goal
µg/m³ micrograms per cubic meter

TABLE 17
Analytical Results - Non-Aqueous Phase Liquid, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

	Sample Location	MW-14
	Sample Date	3/14/2005
Analyte	Units	Analytical Results
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/kg	2,400,000 J
1,1,2,2-Tetrachloroethane	µg/kg	ND (180,000) J
1,1,2-Trichloroethane	µg/kg	ND (180,000) J
1,1-Dichloroethane	µg/kg	1,300,000 J
1,1-Dichloroethene	µg/kg	ND (180,000) J
1,1-Dichloropropene	µg/kg	ND (180,000) J
1,2,3-Trichloropropane	µg/kg	ND (180,000) J
1,2-Dibromo-3-chloropropane	µg/kg	ND (910,000) J
1,2-Dibromoethane	µg/kg	ND (180,000) J
1,2-Dichlorobenzene	µg/kg	300,000 J
1,2-Dichloroethane	µg/kg	ND (180,000) J
1,2-Dichloropropane	µg/kg	ND (180,000) J
1,3-Dichloropropane	µg/kg	ND (180,000) J
2-Hexanone	µg/kg	ND (910,000) J
Acetone	µg/kg	ND (910,000) J
Benzene	µg/kg	200,000 J
Bromodichloromethane	µg/kg	ND (180,000) J
Bromoform	µg/kg	ND (180,000) J
Bromomethane	µg/kg	ND (180,000) J
Carbon disulfide	µg/kg	ND (180,000) J
Carbon tetrachloride	µg/kg	ND (180,000) J
Chlorobenzene	µg/kg	ND (180,000) J
Chloroethane	µg/kg	ND (180,000) J
Chloroform	µg/kg	ND (180,000) J
Chloromethane	µg/kg	ND (180,000) J
cis-1,2-Dichloroethene	µg/kg	25,000,000 J
cis-1,3-Dichloropropene	µg/kg	ND (180,000) J
Dibromochloromethane	µg/kg	ND (180,000) J
Ethyl tert-butyl ether	µg/kg	ND (180,000) J
Ethylbenzene	µg/kg	3,400,000 J
Freon 11	µg/kg	ND (180,000) J
Freon 113	µg/kg	ND (180,000) J
Freon 12	µg/kg	ND (91,000) J
Methyl ethyl ketone	µg/kg	ND (910,000) J
Methyl isobutyl ketone	µg/kg	ND (910,000) J
Methyl tert-butyl ether	µg/kg	ND (180,000) J
Methylamyl alcohol	µg/kg	ND (180,000) J
Methylene chloride	µg/kg	820,000 J
Styrene	µg/kg	ND (180,000) J
Tetrachloroethene	µg/kg	1,900,000 J
Toluene	µg/kg	36,000,000 J
trans-1,2-Dichloroethene	µg/kg	150,000 J
trans-1,3-Dichloropropene	µg/kg	ND (180,000) J
Trichloroethene	µg/kg	76,000,000 J
Vinyl chloride	µg/kg	ND (180,000) J
Xylenes, total	µg/kg	23,200,000 J

TABLE 17
Analytical Results - Non-Aqueous Phase Liquid, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	MW-14
	Sample Location	MW-14
	Sample Date	3/14/2005
Analyte	**Units**	**Analytical Results**
Semivolatile Organic Compounds		
1,2,4-Trichlorobenzene	µg/kg	ND (330)
1,3-Dichlorobenzene	µg/kg	ND (330)
1,4-Dichlorobenzene	µg/kg	20,000 J
1,4-Dioxane (p-dioxane)	µg/kg	53,000 J
2,4,5-Trichlorophenol	µg/kg	ND (1,700)
2,4,6-Trichlorophenol	µg/kg	ND (1,700)
2,4-Dichlorophenol	µg/kg	ND (1,700)
2,4-Dimethylphenol	µg/kg	ND (1,700)
2,4-Dinitrophenol	µg/kg	ND (1,700)
2,4-Dinitrotoluene	µg/kg	ND (330)
2,6-Dinitrotoluene	µg/kg	ND (330)
2-Chloronaphthalene	µg/kg	ND (330)
2-Chlorophenol	µg/kg	ND (1,700) J
2-Methylnaphthalene	µg/kg	15,000,000
2-Methylphenol	µg/kg	ND (1,700)
2-Nitroaniline	µg/kg	ND (330)
2-Nitrophenol	µg/kg	ND (1,700)
3&4-Methylphenol	µg/kg	ND (1,700)
3,3'-Dichlorobenzidine	µg/kg	ND (330)
3-Nitroaniline	µg/kg	ND (1,700)
4,6-Dinitro-2-methylphenol	µg/kg	ND (1,700)
4-Bromophenylphenyl ether	µg/kg	ND (330)
4-Chloro-3-methylphenol	µg/kg	ND (1,700)
4-Chloroaniline	µg/kg	ND (1,700) J
4-Chlorophenylphenyl ether	µg/kg	ND (330)
4-Nitroaniline	µg/kg	ND (1,700)
4-Nitrophenol	µg/kg	ND (1,700)
Acenaphthene	µg/kg	350,000 J
Acenaphthylene	µg/kg	ND (330)
Anthracene	µg/kg	37,000
Benzo(a)anthracene	µg/kg	34,000
Benzo(a)pyrene	µg/kg	ND (330)
Benzo(b)fluoranthene	µg/kg	13,000
Benzo(g,h,i)perylene	µg/kg	ND (330)
Benzo(k)fluoranthene	µg/kg	7,000
Benzyl alcohol	µg/kg	ND (1,700) J
Benzyl butyl phthalate	µg/kg	57,000 J
bis(2-Chloroethoxy)methane	µg/kg	ND (330)
bis(2-Chloroethyl)ether	µg/kg	ND (330) J
bis(2-Chloroisopropyl)ether	µg/kg	ND (330)
bis(2-Ethylhexyl)phthalate	µg/kg	76,000
Carbazole	µg/kg	15,000
Chrysene	µg/kg	38,000
Dibenz(a,h)anthracene	µg/kg	ND (330)
Dibenzofuran	µg/kg	140,000
Diethylphthalate	µg/kg	ND (330)
Dimethylphthalate	µg/kg	ND (330)

TABLE 17
Analytical Results - Non-Aqueous Phase Liquid, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Sample Location		MW-14
Sample Date		3/14/2005
Analyte	**Units**	**Analytical Results**
Semivolatile Organic Compounds		
Di-n-butyl phthalate	µg/kg	100,000
Di-n-octyl phthalate	µg/kg	ND (330) J
Diphenylamine	µg/kg	ND (330)
Fluoranthene	µg/kg	160,000
Fluorene	µg/kg	220,000
Hexachlorobenzene	µg/kg	ND (330)
Hexachlorobutadiene	µg/kg	ND (330)
Hexachlorocyclopentadiene	µg/kg	ND (330)
Hexachloroethane	µg/kg	ND (330) J
Indeno(1,2,3-c,d)pyrene	µg/kg	ND (330)
Isophorone	µg/kg	ND (330) J
Naphthalene	µg/kg	2,900,000
Nitrobenzene	µg/kg	ND (330)
N-Nitrosodi-n-propylamine	µg/kg	ND (330) J
Pentachlorophenol	µg/kg	63,000 J
Phenanthrene	µg/kg	470,000 J
Phenol	µg/kg	ND (1,700) J
Pyrene	µg/kg	160,000 J
Metals		
Aluminum	mg/kg	ND (400)
Antimony	mg/kg	ND (40) J
Arsenic	mg/kg	ND (80)
Barium	mg/kg	ND (20)
Beryllium	mg/kg	ND (0.4)
Boron	mg/kg	ND (40)
Cadmium	mg/kg	ND (2)
Calcium	mg/kg	ND (400)
Chromium	mg/kg	42
Cobalt	mg/kg	ND (8)
Copper	mg/kg	7.5 J
Iron	mg/kg	ND (400)
Lead	mg/kg	ND (40)
Magnesium	mg/kg	ND (200)
Manganese	mg/kg	ND (20)
Mercury	mg/kg	ND (0.025)
Molybdenum	mg/kg	ND (20)
Nickel	mg/kg	ND (20)
Potassium	mg/kg	ND (2,000)
Selenium	mg/kg	ND (80)
Silver	mg/kg	ND (4) R
Sodium	mg/kg	ND (200)
Thallium	mg/kg	ND (140)
Vanadium	mg/kg	ND (8)
Zinc	mg/kg	ND (8)
Organochlorine Pesticides/PCBs		
4,4'-DDD	µg/kg	3,100,000
4,4'-DDE	µg/kg	380,000

TABLE 17
Analytical Results - Non-Aqueous Phase Liquid, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

	Sample Location	MW-14
	Sample Date	3/14/2005
Analyte	Units	Analytical Results
Organochlorine Pesticides/PCBs		
4,4'-DDT	µg/kg	1,900
Aldrin	µg/kg	2,500 J
alpha-BHC	µg/kg	1,100 J
alpha-Chlordane	µg/kg	2,900 J
Aroclor-1016	µg/kg	ND (3,300)
Aroclor-1221	µg/kg	ND (6,600)
Aroclor-1232	µg/kg	ND (3,300)
Aroclor-1242	µg/kg	ND (3,300)
Aroclor-1248	µg/kg	ND (3,300)
Aroclor-1254	µg/kg	ND (3,300)
Aroclor-1260	µg/kg	ND (3,300)
beta-BHC	µg/kg	4,300
Chlordane	µg/kg	ND (17,000)
delta-BHC	µg/kg	ND (170)
Dieldrin	µg/kg	360,000
Endosulfan I	µg/kg	ND (170)
Endosulfan II	µg/kg	ND (330)
Endosulfan sulfate	µg/kg	ND (330)
Endrin	µg/kg	ND (330)
Endrin aldehyde	µg/kg	ND (330)
Endrin ketone	µg/kg	1,400
gamma-BHC	µg/kg	2,000 J
gamma-Chlordane	µg/kg	ND (170)
Heptachlor	µg/kg	ND (170)
Heptachlor epoxide	µg/kg	ND (170)
Methoxychlor	µg/kg	2,300 J
Toxaphene	µg/kg	ND (17,000)
Dioxins/Furans		
1,2,3,4,6,7,8-HpCDD	ng/kg	73,600
1,2,3,4,6,7,8-HpCDF	ng/kg	13,300
1,2,3,4,7,8,9-HpCDF	ng/kg	616
1,2,3,4,7,8-HxCDD	ng/kg	178
1,2,3,4,7,8-HxCDF	ng/kg	ND (47.2)
1,2,3,6,7,8-HxCDD	ng/kg	1,790
1,2,3,6,7,8-HxCDF	ng/kg	163 J1
1,2,3,7,8,9-HxCDD	ng/kg	456
1,2,3,7,8,9-HxCDF	ng/kg	213 J
1,2,3,7,8-PeCDD	ng/kg	70.3 J
1,2,3,7,8-PeCDF	ng/kg	45.7 J1
2,3,4,6,7,8-HxCDF	ng/kg	170
2,3,4,7,8-PeCDF	ng/kg	85.6
2,3,7,8-TCDD	ng/kg	ND (0.4)
2,3,7,8-TCDF	ng/kg	ND (1.4)
OCDD	ng/kg	985,000
OCDF	ng/kg	94,700
Total Dioxin Toxicity equivalent	ng/kg	1,400 J

TABLE 17
Analytical Results - Non-Aqueous Phase Liquid, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

	Sample Location	MW-14
	Sample Date	**3/14/2005**
Analyte	**Units**	**Analytical Results**
Property		
Flash point	°C	18

Notes:
ND not detected above the laboratory's reporting limit shown in parentheses
J estimated value
J1 estimated maximum possible concentration
R rejected for failure to meet quality control requirements
°C degrees Celcius
µg/kg micrograms per kilogram
mg/kg milligrams per kilogram
ng/kg nanograms per kilogram
Units are presented as reported by the laboratory.

TABLE 18
Summary of All Compounds Detected Above The Screening Level in Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Monitoring Well Samples: Number of Results (1)	Monitoring Well Samples: Number of Detects >Screening Level	Monitoring Well Samples: Maximum Detected Concentration	Grab Groundwater Samples: Number of Results (1)	Grab Groundwater Samples: Number of Detects >Screening Level	Grab Groundwater Samples: Maximum Detected Concentration
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/L	200	186	5	960	---	---	---
1,1,2,2-Tetrachloroethane	µg/L	1	186	2	18	---	---	---
1,1,2-Trichloroethane	µg/L	5	186	6	18	---	---	---
1,1-Dichloroethane	µg/L	5	187	53	3,200	69	13	890
1,1-Dichloroethene	µg/L	6	186	13	250	65	1	56
1,2,3-Trichlorobenzene	µg/L	7.2	140	1	9.2	69	1	20
1,2,4-Trichlorobenzene	µg/L	5	185	10	48	69	1	85
1,2,4-Trimethylbenzene	µg/L	12	74	13	1,700	69	5	620
1,2-Dibromo-3-chloropropane	µg/L	0.2	---	---	---	69	1	2.4
1,2-Dibromoethane	µg/L	0.05	186	1	0.4	---	---	---
1,2-Dichlorobenzene	µg/L	600	186	7	6,900	69	1	7,800
1,2-Dichloroethane	µg/L	0.5	187	26	38	69	4	9.7
1,2-Dichloropropane	µg/L	5	186	1	5.1	---	---	---
1,3,5-Trimethylbenzene	µg/L	12	74	12	2,500	69	3	160
1,3-Dichlorobenzene	µg/L	180	---	---	---	69	1	360
1,4-Dichlorobenzene	µg/L	5	185	29	1,100	69	5	3,500
1,4-Dioxane (p-dioxane)	µg/L	6.1	13	12	1,700	67	3	1,200
2,2-Dichloropropane	µg/L	0.16	48	1	0.5	---	---	---
Acetone	µg/L	5,500	188	5	9,700	---	---	---
Benzene	µg/L	1	189	56	4,000	69	12	230
Chlorobenzene	µg/L	70	187	29	870	69	2	6,700
Chloroethane	µg/L	4.6	187	27	340	69	2	680
cis-1,2-Dichloroethene	µg/L	6	188	83	90,000	69	14	2,500
cis-1,3-Dichloropropene	µg/L	0.5	186	2	7	69	1	4.2
Ethylbenzene	µg/L	700	187	4	4,000	---	---	---
Isopropyl ether	µg/L	11	14	2	430	---	---	---
Methyl isobutyl ketone	µg/L	2,000	187	15	49,000	---	---	---
Methyl tert-butyl ether	µg/L	13	187	5	83	69	2	45
Methylene chloride	µg/L	5	187	15	180	63	2	9.8
Naphthalene	µg/L	0.093	48	18	670	69	19	320
n-Propylbenzene	µg/L	240	48	1	450	---	---	---
Tetrachloroethene	µg/L	5	186	10	83	69	1	12

TABLE 18
Summary of All Compounds Detected Above The Screening Level in Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level	Monitoring Well Samples: Number of Results (1)	Monitoring Well Samples: Number of Detects >Screening Level	Monitoring Well Samples: Maximum Detected Concentration	Grab Groundwater Samples: Number of Results (1)	Grab Groundwater Samples: Number of Detects >Screening Level	Grab Groundwater Samples: Maximum Detected Concentration
Volatile Organic Compounds								
Toluene	µg/L	150	188	23	31,000	69	1	6,500
trans-1,2-Dichloroethene	µg/L	10	187	40	4,000	69	6	44
trans-1,3-Dichloropropene	µg/L	0.5	186	2	4.1	---	---	---
Trichloroethene	µg/L	5	187	56	160	69	9	880
Vinyl chloride	µg/L	0.5	187	87	15,000	69	19	80
Xylenes, total	µg/L	1,750	187	9	5,600	---	---	---
Semivolatile Organic Compounds								
1,4-Dioxane (p-dioxane)	µg/L	6.1	132	71	2,700	---	---	---
2,2'-Oxybis(1-Chloropropane)	µg/L	0.01	80	1	1.6	---	---	---
2,4,6-Trichlorophenol	µg/L	0.96	110	2	10	---	---	---
2-Methylnaphthalene	µg/L	24	109	14	860	---	---	---
2-Methylphenol	µg/L	1,800	109	1	2,000	---	---	---
3&4-Methylphenol	µg/L	180	1	1	840	---	---	---
4-Methylphenol	µg/L	180	108	11	7,300	---	---	---
Benzo(a)anthracene	µg/L	0.092	109	5	0.9	---	---	---
Benzo(a)pyrene	µg/L	0.2	109	3	0.5	---	---	---
Benzo(b)fluoranthene	µg/L	0.092	109	4	0.76	---	---	---
Benzo(k)fluoranthene	µg/L	0.056	109	3	0.46	---	---	---
bis(2-Chloroethoxy)methane	µg/L	0.01	110	5	3	---	---	---
bis(2-Chloroethyl)ether	µg/L	0.01	110	1	26	---	---	---
bis(2-Ethylhexyl)phthalate	µg/L	4.8	109	2	120	---	---	---
Carbazole	µg/L	3.4	81	3	39	---	---	---
Chrysene	µg/L	0.56	109	1	1.1	---	---	---
Dibenz(a,h)anthracene	µg/L	0.0092	110	11	0.71	---	---	---
Indeno(1,2,3-c,d)pyrene	µg/L	0.092	110	3	0.2	---	---	---
Naphthalene	µg/L	0.093	109	19	370	---	---	---
Nitrobenzene	µg/L	3.4	109	1	6	---	---	---
N-Nitrosodi-n-propylamine	µg/L	0.0096	109	4	10	---	---	---
Pentachlorophenol	µg/L	1	109	6	85	---	---	---
Metals								
Aluminum	µg/L	1,000	110	32	62,700	---	---	---
Antimony	µg/L	6	110	1	10.6	---	---	---

TABLE 18
Summary of All Compounds Detected Above The Screening Level in Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

			Monitoring Well Samples			Grab Groundwater Samples		
Analyte	Units	Screening Level	Number of Results (1)	Number of Detects >Screening Level	Maximum Detected Concentration	Number of Results (1)	Number of Detects >Screening Level	Maximum Detected Concentration
Metals								
Arsenic	µg/L	10	110	64	2,020	---	---	---
Boron	µg/L	7,300	30	2	9,560	---	---	---
Cadmium	µg/L	5	109	1	5.8	---	---	---
Chromium	µg/L	50	110	3	187	---	---	---
Copper	µg/L	1,300	110	1	1,650	---	---	---
Lead	µg/L	15	110	15	1,690	---	---	---
Manganese	µg/L	880	110	66	80,700	---	---	---
Nickel	µg/L	100	110	21	608	---	---	---
Selenium	µg/L	50	110	3	174	---	---	---
Vanadium	µg/L	36	110	8	186	---	---	---
Iron	µg/L	11,000	110	24	105,000	---	---	---
Metals (Dissolved)								
Aluminum (Dissolved)	µg/L	1,000	108	3	6,090	---	---	---
Antimony (Dissolved)	µg/L	6	108	1	7.8	---	---	---
Arsenic (Dissolved)	µg/L	10	108	62	1,800	---	---	---
Boron (Dissolved)	µg/L	7,300	30	2	9,440	---	---	---
Lead (Dissolved)	µg/L	15	108	1	1,230	---	---	---
Manganese (Dissolved)	µg/L	880	108	67	84,400	---	---	---
Nickel (Dissolved)	µg/L	100	108	17	592	---	---	---
Selenium (Dissolved)	µg/L	50	107	2	144	---	---	---
Vanadium (Dissolved)	µg/L	36	108	5	110	---	---	---
Iron (Dissolved)	µg/L	11,000	108	15	79,600	---	---	---
Organochlorine Pesticides/PCBs								
4,4'-DDD	µg/L	0.28	121	20	35	---	---	---
4,4'-DDE	µg/L	0.2	121	8	4.4	---	---	---
Aldrin	µg/L	0.004	122	20	3.6	---	---	---
alpha-BHC	µg/L	0.011	121	9	0.3	---	---	---
alpha-Chlordane	µg/L	0.1	120	3	0.5	---	---	---
Aroclor-1260	µg/L	0.5	119	2	6.3	---	---	---
beta-BHC	µg/L	0.037	122	8	1.1	---	---	---
delta-BHC	µg/L	0.011	120	8	0.16	---	---	---
Dieldrin	µg/L	0.0042	120	36	6.8	---	---	---

TABLE 18

Summary of All Compounds Detected Above The Screening Level in Groundwater

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

			Monitoring Well Samples			Grab Groundwater Samples		
Analyte	Units	Screening Level	Number of Results (1)	Number of Detects >Screening Level	Maximum Detected Concentration	Number of Results (1)	Number of Detects >Screening Level	Maximum Detected Concentration
Organochlorine Pesticides/PCBs								
gamma-BHC	µg/L	0.052	121	5	0.45	---	---	---
gamma-Chlordane	µg/L	0.1	122	2	0.25	---	---	---
Heptachlor	µg/L	0.01	121	8	0.76	---	---	---
Heptachlor epoxide	µg/L	0.01	121	6	0.12	---	---	---
Dioxins/Furans								
1,2,3,4,6,7,8-HpCDD	pg/L	45	41	4	634	---	---	---
1,2,3,4,6,7,8-HpCDF	pg/L	45	41	3	147	---	---	---
1,2,3,4,7,8-HxCDD	pg/L	4.5	41	1	5.3	---	---	---
1,2,3,4,7,8-HxCDF	pg/L	4.5	41	1	15.7	---	---	---
1,2,3,6,7,8-HxCDD	pg/L	4.5	41	3	20	---	---	---
1,2,3,6,7,8-HxCDF	pg/L	4.5	41	1	4.5631	---	---	---
1,2,3,7,8,9-HxCDD	pg/L	4.5	41	2	13	---	---	---
1,2,3,7,8,9-HxCDF	pg/L	4.5	41	1	6.5	---	---	---
1,2,3,7,8-PeCDD	pg/L	0.45	41	4	4.3	---	---	---
2,3,4,6,7,8-HxCDF	pg/L	4.5	41	1	6.6	---	---	---
2,3,4,7,8-PeCDF	pg/L	0.9	41	2	5.5	---	---	---
OCDD	pg/L	4,500	41	3	10,500	---	---	---
Total Dioxin Toxicity equivalent	pg/L	0.45	41	17	23.26	---	---	---

Notes:

(1) Does not include field duplicates or rejected data.

--- not detected above the screening level

µg/L micrograms per liter

pg/L picograms per liter

Units are presented as reported by the laboratory.

TABLE 19
Results Summary - Depth-Discrete Groundwater Survey (September - December 2004)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	69	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	69	5	0.5 to 25	0.2 to 1.7	200	0
1,1,2,2-Tetrachloroethane	µg/L	69	0	0.5 to 25	ND	1	0
1,1,2-Trichloroethane	µg/L	69	2	0.5 to 25	0.7 to 2.5	5	0
1,1-Dichloroethane	µg/L	69	29	0.5 to 77	0.2 to 890	5	13
1,1-Dichloroethene	µg/L	65	16	0.5 to 25	0.2 to 56	6	1
1,1-Dichloropropene	µg/L	69	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	69	6	0.5 to 50	0.2 to 20	7.2	1
1,2,3-Trichloropropane	µg/L	69	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	69	6	0.5 to 50	0.3 to 85	5	1
1,2,4-Trimethylbenzene	µg/L	69	35	0.5 to 25	0.2 to 620	12	5
1,2-Dibromo-3-chloropropane	µg/L	69	1	1 to 100	2.4	0.2	1
1,2-Dibromoethane	µg/L	69	0	0.5 to 25	ND	0.05	0
1,2-Dichlorobenzene	µg/L	69	15	0.5 to 150	0.3 to 7,800	600	1
1,2-Dichloroethane	µg/L	69	8	0.5 to 25	0.3 to 9.7	0.5	4
1,2-Dichloropropane	µg/L	69	2	0.5 to 25	0.2	5	0
1,3,5-Trimethylbenzene	µg/L	69	15	0.5 to 25	0.2 to 160	12	3
1,3-Dichlorobenzene	µg/L	69	4	0.5 to 25	0.3 to 360	180	1
1,3-Dichloropropane	µg/L	69	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	69	11	0.5 to 26	0.2 to 3,500	5	5
1,4-Dioxane (p-dioxane)	µg/L	67	3	1,000 to 50,000	780 to 1,200	6.1	3
2,2-Dichloropropane	µg/L	69	0	0.5 to 25	ND	0.16	0
2-Chlorotoluene	µg/L	69	2	0.5 to 25	0.2 to 7.4	120	0
4-Chlorotoluene	µg/L	69	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	69	18	4 to 200	2.2 to 310	5,500	0
Benzene	µg/L	69	27	0.5 to 25	0.2 to 230	1	12
Bromobenzene	µg/L	69	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	64	0	0.5 to 25	ND	NDRI	NA
Bromodichloromethane	µg/L	69	0	0.5 to 25	ND	100	0
Bromoform	µg/L	69	0	0.5 to 50	ND	100	0
Bromomethane	µg/L	69	0	0.5 to 25	ND	8.7	0
Carbon tetrachloride	µg/L	69	1	0.5 to 25	0.3	0.5	0
Chlorobenzene	µg/L	69	11	0.5 to 25	0.2 to 6,700	70	2
Chloroethane	µg/L	69	6	0.5 to 25	1.5 to 680	4.6	2
Chloroform	µg/L	64	19	0.5 to 25	0.4 to 8.3	100	0
Chloromethane	µg/L	63	2	0.5 to 25	0.2	160	0
cis-1,2-Dichloroethene	µg/L	69	32	0.5 to 61	0.2 to 2,500	6	14
cis-1,3-Dichloropropene	µg/L	69	1	0.5 to 25	4.2	0.5	1
Dibromochloromethane	µg/L	69	0	0.5 to 25	ND	100	0
Dibromomethane	µg/L	69	0	0.5 to 25	ND	61	0
Ethylbenzene	µg/L	69	26	0.5 to 25	0.2 to 370	700	0
Freon 11	µg/L	69	1	0.5 to 25	0.2	150	0
Freon 12	µg/L	59	0	0.5 to 25	ND	390	0
Freon 113	µg/L	69	0	0.5 to 25	ND	1,200	0
Hexachlorobutadiene	µg/L	69	0	0.5 to 50	ND	0.86	0
Isopropylbenzene (cumene)	µg/L	69	8	0.5 to 25	0.2 to 46	660	0
Methyl ethyl ketone	µg/L	69	7	4 to 200	2 to 120	7,000	0
Methyl tert-butyl ether	µg/L	69	7	0.5 to 25	0.2 to 45	13	2
Methylene chloride	µg/L	63	4	0.5 to 25	0.5 to 9.8	5	2
Naphthalene	µg/L	69	19	0.5 to 50	0.2 to 320	0.093	19

TABLE 19

Results Summary - Depth-Discrete Groundwater Survey (September - December 2004)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
n-Butylbenzene	µg/L	69	2	0.5 to 25	0.4 to 1.8	240	0
n-Propylbenzene	µg/L	69	10	0.5 to 25	0.3 to 150	240	0
p-Cymene (p-isopropyltoluene)	µg/L	69	9	0.5 to 25	0.4 to 63	660	0
sec-Butylbenzene	µg/L	69	4	0.5 to 25	0.3 to 3.3	240	0
Styrene	µg/L	69	0	0.5 to 25	ND	100	0
tert-Butylbenzene	µg/L	69	0	0.5 to 25	ND	240	0
Tetrachloroethene	µg/L	69	9	0.5 to 25	0.2 to 12	5	1
Toluene	µg/L	69	50	0.5 to 110	0.2 to 6,500	150	1
trans-1,2-Dichloroethene	µg/L	69	17	0.5 to 25	0.2 to 44	10	6
trans-1,3-Dichloropropene	µg/L	69	1	0.5 to 25	0.2	0.5	0
Trichloroethene	µg/L	69	25	0.5 to 25	0.2 to 880	5	9
Vinyl chloride	µg/L	69	24	0.5 to 230	0.3 to 80	0.5	19
Xylenes, total	µg/L	69	48	0.5 to 25	0.2 to 1,210	1,750	0

Notes:

(1) Does not include field duplicates or rejected data.

(2) See Table 16a (Groundwater Screening Levels) for source of screening levels.

NA not applicable

ND not detected above the reporting limit

NDRI not detected in groundwater during the Remedial Investigation phase

µg/L micrograms per liter

Units are presented as reported by the laboratory

TABLE 20a
Results Summary - Groundwater, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

TABLE 20a
Results Summary - Groundwater, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

TABLE 20a
Results Summary - Groundwater, First Quarter 2005 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

TABLE 20a
Results Summary - Groundwater, First Quarter 2005 (March)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

TABLE 20a
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

TABLE 20a
Results Summary - Groundwater, First Quarter 2005 (March)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

TABLE 20a
Results Summary - Groundwater, First Quarter 2005 (March)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:
(1) Does not include field duplicates or rejected data.
(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.
(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.
NA not applicable
ND not detected above the reporting limit
NDRI not detected in groundwater during the Remedial Investigation phase
µg/L micrograms per liter
mg/L milligrams per liter
pg/L picograms per liter
Units are presented as reported by the laboratory

TABLE 20b
Results Summary - Groundwater, Second Quarter 2005 (June)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

TABLE 20b
Results Summary - Groundwater, Second Quarter 2005 (June)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

TABLE 20b
Results Summary - Groundwater, Second Quarter 2005 (June)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

TABLE 20b
Results Summary - Groundwater, Second Quarter 2005 (June)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

TABLE 20b
Results Summary - Groundwater, Second Quarter 2005 (June)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

TABLE 20b
Results Summary - Groundwater, Second Quarter 2005 (June)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

TABLE 20b

Results Summary - Groundwater, Second Quarter 2005 (June)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:

(1) Does not include field duplicates or rejected data.

(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.

(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.

NA not applicable

ND not detected above the reporting limit

µg/L micrograms per liter

mg/L milligrams per liter

Units are presented as reported by the laboratory

TABLE 20c
Results Summary - Groundwater, Third Quarter 2005 (September-October)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results [1]	Number of Detects	Range of Reporting Limits [2]	Range of Detected Concentrations	Screening Level [3]	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

TABLE 20c
Results Summary - Groundwater, Third Quarter 2005 (September-October)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

TABLE 20c
Results Summary - Groundwater, Third Quarter 2005 (September-October)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

TABLE 20c
Results Summary - Groundwater, Third Quarter 2005 (September-October)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

TABLE 20c
Results Summary - Groundwater, Third Quarter 2005 (September-October)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

TABLE 20c
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:
(1) Does not include field duplicates or rejected data.
(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.
(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.
NA not applicable
ND not detected above the reporting limit
NDRI not detected in groundwater during the Remedial Investigation phase
µg/L micrograms per liter
mg/L milligrams per liter
Units are presented as reported by the laboratory

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

TABLE 20d
Results Summary - Groundwater, Fourth Quarter 2005 (January 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

TABLE 20d
Results Summary - Groundwater, Fourth Quarter 2005 (January 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

TABLE 20d

Results Summary - Groundwater, Fourth Quarter 2005 (January 2006)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

TABLE 20d
Results Summary - Groundwater, Fourth Quarter 2005 (January 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:
(1) Does not include field duplicates or rejected data.
(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.
(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.
NA not applicable
ND not detected above the reporting limit
NDRI not detected in groundwater during the Remedial Investigation phase
µg/L micrograms per liter
mg/L milligrams per liter
pg/L picograms per liter
Units are presented as reported by the laboratory

TABLE 20e
Results Summary - Groundwater, First Quarter 2006 (March)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results [1]	Number of Detects	Range of Reporting Limits [2]	Range of Detected Concentrations	Screening Level [3]	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

TABLE 20e
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

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Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

TABLE 20e

Results Summary - Groundwater, First Quarter 2006 (March)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:

(1) Does not include field duplicates or rejected data.

(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.

(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.

NA not applicable

ND not detected above the reporting limit

NDRI not detected in groundwater during the Remedial Investigation phase

µg/L micrograms per liter

mg/L milligrams per liter

Units are presented as reported by the laboratory

TABLE 20f
Results Summary - Groundwater, Second Quarter 2006 (June)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

TABLE 20f
Results Summary - Groundwater, Second Quarter 2006 (June)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

TABLE 20f
Results Summary - Groundwater, Second Quarter 2006 (June)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

TABLE 20f
Results Summary - Groundwater, Second Quarter 2006 (June)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

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Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:
(1) Does not include field duplicates or rejected data.
(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.
(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.
NA not applicable
ND not detected above the reporting limit
NDRI not detected in groundwater during the Remedial Investigation phase
µg/L micrograms per liter
mg/L milligrams per liter
Units are presented as reported by the laboratory

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1,2-Tetrachloroethane	µg/L	118	0	0.5 to 25	ND	0.43	0
1,1,1-Trichloroethane	µg/L	449	22	0.5 to 500	0.081 to 960	200	9
1,1,2,2-Tetrachloroethane	µg/L	449	5	0.5 to 400	0.09 to 18	1	2
1,1,2-Trichloroethane	µg/L	449	26	0.5 to 400	0.079 to 18	5	7
1,1-Dichloroethane	µg/L	450	250	0.5 to 77	0.11 to 3,200	5	116
1,1-Dichloroethene	µg/L	445	133	0.5 to 500	0.057 to 320	6	25
1,1-Dichloropropene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/L	402	33	0.5 to 250	0.069 to 20	7.2	4
1,2,3-Trichloropropane	µg/L	118	0	0.5 to 25	ND	0.0056	0
1,2,4-Trichlorobenzene	µg/L	448	45	0.5 to 400	0.087 to 85	5	25
1,2,4-Trimethylbenzene	µg/L	336	97	0.5 to 1,000	0.016 to 2,400	12	38
1,2-Dibromo-3-chloropropane	µg/L	441	1	0.05 to 250	2.4	0.2	1
1,2-Dibromoethane	µg/L	449	1	0.05 to 400	0.4	0.05	1
1,2-Dichlorobenzene	µg/L	449	137	0.5 to 250	0.13 to 7,800	600	16
1,2-Dichloroethane	µg/L	450	49	0.5 to 400	0.17 to 38	0.5	38
1,2-Dichloropropane	µg/L	448	12	0.5 to 400	0.074 to 5.1	5	1
1,3,5-Trimethylbenzene	µg/L	336	75	0.5 to 2,500	0.013 to 2,800	12	35
1,3-Dichlorobenzene	µg/L	448	59	0.5 to 400	0.065 to 360	180	1
1,3-Dichloropropane	µg/L	118	0	0.5 to 25	ND	120	0
1,4-Dichlorobenzene	µg/L	448	104	0.5 to 400	0.081 to 3,500	5	60
1,4-Dioxane (p-dioxane)	µg/L	128	32	20 to 50,000	1.3 to 2,000	6.1	30
2,2-Dichloropropane	µg/L	118	1	0.5 to 25	0.5	0.16	1
2-Chlorotoluene	µg/L	118	2	0.5 to 25	0.2 to 7.4	120	0
2-Hexanone	µg/L	378	12	0.5 to 2,500	1.2 to 190	2,000	0
4-Chlorotoluene	µg/L	118	0	0.5 to 25	ND	NDRI	NA
Acetone	µg/L	451	126	2 to 5,000	0.67 to 9,700	5,500	9
Benzene	µg/L	452	219	0.5 to 500	0.069 to 4,000	1	131
Bromobenzene	µg/L	118	0	0.5 to 25	ND	20	0
Bromochloromethane	µg/L	397	0	0.5 to 250	ND	NDRI	NA
Bromodichloromethane	µg/L	448	1	0.5 to 400	1	100	0
Bromoform	µg/L	447	2	0.5 to 400	0.5 to 12	100	0
Bromomethane	µg/L	449	2	0.5 to 400	0.12 to 0.27	8.7	0
Carbon disulfide	µg/L	380	54	0.2 to 400	0.05 to 120	1,000	0
Carbon tetrachloride	µg/L	449	2	0.5 to 400	0.1 to 0.3	0.5	0
Chlorobenzene	µg/L	450	135	0.5 to 400	0.056 to 6,700	70	60
Chloroethane	µg/L	450	91	0.5 to 500	0.063 to 860	4.6	53
Chloroform	µg/L	443	40	0.5 to 400	0.065 to 46	100	0
Chloromethane	µg/L	444	34	0.5 to 400	0.12 to 7.4	160	0
cis-1,2-Dichloroethene	µg/L	451	270	0.5 to 200	0.069 to 90,000	6	178
cis-1,3-Dichloropropene	µg/L	448	4	0.5 to 400	0.33 to 7	0.5	3
Cyclohexane	µg/L	346	48	0.5 to 400	0.081 to 26	10,000	0
Dibromochloromethane	µg/L	448	0	0.5 to 400	ND	100	0
Dibromomethane	µg/L	118	0	0.5 to 25	ND	61	0
Ethyl tert-butyl ether	µg/L	370	5	0.5 to 2,500	0.62 to 1,700	11	1
Ethyl thiocyanate	µg/L	2	0	100	ND	NDRI	NA
Ethylbenzene	µg/L	450	116	0.5 to 500	0.2 to 4,000	700	7
Freon 11	µg/L	449	4	0.5 to 400	0.052 to 0.2	150	0
Freon 12	µg/L	439	0	0.5 to 400	ND	390	0
Freon 113	µg/L	449	1	0.5 to 400	0.081	1,200	0
Hexachlorobutadiene	µg/L	117	0	0.5 to 50	ND	0.86	0

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Isopropyl ether	µg/L	14	2	4 to 40	30 to 430	11	2
Isopropylbenzene (cumene)	µg/L	450	86	0.5 to 500	0.066 to 240	660	0
Methyl acetate	µg/L	346	10	0.5 to 400	1.8 to 4,000	6,100	0
Methyl ethyl ketone	µg/L	448	73	4 to 2,500	0.2 to 4,300	7,000	0
Methyl isobutyl ketone	µg/L	380	51	4 to 5,000	0.26 to 49,000	2,000	27
Methyl tert-butyl ether	µg/L	450	88	0.5 to 400	0.055 to 83	13	14
Methylcyclohexane	µg/L	346	48	0.5 to 400	0.065 to 63	5,200	0
Methylene chloride	µg/L	444	96	0.2 to 50	0.055 to 210	5	36
Naphthalene	µg/L	118	37	0.2 to 50	0.2 to 670	0.093	37
n-Butylbenzene	µg/L	118	10	0.5 to 25	0.4 to 23	240	0
n-Propylbenzene	µg/L	118	22	0.5 to 25	0.3 to 450	240	1
p-Cymene (p-isopropyltoluene)	µg/L	118	22	0.5 to 25	0.3 to 210	660	0
sec-Butylbenzene	µg/L	118	15	0.5 to 25	0.3 to 13	240	0
Styrene	µg/L	447	4	0.5 to 400	0.41 to 37	100	0
tert-Amyl methyl ether	µg/L	370	1	0.5 to 2,500	0.21	11	0
tert-Butyl alcohol	µg/L	299	70	5 to 5,000	0.97 to 910	1,800	0
tert-Butylbenzene	µg/L	118	5	0.5 to 25	0.3 to 2.1	240	0
Tetrachloroethene	µg/L	449	79	0.5 to 400	0.089 to 83	5	20
Toluene	µg/L	451	167	0.5 to 110	0.05 to 31,000	150	46
trans-1,2-Dichloroethene	µg/L	450	193	0.5 to 500	0.06 to 4,000	10	82
trans-1,3-Dichloropropene	µg/L	448	20	0.5 to 500	0.15 to 17	0.5	12
Trichloroethene	µg/L	450	203	0.5 to 400	0.071 to 880	5	113
Vinyl chloride	µg/L	450	213	0.5 to 400	0.06 to 15,000	0.5	191
Xylenes, m & p	µg/L	163	40	0.5 to 50	0.055 to 4,000	1,750	6
Xylenes, o	µg/L	163	35	0.5 to 50	0.11 to 1,700	1,750	0
Xylenes, total	µg/L	258	99	0.5 to 25	0.2 to 5,600	1,750	9
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/L	180	2	5 to 1,300	0.76 to 1.3	300	0
1,2,4,5-Tetrachlorobenzene	µg/L	160	0	5 to 1,300	ND	11	0
1,2,4-Trichlorobenzene	µg/L	1	0	1	ND	5	0
1,2-Dichlorobenzene	µg/L	1	1	NA	6.1	600	0
1,3-Dichlorobenzene	µg/L	1	0	1	ND	180	0
1,4-Dichlorobenzene	µg/L	1	1	NA	0.8	5	0
1,4-Dioxane (p-dioxane)	µg/L	235	156	0.1 to 5	0.089 to 2,700	6.1	117
2,2'-Oxybis(1-Chloropropane)	µg/L	153	1	5 to 1,300	1.6	0.01	1
2,3,4,6-Tetrachlorophenol	µg/L	102	0	5 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/L	184	0	4.8 to 1,300	ND	3,600	0
2,4,6-Trichlorophenol	µg/L	184	5	0.04 to 1,300	0.2 to 10	0.96	2
2,4-Dichlorophenol	µg/L	184	1	4.8 to 1,300	4.6	110	0
2,4-Dimethylphenol	µg/L	183	16	4.8 to 1,300	3.2 to 670	730	0
2,4-Dinitrophenol	µg/L	167	0	0.5 to 2,500	ND	73	0
2,4-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	73	0
2,6-Dinitrotoluene	µg/L	183	0	1 to 1,300	ND	36	0
2-Chloronaphthalene	µg/L	183	0	1 to 1,300	ND	490	0
2-Chlorophenol	µg/L	184	6	4.8 to 1,300	1.6 to 12	30	0
2-Methylnaphthalene	µg/L	183	37	0.1 to 20	0.048 to 1,000	24	23
2-Methylphenol	µg/L	183	29	4.8 to 25	1.2 to 2,000	1,800	1
2-Nitroaniline	µg/L	181	4	0.1 to 2,500	0.3 to 10	110	0
2-Nitrophenol	µg/L	184	0	4.8 to 1,300	ND	NDRI	NA
3&4-Methylphenol	µg/L	2	1	4.8	840	180	1

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
3,3'-Dichlorobenzidine	µg/L	178	0	0.08 to 1,300	ND	0.15	0
3-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4,6-Dinitro-2-methylphenol	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/L	184	13	4.8 to 1,300	1.4 to 300	1,800	0
4-Chloroaniline	µg/L	175	0	4.8 to 1,300	ND	150	0
4-Chlorophenylphenyl ether	µg/L	183	0	1 to 1,300	ND	NDRI	NA
4-Methylphenol	µg/L	181	29	5 to 25	1.1 to 7,300	180	20
4-Nitroaniline	µg/L	181	0	4.8 to 2,500	ND	NDRI	NA
4-Nitrophenol	µg/L	181	0	4.8 to 2,500	ND	73	0
Acenaphthene	µg/L	182	10	0.1 to 100	0.51 to 4.5	370	0
Acenaphthylene	µg/L	183	3	0.1 to 100	0.051 to 11	180	0
Acetophenone	µg/L	181	3	1.1 to 1,300	3.8 to 39	150,000	0
Anthracene	µg/L	184	3	0.1 to 100	0.17 to 3.2	1,800	0
Atrazine	µg/L	182	1	0.1 to 1,300	2	3	0
Benzaldehyde	µg/L	182	0	5 to 1,300	ND	3,600	0
Benzo(a)anthracene	µg/L	183	7	0.01 to 50	0.04 to 0.9	0.092	5
Benzo(a)pyrene	µg/L	180	10	0.01 to 50	0.01 to 0.5	0.2	3
Benzo(b)fluoranthene	µg/L	180	6	0.01 to 50	0.02 to 0.76	0.092	4
Benzo(g,h,i)perylene	µg/L	181	19	0.01 to 50	0.01 to 0.2	180	0
Benzo(k)fluoranthene	µg/L	180	4	0.01 to 50	0.03 to 0.46	0.056	3
Benzyl alcohol	µg/L	1	0	4.8	ND	11,000	0
Benzyl butyl phthalate	µg/L	182	1	1 to 1,300	1.1	7,300	0
bis(2-Chloroethoxy)methane	µg/L	184	5	0.1 to 1,300	0.02 to 3	0.01	5
bis(2-Chloroethyl)ether	µg/L	184	1	0.08 to 1,300	26	0.01	1
bis(2-Chloroisopropyl)ether	µg/L	31	0	1 to 50	ND	NDRI	NA
bis(2-Ethylhexyl)phthalate	µg/L	183	19	0.1 to 1,300	0.57 to 120	4.8	2
Caprolactam	µg/L	180	2	5 to 1,300	2.4 to 68	18,000	0
Carbazole	µg/L	155	12	0.04 to 1,300	0.1 to 39	3.4	4
Chrysene	µg/L	183	6	0.1 to 100	0.03 to 1.1	0.56	1
Dibenz(a,h)anthracene	µg/L	181	11	0.01 to 50	0.02 to 0.71	0.0092	11
Dibenzofuran	µg/L	183	0	1 to 1,300	ND	12	0
Diethylphthalate	µg/L	183	3	1 to 1,300	0.55 to 38	29,000	0
Dimethylphthalate	µg/L	182	1	1 to 1,300	1.2	360,000	0
Di-n-butyl phthalate	µg/L	182	11	1 to 1,300	0.58 to 69	3,600	0
Di-n-octyl phthalate	µg/L	179	1	1 to 1,300	6.6	1,500	0
Diphenylamine	µg/L	2	0	1	ND	NDRI	NA
Fluoranthene	µg/L	183	7	0.1 to 100	0.035 to 2.4	1,500	0
Fluorene	µg/L	182	4	0.1 to 100	0.26 to 2.6	240	0
Hexachlorobenzene	µg/L	184	0	0.1 to 1,300	ND	1	0
Hexachlorobutadiene	µg/L	183	0	0.1 to 1,300	ND	0.86	0
Hexachlorocyclopentadiene	µg/L	176	0	1 to 1,300	ND	50	0
Hexachloroethane	µg/L	183	4	0.1 to 1,300	0.04 to 1	4.8	0
Indeno(1,2,3-c,d)pyrene	µg/L	181	13	0.01 to 50	0.01 to 0.2	0.092	3
Isophorone	µg/L	184	2	1 to 1,300	0.88 to 3.1	71	0
Naphthalene	µg/L	182	32	0.1 to 20	0.022 to 420	0.093	30
Nitrobenzene	µg/L	183	4	0.1 to 1,300	1 to 6	3.4	1
N-Nitrosodi-n-propylamine	µg/L	183	4	0.01 to 1,300	0.3 to 10	0.0096	4
N-Nitrosodiphenylamine	µg/L	181	1	5 to 1,300	1.2	14	0
Pentachlorophenol	µg/L	173	15	0.2 to 50	0.17 to 85	1	6

TABLE 20g
Results Summary - Groundwater, Third Quarter 2006 (September)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of (2) Reporting Limits	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Phenanthrene	µg/L	184	11	0.1 to 100	0.044 to 6	180	0
Phenol	µg/L	184	27	4.8 to 25	1.1 to 3,400	11,000	0
Pyrene	µg/L	184	6	0.1 to 100	0.076 to 2.5	180	0
Metals							
Aluminum	µg/L	171	111	200 to 400	20.1 to 62,700	1,000	34
Aluminum (Dissolved)	µg/L	148	67	20 to 400	16.8 to 6,090	1,000	4
Antimony	µg/L	171	22	1 to 60	0.69 to 10.6	6	1
Antimony (Dissolved)	µg/L	148	12	1 to 60	0.82 to 7.8	6	1
Arsenic	µg/L	171	168	2 to 10	0.66 to 2,020	10	103
Arsenic (Dissolved)	µg/L	148	144	1.2 to 10	0.76 to 1,800	10	87
Barium	µg/L	171	162	10 to 200	2.4 to 828	1,000	0
Barium (Dissolved)	µg/L	148	136	10 to 200	2.3 to 626	1,000	0
Beryllium	µg/L	170	11	0.5 to 5	0.09 to 1.5	4	0
Beryllium (Dissolved)	µg/L	147	1	0.5 to 5	0.07	4	0
Boron	µg/L	91	91	NA	147 to 14,600	7,300	5
Boron (Dissolved)	µg/L	70	70	NA	160 to 15,900	7,300	5
Cadmium	µg/L	170	38	1 to 5	0.03 to 5.8	5	1
Cadmium (Dissolved)	µg/L	147	23	1 to 5	0.13 to 4	5	0
Chromium	µg/L	171	114	2 to 10	0.45 to 187	50	3
Chromium (Dissolved)	µg/L	148	89	2 to 10	0.17 to 27.5	50	0
Cobalt	µg/L	171	132	1 to 50	0.35 to 248	730	0
Cobalt (Dissolved)	µg/L	148	118	1 to 50	0.07 to 257	730	0
Copper	µg/L	171	142	2 to 25	0.63 to 1,650	1,300	1
Copper (Dissolved)	µg/L	148	97	1.7 to 25	0.2 to 330	1,300	0
Cyanide	µg/L	9	4	10	2.8 to 62.9	200	0
Hardness (as CaCO3)	mg/L	1	1	NA	480	NA	NA
Lead	µg/L	171	139	1 to 5	0.16 to 1,690	15	31
Lead (Dissolved)	µg/L	148	105	1 to 5	0.08 to 1,230	15	7
Manganese	µg/L	173	173	NA	1.2 to 80,700	880	107
Manganese (Dissolved)	µg/L	148	148	NA	0.24 to 84,400	880	93
Mercury	µg/L	170	34	0.03 to 0.2	0.015 to 0.83	2	0
Mercury (Dissolved)	µg/L	147	10	0.03 to 0.2	0.013 to 0.13	2	0
Molybdenum	µg/L	31	11	5 to 10	0.78 to 24.3	180	0
Molybdenum (Dissolved)	µg/L	30	12	5	0.55 to 25.1	180	0
Nickel	µg/L	171	163	5 to 40	2.7 to 608	100	32
Nickel (Dissolved)	µg/L	148	140	2 to 40	0.56 to 592	100	23
Selenium	µg/L	171	55	5 to 35	0.59 to 174	50	5
Selenium (Dissolved)	µg/L	147	48	5 to 35	0.65 to 144	50	5
Silicon	µg/L	89	89	NA	6750 to 63,700	NA	NA
Silicon (Dissolved)	µg/L	69	69	NA	7850 to 31,200	NA	NA
Silver	µg/L	171	5	0.5 to 10	0.03 to 0.42	180	0
Silver (Dissolved)	µg/L	148	2	0.5 to 10	0.44 to 0.52	180	0
Thallium	µg/L	170	4	1 to 25	0.05 to 4.4	2	2
Thallium (Dissolved)	µg/L	147	2	1 to 25	0.12 to 0.16	2	0
Vanadium	µg/L	171	131	1 to 50	0.51 to 186	36	11
Vanadium (Dissolved)	µg/L	148	97	1 to 50	0.33 to 110	36	6
Zinc	µg/L	166	155	2 to 60	0.78 to 6,870	11,000	0
Zinc (Dissolved)	µg/L	148	140	2 to 10	0.68 to 5,640	11,000	0
Calcium	µg/L	171	170	5000	1720 to 569,000	NA	NA
Calcium (Dissolved)	µg/L	148	147	5000	1580 to 574,000	NA	NA

TABLE 20g
Results Summary - Groundwater, Third Quarter 2006 (September)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Iron	µg/L	171	153	28.7 to 100	10.7 to 105,000	11,000	32
Iron (Dissolved)	µg/L	148	105	19.7 to 100	31.7 to 79,600	11,000	17
Magnesium	µg/L	171	163	5000	835 to 2,200,000	NA	NA
Magnesium (Dissolved)	µg/L	148	140	5000	746 to 1,920,000	NA	NA
Potassium	µg/L	171	158	5000	889 to 834,000	NA	NA
Potassium (Dissolved)	µg/L	148	136	5000	857 to 696,000	NA	NA
Sodium	µg/L	171	169	5000	57800 to 11,900,000	NA	NA
Sodium (Dissolved)	µg/L	148	145	5000	56500 to 13,700,000	NA	NA
Hexavalent Chromium							
Chromium, hexavalent	µg/L	10	1	0.2 to 1	0.35	50	0
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/L	207	64	0.02 to 10	0.0031 to 35	0.28	30
4,4'-DDE	µg/L	207	55	0.02 to 10	0.00022 to 4.4	0.2	14
4,4'-DDT	µg/L	204	18	0.02 to 10	0.0015 to 0.68	0.2	3
Aldrin	µg/L	207	30	0.01 to 5	0.0025 to 3.6	0.004	29
alpha-BHC	µg/L	206	19	0.01 to 5	0.0047 to 0.3	0.011	15
alpha-Chlordane	µg/L	205	22	0.01 to 5	0.0035 to 0.5	0.1	7
Aroclor-1016	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1221	µg/L	201	0	0.4 to 40	ND	0.5	0
Aroclor-1232	µg/L	200	0	0.2 to 20	ND	0.5	0
Aroclor-1242	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1248	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1254	µg/L	201	0	0.2 to 20	ND	0.5	0
Aroclor-1260	µg/L	200	4	0.2 to 20	0.41 to 6.3	0.5	3
Aroclor-1262	µg/L	106	0	1 to 2	ND	NDRI	NA
Aroclor-1268	µg/L	107	0	1 to 2	ND	NDRI	NA
beta-BHC	µg/L	208	23	0.01 to 5	0.0068 to 1.1	0.037	15
delta-BHC	µg/L	204	16	0.01 to 5	0.0056 to 0.23	0.011	15
Dieldrin	µg/L	206	52	0.02 to 10	0.0014 to 6.8	0.0042	49
Endosulfan I	µg/L	205	13	0.01 to 5	0.0057 to 0.42	220	0
Endosulfan II	µg/L	203	10	0.02 to 10	0.0073 to 0.23	220	0
Endosulfan sulfate	µg/L	205	17	0.02 to 10	0.0011 to 0.11	220	0
Endrin	µg/L	206	15	0.02 to 10	0.0013 to 0.7	2	0
Endrin aldehyde	µg/L	203	20	0.02 to 10	0.0011 to 0.27	11	0
Endrin ketone	µg/L	203	13	0.02 to 10	0.00042 to 0.17	11	0
gamma-BHC	µg/L	207	23	0.01 to 5	0.0022 to 0.45	0.052	12
gamma-Chlordane	µg/L	207	25	0.01 to 5	0.0013 to 0.3	0.1	7
Heptachlor	µg/L	207	22	0.01 to 1	0.00028 to 0.76	0.01	19
Heptachlor epoxide	µg/L	205	23	0.01 to 5	0.00011 to 0.24	0.01	18
Methoxychlor	µg/L	206	10	0.1 to 50	0.0055 to 0.53	30	0
Toxaphene	µg/L	204	0	1 to 500	ND	3	0
Organophosphorus Pesticides							
Azinphos methyl	µg/L	30	0	1	ND	NDRI	NA
Bolstar	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Chlorpyrifos	µg/L	30	0	0.05 to 0.5	ND	110	0
Coumaphos	µg/L	30	0	0.2 to 2.5	ND	NDRI	NA
Demeton, Total	µg/L	30	0	0.2 to 0.5	ND	NDRI	NA
Diazinon	µg/L	30	1	0.05 to 0.5	0.69	33	0
Dichlorvos (DDVP)	µg/L	30	0	0.2 to 0.5	ND	0.23	0
Dimethoate	µg/L	30	0	0.1 to 0.5	ND	7.3	0

TABLE 20g
Results Summary - Groundwater, Third Quarter 2006 (September)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Organophosphorus Pesticides							
Disulfoton	µg/L	30	0	0.1 to 0.5	ND	1.5	0
EPN	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Ethoprop	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Fensulfothion	µg/L	30	0	0.5 to 2.5	ND	NDRI	NA
Fenthion	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Malathion	µg/L	30	0	0.1 to 1	ND	730	0
Merphos	µg/L	30	0	0.1 to 1	ND	1.1	0
Mevinphos	µg/L	30	0	0.7 to 1	ND	NDRI	NA
Monocrotophos	µg/L	30	0	5 to 20	ND	NDRI	NA
Naled	µg/L	30	0	0.5 to 2	ND	73	0
Parathion, ethyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Parathion, methyl	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Pendimethalin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Phorate	µg/L	30	0	0.1 to 0.5	ND	7.3	0
Ronnel	µg/L	30	0	0.1 to 0.5	ND	1,800	0
S-ethyl di-N,N-propylthiocarbamate (EPTC)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Stirophos (Tetrachlorvinphos)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Sulfotep	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tetraethyl pyrophosphite (TEPP)	µg/L	30	0	2 to 100	ND	NDRI	NA
Tokuthion (Protothiofos)	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Tributyl phosphorotrithioate (DEF)	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trichloronate	µg/L	30	0	0.1 to 1	ND	NDRI	NA
Trifluralin	µg/L	30	0	0.1 to 0.5	ND	NDRI	NA
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	pg/L	52	13	0.493 to 51.7	2.67 to 634	45	5
1,2,3,4,6,7,8-HpCDF	pg/L	52	6	0.362 to 51.7	0.974 to 147	45	4
1,2,3,4,7,8,9-HpCDF	pg/L	52	4	0.487 to 51.7	1.83 to 14.1	45	0
1,2,3,4,7,8-HxCDD	pg/L	52	2	0.854 to 62	2.77 to 5.3	4.5	1
1,2,3,4,7,8-HxCDF	pg/L	52	2	0.245 to 55.8	1.79 to 15.7	4.5	1
1,2,3,6,7,8-HxCDD	pg/L	52	5	0.872 to 53.7	1.54 to 20	4.5	3
1,2,3,6,7,8-HxCDF	pg/L	52	4	0.258 to 51.7	0.664 to 4.5631	4.5	1
1,2,3,7,8,9-HxCDD	pg/L	52	2	1.04 to 57.9	4.89 to 13	4.5	2
1,2,3,7,8,9-HxCDF	pg/L	52	1	0.279 to 51.7	6.5	4.5	1
1,2,3,7,8-PeCDD	pg/L	52	4	0.392 to 57.9	0.802 to 4.3	0.45	4
1,2,3,7,8-PeCDF	pg/L	52	2	0.794 to 51.7	1.37 to 4.3	9	0
2,3,4,6,7,8-HxCDF	pg/L	52	2	0.266 to 55.8	3.13 to 6.6	4.5	1
2,3,4,7,8-PeCDF	pg/L	52	3	0.803 to 51.7	0.818 to 5.5	0.9	2
2,3,7,8-TCDD	pg/L	52	0	0.2 to 10.3	ND	0.45	0
2,3,7,8-TCDF	pg/L	52	1	0.353 to 10.3	4.2531	4.5	0
OCDD	pg/L	52	16	1.31 to 112	3.95 to 10,500	4,500	3
OCDF	pg/L	52	11	1.53 to 112	4.32 to 1,050	4,500	0
Total Dioxin Toxicity equivalent	pg/L	55	17	1.03 to 69.31	1.11 to 23.26	0.45	17
Anions							
Chloride	mg/L	339	339	NA	11 to 23,000	NA	NA
Nitrate as Nitrogen	mg/L	339	176	0.1 to 2	0.05 to 1,000	NA	NA
Nitrite as Nitrogen	mg/L	339	48	0.1 to 100	0.05 to 30	NA	NA
Nitrogen, kjeldahl, total	mg/L	29	29	NA	0.36 to 3,600		NA
Phosphorus, total orthophosphate (as p)	mg/L	90	3	1 to 50	17		NA
Sulfate	mg/L	339	319	0.5 to 1	0.34 to 24,000	NA	NA

TABLE 20g
Results Summary - Groundwater, Third Quarter 2006 (September)
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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Dissolved Gases							
Ethane	µg/L	336	133	0.6 to 2.2	0.6 to 3,100	NA	NA
Ethene	µg/L	336	131	0.5 to 1	0.5 to 11,000	NA	NA
Methane	µg/L	336	326	1.2	0.7 to 36,000	NA	NA
General							
Alkalinity, bicarbonate (as $CaCO_3$)	mg/L	29	28	10	340 to 4,800		NA
Alkalinity, carbonate (as CaCO3)	mg/L	29	2	10	100 to 120		NA
Alkalinity, hydroxide (as CaCO3)	mg/L	29	1	10	300		NA
Alkalinity, total (as $CaCO_3$)	mg/L	29	29	NA	340 to 4,800		NA
Water Quality Indicators							
Hardness (as CaCO3)	mg/L	1	1	NA	610	NA	NA
Total Dissolved Solids	mg/L	30	30	NA	520 to 53,000	NA	NA
Total Organic Carbon	mg/L	33	33	NA	1.5 to 660	NA	NA

Notes:
(1) Does not include field duplicates or rejected data.
(2) For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.
(3) See Table 16a (Groundwater Screening Levels) for source of screening levels.
NA not applicable
ND not detected above the reporting limit
NDRI not detected in groundwater during the Remedial Investigation phase
µg/L micrograms per liter
mg/L milligrams per liter
pg/L picograms per liter
Units are presented as reported by the laboratory

TABLE 21
Results Summary - Soil (September - October 2004)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results [(1)]	Number of Detects	Range of Reporting Limits [(2)]	Range of Detected Concentrations	Screening Level [(3)]	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	193	3	1.3 to 17	7 to 81	1,200,000	0
1,1,2,2-Tetrachloroethane	µg/kg	193	0	1.3 to 17	ND	410	0
1,1,2-Trichloroethane	µg/kg	193	1	1.3 to 17	9.9	730	0
1,1-Dichloroethane	µg/kg	193	19	2.2 to 17	0.73 to 14,000	2,800	3
1,1-Dichloroethene	µg/kg	193	11	1.7 to 17	0.57 to 240	120,000	0
1,1-Dichloropropene	µg/kg	45	0	1.3 to 3.8	ND	NDRI	NA
1,2,3-Trichlorobenzene	µg/kg	123	0	1.3 to 6.4	ND	62,000	0
1,2,3-Trichloropropane	µg/kg	45	0	1.3 to 3.8	ND	NDRI	NA
1,2,4-Trichlorobenzene	µg/kg	185	7	1.3 to 17	2 to 2,100	62,000	0
1,2,4-Trimethylbenzene	µg/kg	126	1	1.3 to 6.4	1.1	NDRI	NA
1,2-Dibromo-3-chloropropane	µg/kg	190	0	4.4 to 17	ND	30	0
1,2-Dibromoethane	µg/kg	193	0	1.3 to 17	ND	32	0
1,2-Dichlorobenzene	µg/kg	190	25	1.3 to 17	0.81 to 110,000	600,000	0
1,2-Dichloroethane	µg/kg	193	2	1.3 to 17	13 to 220	280	0
1,2-Dichloropropane	µg/kg	193	0	1.3 to 17	ND	340	0
1,3,5-Trimethylbenzene	µg/kg	86	0	4.4 to 8.7	ND		NA
1,3-Dichlorobenzene	µg/kg	190	12	1.3 to 17	2 to 3,800	530,000	0
1,3-Dichloropropane	µg/kg	45	0	1.3 to 3.8	ND	NDRI	NA
1,4-Dichlorobenzene	µg/kg	190	16	1.3 to 17	0.64 to 44,000	3,400	4
1,4-Dioxane (p-dioxane)	µg/kg	69	1	100 to 390	1500	44,000	0
2-Hexanone	µg/kg	193	0	8.8 to 30	ND	NDRI	NA
Acetone	µg/kg	193	59	8.8 to 130	2 to 860	14,000,000	0
Benzene	µg/kg	193	12	1.3 to 1,300	0.73 to 3,500	640	3
Bromochloromethane	µg/kg	126	0	2.4 to 8.7	ND	NDRI	NA
Bromodichloromethane	µg/kg	193	0	1.3 to 17	ND	820	0
Bromoform	µg/kg	190	0	1.3 to 17	ND	62,000	0
Bromomethane	µg/kg	193	0	1.7 to 17	ND	3,900	0
Carbon disulfide	µg/kg	193	13	2.2 to 16	0.66 to 14	360,000	0
Carbon tetrachloride	µg/kg	193	0	1.3 to 17	ND	250	0
Chlorobenzene	µg/kg	193	17	1.3 to 17	0.73 to 19,000	150,000	0
Chloroethane	µg/kg	193	7	1.2 to 16	7 to 75	3,000	0
Chloroform	µg/kg	193	0	1.7 to 17	ND	940	0
Chloromethane	µg/kg	193	1	2.2 to 17	480	47,000	0
cis-1,2-Dichloroethene	µg/kg	193	31	1.7 to 17	0.53 to 240,000	43,000	2
cis-1,3-Dichloropropene	µg/kg	193	0	1.3 to 17	ND	780	0
Cyclohexane	µg/kg	148	11	4.4 to 1,300	7 to 3,300	140,000	0
Dibromochloromethane	µg/kg	193	0	1.3 to 17	ND	1,100	0
Ethyl tert-butyl ether	µg/kg	131	0	8.7 to 17	ND	32,000	0
Ethylbenzene	µg/kg	193	19	1.3 to 17	0.73 to 110,000	400,000	0
Freon 11	µg/kg	193	37	2.2 to 17	1.8 to 17	390,000	0
Freon 12	µg/kg	193	0	1.2 to 17	ND	94,000	0
Freon 113	µg/kg	193	1	1.7 to 17	9.9	5,600,000	0
Isopropyl ether	µg/kg	40	0	9.4 to 15	ND	NDRI	NA
Isopropylbenzene (cumene)	µg/kg	188	13	1.3 to 17	31 to 20,000	570,000	0
Methyl acetate	µg/kg	148	2	4.4 to 17	3.9 to 5.6	22,000,000	0
Methyl ethyl ketone	µg/kg	193	25	8.8 to 36	2.7 to 570	22,000,000	0
Methyl isobutyl ketone	µg/kg	193	4	8.8 to 30	1.1 to 11,000	5,300,000	0
Methyl tert-butyl ether	µg/kg	193	10	4.4 to 17	3.5 to 34	32,000	0
Methylcyclohexane	µg/kg	148	14	4.4 to 17	15 to 78,000	2,600,000	0
Methylene chloride	µg/kg	193	15	2.2 to 16	2 to 15	9,100	0

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Volatile Organic Compounds							
Naphthalene	µg/kg	5	1	2.2 to 2.8	74	1,700	0
Styrene	µg/kg	193	1	1.3 to 17	980	1,700,000	0
tert-Amyl methyl ether	µg/kg	126	0	5.4 to 17	ND	32,000	0
tert-Butyl alcohol	µg/kg	188	0	27 to 170	ND	13,000,000	0
Tetrachloroethene	µg/kg	193	27	1.3 to 17	0.61 to 1,400	480	1
Toluene	µg/kg	193	26	1.3 to 16	3 to 1,600,000	520,000	2
trans-1,2-Dichloroethene	µg/kg	193	10	1.7 to 17	3 to 1,200	69,000	0
trans-1,3-Dichloropropene	µg/kg	193	0	1.3 to 17	ND	780	0
Trichloroethene	µg/kg	193	22	1.3 to 17	0.56 to 7,300	53	5
Vinyl chloride	µg/kg	193	10	1.7 to 17	0.84 to 2,200	79	6
Xylenes, m & p	µg/kg	91	3	4.3 to 6.4	2.2 to 12	270,000	0
Xylenes, o	µg/kg	91	3	2.2 to 6.4	0.64 to 17	270,000	0
Xylenes, total	µg/kg	102	14	2.7 to 17	5 to 640,000	270,000	5
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/kg	195	12	170 to 23,000	74 to 7,100	3,000,000	0
1,2,4,5-Tetrachlorobenzene	µg/kg	195	0	170 to 23,000	ND	3,200	0
1,4-Dioxane (p-dioxane)	µg/kg	33	1	73 to 530	6.6	44,000	0
2,2'-Oxybis(1-Chloropropane)	µg/kg	194	0	170 to 23,000	ND	220	0
2,3,4,6-Tetrachlorophenol	µg/kg	132	0	170 to 1,300	ND	NDRI	NA
2,4,5-Trichlorophenol	µg/kg	195	0	170 to 58,000	ND	6,100,000	0
2,4,6-Trichlorophenol	µg/kg	195	0	170 to 23,000	ND	6,100	0
2,4-Dichlorophenol	µg/kg	195	0	170 to 23,000	ND	180,000	0
2,4-Dimethylphenol	µg/kg	195	1	170 to 23,000	23	1,200,000	0
2,4-Dinitrophenol	µg/kg	192	0	320 to 58,000	ND	120,000	0
2,4-Dinitrotoluene	µg/kg	194	0	170 to 23,000	ND	120,000	0
2,6-Dinitrotoluene	µg/kg	194	3	170 to 23,000	62 to 1,800	61,000	0
2-Chloronaphthalene	µg/kg	195	0	170 to 23,000	ND	4,900,000	0
2-Chlorophenol	µg/kg	194	0	170 to 23,000	ND	63,000	0
2-Methylnaphthalene	µg/kg	195	36	170 to 1,400	26 to 550,000	150,000	7
2-Methylphenol	µg/kg	195	1	170 to 23,000	990	3,100,000	0
2-Nitroaniline	µg/kg	195	0	320 to 58,000	ND	180,000	0
2-Nitrophenol	µg/kg	194	0	170 to 23,000	ND	NDRI	NA
3,3'-Dichlorobenzidine	µg/kg	194	0	170 to 23,000	ND	1,100	0
3-Nitroaniline	µg/kg	195	2	320 to 58,000	24 to 370	18,000	0
4,6-Dinitro-2-methylphenol	µg/kg	192	0	320 to 58,000	ND	NDRI	NA
4-Bromophenylphenyl ether	µg/kg	195	0	170 to 23,000	ND	NDRI	NA
4-Chloro-3-methylphenol	µg/kg	195	2	170 to 23,000	2000 to 7,200	3,100,000	0
4-Chloroaniline	µg/kg	195	0	170 to 23,000	ND	240,000	0
4-Chlorophenylphenyl ether	µg/kg	195	0	170 to 23,000	ND	NDRI	NA
4-Methylphenol	µg/kg	195	3	170 to 23,000	1500 to 3,600	310,000	0
4-Nitroaniline	µg/kg	195	0	320 to 58,000	ND	23,000	0
4-Nitrophenol	µg/kg	195	1	320 to 58,000	100	120,000	0
Acenaphthene	µg/kg	195	8	170 to 23,000	26 to 10,000	3,700,000	0
Acenaphthylene	µg/kg	195	15	170 to 23,000	24 to 2,300	2,300,000	0
Acetophenone	µg/kg	194	3	170 to 14,000	280 to 14,000	100,000,000	0
Anthracene	µg/kg	195	25	170 to 23,000	20 to 3,000	22,000,000	0
Atrazine	µg/kg	195	0	170 to 23,000	ND	2,200	0
Benzaldehyde	µg/kg	195	0	170 to 23,000	ND	6,100,000	0
Benzo(a)anthracene	µg/kg	194	53	170 to 23,000	20 to 8,300	620	12
Benzo(a)pyrene	µg/kg	193	54	170 to 23,000	22 to 9,200	62	43

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Semivolatile Organic Compounds							
Benzo(b)fluoranthene	µg/kg	193	55	170 to 23,000	19 to 9,800	620	15
Benzo(g,h,i)perylene	µg/kg	193	46	170 to 23,000	22 to 9,000	2,300,000	0
Benzo(k)fluoranthene	µg/kg	193	48	170 to 23,000	23 to 3,600	380	15
Benzyl butyl phthalate	µg/kg	194	10	170 to 23,000	24 to 7,600	12,000,000	0
bis(2-Chloroethoxy)methane	µg/kg	194	0	170 to 23,000	ND	220	0
bis(2-Chloroethyl)ether	µg/kg	194	0	170 to 23,000	ND	220	0
bis(2-Ethylhexyl)phthalate	µg/kg	195	75	170 to 23,000	21 to 13,000	35,000	0
Caprolactam	µg/kg	195	11	170 to 23,000	53 to 280	31,000,000	0
Carbazole	µg/kg	195	10	170 to 23,000	28 to 1,100	24,000	0
Chrysene	µg/kg	194	57	170 to 23,000	21 to 10,000	3,800	3
Dibenz(a,h)anthracene	µg/kg	193	6	170 to 23,000	100 to 1,100	62	6
Dibenzofuran	µg/kg	195	5	170 to 23,000	22 to 4,100	150,000	0
Diethylphthalate	µg/kg	195	2	170 to 23,000	25 to 1,800	49,000,000	0
Dimethylphthalate	µg/kg	195	0	170 to 23,000	ND	100,000,000	0
Di-n-butyl phthalate	µg/kg	195	35	180 to 23,000	19 to 2,900	6,100,000	0
Di-n-octyl phthalate	µg/kg	193	5	170 to 23,000	21 to 240	2,400,000	0
Fluoranthene	µg/kg	195	67	170 to 14,000	26 to 19,000	2,300,000	0
Fluorene	µg/kg	195	15	170 to 23,000	40 to 9,700	2,700,000	0
Hexachlorobenzene	µg/kg	195	0	170 to 23,000	ND	300	0
Hexachlorobutadiene	µg/kg	195	0	170 to 23,000	ND	6,200	0
Hexachlorocyclopentadiene	µg/kg	195	0	170 to 23,000	ND	370,000	0
Hexachloroethane	µg/kg	194	0	170 to 23,000	ND	35,000	0
Indeno(1,2,3-c,d)pyrene	µg/kg	193	52	170 to 23,000	26 to 8,300	620	13
Isophorone	µg/kg	194	0	170 to 23,000	ND	510,000	0
Naphthalene	µg/kg	195	31	170 to 13,000	21 to 80,000	1,700	12
Nitrobenzene	µg/kg	194	0	170 to 23,000	ND	20,000	0
N-Nitrosodi-n-propylamine	µg/kg	194	0	170 to 23,000	ND	69	0
N-Nitrosodiphenylamine	µg/kg	194	0	170 to 23,000	ND	99,000	0
Pentachlorophenol	µg/kg	195	1	320 to 58,000	6700	3,000	1
Phenanthrene	µg/kg	195	63	170 to 13,000	35 to 33,000	2,300,000	0
Phenol	µg/kg	195	10	170 to 23,000	61 to 1,300	18,000,000	0
Pyrene	µg/kg	195	67	170 to 14,000	22 to 20,000	2,300,000	0
Total Petroleum Hydrocarbons							
Diesel c10-c24	MG/KG	108	50	0.15 to 1.8	0.23 to 2,300		NA
Gasoline c6-c10	MG/KG	108	13	0.011 to 0.039	0.0076 to 0.19		NA
Metals							
Aluminum	mg/kg	140	140	NA	1660 to 20,700	76,000	0
Antimony	mg/kg	140	72	5.1 to 12	0.26 to 216	31	4
Arsenic	mg/kg	140	140	NA	1 to 451	22	12
Barium	mg/kg	140	140	NA	31 to 3,800	5,400	0
Beryllium	mg/kg	140	140	NA	0.05 to 1.7	150	0
Cadmium	mg/kg	140	91	0.43 to 1	0.11 to 17.9	37	0
Chromium	mg/kg	140	140	NA	4.3 to 2,650	210	3
Cobalt	mg/kg	140	140	NA	1.5 to 25.8	900	0
Copper	mg/kg	140	140	NA	5.2 to 927	3,100	0
Cyanide	MG/KG	37	2	2.5 to 3.1	0.19 to 0.26		NA
Lead	mg/kg	140	140	NA	2.1 to 53,000	194	68
Manganese	mg/kg	140	140	NA	53 to 2,450	1,800	2
Mercury	mg/kg	77	69	0.11 to 0.12	0.025 to 4.4	23	0
Nickel	mg/kg	140	140	NA	4.3 to 126	1,600	0

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Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits (2)	Range of Detected Concentrations	Screening Level (3)	Number of Detects >Screening Level
Metals							
Selenium	mg/kg	140	89	3.8 to 7	0.31 to 6.8	390	0
Silver	mg/kg	129	104	0.86 to 2	0.095 to 7.1	390	0
Thallium	mg/kg	140	51	2.1 to 5.4	0.25 to 5.7	5.2	1
Vanadium	mg/kg	140	140	NA	6.3 to 68.6	78	0
Zinc	mg/kg	140	140	NA	14.5 to 8,030	23,000	0
Calcium	mg/kg	140	140	NA	1310 to 53,100	NA	NA
Iron	mg/kg	140	140	NA	2690 to 74,500	23,000	28
Magnesium	mg/kg	140	140	NA	571 to 8,440	NA	NA
Potassium	mg/kg	140	133	374 to 546	310 to 3,460	NA	NA
Sodium	mg/kg	140	96	122 to 770	108 to 12,400	NA	NA
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/kg	142	114	1.1 to 5.2	0.055 to 34,000	2,400	18
4,4'-DDE	µg/kg	143	115	3.3 to 5.5	0.045 to 11,000	1,700	12
4,4'-DDT	µg/kg	144	106	3.6 to 390	0.071 to 140,000	1,700	12
Aldrin	µg/kg	140	43	1.8 to 960	0.018 to 2,400	29	6
alpha-BHC	µg/kg	142	28	1.2 to 960	0.042 to 26	90	0
alpha-Chlordane	µg/kg	142	75	0.54 to 960	0.1 to 370	1,600	0
Aroclor-1016	µg/kg	142	0	33 to 19,000	ND	3,900	0
Aroclor-1221	µg/kg	142	0	33 to 38,000	ND	220	0
Aroclor-1232	µg/kg	140	0	33 to 19,000	ND	220	0
Aroclor-1242	µg/kg	141	0	33 to 19,000	ND	220	0
Aroclor-1248	µg/kg	142	0	33 to 19,000	ND	220	0
Aroclor-1254	µg/kg	140	5	35 to 19,000	92 to 11,000	220	3
Aroclor-1260	µg/kg	143	5	33 to 19,000	20 to 980	220	2
Aroclor-1262	µg/kg	78	0	33 to 180	ND	NDRI	NA
Aroclor-1268	µg/kg	79	0	33 to 180	ND	NDRI	NA
beta-BHC	µg/kg	144	43	1.8 to 960	0.037 to 35	320	0
delta-BHC	µg/kg	144	27	1.8 to 960	0.013 to 4.1	90	0
Dieldrin	µg/kg	143	82	1.5 to 1,900	0.028 to 2,400	30	21
Endosulfan I	µg/kg	143	36	0.73 to 960	0.027 to 20	370,000	0
Endosulfan II	µg/kg	141	40	3.5 to 1,900	0.13 to 53	370,000	0
Endosulfan sulfate	µg/kg	139	42	1.4 to 1,900	0.11 to 23	370,000	0
Endrin	µg/kg	144	60	1.8 to 1,900	0.057 to 530	18,000	0
Endrin aldehyde	µg/kg	142	35	3.3 to 1,900	0.052 to 24	18,000	0
Endrin ketone	µg/kg	143	56	1.9 to 1,900	0.065 to 19	18,000	0
gamma-BHC	µg/kg	143	33	1.8 to 370	0.031 to 420	440	0
gamma-Chlordane	µg/kg	144	72	1.7 to 960	0.23 to 390	1,600	0
Heptachlor	µg/kg	142	26	1.7 to 960	0.02 to 8.8	110	0
Heptachlor epoxide	µg/kg	145	39	1.8 to 960	0.017 to 310	53	1
Methoxychlor	µg/kg	142	36	17 to 9,600	0.076 to 220	310,000	0
Toxaphene	µg/kg	143	0	180 to 96,000	ND	440	0
Dioxins/Furans							
1,2,3,4,6,7,8-HpCDD	ng/kg	7	7	NA	0.706 to 1,100	390	1
1,2,3,4,6,7,8-HpCDF	ng/kg	7	6	0.379	2.89 to 178	390	0
1,2,3,4,7,8,9-HpCDF	ng/kg	7	4	0.417 to 2.49	0.892 to 8.51	390	0
1,2,3,4,7,8-HxCDD	ng/kg	7	4	0.383 to 0.545	1.75 to 16.4	39	0
1,2,3,4,7,8-HxCDF	ng/kg	7	3	0.319 to 2.28	2.46 to 17.4	39	0
1,2,3,6,7,8-HxCDD	ng/kg	7	6	0.371	0.943 to 73.5	39	1
1,2,3,6,7,8-HxCDF	ng/kg	7	5	0.412 to 0.511	2.18 to 16.8	39	0
1,2,3,7,8,9-HxCDD	ng/kg	7	4	0.318 to 0.473	2.59 to 41.4	39	1

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Analyte	Units	Number of Results [1]	Number of Detects	Range of Reporting Limits [2]	Range of Detected Concentrations	Screening Level [3]	Number of Detects >Screening Level
Dioxins/Furans							
1,2,3,7,8,9-HxCDF	ng/kg	7	4	0.416 to 1.1	1.01 to 8.75	39	0
1,2,3,7,8-PeCDD	ng/kg	7	4	0.603 to 1.38	1.03 to 15.3	3.9	1
1,2,3,7,8-PeCDF	ng/kg	7	2	0.315 to 4.62	3.71 to 3.91	78	0
2,3,4,6,7,8-HxCDF	ng/kg	7	6	0.282	0.724 to 16.9	39	0
2,3,4,7,8-PeCDF	ng/kg	7	5	0.349 to 0.444	4.86 to 42.4	7.8	2
2,3,7,8-TCDD	ng/kg	7	1	0.273 to 1.09	0.898	3.9	0
2,3,7,8-TCDF	ng/kg	7	3	0.316 to 2.22	5.36 to 8.22	39	0
OCDD	ng/kg	7	6	3.47	6.57 to 8,420	39,000	0
OCDF	ng/kg	7	5	0.519 to 1.65	4.95 to 354	39,000	0
Total Dioxin Toxicity equivalent	ng/kg	7	7	NA	0.92 to 72.8	3.9	5

Notes:

(1)	Does not include field duplicates or rejected data.
(2)	For a discussion of reporting limits, please see Section 6.1.2 Reporting Limits, of Appendix H, Human Health Risk Assessment.
(3)	See Table 16b (Soil Screening Levels) for source of screening levels.
NA	not applicable
ND	not detected above the reporting limit
NDRI	not detected in soil during the Remedial Investigation phase
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
ng/kg	nanograms per kilogram

Units are presented as reported by the laboratory

TABLE 22a
1428 3rd Street Analytical Results - Soil (October 2006)
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1428SSa 1 ft bgs[3] 10/18/2006	1428SSa 3 ft bgs[4] 10/18/2006	1428SSb 1 ft bgs 10/18/2006	1428SSb 1 ft bgs (FD) 10/18/2006	1428SSb 3 ft bgs 10/18/2006	1428SSc 1 ft bgs 10/18/2006	1428SSc 3 ft bgs 10/18/2006	1428SSd 1 ft bgs 10/18/2006	1428SSd 3 ft bgs 10/18/2006	1428SSe 1 ft bgs 10/18/2006	1428SSe 3 ft bgs 10/18/2006
Volatile Organic Compounds														
1,1,1-Trichloroethane	µg/kg	1,200,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,1,2,2-Tetrachloroethane	µg/kg	410	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,1,2-Trichloroethane	µg/kg	730	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,1-Dichloroethane	µg/kg	2,800	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,1-Dichloroethene	µg/kg	120,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,1-Dichloropropene	µg/kg	NDRI	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2,3-Trichlorobenzene	µg/kg	62,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2,3-Trichloropropane	µg/kg	NDRI	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2,4-Trichlorobenzene	µg/kg	62,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2,4-Trimethylbenzene	µg/kg	NDRI	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2-Dibromo-3-chloroprop	µg/kg	30	NE	ND (5.3)	ND (5)	ND (6.8)	ND (16)	ND (4.7)	ND (5.6)	ND (7.5)	ND (5.6)	ND (5.2)	ND (6)	ND (5.6)
1,2-Dibromoethane	µg/kg	32	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2-Dichlorobenzene	µg/kg	600,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2-Dichloroethane	µg/kg	280	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,2-Dichloropropane	µg/kg	340	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,3-Dichlorobenzene	µg/kg	530,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,3-Dichloropropane	µg/kg	NDRI	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
1,4-Dichlorobenzene	µg/kg	3,400	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
2-Hexanone	µg/kg	NDRI	NE	ND (21)	ND (20)	ND (27)	ND (32)	ND (19)	ND (22)	ND (30)	ND (22)	ND (21)	ND (24)	ND (22)
Acetone	µg/kg	14,000,000	NE	ND (21)	ND (20)	19 J	ND (32)	ND (19)	23	17 J	ND (22)	ND (21)	54	ND (22)
Benzene	µg/kg	640	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Bromochloromethane	µg/kg	NDRI	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Bromodichloromethane	µg/kg	820	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Bromoform	µg/kg	62,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Bromomethane	µg/kg	3,900	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Carbon disulfide	µg/kg	360,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Carbon tetrachloride	µg/kg	250	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Chlorobenzene	µg/kg	150,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Chloroethane	µg/kg	3,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Chloroform	µg/kg	940	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Chloromethane	µg/kg	47,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)

TABLE 22a
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1428SSa 1 ft bgs[3] 10/18/2006	1428SSa 3 ft bgs[4] 10/18/2006	1428SSb 1 ft bgs 10/18/2006	1428SSb 1 ft bgs (FD) 10/18/2006	1428SSb 3 ft bgs 10/18/2006	1428SSc 1 ft bgs 10/18/2006	1428SSc 3 ft bgs 10/18/2006	1428SSd 1 ft bgs 10/18/2006	1428SSd 3 ft bgs 10/18/2006	1428SSe 1 ft bgs 10/18/2006	1428SSe 3 ft bgs 10/18/2006
Volatile Organic Compounds														
cis-1,2-Dichloroethene	µg/kg	43,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
cis-1,3-Dichloropropene	µg/kg	780	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Dibromochloromethane	µg/kg	1,100	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Ethyl tert-butyl ether	µg/kg	32,000	NE	ND (11)	ND (10)	ND (14)	ND (16)	ND (9.4)	ND (11)	ND (15)	ND (11)	ND (10)	ND (12)	ND (11)
Ethylbenzene	µg/kg	400,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Freon 11	µg/kg	390,000	NE	3.4	3.5	8.8	11	2 J	2.2 J	5	4.1	ND (2.6)	3.2	5.9
Freon 113	µg/kg	5,600,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Freon 12	µg/kg	94,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Isopropyl ether	µg/kg	NDRI	NE	ND (11)	ND (10)	ND (14)	ND (16)	ND (9.4)	ND (11)	ND (15)	ND (11)	ND (10)	ND (12)	ND (11)
Isopropylbenzene (cumen	µg/kg	570,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Methyl ethyl ketone	µg/kg	22,000,000	NE	ND (21)	ND (20)	ND (27)	ND (32)	ND (19)	ND (22)	ND (30)	ND (22)	ND (21)	ND (24)	ND (22)
Methyl isobutyl ketone	µg/kg	5,300,000	NE	ND (21)	ND (20)	ND (27)	ND (32)	ND (19)	ND (22)	ND (30)	ND (22)	ND (21)	ND (24)	ND (22)
Methyl tert-butyl ether	µg/kg	32,000	NE	ND (11)	ND (10)	ND (14)	ND (16)	ND (9.4)	ND (11)	ND (15)	ND (11)	ND (10)	ND (12)	ND (11)
Methylene chloride	µg/kg	9,100	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Styrene	µg/kg	1,700,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
tert-Amyl methyl ether	µg/kg	32,000	NE	ND (11)	ND (10)	ND (14)	ND (16)	ND (9.4)	ND (11)	ND (15)	ND (11)	ND (10)	ND (12)	ND (11)
tert-Butyl alcohol	µg/kg	13,000,000	NE	ND (53)	ND (50)	ND (68)	ND (79)	ND (47)	ND (56)	ND (75)	ND (56)	ND (52)	ND (60)	ND (56)
Tetrachloroethene	µg/kg	480	NE	ND (2.6)	ND (2.5)	ND (3.4)	2.5 J	20	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	17	ND (2.8)
Toluene	µg/kg	520,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
trans-1,2-Dichloroethene	µg/kg	69,000	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
trans-1,3-Dichloropropene	µg/kg	780	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Trichloroethene	µg/kg	53	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	20	ND (2.8)
Vinyl chloride	µg/kg	79	NE	ND (2.6)	ND (2.5)	ND (3.4)	ND (4)	ND (2.4)	ND (2.8)	ND (3.7)	ND (2.8)	ND (2.6)	ND (3)	ND (2.8)
Xylenes, total	µg/kg	270,000	NE	ND (5.3)	ND (5)	ND (6.8)	ND (7.9)	ND (4.7)	ND (5.6)	ND (7.5)	ND (5.6)	ND (5.2)	ND (6)	ND (5.6)
Semivolatile Organic Compounds														
1,1'-Biphenyl	µg/kg	3,000,000	NE	ND (910)	ND (320)	290 J	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
1,2,4,5-Tetrachlorobenzen	µg/kg	3,200	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
1,4-Dioxane (p-dioxane)	µg/kg	44,000	NE	ND (360) J	ND (130) J	ND (390) J	ND (75) R	ND (80) J	ND (390) J	ND (95) R	ND (83) R	ND (410) R	ND (530) J	6.6 J
2,2'-Oxybis(1-Chloropropa	µg/kg	220	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2,3,4,6-Tetrachlorophenol	µg/kg	NDRI	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2,4,5-Trichlorophenol	µg/kg	6,100,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)

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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1428SSa 1 ft bgs[3] 10/18/2006	1428SSa 3 ft bgs[4] 10/18/2006	1428SSb 1 ft bgs 10/18/2006	1428SSb 1 ft bgs (FD) 10/18/2006	1428SSb 3 ft bgs 10/18/2006	1428SSc 1 ft bgs 10/18/2006	1428SSc 3 ft bgs 10/18/2006	1428SSd 1 ft bgs 10/18/2006	1428SSd 3 ft bgs 10/18/2006	1428SSe 1 ft bgs 10/18/2006	1428SSe 3 ft bgs 10/18/2006
Semivolatile Organic Compounds														
2,4,6-Trichlorophenol	µg/kg	6,100	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2,4-Dichlorophenol	µg/kg	180,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2,4-Dimethylphenol	µg/kg	1,200,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2,4-Dinitrophenol	µg/kg	120,000	NE	ND (1,800)	ND (620)	ND (1,900)	ND (1,900)	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
2,4-Dinitrotoluene	µg/kg	120,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2,6-Dinitrotoluene	µg/kg	61,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	1,800	ND (1,100)	ND (1,300)	ND (1,100)
2-Chloronaphthalene	µg/kg	4,900,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2-Chlorophenol	µg/kg	63,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2-Methylnaphthalene	µg/kg	150,000	NE	ND (910)	ND (320)	180 J	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2-Methylphenol	µg/kg	3,100,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
2-Nitroaniline	µg/kg	180,000	NE	ND (1,800)	ND (620)	ND (1,900)	ND (1,900)	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
2-Nitrophenol	µg/kg	NDRI	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
3,3'-Dichlorobenzidine	µg/kg	1,100	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
3-Nitroaniline	µg/kg	18,000	NE	ND (1,800)	ND (620)	ND (1,900)	370	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
4,6-Dinitro-2-methylphenol	µg/kg	NDRI	NE	ND (1,800)	ND (620)	ND (1,900)	ND (1,900)	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
4-Bromophenylphenyl eth	µg/kg	NDRI	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
4-Chloro-3-methylphenol	µg/kg	3,100,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
4-Chloroaniline	µg/kg	240,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
4-Chlorophenylphenyl eth	µg/kg	NDRI	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
4-Methylphenol	µg/kg	310,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
4-Nitroaniline	µg/kg	23,000	NE	ND (1,800)	ND (620)	ND (1,900)	ND (1,900)	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
4-Nitrophenol	µg/kg	120,000	NE	ND (1,800)	ND (620)	ND (1,900)	100	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
Acenaphthene	µg/kg	3,700,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Acenaphthylene	µg/kg	2,300,000	NE	330	72 J	2,300 J	400 J	24 J	ND (990)	ND (240)	150 J	ND (1,100)	900 J	170
Acetophenone	µg/kg	100,000,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Anthracene	µg/kg	22,000,000	NE	320	110 J	3,000 J	270 J	28 J	ND (990)	ND (240)	130 J	ND (1,100)	1,100 J	250
Atrazine	µg/kg	2,200	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Benzaldehyde	µg/kg	6,100,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Benzo(a)anthracene	µg/kg	620	NE	**1,600**	340	**8,300 J**	**970 J**	96 J	380	41 J	500 J	260	**4,700**	**1,200**
Benzo(a)pyrene	µg/kg	62	NE	**1,800**	**410**	**9,200 J**	**1,500 J**	**150 J**	**690**	**68 J**	**770 J**	**390**	**6,200**	**1,600**
Benzo(b)fluoranthene	µg/kg	620	NE	**2,000**	380	**9,800 J**	**1,500 J**	180 J	**630**	79 J	**940 J**	420	**6,000**	**1,400**

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Semivolatile Organic Compounds														
Benzo(g,h,i)perylene	µg/kg	2,300,000	NE	670	160 J	4,400 J	810 J	ND (200)	360	64 J	570 J	ND (1,100)	4,000	610
Benzo(k)fluoranthene	µg/kg	380	NE	**860**	180 J	**3,600 J**	**720 J**	67 J	260	29 J	300 J	150	**2,900**	**810**
Benzyl butyl phthalate	µg/kg	12,000,000	NE	ND (910)	ND (320)	ND (1,000)	100	ND (200)	240	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
bis(2-Chloroethoxy)metha	µg/kg	220	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
bis(2-Chloroethyl)ether	µg/kg	220	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	NE	ND (910)	ND (320)	120 J	120	36 J	150	39 J	560 J	ND (1,100)	190 J	200
Caprolactam	µg/kg	31,000,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Carbazole	µg/kg	24,000	NE	190	ND (320)	630 J	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	240 J	ND (1,100)
Chrysene	µg/kg	3,800	NE	2,200	420	**10,000 J**	1,400 J	140 J	560	70 J	830 J	450	**6,100**	1,500
Dibenz(a,h)anthracene	µg/kg	62	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Dibenzofuran	µg/kg	150,000	NE	ND (910)	ND (320)	130 J	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Diethylphthalate	µg/kg	49,000,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Dimethylphthalate	µg/kg	100,000,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Di-n-butyl phthalate	µg/kg	6,100,000	NE	ND (910)	ND (320)	230 J	ND (960)	ND (200)	ND (990)	180 J	190 J	ND (1,100)	440 J	ND (1,100)
Di-n-octyl phthalate	µg/kg	2,400,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Fluoranthene	µg/kg	2,300,000	NE	3,800	840	19,000 J	2,600 J	270	980	83 J	1,300	670	9,800	2,600
Fluorene	µg/kg	2,700,000	NE	120	ND (320)	1,600 J	110 J	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	490 J	ND (1,100)
Hexachlorobenzene	µg/kg	300	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Hexachlorobutadiene	µg/kg	6,200	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Hexachlorocyclopentadien	µg/kg	370,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Hexachloroethane	µg/kg	35,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Indeno(1,2,3-c,d)pyrene	µg/kg	620	NE	**950**	220 J	**4,600 J**	**970 J**	100 J	460	57 J	500 J	220	**3,600**	**870**
Isophorone	µg/kg	510,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Naphthalene	µg/kg	1,700	NE	210	ND (320)	1,000 J	330 J	37 J	ND (990)	ND (240)	ND (1,100)	ND (1,100)	180 J	ND (1,100)
Nitrobenzene	µg/kg	20,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
N-Nitrosodi-n-propylamine	µg/kg	69	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
N-Nitrosodiphenylamine	µg/kg	99,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Pentachlorophenol	µg/kg	3,000	NE	ND (1,800)	ND (620)	ND (1,900)	ND (1,900)	ND (390)	ND (1,900)	ND (470)	ND (2,000)	ND (2,000)	ND (2,600)	ND (2,200)
Phenanthrene	µg/kg	2,300,000	NE	2,500	680	20,000 J	2,200 J	220	530	51 J	1,000 J	400 J	6,800	1,600
Phenol	µg/kg	18,000,000	NE	ND (910)	ND (320)	ND (1,000)	ND (960)	ND (200)	ND (990)	ND (240)	ND (1,100)	ND (1,100)	ND (1,300)	ND (1,100)
Pyrene	µg/kg	2,300,000	NE	3,800	820	20,000 J	2,900 J	260	1,000	97 J	1,400	680	11,000	2,800

TABLE 22a
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1428SSa 1 ft bgs[3] 10/18/2006	1428SSa 3 ft bgs[4] 10/18/2006	1428SSb 1 ft bgs 10/18/2006	1428SSb 1 ft bgs (FD) 10/18/2006	1428SSb 3 ft bgs 10/18/2006	1428SSc 1 ft bgs 10/18/2006	1428SSc 3 ft bgs 10/18/2006	1428SSd 1 ft bgs 10/18/2006	1428SSd 3 ft bgs 10/18/2006	1428SSe 1 ft bgs 10/18/2006	1428SSe 3 ft bgs 10/18/2006
Metals														
Aluminum	mg/kg	76,000	NE	2,160	4,610	7,910	6,920	3,940	2,140	11,900	5,640	1,910	7,060	5,570
Antimony	mg/kg	31	5.9	0.75 J	ND (6.8)	**37.7**	**36.5**	6 J	0.87 J	ND (8.7)	ND (7.1)	1.3 J	**77.4**	18.4
Arsenic[5]	mg/kg	0.062 / 22	***14***	***4.9***	***3.1***	***14.8***	***13.5***	***6.2***	***5.2***	***13.5***	***15.7***	***4.7***	**35.1**	***10.8***
Barium	mg/kg	5,400	NE	150	125	1,490	1,220	231	126	3,210	1,160	123	711	374
Beryllium	mg/kg	150	0.9	0.08 J	0.09 J	0.27 J	0.22 J	0.12 J	0.09 J	0.47 J	0.16 J	0.05 J	0.29 J	0.15 J
Cadmium	mg/kg	37	1.5	0.76	0.15 J	4	4.3	0.78	0.94	17.9	5.6	1.6	3.4	2.1
Calcium	mg/kg	NA	NE	**2,210**	**2,650**	**18,700**	**21,900**	**3,910**	**2,540**	**31,900**	**12,400**	**2,400**	**9,160**	**4,490**
Chromium	mg/kg	210	91.4	12.5	24.8	41.7	39	21.8	10.9	81.1	112	17.8	38.8	37.3
Cobalt	mg/kg	900	NE	2.3 J	5 J	9.4	8.6	4.5 J	2.6 J	14.4	11.4	3.2 J	7.1	6.6
Copper	mg/kg	3,100	59.6	64.3	23.9	427	347	55.6	72.6	267	439	76.1	440	257
Iron	mg/kg	23,000	NE	9,130	9,140	**26,100**	**23,700**	10,500	8,670	**51,500**	**44,100**	15,000	22,200	16,600
Lead[6]	mg/kg	194 / 340	14.7	**443**	72.1 J+	**2,320**	**1,590 J+**	***224***	**429**	**4,170 J+**	**2,920**	***318 J+***	**2,660 J+**	**1,050 J+**
Magnesium	mg/kg	NA	NE	**686**	**1,440**	**2,410**	**2,230**	**1,190**	**766**	**2,650**	**3,180**	**695**	**2,310**	**1,730**
Manganese	mg/kg	1,800	NE	102	220	493	478	193	123	492	485	239	313	260
Mercury	mg/kg	23	0.3	0.73	0.18	0.76	0.69	0.26	0.52	1.5	0.71	0.34	1.4	0.81
Nickel	mg/kg	1,600	120.2	10.3	17.4	38.8	38	18	10.6	44.3	59.4	18.9	33.6	27
Potassium	mg/kg	NA	NE	**362 J**	**645**	**1,880**	**1,490**	**744**	**425 J**	**1,260**	**1,050**	**327 J**	**1,280**	**834**
Selenium	mg/kg	390	5.6	ND (3.8)	0.55 J	ND (4.1)	ND (3.8)	ND (4)	ND (3.9)	ND (5.1)	ND (4.2)	ND (4.2)	ND (4.4)	0.66 J
Silver	mg/kg	390	1.7	0.88 J	0.58 J	6.4	4.9	0.74 J	0.95 J	4.1	6.4	0.83 J	3.2	2.6
Sodium	mg/kg	NA	NE	ND (536)	**383 J**	**5,370**	**6,030**	ND (567)	ND (562)	**12,400**	**5,860**	ND (602)	**2,970**	**1,950**
Thallium	mg/kg	5.2	**42.5**	0.53 J	ND (2.8)	ND (2.9)	ND (2.7)	0.71 J	0.68 J	ND (3.6)	0.61 J	1 J	ND (3.2)	ND (3.1)
Vanadium	mg/kg	78	NE	8	19.8	27.7	25.6	15.9	9	43.9	38.4	10.6	27	23.3
Zinc	mg/kg	23,000	91.5	267	77.2	2,040	2,340	277	361	4,730	2,320	495	1,130	722
Organochlorine Pesticides/PCBs														
4,4'-DDD	µg/kg	2,400	NE	160 J	4.7 J	30 J	180 J	13 J	14 J	0.53 J	13 J	4.3 J	ND (5.2)	4.7 J
4,4'-DDE	µg/kg	1,700	NE	240 J	18	6.1 J	260 J	180 J	58	3.1 J	9 J	14	7.7 J	20 J
4,4'-DDT	µg/kg	1,700	NE	360 J	38 J	270 J	**1,800 J**	450 J	340 J	8.4	1,000 J	110	0.34 J	200 J
Aldrin	µg/kg	29	NE	0.15 J	ND (3.2) J	ND (2) J	0.18 J	0.16 J	0.64 J	ND (2.4) J	0.68 J	0.59 J	ND (2.7) J	ND (2.3) J
alpha-BHC	µg/kg	90	NE	0.082 J	ND (3.2)	1.5 J	2.5 J	0.3 J	0.042 J	ND (2.4)	0.55 J	ND (2.1)	ND (2.7)	0.18 J
alpha-Chlordane	µg/kg	1,600	NE	0.44 J	0.18 J	1.7 J	4.3	0.64 J	3.9	ND (2.4)	10 J	0.21 J	0.54 J	2.5 J
Aroclor-1016	µg/kg	3,900	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)

TABLE 22a
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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	1428SSa 1 ft bgs [3] 10/18/2006	1428SSa 3 ft bgs [4] 10/18/2006	1428SSb 1 ft bgs 10/18/2006	1428SSb 1 ft bgs (FD) 10/18/2006	1428SSb 3 ft bgs 10/18/2006	1428SSc 1 ft bgs 10/18/2006	1428SSc 3 ft bgs 10/18/2006	1428SSd 1 ft bgs 10/18/2006	1428SSd 3 ft bgs 10/18/2006	1428SSe 1 ft bgs 10/18/2006	1428SSe 3 ft bgs 10/18/2006
Organochlorine Pesticides/PCBs														
Aroclor-1221	µg/kg	220	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)
Aroclor-1232	µg/kg	220	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)
Aroclor-1242	µg/kg	220	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)
Aroclor-1248	µg/kg	220	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)
Aroclor-1254	µg/kg	220	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)
Aroclor-1260	µg/kg	220	NE	ND (36)	ND (62)	ND (39)	ND (37)	ND (39)	ND (38)	ND (47)	ND (41)	ND (41)	ND (52)	ND (44)
beta-BHC	µg/kg	320	NE	0.45 J	0.25 J	ND (2) J	2.3 J	0.36 J	1.2 J	ND (2.4)	ND (2.1) J	ND (2.1)	ND (2.7) J	0.7 J
delta-BHC	µg/kg	90	NE	0.43 J	ND (3.2)	0.92 J	0.23 J	0.14 J	0.1 J	ND (2.4)	0.25 J	ND (2.1)	0.68 J	0.26 J
Dieldrin	µg/kg	30	NE	ND (3.3) J	ND (6.2)	0.2 J	15 J	18 J	8.1 J	ND (4.7)	2 J	ND (4.1)	0.77 J	5.8 J
Endosulfan I	µg/kg	370,000	NE	0.38 J	ND (3.2)	ND (2)	0.4 J	0.069 J	0.067 J	ND (2.4)	1.9 J	ND (2.1)	ND (2.7)	0.095 J
Endosulfan II	µg/kg	370,000	NE	0.53 J	0.66 J	0.31 J	0.83 J	0.4 J	0.31 J	ND (4.7)	2.2 J	0.62 J	0.31 J	0.24 J
Endosulfan sulfate	µg/kg	370,000	NE	0.57 J	0.54 J	0.58 J	2.7 J	0.16 J	2.1 J	0.52 J	0.92 J	0.26 J	2.1 J	2.6 J
Endrin	µg/kg	18,000	NE	11 J	0.44 J	0.57 J	0.75 J	0.73 J	0.32 J	1.4 J	2 J	0.58 J	7.5 J	3.9 J
Endrin aldehyde	µg/kg	18,000	NE	ND (3.3) J	ND (3.3)	1 J	ND (3.3) J	ND (3.3) J	ND (3.3) J	ND (4.7)	5.4 J	0.42 J	3.3 J	ND (3.3) J
Endrin ketone	µg/kg	18,000	NE	0.19 J	0.68 J	4.9 J	7 J	0.16 J	0.21 J	ND (2.4)	1.4 J	ND (2.1)	0.41 J	4 J
gamma-BHC	µg/kg	440	NE	0.28 J	ND (3.2) J	0.32 J	0.48 J	ND (2) J	0.21 J	ND (2.4) J	ND (2.1) J	ND (2.1)	ND (2.7) J	ND (2.3) J
gamma-Chlordane	µg/kg	1,600	NE	ND (1.7) J	ND (1.7) J	4.4 J	1.9 J	ND (1.7) J	2 J	0.29 J	4.4 J	1.3 J	1.5 J	3.7
Heptachlor	µg/kg	110	NE	0.11 J	ND (3.2) J	0.29 J	0.69 J	0.16 J	0.25 J	ND (2.4) J	0.84 J	ND (2.1)	0.32 J	0.036 J
Heptachlor epoxide	µg/kg	53	NE	0.28 J	0.14 J	1.9 J	6.1 J	0.44 J	2.9	ND (2.4)	26	0.48 J	0.38 J	0.66 J
Methoxychlor	µg/kg	310,000	NE	18 J	ND (17) J	1.1 J	17 J	ND (17)	ND (17) J	ND (24)	0.71 J	0.5 J	12 J	ND (17) J
Toxaphene	µg/kg	440	NE	ND (180)	ND (320)	ND (200)	ND (190)	ND (200)	ND (200)	ND (240)	ND (210)	ND (210)	ND (270)	ND (230)

TABLE 22a
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Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16b (Soil Screening Levels) for source of screening levels.

[2] Oakland background results are from background metal concentration studies conducted by the Lawrence Berkeley National Laboratory Environmental Restoration Program, 1995. Samples were taken from locations representing the Colluvian and Fill geologic unit.

[3] 1ft bgs samples were collected between 0.5 and 1ft bgs

[4] 3ft bgs samples were collected between 2.5 and 3 ft bgs

[5] For Arsenic, 0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.

[6] Lead screening level in soil was evaluated using Department Toxic Substance Control’s Lead Risk Assessment Spreadsheet Version 7 (Lead Spread 7, Cal/EPA 1999)

Units are presented as reported by the laboratory.

FD	field duplicate
ft bgs	feet below ground surface
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
NE	not established
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
J+	estimated value, possible high bias
R	rejected for failure to meet quality control requirements

TABLE 22b

1432 3rd Street Analytical Results - Soil (October 2006)

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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1432SSa 1 ft bgs[3] 10/18/2006	1432SSa 3 ft bgs[4] 10/18/2006	1432SSb 1 ft bgs 10/18/2006	1432SSb 1 ft bgs (FD) 10/18/2006	1432SSb 3 ft bgs 10/18/2006	1432SSc 1 ft bgs 11/7/2006	1432SSc 3 ft bgs 11/7/2006
Volatile Organic Compounds										
1,1,1-Trichloroethane	µg/kg	1,200,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,1,2,2-Tetrachloroethane	µg/kg	410	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,1,2-Trichloroethane	µg/kg	730	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,1-Dichloroethane	µg/kg	2,800	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,1-Dichloroethene	µg/kg	120,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,1-Dichloropropene	µg/kg	NDRI	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2,3-Trichlorobenzene	µg/kg	62,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2,3-Trichloropropane	µg/kg	NDRI	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2,4-Trichlorobenzene	µg/kg	62,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2,4-Trimethylbenzene	µg/kg	NDRI	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2-Dibromo-3-chloroprop	µg/kg	30	NE	ND (6.5)	ND (6.2)	ND (7.3)	ND (6.5)	ND (7.3)	ND (15)	ND (13)
1,2-Dibromoethane	µg/kg	32	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2-Dichlorobenzene	µg/kg	600,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2-Dichloroethane	µg/kg	280	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,2-Dichloropropane	µg/kg	340	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,3-Dichlorobenzene	µg/kg	530,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,3-Dichloropropane	µg/kg	NDRI	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
1,4-Dichlorobenzene	µg/kg	3,400	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
2-Hexanone	µg/kg	NDRI	NE	ND (26)	ND (25)	ND (29)	ND (26)	ND (29)	ND (29)	ND (25)
Acetone	µg/kg	14,000,000	NE	ND (13)	ND (12)	ND (29)	ND (13)	ND (29)	ND (29) J	ND (25) J
Benzene	µg/kg	640	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Bromochloromethane	µg/kg	NDRI	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Bromodichloromethane	µg/kg	820	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Bromoform	µg/kg	62,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6) J	ND (3.2) J
Bromomethane	µg/kg	3,900	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Carbon disulfide	µg/kg	360,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Carbon tetrachloride	µg/kg	250	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Chlorobenzene	µg/kg	150,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Chloroethane	µg/kg	3,000	NE	ND (1.6)	ND (1.6)	ND (3.6)	ND (1.6)	ND (3.6)	ND (3.6)	ND (3.2)
Chloroform	µg/kg	940	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Chloromethane	µg/kg	47,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)

TABLE 22b
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Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	Oakland [2] Background Levels	1432SSa 1 ft bgs [3] 10/18/2006	1432SSa 3 ft bgs [4] 10/18/2006	1432SSb 1 ft bgs 10/18/2006	1432SSb 1 ft bgs (FD) 10/18/2006	1432SSb 3 ft bgs 10/18/2006	1432SSc 1 ft bgs 11/7/2006	1432SSc 3 ft bgs 11/7/2006
Volatile Organic Compounds										
cis-1,2-Dichloroethene	µg/kg	43,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
cis-1,3-Dichloropropene	µg/kg	780	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Dibromochloromethane	µg/kg	1,100	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6) J	ND (3.2) J
Ethyl tert-butyl ether	µg/kg	32,000	NE	ND (13)	ND (12)	ND (15)	ND (13)	ND (15)	ND (15)	ND (13)
Ethylbenzene	µg/kg	400,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Freon 11	µg/kg	390,000	NE	4.5	5.2	9.2	5.8	12	17	3 J
Freon 113	µg/kg	5,600,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Freon 12	µg/kg	94,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Isopropyl ether	µg/kg	NDRI	NE	ND (13)	ND (12)	ND (15)	ND (13)	ND (15)	ND (15)	ND (13)
Isopropylbenzene (cumen	µg/kg	570,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Methyl ethyl ketone	µg/kg	22,000,000	NE	ND (26)	ND (25)	ND (29)	ND (26)	ND (29)	ND (29)	ND (25)
Methyl isobutyl ketone	µg/kg	5,300,000	NE	ND (26)	ND (25)	ND (29)	ND (26)	ND (29)	ND (29)	ND (25)
Methyl tert-butyl ether	µg/kg	32,000	NE	ND (13)	ND (12)	ND (15)	ND (13)	ND (15)	ND (15)	ND (13)
Methylene chloride	µg/kg	9,100	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Styrene	µg/kg	1,700,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
tert-Amyl methyl ether	µg/kg	32,000	NE	ND (13)	ND (12)	ND (15)	ND (13)	ND (15)	ND (15)	ND (13)
tert-Butyl alcohol	µg/kg	13,000,000	NE	ND (65)	ND (62)	ND (73)	ND (65)	ND (73)	ND (73)	ND (63)
Tetrachloroethene	µg/kg	480	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Toluene	µg/kg	520,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
trans-1,2-Dichloroethene	µg/kg	69,000	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
trans-1,3-Dichloropropene	µg/kg	780	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Trichloroethene	µg/kg	53	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Vinyl chloride	µg/kg	79	NE	ND (3.3)	ND (3.1)	ND (3.6)	ND (3.2)	ND (3.6)	ND (3.6)	ND (3.2)
Xylenes, total	µg/kg	270,000	NE	ND (6.5)	ND (6.2)	ND (7.3)	ND (6.5)	ND (7.3)	ND (7.3)	ND (6.3)
Semivolatile Organic Compounds										
1,1'-Biphenyl	µg/kg	3,000,000	NE	220	ND (1,000)	490 J	ND (1,200)	ND (1,000)	ND (230)	ND (200)
1,2,4,5-Tetrachlorobenzen	µg/kg	3,200	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
1,4-Dioxane (p-dioxane)	µg/kg	44,000	NE	ND (81) R	ND (400) J	ND (400) J	ND (490) J	ND (410) J	---	---
2,2'-Oxybis(1-Chloropropa	µg/kg	220	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2,3,4,6-Tetrachlorophenol	µg/kg	NDRI	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2,4,5-Trichlorophenol	µg/kg	6,100,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)

TABLE 22b
1432 3rd Street Analytical Results - Soil (October 2006)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1432SSa 1 ft bgs[3] 10/18/2006	1432SSa 3 ft bgs[4] 10/18/2006	1432SSb 1 ft bgs 10/18/2006	1432SSb 1 ft bgs (FD) 10/18/2006	1432SSb 3 ft bgs 10/18/2006	1432SSc 1 ft bgs 11/7/2006	1432SSc 3 ft bgs 11/7/2006
Semivolatile Organic Compounds										
2,4,6-Trichlorophenol	µg/kg	6,100	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2,4-Dichlorophenol	µg/kg	180,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2,4-Dimethylphenol	µg/kg	1,200,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2,4-Dinitrophenol	µg/kg	120,000	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
2,4-Dinitrotoluene	µg/kg	120,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2,6-Dinitrotoluene	µg/kg	61,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	1,800	ND (230)	ND (200)
2-Chloronaphthalene	µg/kg	4,900,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2-Chlorophenol	µg/kg	63,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2-Methylnaphthalene	µg/kg	150,000	NE	130	ND (1,000)	150 J	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2-Methylphenol	µg/kg	3,100,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
2-Nitroaniline	µg/kg	180,000	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
2-Nitrophenol	µg/kg	NDRI	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
3,3'-Dichlorobenzidine	µg/kg	1,100	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
3-Nitroaniline	µg/kg	18,000	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
4,6-Dinitro-2-methylphenol	µg/kg	NDRI	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
4-Bromophenylphenyl eth	µg/kg	NDRI	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
4-Chloro-3-methylphenol	µg/kg	3,100,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
4-Chloroaniline	µg/kg	240,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
4-Chlorophenylphenyl eth	µg/kg	NDRI	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
4-Methylphenol	µg/kg	310,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
4-Nitroaniline	µg/kg	23,000	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
4-Nitrophenol	µg/kg	120,000	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
Acenaphthene	µg/kg	3,700,000	NE	120	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Acenaphthylene	µg/kg	2,300,000	NE	870	ND (1,000)	1,200 J	180 J	110 J	120 J	ND (200)
Acetophenone	µg/kg	100,000,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Anthracene	µg/kg	22,000,000	NE	610	ND (1,000)	570 J	160	120 J	90 J	ND (200)
Atrazine	µg/kg	2,200	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Benzaldehyde	µg/kg	6,100,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Benzo(a)anthracene	µg/kg	620	NE	**1,300**	290 J	**1,600 J**	480 J	390 J	340	66 J
Benzo(a)pyrene	µg/kg	62	NE	**1,900**	**380 J**	**2,800 J**	**790 J**	**600 J**	**410**	52 J
Benzo(b)fluoranthene	µg/kg	620	NE	**2,000**	400 J	**3,000 J**	**820 J**	**770 J**	600	110 J

TABLE 22b
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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	1432SSa 1 ft bgs [3] 10/18/2006	1432SSa 3 ft bgs [4] 10/18/2006	1432SSb 1 ft bgs 10/18/2006	1432SSb 1 ft bgs (FD) 10/18/2006	1432SSb 3 ft bgs 10/18/2006	1432SSc 1 ft bgs 11/7/2006	1432SSc 3 ft bgs 11/7/2006
Semivolatile Organic Compounds										
Benzo(g,h,i)perylene	µg/kg	2,300,000	NE	810	190 J	1,400 J	390 J	390 J	270	37 J
Benzo(k)fluoranthene	µg/kg	380	NE	**970**	160 J	**880 J**	**420**	360 J	220 J	39 J
Benzyl butyl phthalate	µg/kg	12,000,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
bis(2-Chloroethoxy)metha	µg/kg	220	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
bis(2-Chloroethyl)ether	µg/kg	220	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	NE	130	110 J	ND (1,000)	ND (1,200)	160 J	60 J	ND (200)
Caprolactam	µg/kg	31,000,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Carbazole	µg/kg	24,000	NE	190	ND (1,000)	160 J	ND (1,200)	ND (1,000)	28 J	ND (200)
Chrysene	µg/kg	3,800	NE	1,800	410 J	2,300 J	750 J	780 J	460	75 J
Dibenz(a,h)anthracene	µg/kg	62	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Dibenzofuran	µg/kg	150,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Diethylphthalate	µg/kg	49,000,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Dimethylphthalate	µg/kg	100,000,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Di-n-butyl phthalate	µg/kg	6,100,000	NE	ND (1,000)	ND (1,000)	210 J	ND (1,200)	240 J	51 J	50 J
Di-n-octyl phthalate	µg/kg	2,400,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Fluoranthene	µg/kg	2,300,000	NE	4,300	620 J	5,200 J	1,500 J	1,100	900	110 J
Fluorene	µg/kg	2,700,000	NE	320	ND (1,000)	330 J	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Hexachlorobenzene	µg/kg	300	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Hexachlorobutadiene	µg/kg	6,200	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Hexachlorocyclopentadien	µg/kg	370,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230) J	ND (200) J
Hexachloroethane	µg/kg	35,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Indeno(1,2,3-c,d)pyrene	µg/kg	620	NE	**1,200**	270 J	**1,800 J**	490 J	410 J	370	56 J
Isophorone	µg/kg	510,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Naphthalene	µg/kg	1,700	NE	1,200	ND (1,000)	**2,800 J**	140 J	ND (1,000)	ND (230)	ND (200)
Nitrobenzene	µg/kg	20,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
N-Nitrosodi-n-propylamine	µg/kg	69	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
N-Nitrosodiphenylamine	µg/kg	99,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Pentachlorophenol	µg/kg	3,000	NE	ND (2,000)	ND (2,000)	ND (2,000)	ND (2,400)	ND (2,000)	ND (440)	ND (390)
Phenanthrene	µg/kg	2,300,000	NE	5,100	500 J	6,000	1,200	920 J	590	88 J
Phenol	µg/kg	18,000,000	NE	ND (1,000)	ND (1,000)	ND (1,000)	ND (1,200)	ND (1,000)	ND (230)	ND (200)
Pyrene	µg/kg	2,300,000	NE	4,300	720 J	5,800 J	1,500 J	1,200	940	110 J

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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	1432SSa 1 ft bgs [3] 10/18/2006	1432SSa 3 ft bgs [4] 10/18/2006	1432SSb 1 ft bgs 10/18/2006	1432SSb 1 ft bgs (FD) 10/18/2006	1432SSb 3 ft bgs 10/18/2006	1432SSc 1 ft bgs 11/7/2006	1432SSc 3 ft bgs 11/7/2006
Metals										
Aluminum	mg/kg	76,000	NE	1,870	4,760	6,870 J	3,610 J	6,730	6,760 J	6,470
Antimony	mg/kg	31	5.9	1.1 J	1.4 J	ND (7.2)	2 J	ND (7.6)	5.7 J	2.6 J
Arsenic [5]	mg/kg	0.062 / 22	***14***	***7.8***	***8.1***	***11.7***	***9.9***	***11.1***	***13.8***	***7.6***
Barium	mg/kg	5,400	NE	396	493	1,180 J	660 J	1,290	1,170 J	502
Beryllium	mg/kg	150	0.9	0.07 J	0.24 J	0.26 J	0.13 J	0.26 J	0.25 J	0.25 J
Cadmium	mg/kg	37	1.5	1.9	1.5	5.7 J	3.4 J	3.6	5.3	3.6
Calcium	mg/kg	NA	NE	**3,080**	**9,200**	**13,500 J**	**5,630 J**	**15,200**	**10,500 J**	**12,600**
Chromium	mg/kg	210	91.4	13.2	19.8	47.7 J	24.1 J	47.6	62.6 J	53
Cobalt	mg/kg	900	NE	2.2 J	4.1 J	9	4.1 J	7.6	9.1	7
Copper	mg/kg	3,100	59.6	101	168	544 J	235 J	316	458 J	505
Iron	mg/kg	23,000	NE	15,700	9,680	**28,200**	22,600	22,900	21,700 J	15,000
Lead [6]	mg/kg	194 / 340	14.7	**1,060**	**524 J+**	**1,830**	**1,610**	**1,500 J+**	**2,280 J**	**983**
Magnesium	mg/kg	NA	NE	**571 J**	**1,160**	**2,200 J**	**1,050 J**	**1,990**	**2,030 J**	**1,860**
Manganese	mg/kg	1,800	NE	104	338	436 J	237 J	323	369 J	359
Mercury	mg/kg	23	0.3	1.5	1.7	1.5	1.6	2.3	1.8	2.3
Nickel	mg/kg	1,600	120.2	10.2	15.2	43.6 J	20.8 J	36.5	39 J	31.6
Potassium	mg/kg	NA	NE	**514 J**	**759 J**	**1,360 J**	**663 J**	**1,270**	**1,490**	**1,240**
Selenium	mg/kg	390	5.6	0.59 J	ND (5.4)	ND (4.2)	0.48 J	0.51 J	ND (4.6)	ND (4.5)
Silver	mg/kg	390	1.7	1.1 J	1.2 J	7.1 J	3 J	4.3	6.6 J+	3.6
Sodium	mg/kg	NA	NE	ND (747)	ND (770)	**5,810 J**	ND (704) J	**3,910**	**4,570 J+**	**3,810 J+**
Thallium	mg/kg	5.2	**42.5**	0.61 J	0.6 J	ND (3)	1 J	ND (3.2)	ND (3.3)	ND (3.2)
Vanadium	mg/kg	78	NE	8.4	16.4	29.6 J	15 J	30.8	28.2 J	21.3
Zinc	mg/kg	23,000	91.5	565	601	2,290 J	973 J	1,490	1,880 J	1,550
Organochlorine Pesticides/PCBs										
4,4'-DDD	µg/kg	2,400	NE	17 J	0.82 J	21 J	14 J	13 J	8.3 J	3.1 J
4,4'-DDE	µg/kg	1,700	NE	230 J	0.5 J	220 J	870 J	4.7 J	62 J	17
4,4'-DDT	µg/kg	1,700	NE	980 J	140	610 J	**3,100 J**	510 J	220 J	55
Aldrin	µg/kg	29	NE	0.098 J	ND (2) J	0.21 J	0.2 J	0.53 J	2.7 J	0.15 J
alpha-BHC	µg/kg	90	NE	1.5 J	ND (2)	10 J	1.5 J	0.56 J	0.67 J	0.18 J
alpha-Chlordane	µg/kg	1,600	NE	28 J	7.6 J	73 J	23 J	0.3 J	14	6.6
Aroclor-1016	µg/kg	3,900	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)

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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1432SSa 1 ft bgs[3] 10/18/2006	1432SSa 3 ft bgs[4] 10/18/2006	1432SSb 1 ft bgs 10/18/2006	1432SSb 1 ft bgs (FD) 10/18/2006	1432SSb 3 ft bgs 10/18/2006	1432SSc 1 ft bgs 11/7/2006	1432SSc 3 ft bgs 11/7/2006
Organochlorine Pesticides/PCBs										
Aroclor-1221	µg/kg	220	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)
Aroclor-1232	µg/kg	220	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)
Aroclor-1242	µg/kg	220	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)
Aroclor-1248	µg/kg	220	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)
Aroclor-1254	µg/kg	220	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)
Aroclor-1260	µg/kg	220	NE	ND (40)	ND (39)	ND (40)	ND (48)	ND (41)	ND (44)	ND (39)
beta-BHC	µg/kg	320	NE	2.9 J	ND (2) J	2.3 J	0.52 J	ND (2.1) J	0.85 J	ND (2)
delta-BHC	µg/kg	90	NE	0.037 J	0.33 J	1.4 J	0.72 J	0.27 J	0.34 J	ND (2)
Dieldrin	µg/kg	30	NE	19	4.8	17 J	10 J	3.5 J	12 J	3.5 J
Endosulfan I	µg/kg	370,000	NE	0.62 J	0.25 J	0.44 J	0.21 J	0.53 J	0.3 J	0.14 J
Endosulfan II	µg/kg	370,000	NE	0.54 J	0.62 J	0.82 J	0.28 J	0.55 J	1.1 J	0.29 J
Endosulfan sulfate	µg/kg	370,000	NE	2.7 J	0.31 J	16 J	0.83 J	2.7 J	3.5 J	1.5 J
Endrin	µg/kg	18,000	NE	19 J	6.7 J	150 J	15 J	0.22 J	9.2 J	ND (3.3) J
Endrin aldehyde	µg/kg	18,000	NE	ND (3.3) J	0.24 J	24 J	ND (3.3) J	ND (4.1)	2.5 J	1.5 J
Endrin ketone	µg/kg	18,000	NE	0.36 J	ND (2)	0.29 J	0.46 J	2.5 J	5.5 J	2.6 J
gamma-BHC	µg/kg	440	NE	0.36 J	ND (2) J	0.51 J	0.28 J	ND (2.1) J	0.16 J	0.26 J
gamma-Chlordane	µg/kg	1,600	NE	27 J	8.3 J	68 J	23	7.8 J	19 J	9.8
Heptachlor	µg/kg	110	NE	0.34 J	ND (2) J	0.36 J	0.04 J	ND (2.1) J	ND (1.7) J	ND (1.7)
Heptachlor epoxide	µg/kg	53	NE	1.6 J	ND (2)	1.1 J	1.4 J	ND (2.1)	0.73 J	0.46 J
Methoxychlor	µg/kg	310,000	NE	27 J	4.4 J	8.5 J	ND (17) J	0.22 J	0.63 J	2.7 J
Toxaphene	µg/kg	440	NE	ND (200)	ND (200)	ND (200)	ND (250)	ND (210)	ND (230)	ND (200)

TABLE 22b

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Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16b (Soil Screening Levels) for source of screening levels.

[2] Oakland background results are from background metal concentration studies conducted by the Lawrence Berkeley National Laboratory Environmental Restoration Program, 1995. Samples were taken from locations representing the Colluvian and Fill geologic unit.

[3] 1ft bgs samples were collected between 0.5 and 1ft bgs

[4] 3ft bgs samples were collected between 2.5 and 3 ft bgs

[5] For Arsenic, 0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.

[6] Lead screening level in soil was evaluated using Department Toxic Substance Control's Lead Risk Assessment Spreadsheet Version 7 (Lead Spread 7, Cal/EPA 1999)

Units are presented as reported by the laboratory.

FD	field duplicate
ft bgs	feet below ground surface
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
NE	not established
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
J+	estimated value, possible high bias
R	rejected for failure to meet quality control requirements

TABLE 22c
1436 3rd Street Analytical Results - Soil (October 2006)
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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	1436SSa 1 ft bgs [3] 10/18/2006	1436SSa 3 ft bgs [4] 10/18/2006	1436SSb 1 ft bgs 10/18/2006	1436SSb 3 ft bgs 10/18/2006
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	1,200,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,1,2,2-Tetrachloroethane	µg/kg	410	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,1,2-Trichloroethane	µg/kg	730	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,1-Dichloroethane	µg/kg	2,800	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,1-Dichloroethene	µg/kg	120,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,1-Dichloropropene	µg/kg	NDRI	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2,3-Trichlorobenzene	µg/kg	62,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2,3-Trichloropropane	µg/kg	NDRI	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2,4-Trichlorobenzene	µg/kg	62,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2,4-Trimethylbenzene	µg/kg	NDRI	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2-Dibromo-3-chloroprop	µg/kg	30	NE	ND (6.6)	ND (5.8)	ND (6.8)	ND (6)
1,2-Dibromoethane	µg/kg	32	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2-Dichlorobenzene	µg/kg	600,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2-Dichloroethane	µg/kg	280	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,2-Dichloropropane	µg/kg	340	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,3-Dichlorobenzene	µg/kg	530,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,3-Dichloropropane	µg/kg	NDRI	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
1,4-Dichlorobenzene	µg/kg	3,400	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
2-Hexanone	µg/kg	NDRI	NE	ND (27)	ND (23)	ND (27)	ND (24)
Acetone	µg/kg	14,000,000	NE	ND (27)	ND (23)	ND (27)	ND (12)
Benzene	µg/kg	640	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Bromochloromethane	µg/kg	NDRI	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Bromodichloromethane	µg/kg	820	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Bromoform	µg/kg	62,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Bromomethane	µg/kg	3,900	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Carbon disulfide	µg/kg	360,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Carbon tetrachloride	µg/kg	250	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Chlorobenzene	µg/kg	150,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Chloroethane	µg/kg	3,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (1.5)
Chloroform	µg/kg	940	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Chloromethane	µg/kg	47,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)

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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1436SSa 1 ft bgs[3] 10/18/2006	1436SSa 3 ft bgs[4] 10/18/2006	1436SSb 1 ft bgs 10/18/2006	1436SSb 3 ft bgs 10/18/2006
Volatile Organic Compounds							
cis-1,2-Dichloroethene	µg/kg	43,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
cis-1,3-Dichloropropene	µg/kg	780	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Dibromochloromethane	µg/kg	1,100	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Ethyl tert-butyl ether	µg/kg	32,000	NE	ND (13)	ND (12)	ND (14)	ND (12)
Ethylbenzene	µg/kg	400,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Freon 11	µg/kg	390,000	NE	ND (3.3)	4.1	15	5.8
Freon 113	µg/kg	5,600,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Freon 12	µg/kg	94,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (1.5)
Isopropyl ether	µg/kg	NDRI	NE	ND (13)	ND (12)	ND (14)	ND (12)
Isopropylbenzene (cumen	µg/kg	570,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Methyl ethyl ketone	µg/kg	22,000,000	NE	ND (27)	ND (23)	ND (27)	ND (24)
Methyl isobutyl ketone	µg/kg	5,300,000	NE	ND (27)	ND (23)	ND (27)	ND (24)
Methyl tert-butyl ether	µg/kg	32,000	NE	ND (13)	ND (12)	ND (14)	ND (12)
Methylene chloride	µg/kg	9,100	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Styrene	µg/kg	1,700,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
tert-Amyl methyl ether	µg/kg	32,000	NE	ND (13)	ND (12)	ND (14)	ND (12)
tert-Butyl alcohol	µg/kg	13,000,000	NE	ND (66)	ND (58)	ND (68)	ND (60)
Tetrachloroethene	µg/kg	480	NE	4.9	5.6	ND (3.4)	ND (3)
Toluene	µg/kg	520,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
trans-1,2-Dichloroethene	µg/kg	69,000	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
trans-1,3-Dichloropropene	µg/kg	780	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Trichloroethene	µg/kg	53	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Vinyl chloride	µg/kg	79	NE	ND (3.3)	ND (2.9)	ND (3.4)	ND (3)
Xylenes, total	µg/kg	270,000	NE	ND (6.6)	ND (5.8)	ND (6.8)	ND (6)
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/kg	3,000,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
1,2,4,5-Tetrachlorobenzen	µg/kg	3,200	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
1,4-Dioxane (p-dioxane)	µg/kg	44,000	NE	ND (440) J	ND (81) J	ND (400) J	ND (77) J
2,2'-Oxybis(1-Chloropropa	µg/kg	220	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2,3,4,6-Tetrachlorophenol	µg/kg	NDRI	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2,4,5-Trichlorophenol	µg/kg	6,100,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)

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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1436SSa 1 ft bgs[3] 10/18/2006	1436SSa 3 ft bgs[4] 10/18/2006	1436SSb 1 ft bgs 10/18/2006	1436SSb 3 ft bgs 10/18/2006
Semivolatile Organic Compounds							
2,4,6-Trichlorophenol	µg/kg	6,100	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2,4-Dichlorophenol	µg/kg	180,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2,4-Dimethylphenol	µg/kg	1,200,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2,4-Dinitrophenol	µg/kg	120,000	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
2,4-Dinitrotoluene	µg/kg	120,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2,6-Dinitrotoluene	µg/kg	61,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2-Chloronaphthalene	µg/kg	4,900,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2-Chlorophenol	µg/kg	63,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2-Methylnaphthalene	µg/kg	150,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2-Methylphenol	µg/kg	3,100,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
2-Nitroaniline	µg/kg	180,000	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
2-Nitrophenol	µg/kg	NDRI	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
3,3'-Dichlorobenzidine	µg/kg	1,100	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
3-Nitroaniline	µg/kg	18,000	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
4,6-Dinitro-2-methylphenol	µg/kg	NDRI	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
4-Bromophenylphenyl eth	µg/kg	NDRI	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
4-Chloro-3-methylphenol	µg/kg	3,100,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
4-Chloroaniline	µg/kg	240,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
4-Chlorophenylphenyl eth	µg/kg	NDRI	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
4-Methylphenol	µg/kg	310,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
4-Nitroaniline	µg/kg	23,000	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
4-Nitrophenol	µg/kg	120,000	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
Acenaphthene	µg/kg	3,700,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Acenaphthylene	µg/kg	2,300,000	NE	500	ND (210)	ND (1,000)	ND (190)
Acetophenone	µg/kg	100,000,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Anthracene	µg/kg	22,000,000	NE	820	ND (210)	130 J	ND (190)
Atrazine	µg/kg	2,200	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Benzaldehyde	µg/kg	6,100,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Benzo(a)anthracene	µg/kg	620	NE	**1,800**	66 J	**840 J**	46 J
Benzo(a)pyrene	µg/kg	62	NE	**2,400**	**82 J**	**1,200**	**74 J**
Benzo(b)fluoranthene	µg/kg	620	NE	**2,300**	100 J	**1,800**	95 J

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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	1436SSa 1 ft bgs[3] 10/18/2006	1436SSa 3 ft bgs[4] 10/18/2006	1436SSb 1 ft bgs 10/18/2006	1436SSb 3 ft bgs 10/18/2006
Semivolatile Organic Compounds							
Benzo(g,h,i)perylene	µg/kg	2,300,000	NE	960	45 J	1,300	63 J
Benzo(k)fluoranthene	µg/kg	380	NE	**980**	43 J	**610 J**	32 J
Benzyl butyl phthalate	µg/kg	12,000,000	NE	130	ND (210)	ND (1,000)	ND (190)
bis(2-Chloroethoxy)metha	µg/kg	220	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
bis(2-Chloroethyl)ether	µg/kg	220	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	NE	570	51 J	8,900	60 J
Caprolactam	µg/kg	31,000,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Carbazole	µg/kg	24,000	NE	120	ND (210)	ND (1,000)	ND (190)
Chrysene	µg/kg	3,800	NE	2,400	86 J	1,400	69 J
Dibenz(a,h)anthracene	µg/kg	62	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Dibenzofuran	µg/kg	150,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Diethylphthalate	µg/kg	49,000,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Dimethylphthalate	µg/kg	100,000,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Di-n-butyl phthalate	µg/kg	6,100,000	NE	ND (1,100)	28 J	380 J	140 J
Di-n-octyl phthalate	µg/kg	2,400,000	NE	ND (1,100)	ND (210)	240 J	ND (190)
Fluoranthene	µg/kg	2,300,000	NE	5,200	120 J	2,600	150 J
Fluorene	µg/kg	2,700,000	NE	390	ND (210)	ND (1,000)	ND (190)
Hexachlorobenzene	µg/kg	300	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Hexachlorobutadiene	µg/kg	6,200	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Hexachlorocyclopentadien	µg/kg	370,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Hexachloroethane	µg/kg	35,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Indeno(1,2,3-c,d)pyrene	µg/kg	620	NE	**1,300**	69 J	**1,100**	64 J
Isophorone	µg/kg	510,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Naphthalene	µg/kg	1,700	NE	110	ND (210)	ND (1,000)	ND (190)
Nitrobenzene	µg/kg	20,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
N-Nitrosodi-n-propylamine	µg/kg	69	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
N-Nitrosodiphenylamine	µg/kg	99,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Pentachlorophenol	µg/kg	3,000	NE	ND (2,200)	ND (400)	ND (2,000)	ND (380)
Phenanthrene	µg/kg	2,300,000	NE	5,000	70 J	1,100	76 J
Phenol	µg/kg	18,000,000	NE	ND (1,100)	ND (210)	ND (1,000)	ND (190)
Pyrene	µg/kg	2,300,000	NE	5,600 J	130 J	2,900	150 J

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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	1436SSa 1 ft bgs [3] 10/18/2006	1436SSa 3 ft bgs [4] 10/18/2006	1436SSb 1 ft bgs 10/18/2006	1436SSb 3 ft bgs 10/18/2006
Metals							
Aluminum	mg/kg	76,000	NE	4,210 J	5,650	8,910	4,690
Antimony	mg/kg	31	5.9	1.7 J	ND (7.3)	ND (7.3)	ND (6.8)
Arsenic [5]	mg/kg	0.062 / 22	***14***	***7.6 J***	***7.7***	***15.6***	***3.3***
Barium	mg/kg	5,400	NE	333 J	217	1,450	154
Beryllium	mg/kg	150	0.9	0.12 J	0.21 J	0.23 J	0.11 J
Cadmium	mg/kg	37	1.5	3 J	1.2	13	0.59
Calcium	mg/kg	NA	NE	**4,370 J**	**3,700**	**15,000**	**3,180**
Chromium	mg/kg	210	91.4	26.1 J	144	69.7	35.3
Cobalt	mg/kg	900	NE	4.2 J	6.3	10.2	5.3 J
Copper	mg/kg	3,100	59.6	234 J	147	927	51.3
Iron	mg/kg	23,000	NE	**23,500**	13,900	**27,700**	9,290
Lead [6]	mg/kg	194 / 340	14.7	**2,910**	**829**	**3,630**	***216 J+***
Magnesium	mg/kg	NA	NE	**1,230 J**	**1,630**	**4,060**	**1,580**
Manganese	mg/kg	1,800	NE	304 J	120	447	183
Mercury	mg/kg	23	0.3	1.7	1.9	1.9	0.49
Nickel	mg/kg	1,600	120.2	14.3 J	22.7	60	18.4
Potassium	mg/kg	NA	NE	**705 J**	**700**	**1,530**	**852**
Selenium	mg/kg	390	5.6	ND (4.2) J	0.69 J	ND (4.2)	0.52 J
Silver	mg/kg	390	1.7	2.8 J	2.7	6.2	0.7 J
Sodium	mg/kg	NA	NE	ND (595)	**2,460**	**8,190**	**739**
Thallium	mg/kg	5.2	**42.5**	1.1 J	ND (3)	ND (3)	ND (2.8)
Vanadium	mg/kg	78	NE	12.5 J	25.3	32.9	19.5
Zinc	mg/kg	23,000	91.5	1,580 J	977	3,200	231
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/kg	2,400	NE	9.9 J	0.81 J	12 J	ND (3.8)
4,4'-DDE	µg/kg	1,700	NE	300 J	ND (4)	93	3.1 J
4,4'-DDT	µg/kg	1,700	NE	1,600	17 J	320 J	12 J
Aldrin	µg/kg	29	NE	0.17 J	ND (2.1) J	0.57 J	ND (1.9) J
alpha-BHC	µg/kg	90	NE	0.9 J	ND (2.1)	0.71 J	ND (1.9)
alpha-Chlordane	µg/kg	1,600	NE	100 J	2.8 J	120 J	0.41 J
Aroclor-1016	µg/kg	3,900	NE	ND (43)	ND (40)	ND (40)	ND (38)

TABLE 22c
1436 3rd Street Analytical Results - Soil (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	Oakland [2] Background Levels	1436SSa 1 ft bgs [3] 10/18/2006	1436SSa 3 ft bgs [4] 10/18/2006	1436SSb 1 ft bgs 10/18/2006	1436SSb 3 ft bgs 10/18/2006
Organochlorine Pesticides/PCBs							
Aroclor-1221	µg/kg	220	NE	ND (43)	ND (40)	ND (40)	ND (38)
Aroclor-1232	µg/kg	220	NE	ND (43)	ND (40)	ND (40)	ND (38)
Aroclor-1242	µg/kg	220	NE	ND (43)	ND (40)	ND (40)	ND (38)
Aroclor-1248	µg/kg	220	NE	ND (43)	ND (40)	ND (40)	ND (38)
Aroclor-1254	µg/kg	220	NE	ND (43)	ND (40)	ND (40)	ND (38)
Aroclor-1260	µg/kg	220	NE	ND (43)	ND (40)	ND (40)	ND (38)
beta-BHC	µg/kg	320	NE	0.57 J	ND (2.1) J	2.7 J	ND (1.9) J
delta-BHC	µg/kg	90	NE	1.4 J	ND (2.1)	ND (2)	ND (1.9)
Dieldrin	µg/kg	30	NE	**1,000**	4.4 J	**36**	0.2 J
Endosulfan I	µg/kg	370,000	NE	0.79 J	ND (2.1)	1.5 J	ND (1.9)
Endosulfan II	µg/kg	370,000	NE	0.51 J	0.43 J	2.4 J	ND (3.8)
Endosulfan sulfate	µg/kg	370,000	NE	4.7 J	0.82 J	0.97 J	1.9 J
Endrin	µg/kg	18,000	NE	1.2 J	1.4 J	13 J	1.3 J
Endrin aldehyde	µg/kg	18,000	NE	ND (3.3) J	0.5 J	0.56 J	ND (3.8)
Endrin ketone	µg/kg	18,000	NE	8.7 J	0.65 J	1.7 J	0.59 J
gamma-BHC	µg/kg	440	NE	0.36 J	ND (2.1) J	ND (2) J	ND (1.9) J
gamma-Chlordane	µg/kg	1,600	NE	110 J	1.4 J	1.5 J	1 J
Heptachlor	µg/kg	110	NE	0.34 J	ND (2.1) J	1.3 J	ND (1.9) J
Heptachlor epoxide	µg/kg	53	NE	2.3 J	ND (2.1)	0.74 J	ND (1.9)
Methoxychlor	µg/kg	310,000	NE	45 J	2.5 J	29	0.42 J
Toxaphene	µg/kg	440	NE	ND (220)	ND (210)	ND (200)	ND (190)

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16b (Soil Screening Levels) for source of screening levels.

[2] Oakland background results are from background metal concentration studies conducted by the Lawrence Berkeley National Laboratory Environmental Restoration Program, 1995. Samples were taken from locations representing the Colluvian and Fill geologic unit.

[3] 1ft bgs samples were collected between 0.5 and 1ft bgs

[4] 3ft bgs samples were collected between 2.5 and 3 ft bgs

[5] For Arsenic, 0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.

[6] Lead screening level in soil was evaluated using Department Toxic Substance Control’s Lead Risk Assessment Spreadsheet Version 7 (Lead Spread 7, Cal/EPA 1999)

Units are presented as reported by the laboratory.

ft bgs	feet below ground surface
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
NE	not established
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
J+	estimated value, possible high bias

TABLE 22d
326 Center Street Analytical Results - Soil (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	326SSa 1 ft bgs[3] 10/18/2006	326SSa 3 ft bgs[4] 10/18/2006	326SSb 1 ft bgs 10/18/2006	326SSb 3 ft bgs 10/18/2006	326SSc 1 ft bgs 10/18/2006	326SSc 1 ft bgs (FD) 10/18/2006	326SSc 3 ft bgs 10/18/2006	326SSd 1 ft bgs 10/18/2006	326SSd 2.5 ft bgs 10/18/2006	326SSe 1 ft bgs 10/18/2006	326SSe 3 ft bgs 10/18/2006
Volatile Organic Compounds														
1,1,1-Trichloroethane	µg/kg	1,200,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
1,1,2,2-Tetrachloroethane	µg/kg	410	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,1,2-Trichloroethane	µg/kg	730	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,1-Dichloroethane	µg/kg	2,800	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,1-Dichloroethene	µg/kg	120,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,1-Dichloropropene	µg/kg	NDRI	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
1,2,3-Trichlorobenzene	µg/kg	62,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,2,3-Trichloropropane	µg/kg	NDRI	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,2,4-Trichlorobenzene	µg/kg	62,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,2,4-Trimethylbenzene	µg/kg	NDRI	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,2-Dibromo-3-chloroprop	µg/kg	30	NE	ND (5.9)	ND (4.8)	ND (5)	ND (5)	ND (5.4)	ND (8.8)	ND (15)	ND (5.5)	ND (5.6)	ND (11)	ND (15)
1,2-Dibromoethane	µg/kg	32	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,2-Dichlorobenzene	µg/kg	600,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,2-Dichloroethane	µg/kg	280	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
1,2-Dichloropropane	µg/kg	340	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
1,3-Dichlorobenzene	µg/kg	530,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,3-Dichloropropane	µg/kg	NDRI	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
1,4-Dichlorobenzene	µg/kg	3,400	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
2-Hexanone	µg/kg	NDRI	NE	ND (24)	ND (19)	ND (20)	ND (20)	ND (11)	ND (18)	ND (29)	ND (22)	ND (22)	ND (21)	ND (30)
Acetone	µg/kg	14,000,000	NE	16 J	12 J	ND (20)	ND (20)	ND (11)	64	ND (29)	20 J	ND (11)	ND (21)	ND (30)
Benzene	µg/kg	640	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
Bromochloromethane	µg/kg	NDRI	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Bromodichloromethane	µg/kg	820	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
Bromoform	µg/kg	62,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Bromomethane	µg/kg	3,900	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Carbon disulfide	µg/kg	360,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Carbon tetrachloride	µg/kg	250	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
Chlorobenzene	µg/kg	150,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Chloroethane	µg/kg	3,000	NE	ND (1.5)	ND (1.2)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (1.4)	ND (2.7)	ND (3.8)
Chloroform	µg/kg	940	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Chloromethane	µg/kg	47,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)

TABLE 22d
326 Center Street Analytical Results - Soil (October 2006)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	326SSa 1 ft bgs[3] 10/18/2006	326SSa 3 ft bgs[4] 10/18/2006	326SSb 1 ft bgs 10/18/2006	326SSb 3 ft bgs 10/18/2006	326SSc 1 ft bgs 10/18/2006	326SSc 1 ft bgs (FD) 10/18/2006	326SSc 3 ft bgs 10/18/2006	326SSd 1 ft bgs 10/18/2006	326SSd 2.5 ft bgs 10/18/2006	326SSe 1 ft bgs 10/18/2006	326SSe 3 ft bgs 10/18/2006
Volatile Organic Compounds														
cis-1,2-Dichloroethene	µg/kg	43,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
cis-1,3-Dichloropropene	µg/kg	780	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
Dibromochloromethane	µg/kg	1,100	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Ethyl tert-butyl ether	µg/kg	32,000	NE	ND (12)	ND (9.6)	ND (10)	ND (10)	ND (11)	ND (18)	ND (15)	ND (11)	ND (11)	ND (11)	ND (15)
Ethylbenzene	µg/kg	400,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Freon 11	µg/kg	390,000	NE	4.9	2.7	2.2 J	3.8	8.2	14	11	5.3	8.5	9.2	11
Freon 113	µg/kg	5,600,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Freon 12	µg/kg	94,000	NE	ND (1.5)	ND (1.2)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (1.4)	ND (2.7)	ND (3.8)
Isopropyl ether	µg/kg	NDRI	NE	ND (12)	ND (9.6)	ND (10)	ND (10)	ND (11)	ND (18)	ND (15)	ND (11)	ND (11)	ND (11)	ND (15)
Isopropylbenzene (cumen	µg/kg	570,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Methyl ethyl ketone	µg/kg	22,000,000	NE	ND (24)	ND (19)	ND (20)	ND (20)	ND (11)	ND (35)	ND (29)	ND (22)	ND (22)	ND (21)	ND (30)
Methyl isobutyl ketone	µg/kg	5,300,000	NE	ND (24)	ND (19)	ND (20)	ND (20)	ND (11)	ND (18)	ND (29)	ND (11)	ND (11)	ND (21)	ND (30)
Methyl tert-butyl ether	µg/kg	32,000	NE	ND (12)	ND (9.6)	ND (10)	ND (10)	ND (5.4)	ND (18)	ND (15)	ND (11)	ND (11)	ND (11)	ND (15)
Methylene chloride	µg/kg	9,100	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Styrene	µg/kg	1,700,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
tert-Amyl methyl ether	µg/kg	32,000	NE	ND (12)	ND (9.6)	ND (10)	ND (10)	ND (5.4)	ND (8.8)	ND (15)	ND (5.5)	ND (11)	ND (11)	ND (15)
tert-Butyl alcohol	µg/kg	13,000,000	NE	ND (59)	ND (48)	ND (50)	ND (50)	ND (27)	ND (44)	ND (73)	ND (27)	ND (28)	ND (53)	ND (76)
Tetrachloroethene	µg/kg	480	NE	ND (3)	ND (2.4)	2.9	9.7	ND (1.3)	ND (2.2)	ND (3.6)	4.4	11	ND (2.7)	ND (3.8)
Toluene	µg/kg	520,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
trans-1,2-Dichloroethene	µg/kg	69,000	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
trans-1,3-Dichloropropene	µg/kg	780	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Trichloroethene	µg/kg	53	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (1.3)	ND (2.2)	ND (3.6)	ND (1.4)	ND (2.8)	ND (2.7)	ND (3.8)
Vinyl chloride	µg/kg	79	NE	ND (3)	ND (2.4)	ND (2.5)	ND (2.5)	ND (2.7)	ND (4.4)	ND (3.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (3.8)
Xylenes, total	µg/kg	270,000	NE	ND (5.9)	ND (4.8)	ND (5)	ND (5)	ND (2.7)	ND (4.4)	ND (7.3)	ND (5.5)	ND (5.6)	ND (5.3)	ND (7.6)
Semivolatile Organic Compounds														
1,1'-Biphenyl	µg/kg	3,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
1,2,4,5-Tetrachlorobenzen	µg/kg	3,200	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
1,4-Dioxane (p-dioxane)	µg/kg	44,000	NE	ND (75) J	ND (80) J	ND (76) J	ND (86) J	ND (77) J	ND (75) J	ND (83) J	ND (86) J	ND (86) J	ND (73) J	ND (87) J
2,2'-Oxybis(1-Chloropropa	µg/kg	220	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2,3,4,6-Tetrachlorophenol	µg/kg	NDRI	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2,4,5-Trichlorophenol	µg/kg	6,100,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)

TABLE 22d
326 Center Street Analytical Results - Soil (October 2006)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	326SSa 1 ft bgs[3] 10/18/2006	326SSa 3 ft bgs[4] 10/18/2006	326SSb 1 ft bgs 10/18/2006	326SSb 3 ft bgs 10/18/2006	326SSc 1 ft bgs 10/18/2006	326SSc 1 ft bgs (FD) 10/18/2006	326SSc 3 ft bgs 10/18/2006	326SSd 1 ft bgs 10/18/2006	326SSd 2.5 ft bgs 10/18/2006	326SSe 1 ft bgs 10/18/2006	326SSe 3 ft bgs 10/18/2006
Semivolatile Organic Compounds														
2,4,6-Trichlorophenol	µg/kg	6,100	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2,4-Dichlorophenol	µg/kg	180,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2,4-Dimethylphenol	µg/kg	1,200,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2,4-Dinitrophenol	µg/kg	120,000	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
2,4-Dinitrotoluene	µg/kg	120,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2,6-Dinitrotoluene	µg/kg	61,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2-Chloronaphthalene	µg/kg	4,900,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2-Chlorophenol	µg/kg	63,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2-Methylnaphthalene	µg/kg	150,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	35 J	ND (210)	ND (220)	30 J	ND (190)	ND (220)
2-Methylphenol	µg/kg	3,100,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
2-Nitroaniline	µg/kg	180,000	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
2-Nitrophenol	µg/kg	NDRI	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
3,3'-Dichlorobenzidine	µg/kg	1,100	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
3-Nitroaniline	µg/kg	18,000	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
4,6-Dinitro-2-methylphenol	µg/kg	NDRI	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
4-Bromophenylphenyl eth	µg/kg	NDRI	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
4-Chloro-3-methylphenol	µg/kg	3,100,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
4-Chloroaniline	µg/kg	240,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
4-Chlorophenylphenyl eth	µg/kg	NDRI	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
4-Methylphenol	µg/kg	310,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
4-Nitroaniline	µg/kg	23,000	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
4-Nitrophenol	µg/kg	120,000	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
Acenaphthene	µg/kg	3,700,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Acenaphthylene	µg/kg	2,300,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Acetophenone	µg/kg	100,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Anthracene	µg/kg	22,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	20 J	ND (190)	ND (210)	40 J	100 J	29 J	ND (220)
Atrazine	µg/kg	2,200	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Benzaldehyde	µg/kg	6,100,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Benzo(a)anthracene	µg/kg	620	NE	54 J	ND (200)	38 J	ND (220)	66 J	41 J	29 J	170 J	280	94 J	46 J
Benzo(a)pyrene	µg/kg	62	NE	**75 J**	ND (200)	45 J	ND (220)	**100 J**	56 J	39 J	**220**	**270**	**140 J**	62 J
Benzo(b)fluoranthene	µg/kg	620	NE	96 J	ND (200)	51 J	22 J	110 J	90 J	50 J	260	280	170 J	83 J

TABLE 22d
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	326SSa 1 ft bgs[3] 10/18/2006	326SSa 3 ft bgs[4] 10/18/2006	326SSb 1 ft bgs 10/18/2006	326SSb 3 ft bgs 10/18/2006	326SSc 1 ft bgs 10/18/2006	326SSc 1 ft bgs (FD) 10/18/2006	326SSc 3 ft bgs 10/18/2006	326SSd 1 ft bgs 10/18/2006	326SSd 2.5 ft bgs 10/18/2006	326SSe 1 ft bgs 10/18/2006	326SSe 3 ft bgs 10/18/2006
Semivolatile Organic Compounds														
Benzo(g,h,i)perylene	µg/kg	2,300,000	NE	47 J	ND (200)	ND (190)	ND (220)	22 J	53 J	22 J	180 J	34 J	42 J	ND (220)
Benzo(k)fluoranthene	µg/kg	380	NE	42 J	ND (200)	23 J	ND (220)	56 J	35 J	26 J	110 J	140 J	86 J	35 J
Benzyl butyl phthalate	µg/kg	12,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	85 J	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
bis(2-Chloroethoxy)metha	µg/kg	220	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
bis(2-Chloroethyl)ether	µg/kg	220	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	NE	200	38 J	59 J	ND (220)	ND (200)	3,600	110 J	55 J	ND (220)	ND (190)	ND (220)
Caprolactam	µg/kg	31,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Carbazole	µg/kg	24,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	31 J	ND (190)	ND (220)
Chrysene	µg/kg	3,800	NE	85 J	ND (200)	44 J	ND (220)	99 J	71 J	46 J	210 J	340	140 J	66 J
Dibenz(a,h)anthracene	µg/kg	62	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Dibenzofuran	µg/kg	150,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	22 J	ND (190)	ND (220)
Diethylphthalate	µg/kg	49,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Dimethylphthalate	µg/kg	100,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Di-n-butyl phthalate	µg/kg	6,100,000	NE	42 J	90 J	37 J	ND (220)	ND (200)	170 J	ND (210)	150 J	ND (220)	ND (190)	ND (220)
Di-n-octyl phthalate	µg/kg	2,400,000	NE	24 J	ND (200)	21 J	ND (220)	ND (200)	91 J	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Fluoranthene	µg/kg	2,300,000	NE	120 J	ND (200)	68 J	26 J	160 J	89 J	67 J	360	590	240	100 J
Fluorene	µg/kg	2,700,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	40 J	ND (190)	ND (220)
Hexachlorobenzene	µg/kg	300	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Hexachlorobutadiene	µg/kg	6,200	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Hexachlorocyclopentadien	µg/kg	370,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Hexachloroethane	µg/kg	35,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Indeno(1,2,3-c,d)pyrene	µg/kg	620	NE	56 J	ND (200)	39 J	ND (220)	70 J	62 J	28 J	170 J	140 J	110 J	44 J
Isophorone	µg/kg	510,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Naphthalene	µg/kg	1,700	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	23 J	ND (210)	ND (220)	22 J	ND (190)	ND (220)
Nitrobenzene	µg/kg	20,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
N-Nitrosodi-n-propylamine	µg/kg	69	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
N-Nitrosodiphenylamine	µg/kg	99,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Pentachlorophenol	µg/kg	3,000	NE	ND (370)	ND (400)	ND (370)	ND (420)	ND (380)	ND (370)	ND (410)	ND (430)	ND (420)	ND (360)	ND (430)
Phenanthrene	µg/kg	2,300,000	NE	73 J	ND (200)	52 J	ND (220)	89 J	78 J	61 J	150 J	440	120 J	50 J
Phenol	µg/kg	18,000,000	NE	ND (190)	ND (200)	ND (190)	ND (220)	ND (200)	ND (190)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)
Pyrene	µg/kg	2,300,000	NE	110 J	ND (200)	72 J	23 J	150 J	110 J	67 J	320	500	220	94 J

TABLE 22d
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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	326SSa 1 ft bgs [3] 10/18/2006	326SSa 3 ft bgs [4] 10/18/2006	326SSb 1 ft bgs 10/18/2006	326SSb 3 ft bgs 10/18/2006	326SSc 1 ft bgs 10/18/2006	326SSc 1 ft bgs (FD) 10/18/2006	326SSc 3 ft bgs 10/18/2006	326SSd 1 ft bgs 10/18/2006	326SSd 2.5 ft bgs 10/18/2006	326SSe 1 ft bgs 10/18/2006	326SSe 3 ft bgs 10/18/2006
Metals														
Aluminum	mg/kg	76,000	NE	5,030	4,540	3,000	2,210	2,460 J	4,280 J	2,200	7,250	2,890	3,120	9,120
Antimony	mg/kg	31	5.9	ND (6.4)	ND (7.1)	ND (7.3)	ND (7.6)	ND (7.7)	0.81 J	ND (7.8)	ND (6.9)	0.6 J	1.2 J	13
Arsenic [5]	mg/kg	0.062 / 22	***14***	***6***	***2.8***	***5.5***	***3.5***	***10.4***	***9.6***	***8.5***	**451**	**125**	***7.5***	***15.5***
Barium	mg/kg	5,400	NE	161	99.4	114	48.3	173 J	483 J	112	907	195	379	487
Beryllium	mg/kg	150	0.9	0.11 J	0.07 J	0.13 J	0.07 J	0.08 J	0.14 J	0.07 J	0.31 J	0.12 J	0.13 J	0.48 J
Cadmium	mg/kg	37	1.5	0.89	0.11 J	0.33 J	0.19 J	0.53 J	2.6	0.53 J	4.1	0.68	2.1	1.7
Calcium	mg/kg	NA	NE	**2,650**	**2,600**	**2,250**	**1,730**	**1,660 J**	**4,250 J**	**1,960**	**10,900**	**5,470**	**4,360**	**19,400**
Chromium	mg/kg	210	91.4	33.8	28.9	13.8	12.5	14.7 J	42.5 J	12.2	77.5	31.2	25.6	19.2
Cobalt	mg/kg	900	NE	5.1 J	4.4 J	2.5 J	2 J	2.2 J	5.7 J	2 J	7.2	2.2 J	3.6 J	4.7 J
Copper	mg/kg	3,100	59.6	44.6	16.9	46.7	8.7	40.5 J	120 J	48.7	173	45.5	109	110
Iron	mg/kg	23,000	NE	9,630	8,510	5,090	6,000	5,270 J	17,400 J	8,370	**25,400**	5,530	13,600	9,050
Lead [6]	mg/kg	194 / 340	14.7	***274***	35.9	***261 J+***	179	167 J+	**389 J+**	***284***	**28,600**	**631 J+**	**1,270 J+**	**53,000 J**
Magnesium	mg/kg	NA	NE	**1,780**	**1,410**	**1,010**	**701**	**784 J**	**1,660 J**	**612 J**	**2,190**	**982**	**1,160**	**2,080**
Manganese	mg/kg	1,800	NE	187	251	202	53	175 J	465 J	78.2	352	278	309	305
Mercury	mg/kg	23	0.3	0.41	0.1 J	0.22	0.36	0.55	1	4.4	0.62	0.82	0.69	0.61
Nickel	mg/kg	1,600	120.2	20.2	17.6	8.6	10.6	9.5 J	34.1 J	7.7	27.9	8.4	15.4	14.5
Potassium	mg/kg	NA	NE	**905**	**666**	**561 J**	**356 J**	**409 J**	**671**	**310 J**	**1,360**	**643**	**762**	**1,320**
Selenium	mg/kg	390	5.6	0.55 J	0.52 J	ND (4.3)	ND (4.4)	ND (4.5)	ND (4.1)	ND (4.6)	0.57 J	ND (4.1)	ND (3.8)	ND (4.7)
Silver	mg/kg	390	1.7	0.68 J	0.47 J	0.18 J	ND (1.3)	0.2 J	0.8 J	0.35 J	2.6	0.21 J	0.8 J	5.3
Sodium	mg/kg	NA	NE	**833**	**303 J**	ND (607)	ND (635)	ND (642)	ND (585)	ND (652)	**5,940**	ND (587)	ND (545)	**1,540**
Thallium	mg/kg	5.2	**42.5**	ND (2.7)	ND (2.9)	ND (3)	ND (3.2)	0.7 J	1.3 J	ND (3.3)	ND (2.9)	0.58 J	0.95 J	ND (3.4)
Vanadium	mg/kg	78	NE	21.9	19.4	10.2	8.1	8.5 J	16.9 J	8.2	24.5	8	13	21.3
Zinc	mg/kg	23,000	91.5	298	63.2	139	72.4	175 J	555 J	206	2,380	251	732	344
Organochlorine Pesticides/PCBs														
4,4'-DDD	µg/kg	2,400	NE	13 J	0.36 J	0.39 J	0.48 J	490 J	1,000 J	45 J	400	780	15 J	3.5 J
4,4'-DDE	µg/kg	1,700	NE	180	8.1 J	1.1 J	ND (3.3) J	**2,100 J**	**11,000 J**	590 J	740 J	810 J	150	33
4,4'-DDT	µg/kg	1,700	NE	14 J	25 J	47	2.4 J	9 J	**3,100 J**	**4,400 J**	**2,200**	**3,000**	400 J	73
Aldrin	µg/kg	29	NE	ND (1.9) J	ND (2) R	ND (3.8) J	ND (2.2) J	1.7 J	ND (190) J	ND (2.1) J	1.6 J	ND (2.2)	ND (1.9)	ND (2.2)
alpha-BHC	µg/kg	90	NE	ND (1.9)	ND (2) R	ND (3.8)	0.24 J	ND (2)	ND (190)	ND (2.1)	ND (2.2)	ND (2.2)	ND (1.9)	0.24 J
alpha-Chlordane	µg/kg	1,600	NE	2.3 J	ND (2) R	ND (3.8)	0.29 J	7.9 J	ND (190)	0.59 J	0.55 J	0.5 J	3.3 J	0.65 J
Aroclor-1016	µg/kg	3,900	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)

TABLE 22d
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	326SSa 1 ft bgs[3] 10/18/2006	326SSa 3 ft bgs[4] 10/18/2006	326SSb 1 ft bgs 10/18/2006	326SSb 3 ft bgs 10/18/2006	326SSc 1 ft bgs 10/18/2006	326SSc 1 ft bgs (FD) 10/18/2006	326SSc 3 ft bgs 10/18/2006	326SSd 1 ft bgs 10/18/2006	326SSd 2.5 ft bgs 10/18/2006	326SSe 1 ft bgs 10/18/2006	326SSe 3 ft bgs 10/18/2006
Organochlorine Pesticides/PCBs														
Aroclor-1221	µg/kg	220	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)
Aroclor-1232	µg/kg	220	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)
Aroclor-1242	µg/kg	220	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)
Aroclor-1248	µg/kg	220	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)
Aroclor-1254	µg/kg	220	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)
Aroclor-1260	µg/kg	220	NE	ND (37)	ND (40)	ND (37)	ND (42)	ND (38)	ND (37)	ND (41)	ND (43)	ND (42)	ND (36)	ND (43)
beta-BHC	µg/kg	320	NE	ND (1.9) J	ND (2) J	ND (3.8) J	0.054 J	1.4 J	ND (190)	0.2 J	ND (2.2)	0.57 J	0.86 J	2.4
delta-BHC	µg/kg	90	NE	0.28 J	ND (2) R	ND (3.8)	ND (2.2)	ND (2)	ND (190)	0.24 J	0.25 J	0.62 J	ND (1.9)	ND (2.2)
Dieldrin	µg/kg	30	NE	0.34 J	ND (4) R	ND (7.4)	ND (3.3) J	**160 J**	23 J	13	1.4 J	9.8 J	ND (3.6)	0.47 J
Endosulfan I	µg/kg	370,000	NE	1.6 J	ND (2) R	ND (3.8)	ND (2.2)	5.7 J	ND (190)	0.67 J	0.6 J	0.34 J	ND (1.9)	ND (2.2)
Endosulfan II	µg/kg	370,000	NE	0.35 J	ND (4) R	ND (7.4)	ND (4.2)	5.9 J	32 J	3 J	2.5 J	0.77 J	1.5 J	0.42 J
Endosulfan sulfate	µg/kg	370,000	NE	3 J	ND (4) R	ND (7.4)	0.37 J	6.8 J	ND (370)	1.6 J	0.78 J	1.2 J	0.35 J	ND (4.3)
Endrin	µg/kg	18,000	NE	0.44 J	0.21 J	ND (7.4)	3.5 J	0.78 J	ND (370)	0.26 J	340 J	0.28 J	0.82 J	0.44 J
Endrin aldehyde	µg/kg	18,000	NE	ND (3.7)	0.47 J	ND (7.4)	ND (3.3) J	0.75 J	24 J	ND (3.3) J	0.33 J	ND (4.2)	1.3 J	0.28 J
Endrin ketone	µg/kg	18,000	NE	0.34 J	1.5 J	0.53 J	0.41 J	5.2 J	ND (190)	0.95 J	0.44 J	1.6 J	0.21 J	0.33 J
gamma-BHC	µg/kg	440	NE	5 J	ND (2) R	ND (3.8) J	0.2 J	3.7 J	ND (190) J	0.27 J	220 J	26 J	ND (1.9)	1 J
gamma-Chlordane	µg/kg	1,600	NE	0.23 J	0.57 J	ND (3.8)	ND (1.7) J	4	110 J	1.7 J	22	23 J	3.1 J	0.73 J
Heptachlor	µg/kg	110	NE	ND (1.9) J	ND (2) R	ND (3.8) J	ND (2.2) J	0.66 J	ND (190) J	ND (2.1) J	ND (2.2) J	ND (2.2)	ND (1.9)	ND (2.2)
Heptachlor epoxide	µg/kg	53	NE	0.47 J	ND (2) R	ND (3.8)	ND (2.2)	4.3 J	ND (190)	0.49 J	ND (2.2)	0.34 J	ND (1.9)	ND (2.2)
Methoxychlor	µg/kg	310,000	NE	31	0.79 J	1.8 J	ND (17) J	12 J	82 J	26	5.9 J	6.2 J	9.5 J	3.4 J
Toxaphene	µg/kg	440	NE	ND (190)	ND (200) R	ND (380)	ND (220)	ND (200)	ND (19,000)	ND (210)	ND (220)	ND (220)	ND (190)	ND (220)

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16b (Soil Screening Levels) for source of screening levels.

[2] Oakland background results are from background metal concentration studies conducted by the Lawrence Berkeley National Laboratory Environmental Restoration Program, 1995. Samples were taken from locations representing the Colluvian and Fill geologic unit.

[3] 1ft bgs samples were collected between 0.5 and 1ft bgs

[4] 3ft bgs samples were collected between 2.5 and 3 ft bgs

[5] For Arsenic, 0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.

[6] Lead screening level in soil was evaluated using Department Toxic Substance Control's Lead Risk Assessment Spreadsheet Version 7 (Lead Spread 7, Cal/EPA 1999)

Units are presented as reported by the laboratory.

FD	field duplicate
ft bgs	feet below ground surface
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
NE	not established
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
J+	estimated value, possible high bias
R	rejected for failure to meet quality control requirements

TABLE 22e
356 Center Street Analytical Results - Soil (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	356SSa 1 ft bgs[3] 10/18/2006	356SSa 1 ft bgs (FD) 10/18/2006	356SSa 3 ft bgs[4] 10/18/2006	356SSb 1 ft bgs 10/18/2006	356SSb 3 ft bgs 10/18/2006	356SSc 1 ft bgs 10/18/2006	356SSc 3 ft bgs 10/18/2006
Volatile Organic Compounds										
1,1,1-Trichloroethane	µg/kg	1,200,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,1,2,2-Tetrachloroethane	µg/kg	410	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,1,2-Trichloroethane	µg/kg	730	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,1-Dichloroethane	µg/kg	2,800	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
1,1-Dichloroethene	µg/kg	120,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,1-Dichloropropene	µg/kg	NDRI	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,2,3-Trichlorobenzene	µg/kg	62,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
1,2,3-Trichloropropane	µg/kg	NDRI	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,2,4-Trichlorobenzene	µg/kg	62,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
1,2,4-Trimethylbenzene	µg/kg	NDRI	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
1,2-Dibromo-3-chloroprop	µg/kg	30	NE	ND (12)	ND (12)	ND (12)	ND (15)	ND (10)	ND (6.7)	ND (9.4)
1,2-Dibromoethane	µg/kg	32	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,2-Dichlorobenzene	µg/kg	600,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,2-Dichloroethane	µg/kg	280	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
1,2-Dichloropropane	µg/kg	340	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,3-Dichlorobenzene	µg/kg	530,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,3-Dichloropropane	µg/kg	NDRI	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
1,4-Dichlorobenzene	µg/kg	3,400	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
2-Hexanone	µg/kg	NDRI	NE	ND (24)	ND (24)	ND (25)	ND (30)	ND (20)	ND (13)	ND (19)
Acetone	µg/kg	14,000,000	NE	ND (24)	ND (24)	ND (25)	ND (30)	ND (20)	ND (13)	ND (19)
Benzene	µg/kg	640	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Bromochloromethane	µg/kg	NDRI	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
Bromodichloromethane	µg/kg	820	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Bromoform	µg/kg	62,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Bromomethane	µg/kg	3,900	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Carbon disulfide	µg/kg	360,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
Carbon tetrachloride	µg/kg	250	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Chlorobenzene	µg/kg	150,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Chloroethane	µg/kg	3,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Chloroform	µg/kg	940	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Chloromethane	µg/kg	47,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)

TABLE 22e
356 Center Street Analytical Results - Soil (October 2006)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	356SSa 1 ft bgs [3] 10/18/2006	356SSa 1 ft bgs (FD) 10/18/2006	356SSa 3 ft bgs [4] 10/18/2006	356SSb 1 ft bgs 10/18/2006	356SSb 3 ft bgs 10/18/2006	356SSc 1 ft bgs 10/18/2006	356SSc 3 ft bgs 10/18/2006
Volatile Organic Compounds										
cis-1,2-Dichloroethene	µg/kg	43,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
cis-1,3-Dichloropropene	µg/kg	780	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Dibromochloromethane	µg/kg	1,100	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Ethyl tert-butyl ether	µg/kg	32,000	NE	ND (12)	ND (12)	ND (12)	ND (15)	ND (10)	ND (13)	ND (9.4)
Ethylbenzene	µg/kg	400,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Freon 11	µg/kg	390,000	NE	11	7.4	5.3	7	7.8	ND (3.3)	6.1
Freon 113	µg/kg	5,600,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Freon 12	µg/kg	94,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Isopropyl ether	µg/kg	NDRI	NE	ND (12)	ND (12)	ND (12)	ND (15)	ND (10)	ND (13)	ND (9.4)
Isopropylbenzene (cumen	µg/kg	570,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
Methyl ethyl ketone	µg/kg	22,000,000	NE	ND (24)	ND (24)	ND (25)	ND (30)	ND (20)	ND (13)	ND (19)
Methyl isobutyl ketone	µg/kg	5,300,000	NE	ND (24)	ND (24)	ND (25)	ND (30)	ND (20)	ND (27)	ND (19)
Methyl tert-butyl ether	µg/kg	32,000	NE	ND (12)	ND (12)	ND (12)	ND (15)	ND (10)	ND (13)	ND (9.4)
Methylene chloride	µg/kg	9,100	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (3.3)	ND (2.4)
Styrene	µg/kg	1,700,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
tert-Amyl methyl ether	µg/kg	32,000	NE	ND (12)	ND (12)	ND (12)	ND (15)	ND (10)	ND (13)	ND (9.4)
tert-Butyl alcohol	µg/kg	13,000,000	NE	ND (60)	ND (61)	ND (61)	ND (75)	ND (51)	ND (67)	ND (47)
Tetrachloroethene	µg/kg	480	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Toluene	µg/kg	520,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
trans-1,2-Dichloroethene	µg/kg	69,000	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
trans-1,3-Dichloropropene	µg/kg	780	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Trichloroethene	µg/kg	53	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Vinyl chloride	µg/kg	79	NE	ND (3)	ND (3.1)	ND (3.1)	ND (3.8)	ND (2.6)	ND (1.7)	ND (2.4)
Xylenes, total	µg/kg	270,000	NE	ND (6)	ND (6.1)	ND (6.1)	ND (7.5)	ND (5.1)	ND (3.3)	ND (4.7)
Semivolatile Organic Compounds										
1,1'-Biphenyl	µg/kg	3,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
1,2,4,5-Tetrachlorobenzen	µg/kg	3,200	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
1,4-Dioxane (p-dioxane)	µg/kg	44,000	NE	ND (370) J	ND (73) J	ND (79) J	ND (89) J	ND (83) J	ND (73) J	ND (76) J
2,2'-Oxybis(1-Chloropropa	µg/kg	220	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
2,3,4,6-Tetrachlorophenol	µg/kg	NDRI	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2,4,5-Trichlorophenol	µg/kg	6,100,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)

TABLE 22e
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	356SSa 1 ft bgs[3] 10/18/2006	356SSa 1 ft bgs (FD) 10/18/2006	356SSa 3 ft bgs[4] 10/18/2006	356SSb 1 ft bgs 10/18/2006	356SSb 3 ft bgs 10/18/2006	356SSc 1 ft bgs 10/18/2006	356SSc 3 ft bgs 10/18/2006
Semivolatile Organic Compounds										
2,4,6-Trichlorophenol	µg/kg	6,100	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2,4-Dichlorophenol	µg/kg	180,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2,4-Dimethylphenol	µg/kg	1,200,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2,4-Dinitrophenol	µg/kg	120,000	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360)	ND (380)
2,4-Dinitrotoluene	µg/kg	120,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
2,6-Dinitrotoluene	µg/kg	61,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
2-Chloronaphthalene	µg/kg	4,900,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2-Chlorophenol	µg/kg	63,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
2-Methylnaphthalene	µg/kg	150,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2-Methylphenol	µg/kg	3,100,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
2-Nitroaniline	µg/kg	180,000	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360)	ND (380)
2-Nitrophenol	µg/kg	NDRI	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
3,3'-Dichlorobenzidine	µg/kg	1,100	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
3-Nitroaniline	µg/kg	18,000	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360)	ND (380)
4,6-Dinitro-2-methylphenol	µg/kg	NDRI	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360)	ND (380)
4-Bromophenylphenyl eth	µg/kg	NDRI	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
4-Chloro-3-methylphenol	µg/kg	3,100,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
4-Chloroaniline	µg/kg	240,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
4-Chlorophenylphenyl eth	µg/kg	NDRI	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
4-Methylphenol	µg/kg	310,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
4-Nitroaniline	µg/kg	23,000	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360)	ND (380)
4-Nitrophenol	µg/kg	120,000	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360)	ND (380)
Acenaphthene	µg/kg	3,700,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Acenaphthylene	µg/kg	2,300,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Acetophenone	µg/kg	100,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
Anthracene	µg/kg	22,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Atrazine	µg/kg	2,200	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Benzaldehyde	µg/kg	6,100,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) J	ND (190)	ND (190)
Benzo(a)anthracene	µg/kg	620	NE	210	130 J	20 J	93 J	38 J	37 J	ND (190)
Benzo(a)pyrene	µg/kg	62	NE	**430**	**280 J**	27 J	**190 J**	51 J	49 J	ND (190)
Benzo(b)fluoranthene	µg/kg	620	NE	520	310 J	36 J	240	66 J	58 J	24 J

TABLE 22e
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	356SSa 1 ft bgs[3] 10/18/2006	356SSa 1 ft bgs (FD) 10/18/2006	356SSa 3 ft bgs[4] 10/18/2006	356SSb 1 ft bgs 10/18/2006	356SSb 3 ft bgs 10/18/2006	356SSc 1 ft bgs 10/18/2006	356SSc 3 ft bgs 10/18/2006
Semivolatile Organic Compounds										
Benzo(g,h,i)perylene	µg/kg	2,300,000	NE	210	270 J	ND (200)	140 J	27 J	41 J	ND (190)
Benzo(k)fluoranthene	µg/kg	380	NE	200	130 J	ND (200)	90 J	23 J	ND (190)	ND (190)
Benzyl butyl phthalate	µg/kg	12,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
bis(2-Chloroethoxy)metha	µg/kg	220	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
bis(2-Chloroethyl)ether	µg/kg	220	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	NE	440	210 J	23 J	170 J	21 J	33 J	ND (190)
Caprolactam	µg/kg	31,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Carbazole	µg/kg	24,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Chrysene	µg/kg	3,800	NE	350	230 J	21 J	150 J	52 J	52 J	ND (190)
Dibenz(a,h)anthracene	µg/kg	62	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Dibenzofuran	µg/kg	150,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Diethylphthalate	µg/kg	49,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Dimethylphthalate	µg/kg	100,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Di-n-butyl phthalate	µg/kg	6,100,000	NE	ND (930)	190 J	96 J	ND (230)	ND (210)	100 J	ND (190)
Di-n-octyl phthalate	µg/kg	2,400,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Fluoranthene	µg/kg	2,300,000	NE	520	270 J	26 J	160 J	77 J	74 J	26 J
Fluorene	µg/kg	2,700,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Hexachlorobenzene	µg/kg	300	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Hexachlorobutadiene	µg/kg	6,200	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Hexachlorocyclopentadien	µg/kg	370,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Hexachloroethane	µg/kg	35,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
Indeno(1,2,3-c,d)pyrene	µg/kg	620	NE	310	270 J	26 J	180 J	36 J	46 J	ND (190)
Isophorone	µg/kg	510,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
Naphthalene	µg/kg	1,700	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)
Nitrobenzene	µg/kg	20,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
N-Nitrosodi-n-propylamine	µg/kg	69	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
N-Nitrosodiphenylamine	µg/kg	99,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) R	ND (190)	ND (190)
Pentachlorophenol	µg/kg	3,000	NE	ND (1,800)	ND (1,800)	ND (390)	ND (440)	ND (410)	ND (360) J	ND (380)
Phenanthrene	µg/kg	2,300,000	NE	210 J	100 J	ND (200)	67 J	58 J	52 J	ND (190)
Phenol	µg/kg	18,000,000	NE	ND (930)	ND (920)	ND (200)	ND (230)	ND (210) J	ND (190)	ND (190)
Pyrene	µg/kg	2,300,000	NE	520	310 J	29 J	160 J	73 J	81 J	22 J

TABLE 22e
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	356SSa 1 ft bgs[3] 10/18/2006	356SSa 1 ft bgs (FD) 10/18/2006	356SSa 3 ft bgs[4] 10/18/2006	356SSb 1 ft bgs 10/18/2006	356SSb 3 ft bgs 10/18/2006	356SSc 1 ft bgs 10/18/2006	356SSc 3 ft bgs 10/18/2006
Metals										
Aluminum	mg/kg	76,000	NE	2,680 J	5,670 J	5,510	5,580	5,570	6,380 J	1,660
Antimony	mg/kg	31	5.9	ND (6.7)	ND (6.6)	ND (7)	ND (6.8)	ND (7.3)	ND (6.5) J	ND (6.8)
Arsenic[5]	mg/kg	0.062 / 22	***14***	***4.3 J***	***7.8 J***	***3.9***	***6.6***	***4.5***	***7.5 J***	***3.7***
Barium	mg/kg	5,400	NE	174 J	360 J	821	292	240	190 J	31
Beryllium	mg/kg	150	0.9	0.09 J	0.19 J	0.16 J	0.27 J	0.23 J	0.27 J	0.05 J
Cadmium	mg/kg	37	1.5	0.9	2	ND (0.59)	1.7	0.41 J	1.1 J	0.11 J
Calcium	mg/kg	NA	NE	**3,190 J**	**5,490 J**	**5,510**	**5,760**	**8,500**	**8,310 J**	**1,490**
Chromium	mg/kg	210	91.4	10.3 J	30.6 J	32.4	27.3	18.7	19.1 J	8.8
Cobalt	mg/kg	900	NE	2.3 J	5.7	5.3 J	5.4 J	4.2 J	5.7 J	1.5 J
Copper	mg/kg	3,100	59.6	28 J	80 J	27	63.7	40.4	48.3 J	5.2
Iron	mg/kg	23,000	NE	12,200	14,400	10,500	14,500	9,900	13,700 J	2,690
Lead[6]	mg/kg	194 / 340	14.7	**574**	**822 J+**	***223***	**563 J+**	**432**	**354 J+**	26.2 J+
Magnesium	mg/kg	NA	NE	**879 J**	**2,100 J**	**1,820**	**2,410**	**2,440**	**3,610 J**	**612**
Manganese	mg/kg	1,800	NE	99.7 J	271 J	181	261	200	285	124
Mercury	mg/kg	23	0.3	0.5	0.58	0.33	0.56	0.46	0.53	0.19
Nickel	mg/kg	1,600	120.2	11.8 J	28.4 J	18.1	25.8	13.9	21.3 J	5.8
Potassium	mg/kg	NA	NE	**624 J**	**1,520 J**	**1,170**	**1,510**	**1,150**	**1,660 J**	**407 J**
Selenium	mg/kg	390	5.6	ND (3.9)	0.52 J	0.47 J	0.56 J	ND (4.2)	ND (3.8) J	ND (4)
Silver	mg/kg	390	1.7	0.4 J	1.4	0.75 J	1.2	0.5 J	0.61 J-	ND (1.1)
Sodium	mg/kg	NA	NE	ND (556) J	**1,920 J**	**554 J**	**1,760**	ND (605)	ND (542)	ND (566)
Thallium	mg/kg	5.2	**42.5**	0.39 J	ND (2.7)	ND (2.9)	ND (2.9)	ND (3)	0.56 J	ND (2.8)
Vanadium	mg/kg	78	NE	9 J	22.4 J	23.9	23.3	21.5	18.5 J	6.3
Zinc	mg/kg	23,000	91.5	254 J	724 J	68.9	648	71.7	260 J	25
Organochlorine Pesticides/PCBs										
4,4'-DDD	µg/kg	2,400	NE	9.2 J	5.9 J	0.44 J	5.8 J	2.3 J	0.89 J	1.5 J
4,4'-DDE	µg/kg	1,700	NE	110 J	0.67 J	1.1 J	12	ND (3.3) J	1.2 J	0.37 J
4,4'-DDT	µg/kg	1,700	NE	480 J	210 J	ND (3.9)	33 J	9.9 J	4.9	7.4
Aldrin	µg/kg	29	NE	0.77 J	0.51 J	ND (2) J	0.094 J	0.11 J	ND (1.9) J	ND (1.9)
alpha-BHC	µg/kg	90	NE	0.14 J	ND (1.8)	ND (2)	0.35 J	ND (2.1)	ND (1.9)	ND (1.9)
alpha-Chlordane	µg/kg	1,600	NE	370 J	2.5 J	1.7 J	19 J	0.1 J	2.1 J	0.25 J
Aroclor-1016	µg/kg	3,900	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)

TABLE 22e
356 Center Street Analytical Results - Soil (October 2006)
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AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	356SSa 1 ft bgs[3] 10/18/2006	356SSa 1 ft bgs (FD) 10/18/2006	356SSa 3 ft bgs[4] 10/18/2006	356SSb 1 ft bgs 10/18/2006	356SSb 3 ft bgs 10/18/2006	356SSc 1 ft bgs 10/18/2006	356SSc 3 ft bgs 10/18/2006
Organochlorine Pesticides/PCBs										
Aroclor-1221	µg/kg	220	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)
Aroclor-1232	µg/kg	220	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)
Aroclor-1242	µg/kg	220	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)
Aroclor-1248	µg/kg	220	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)
Aroclor-1254	µg/kg	220	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)
Aroclor-1260	µg/kg	220	NE	ND (36)	ND (36)	ND (39)	ND (44)	ND (41)	ND (36)	ND (38)
beta-BHC	µg/kg	320	NE	0.07 J	ND (1.8) J	ND (2) J	0.17 J	0.089 J	ND (1.9) J	ND (1.9)
delta-BHC	µg/kg	90	NE	0.41 J	ND (1.8)	ND (2)	0.56 J	ND (2.1)	ND (1.9)	ND (1.9)
Dieldrin	µg/kg	30	NE	5.1 J	2.3 J	ND (3.9)	2.3 J	ND (3.3) J	ND (3.6)	ND (3.8)
Endosulfan I	µg/kg	370,000	NE	3.5 J	3.3 J	ND (2)	0.97 J	0.15 J	ND (1.9)	ND (1.9)
Endosulfan II	µg/kg	370,000	NE	1.8 J	1.4 J	ND (3.9)	0.29 J	0.2 J	ND (3.6)	ND (3.8)
Endosulfan sulfate	µg/kg	370,000	NE	0.3 J	0.71 J	ND (3.9)	1.2 J	0.3 J	ND (3.6)	ND (3.8)
Endrin	µg/kg	18,000	NE	37 J	0.25 J	ND (3.9)	0.3 J	0.67 J	ND (3.6)	ND (3.8)
Endrin aldehyde	µg/kg	18,000	NE	ND (3.3)	0.19 J	0.55 J	ND (3.3) J	ND (3.3) J	ND (3.6)	ND (3.8)
Endrin ketone	µg/kg	18,000	NE	0.73 J	0.75 J	19 J	0.93 J	1.6 J	ND (3.6)	ND (1.9)
gamma-BHC	µg/kg	440	NE	ND (1.9) J	0.22 J	ND (2) J	ND (2.3) J	0.17 J	ND (1.9) J	ND (1.9)
gamma-Chlordane	µg/kg	1,600	NE	390	2.8 J	0.48 J	16	ND (1.7) J	1.8 J	ND (1.9)
Heptachlor	µg/kg	110	NE	3.4 J	1.4 J	ND (2) J	0.042 J	ND (2.1) J	ND (1.9) J	ND (1.9)
Heptachlor epoxide	µg/kg	53	NE	11 J	0.97 J	ND (2)	2.2 J	0.057 J	ND (1.9)	ND (1.9)
Methoxychlor	µg/kg	310,000	NE	ND (17) J	0.68 J	1.8 J	ND (17) J	ND (17) J	2.4 J	ND (0.22) R
Toxaphene	µg/kg	440	NE	ND (190)	ND (180)	ND (200)	ND (230)	ND (210)	ND (190)	ND (190)

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16b (Soil Screening Levels) for source of screening levels.

[2] Oakland background results are from background metal concentration studies conducted by the Lawrence Berkeley National Laboratory Environmental Restoration Program, 1995. Samples were taken from locations representing the Colluvian and Fill geologic unit.

[3] 1ft bgs samples were collected between 0.5 and 1ft bgs

[4] 3ft bgs samples were collected between 2.5 and 3 ft bgs

[5] For Arsenic, 0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.

[6] Lead screening level in soil was evaluated using Department Toxic Substance Control's Lead Risk Assessment Spreadsheet Version 7 (Lead Spread 7, Cal/EPA 1999)

Units are presented as reported by the laboratory.

FD	field duplicate
ft bgs	feet below ground surface
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
NE	not established
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
J-	estimated value, low bias
J+	estimated value, possible high bias
R	rejected for failure to meet quality control requirements

TABLE 22f
360 Center Street Analytical Results - Soil (October 2006)
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Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	360SSa 1 ft bgs[3] 10/18/2006	360SSa 3 ft bgs[4] 10/18/2006	360SSb 1 ft bgs 10/18/2006	360SSb 3 ft bgs 10/18/2006
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/kg	1,200,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,1,2,2-Tetrachloroethane	µg/kg	410	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,1,2-Trichloroethane	µg/kg	730	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,1-Dichloroethane	µg/kg	2,800	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,1-Dichloroethene	µg/kg	120,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,1-Dichloropropene	µg/kg	NDRI	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2,3-Trichlorobenzene	µg/kg	62,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2,3-Trichloropropane	µg/kg	NDRI	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2,4-Trichlorobenzene	µg/kg	62,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2,4-Trimethylbenzene	µg/kg	NDRI	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2-Dibromo-3-chloroprop	µg/kg	30	NE	ND (13)	ND (11)	ND (12)	ND (9.8)
1,2-Dibromoethane	µg/kg	32	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2-Dichlorobenzene	µg/kg	600,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2-Dichloroethane	µg/kg	280	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,2-Dichloropropane	µg/kg	340	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,3-Dichlorobenzene	µg/kg	530,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,3-Dichloropropane	µg/kg	NDRI	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
1,4-Dichlorobenzene	µg/kg	3,400	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
2-Hexanone	µg/kg	NDRI	NE	ND (26)	ND (22)	ND (25)	ND (20)
Acetone	µg/kg	14,000,000	NE	ND (26)	ND (22)	ND (25)	ND (20)
Benzene	µg/kg	640	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Bromochloromethane	µg/kg	NDRI	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Bromodichloromethane	µg/kg	820	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Bromoform	µg/kg	62,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Bromomethane	µg/kg	3,900	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Carbon disulfide	µg/kg	360,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Carbon tetrachloride	µg/kg	250	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Chlorobenzene	µg/kg	150,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Chloroethane	µg/kg	3,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Chloroform	µg/kg	940	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Chloromethane	µg/kg	47,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)

TABLE 22f
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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	360SSa 1 ft bgs [3] 10/18/2006	360SSa 3 ft bgs [4] 10/18/2006	360SSb 1 ft bgs 10/18/2006	360SSb 3 ft bgs 10/18/2006
Volatile Organic Compounds							
cis-1,2-Dichloroethene	µg/kg	43,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
cis-1,3-Dichloropropene	µg/kg	780	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Dibromochloromethane	µg/kg	1,100	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Ethyl tert-butyl ether	µg/kg	32,000	NE	ND (13)	ND (11)	ND (12)	ND (9.8)
Ethylbenzene	µg/kg	400,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Freon 11	µg/kg	390,000	NE	3.2	3.6	2.2 J	1.8 J
Freon 113	µg/kg	5,600,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Freon 12	µg/kg	94,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Isopropyl ether	µg/kg	NDRI	NE	ND (13)	ND (11)	ND (12)	ND (9.8)
Isopropylbenzene (cumen	µg/kg	570,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Methyl ethyl ketone	µg/kg	22,000,000	NE	ND (26)	ND (22)	ND (25)	ND (20)
Methyl isobutyl ketone	µg/kg	5,300,000	NE	ND (26)	ND (22)	ND (25)	ND (20)
Methyl tert-butyl ether	µg/kg	32,000	NE	ND (13)	ND (11)	ND (12)	ND (9.8)
Methylene chloride	µg/kg	9,100	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Styrene	µg/kg	1,700,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
tert-Amyl methyl ether	µg/kg	32,000	NE	ND (13)	ND (11)	ND (12)	ND (9.8)
tert-Butyl alcohol	µg/kg	13,000,000	NE	ND (65)	ND (56)	ND (61)	ND (49)
Tetrachloroethene	µg/kg	480	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Toluene	µg/kg	520,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
trans-1,2-Dichloroethene	µg/kg	69,000	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
trans-1,3-Dichloropropene	µg/kg	780	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Trichloroethene	µg/kg	53	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Vinyl chloride	µg/kg	79	NE	ND (3.2)	ND (2.8)	ND (3.1)	ND (2.5)
Xylenes, total	µg/kg	270,000	NE	ND (6.5)	ND (5.6)	ND (6.1)	ND (4.9)
Semivolatile Organic Compounds							
1,1'-Biphenyl	µg/kg	3,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
1,2,4,5-Tetrachlorobenzen	µg/kg	3,200	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
1,4-Dioxane (p-dioxane)	µg/kg	44,000	NE	ND (73) J	ND (76) J	ND (410) J	ND (76) J
2,2'-Oxybis(1-Chloropropa	µg/kg	220	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2,3,4,6-Tetrachlorophenol	µg/kg	NDRI	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2,4,5-Trichlorophenol	µg/kg	6,100,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)

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Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	360SSa 1 ft bgs [3] 10/18/2006	360SSa 3 ft bgs [4] 10/18/2006	360SSb 1 ft bgs 10/18/2006	360SSb 3 ft bgs 10/18/2006
Semivolatile Organic Compounds							
2,4,6-Trichlorophenol	µg/kg	6,100	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2,4-Dichlorophenol	µg/kg	180,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2,4-Dimethylphenol	µg/kg	1,200,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2,4-Dinitrophenol	µg/kg	120,000	NE	ND (360)	ND (370)	ND (2,000)	ND (370)
2,4-Dinitrotoluene	µg/kg	120,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2,6-Dinitrotoluene	µg/kg	61,000	NE	62 J	ND (190)	ND (1,000)	ND (190)
2-Chloronaphthalene	µg/kg	4,900,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2-Chlorophenol	µg/kg	63,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2-Methylnaphthalene	µg/kg	150,000	NE	ND (180)	28 J	ND (1,000)	46 J
2-Methylphenol	µg/kg	3,100,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
2-Nitroaniline	µg/kg	180,000	NE	ND (360)	ND (370)	ND (2,000)	ND (370)
2-Nitrophenol	µg/kg	NDRI	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
3,3'-Dichlorobenzidine	µg/kg	1,100	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
3-Nitroaniline	µg/kg	18,000	NE	24 J	ND (370)	ND (2,000)	ND (370)
4,6-Dinitro-2-methylphenol	µg/kg	NDRI	NE	ND (360)	ND (370)	ND (2,000)	ND (370)
4-Bromophenylphenyl eth	µg/kg	NDRI	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
4-Chloro-3-methylphenol	µg/kg	3,100,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
4-Chloroaniline	µg/kg	240,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
4-Chlorophenylphenyl eth	µg/kg	NDRI	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
4-Methylphenol	µg/kg	310,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
4-Nitroaniline	µg/kg	23,000	NE	ND (360)	ND (370)	ND (2,000)	ND (370)
4-Nitrophenol	µg/kg	120,000	NE	ND (360)	ND (370)	ND (2,000)	ND (370)
Acenaphthene	µg/kg	3,700,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Acenaphthylene	µg/kg	2,300,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Acetophenone	µg/kg	100,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Anthracene	µg/kg	22,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Atrazine	µg/kg	2,200	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Benzaldehyde	µg/kg	6,100,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Benzo(a)anthracene	µg/kg	620	NE	47 J	44 J	160	44 J
Benzo(a)pyrene	µg/kg	62	NE	**90 J**	**67 J**	**320**	59 J
Benzo(b)fluoranthene	µg/kg	620	NE	120 J	91 J	400	84 J

TABLE 22f
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Analyte	Units	Screening Level [1]	Oakland [2] Background Levels	360SSa 1 ft bgs [3] 10/18/2006	360SSa 3 ft bgs [4] 10/18/2006	360SSb 1 ft bgs 10/18/2006	360SSb 3 ft bgs 10/18/2006
Semivolatile Organic Compounds							
Benzo(g,h,i)perylene	µg/kg	2,300,000	NE	91 J	37 J	150	29 J
Benzo(k)fluoranthene	µg/kg	380	NE	60 J	33 J	200	32 J
Benzyl butyl phthalate	µg/kg	12,000,000	NE	24 J	ND (190)	ND (1,000)	ND (190)
bis(2-Chloroethoxy)metha	µg/kg	220	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
bis(2-Chloroethyl)ether	µg/kg	220	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
bis(2-Ethylhexyl)phthalate	µg/kg	35,000	NE	55 J	59 J	150 J	33 J
Caprolactam	µg/kg	31,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Carbazole	µg/kg	24,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Chrysene	µg/kg	3,800	NE	110 J	74 J	420	76 J
Dibenz(a,h)anthracene	µg/kg	62	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Dibenzofuran	µg/kg	150,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Diethylphthalate	µg/kg	49,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Dimethylphthalate	µg/kg	100,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Di-n-butyl phthalate	µg/kg	6,100,000	NE	140 J	ND (190)	ND (1,000)	46 J
Di-n-octyl phthalate	µg/kg	2,400,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Fluoranthene	µg/kg	2,300,000	NE	160 J	110 J	830	110 J
Fluorene	µg/kg	2,700,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Hexachlorobenzene	µg/kg	300	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Hexachlorobutadiene	µg/kg	6,200	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Hexachlorocyclopentadien	µg/kg	370,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Hexachloroethane	µg/kg	35,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Indeno(1,2,3-c,d)pyrene	µg/kg	620	NE	75 J	45 J	240	42 J
Isophorone	µg/kg	510,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Naphthalene	µg/kg	1,700	NE	23 J	21 J	ND (1,000)	31 J
Nitrobenzene	µg/kg	20,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
N-Nitrosodi-n-propylamine	µg/kg	69	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
N-Nitrosodiphenylamine	µg/kg	99,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Pentachlorophenol	µg/kg	3,000	NE	ND (360)	ND (370)	ND (2,000)	ND (370)
Phenanthrene	µg/kg	2,300,000	NE	90 J	85 J	770 J	100 J
Phenol	µg/kg	18,000,000	NE	ND (180)	ND (190)	ND (1,000)	ND (190)
Pyrene	µg/kg	2,300,000	NE	130 J	98 J	710	98 J

TABLE 22f
360 Center Street Analytical Results - Soil (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level[1]	Oakland Background Levels[2]	360SSa 1 ft bgs[3] 10/18/2006	360SSa 3 ft bgs[4] 10/18/2006	360SSb 1 ft bgs 10/18/2006	360SSb 3 ft bgs 10/18/2006
Metals							
Aluminum	mg/kg	76,000	NE	7,190	2,420	3,570	6,640 J
Antimony	mg/kg	31	5.9	ND (9.2)	ND (6.8)	ND (6.9)	ND (6.8) J
Arsenic[5]	mg/kg	0.062 / 22	***14***	***11.1***	***4***	***6.4***	***5.3***
Barium	mg/kg	5,400	NE	610	75.3	188	168 J
Beryllium	mg/kg	150	0.9	0.23 J	0.1 J	0.15 J	0.21 J
Cadmium	mg/kg	37	1.5	1.8	0.41 J	1.5	0.21 J
Calcium	mg/kg	NA	NE	**7,850**	**3,640**	**3,780**	**8,450 J**
Chromium	mg/kg	210	91.4	31.2	9.5	14	22.9 J
Cobalt	mg/kg	900	NE	6.9 J	2.3 J	3.7 J	5.9
Copper	mg/kg	3,100	59.6	152	19.6	75.6	105 J
Iron	mg/kg	23,000	NE	19,900	8,680	17,500	14,800 J
Lead[6]	mg/kg	194 / 340	14.7	**2,230 J+**	193	**600**	**478 J**
Magnesium	mg/kg	NA	NE	**2,800**	**1,060**	**1,320**	**3,090 J**
Manganese	mg/kg	1,800	NE	322	108	161	245 J
Mercury	mg/kg	23	0.3	0.21	0.61	2.8	1.7 J
Nickel	mg/kg	1,600	120.2	32.2	8.2	14.9	20.9 J
Potassium	mg/kg	NA	NE	**1,920**	**748**	**743**	**1,510 J**
Selenium	mg/kg	390	5.6	ND (5.4)	ND (4)	ND (4)	ND (4)
Silver	mg/kg	390	1.7	1.6	0.28 J	0.68 J	1.3
Sodium	mg/kg	NA	NE	**2,410**	ND (569)	ND (571)	**674**
Thallium	mg/kg	5.2	**42.5**	ND (3.9)	0.45 J	0.91 J	ND (2.8)
Vanadium	mg/kg	78	NE	25.8	8.4	13.2	22.3 J
Zinc	mg/kg	23,000	91.5	897	81.6	356	178 J
Organochlorine Pesticides/PCBs							
4,4'-DDD	µg/kg	2,400	NE	1.6 J	1.8 J	7.5 J	0.39 J
4,4'-DDE	µg/kg	1,700	NE	130 J	50 J	54 J	5.2 J
4,4'-DDT	µg/kg	1,700	NE	9 J	380 J	800 J	38 J
Aldrin	µg/kg	29	NE	0.48 J	1.2 J	0.11 J	ND (1.9) J
alpha-BHC	µg/kg	90	NE	0.34 J	0.28 J	0.26 J	ND (1.9)
alpha-Chlordane	µg/kg	1,600	NE	7.3 J	1.3 J	3 J	ND (1.9)
Aroclor-1016	µg/kg	3,900	NE	ND (180)	ND (37)	ND (40)	ND (37)

TABLE 22f
360 Center Street Analytical Results - Soil (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	Oakland Background Levels [2]	360SSa 1 ft bgs [3] 10/18/2006	360SSa 3 ft bgs [4] 10/18/2006	360SSb 1 ft bgs 10/18/2006	360SSb 3 ft bgs 10/18/2006
Organochlorine Pesticides/PCBs							
Aroclor-1221	µg/kg	220	NE	ND (180)	ND (37)	ND (40)	ND (37)
Aroclor-1232	µg/kg	220	NE	ND (180)	ND (37)	ND (40)	ND (37)
Aroclor-1242	µg/kg	220	NE	ND (180)	ND (37)	ND (40)	ND (37)
Aroclor-1248	µg/kg	220	NE	ND (180)	ND (37)	ND (40)	ND (37)
Aroclor-1254	µg/kg	220	NE	**11,000**	**2,400 J**	ND (40)	ND (37)
Aroclor-1260	µg/kg	220	NE	ND (180)	ND (37)	ND (40)	ND (37)
beta-BHC	µg/kg	320	NE	ND (1.8) J	1.2 J	0.057 J	ND (1.9) J
delta-BHC	µg/kg	90	NE	0.23 J	0.18 J	0.032 J	ND (1.9)
Dieldrin	µg/kg	30	NE	14 J	12 J	3.9 J	ND (3.7)
Endosulfan I	µg/kg	370,000	NE	20 J	4 J	0.35 J	ND (1.9)
Endosulfan II	µg/kg	370,000	NE	53 J	8.6 J	0.87 J	ND (3.7)
Endosulfan sulfate	µg/kg	370,000	NE	0.42 J	0.32 J	0.16 J	0.4 J
Endrin	µg/kg	18,000	NE	530	5.3 J	0.64 J	0.57 J
Endrin aldehyde	µg/kg	18,000	NE	8.2 J	6.8	ND (3.3) J	ND (3.7)
Endrin ketone	µg/kg	18,000	NE	1.5 J	0.15 J	0.27 J	ND (1.9)
gamma-BHC	µg/kg	440	NE	ND (1.8) J	ND (1.9) J	0.2 J	ND (1.9) J
gamma-Chlordane	µg/kg	1,600	NE	3.9 J	29 J	2.9 J	0.51 J
Heptachlor	µg/kg	110	NE	ND (1.8) J	0.47 J	0.33 J	ND (1.9) J
Heptachlor epoxide	µg/kg	53	NE	**310 J**	9.9 J	2.5 J	ND (1.9)
Methoxychlor	µg/kg	310,000	NE	9.6 J	ND (17) J	220 J	2 J
Toxaphene	µg/kg	440	NE	ND (180)	ND (190)	ND (210)	ND (190)

TABLE 22f
360 Center Street Analytical Results - Soil (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16b (Soil Screening Levels) for source of screening levels.

[2] Oakland background results are from background metal concentration studies conducted by the Lawrence Berkeley National Laboratory Environmental Restoration Program, 1995. Samples were taken from locations representing the Colluvian and Fill geologic unit.

[3] 1ft bgs samples were collected between 0.5 and 1ft bgs

[4] 3ft bgs samples were collected between 2.5 and 3 ft bgs

[5] For Arsenic, 0.062 mg/kg is the cancer endpoint; 22 mg/kg is the noncancer endpoint.

[6] Lead screening level in soil was evaluated using Department Toxic Substance Control's Lead Risk Assessment Spreadsheet Version 7 (Lead Spread 7, Cal/EPA 1999)

Units are presented as reported by the laboratory.

ft bgs	feet below ground surface
µg/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
NA	not applicable
NDRI	not detected in soil during the Remedial Investigation phase
NE	not established
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
J+	estimated value, possible high bias

TABLE 23

Summary of All Compounds Detected Above The Screening Level in Soil

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results [1]	Number of Detects >Screening Level	Maximum Detected Concentration	Screening Level [2]
Volatile Organic Compounds					
1,1-Dichloroethane	µg/kg	102	3	14,000	2,800
1,4-Dichlorobenzene	µg/kg	102	4	44,000	3,400
Benzene	µg/kg	102	3	3,500	640
cis-1,2-Dichloroethene	µg/kg	102	2	240,000	43,000
Tetrachloroethene	µg/kg	102	1	1,400	480
Toluene	µg/kg	102	2	1,600,000	520,000
Trichloroethene	µg/kg	102	5	7,300	53
Vinyl chloride	µg/kg	102	6	2,200	79
Xylenes, total	µg/kg	102	5	640,000	270,000
Semivolatile Organic Compounds					
2-Methylnaphthalene	µg/kg	103	7	550,000	150,000
Benzo(a)anthracene	µg/kg	103	12	8,300	620
Benzo(a)pyrene	µg/kg	103	41	9,200	62
Benzo(b)fluoranthene	µg/kg	103	15	9,800	620
Benzo(k)fluoranthene	µg/kg	103	15	3,600	380
Chrysene	µg/kg	103	3	10,000	3,800
Dibenz(a,h)anthracene	µg/kg	103	6	1,100	62
Indeno(1,2,3-c,d)pyrene	µg/kg	103	13	8,300	620
Naphthalene	µg/kg	103	12	80,000	1,700
Pentachlorophenol	µg/kg	103	1	6,700	3,000
Metals					
Antimony	mg/kg	103	4	216	31
Arsenic	mg/kg	103	7	451	22
Chromium	mg/kg	103	3	2,650	210
Lead	mg/kg	103	62	53,000	194
Manganese	mg/kg	103	2	2,450	1,800
Thallium	mg/kg	103	1	5.7	5.2
Iron	mg/kg	103	23	74,500	23,000
Organochlorine Pesticides/PCBs					
4,4'-DDD	µg/kg	102	16	34,000	2,400
4,4'-DDE	µg/kg	102	11	11,000	1,700
4,4'-DDT	µg/kg	102	12	140,000	1,700
Aldrin	µg/kg	101	6	2,400	29
Aroclor-1254	µg/kg	102	2	11,000	220
Aroclor-1260	µg/kg	102	2	980	220
Dieldrin	µg/kg	101	21	2,400	30
Heptachlor epoxide	µg/kg	101	1	310	53
Dioxins/Furans					
1,2,3,4,6,7,8-HpCDD	ng/kg	7	1	1,100	390
1,2,3,6,7,8-HxCDD	ng/kg	7	1	73.5	39
1,2,3,7,8,9-HxCDD	ng/kg	7	1	41.4	39
1,2,3,7,8-PeCDD	ng/kg	7	1	15.3	3.9
2,3,4,7,8-PeCDF	ng/kg	7	2	42.4	7.8
Total Dioxin Toxicity equivalent	ng/kg	7	5	72.8	3.9

Notes:

(1) Includes 62 samples from September 2004 and 40 samples from October 2006. Does not include field duplicates or rejected data.

(2) See Table 16b (Soil Screening Levels) for source of screening levels.

µg/kg micrograms per kilogram

mg/kg milligrams per kilogram

Units are presented as reported by the laboratory.

TABLE 24

Results Summary - Soil Gas Survey (September - October 2004)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/m³	43	12	100	29 to 4,200	23,000	0
1,1,2,2-Tetrachloroethane	µg/m³	43	1	100	35	0.33	1
1,1,2-Trichloroethane	µg/m³	43	2	100	90 to 1,500	1.2	2
1,1-Dichloroethane	µg/m³	43	27	100	37 to 1,100,000	12	27
1,1-Dichloroethene	µg/m³	43	7	100	89 to 53,000	2,100	2
1,2,4-Trichlorobenzene	µg/m³	43	0	100	ND	37	0
1,2,4-Trimethylbenzene	µg/m³	43	11	100 to 530	22 to 110	62	2
1,2-Dibromoethane	µg/m³	43	0	100	ND	0.034	0
1,2-Dichlorobenzene	µg/m³	43	0	100	ND	2,100	0
1,2-Dichloroethane	µg/m³	43	3	100	44 to 4,200	0.74	3
1,2-Dichloropropane	µg/m³	43	0	100	ND	0.99	0
1,3,5-Trimethylbenzene	µg/m³	43	5	100 to 480	21 to 160	62	1
1,3-Dichlorobenzene	µg/m³	43	0	100	ND	1,100	0
1,4-Dichlorobenzene	µg/m³	43	0	100	ND	3.1	0
Benzene	µg/m³	43	26	50 to 74	24 to 36,000	2.5	26
Bromomethane	µg/m³	43	1	100	140	52	1
Carbon tetrachloride	µg/m³	43	0	100	ND	1.3	0
Chlorobenzene	µg/m³	43	5	100	110 to 1,500	620	3
Chloroethane	µg/m³	43	10	100	67 to 38,000	23	10
Chloroform	µg/m³	43	3	100	40 to 55	0.83	3
Chloromethane	µg/m³	43	3	100	160 to 470	950	0
cis-1,2-Dichloroethene	µg/m³	43	28	100	22 to 6,900,000	370	16
cis-1,3-Dichloropropene	µg/m³	43	0	100	ND	4.8	0
Ethylbenzene	µg/m³	43	27	100	20 to 18,000	11,000	2
Freon 11	µg/m³	43	13	100	20 to 150	7,300	0
Freon 12	µg/m³	43	1	100	190	2,100	0
Freon 113	µg/m³	43	1	100	670	310,000	0
Hexachlorobutadiene	µg/m³	43	0	100	ND	0.86	0
Methyl tert-butyl ether	µg/m³	43	4	100	30 to 480	74	1
Methylene chloride	µg/m³	43	4	100	21 to 1,200	41	2
Styrene	µg/m³	43	1	100	100	11,000	0
Tetrachloroethene	µg/m³	43	10	100	23 to 2,400	3.2	10
Toluene	µg/m³	43	18	100 to 180	57 to 600,000	4,000	6
trans-1,2-Dichloroethene	µg/m³	43	17	100	43 to 73,000	730	6
trans-1,3-Dichloropropene	µg/m³	43	0	100	ND	4.8	0
Trichloroethene	µg/m³	43	23	50	25 to 5,700	0.17	23
Vinyl chloride	µg/m³	43	23	50	59 to 1,500,000	1.1	23
Xylenes, total	µg/m³	43	19	100 to 150	29 to 43,700	1,100	3

Notes:

(1) Does not include field duplicates or rejected data.

(2) See Table 16c (Soil Gas Screening Levels) for source of screening levels.

ND not detected above the reporting limit

µg/m³ micrograms per cubic meter

Units are presented as reported by the laboratory

TABLE 25a
Results Summary - Soil Gas Probes (October 2004)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/m³	24	7	3.6 to 490	4.2 to 9,600	23,000	0
1,1,2,2-Tetrachloroethane	µg/m³	24	0	0.18 to 610	ND	0.33	0
1,1,2-Trichloroethane	µg/m³	24	0	0.14 to 490	ND	1.2	0
1,1-Dichloroethane	µg/m³	24	8	2.7 to 360	46 to 3,400	12	8
1,1-Dichloroethene	µg/m³	24	6	2.6 to 110	14 to 1,100	2,100	0
1,2,4-Trichlorobenzene	µg/m³	24	0	20 to 2,600	ND	37	0
1,2,4-Trimethylbenzene	µg/m³	24	5	3.2 to 440	3.9 to 24,000	62	2
1,2-Dibromoethane	µg/m³	24	0	0.2 to 690	ND	0.034	0
1,2-Dichlorobenzene	µg/m³	24	2	4 to 540	650 to 760	2,100	0
1,2-Dichloroethane	µg/m³	24	0	0.11 to 360	ND	0.74	0
1,2-Dichloropropane	µg/m³	24	0	0.12 to 410	ND	0.99	0
1,3,5-Trimethylbenzene	µg/m³	24	2	3.2 to 440	14000 to 15,000	62	2
1,3-Butadiene	µg/m³	24	0	1.5 to 200	ND	0.11	0
1,3-Dichlorobenzene	µg/m³	24	0	4 to 540	ND	1,100	0
1,4-Dichlorobenzene	µg/m³	24	1	4 to 540	180	3.1	1
1,4-Dioxane (p-dioxane)	µg/m³	24	0	9.5 to 1,300	ND	6.1	0
2,2,4-Trimethylpentane	µg/m³	24	0	3.1 to 420	ND	2,100	0
2-Hexanone	µg/m³	24	0	11 to 1,500	ND	NDRI	NA
3-Chloropropene	µg/m³	24	0	8.3 to 1,100	ND	10	0
4-Ethyltoluene	µg/m³	24	3	3.2 to 440	5.9 to 34,000	1,100	2
Acetone	µg/m³	24	8	6.5 to 850	6.6 to 19	33,000	0
Benzene	µg/m³	24	4	2.1 to 130	35 to 490	2.5	4
Benzyl chloride	µg/m³	24	0	3.4 to 460	ND	0.4	0
Bromodichloromethane	µg/m³	24	0	4.4 to 600	ND	1.1	0
Bromoform	µg/m³	24	0	6.8 to 920	ND	17	0
Bromomethane	µg/m³	24	0	2.6 to 350	ND	52	0
Carbon disulfide	µg/m³	24	17	4.2 to 280	2.3 to 130	7,300	0
Carbon tetrachloride	µg/m³	24	0	0.17 to 560	ND	1.3	0
Chlorobenzene	µg/m³	24	0	3 to 410	ND	620	0
Chloroethane	µg/m³	24	2	1.7 to 240	350 to 370	23	2
Chloroform	µg/m³	24	6	3.2 to 440	10 to 40	0.83	6
Chloromethane	µg/m³	24	0	5.4 to 740	ND	950	0
cis-1,2-Dichloroethene	µg/m³	24	8	2.6 to 7.6	21 to 61,000	370	6
cis-1,3-Dichloropropene	µg/m³	24	0	3 to 410	ND	4.8	0
Cyclohexane	µg/m³	24	3	2.3 to 310	150 to 860	62,000	0
Dibromochloromethane	µg/m³	24	0	5.6 to 760	ND	0.8	0
Ethanol	µg/m³	24	3	5 to 670	6.2 to 18	18,000	0
Ethylbenzene	µg/m³	24	4	2.9 to 390	9 to 5,200	11,000	0
Freon 11	µg/m³	24	2	3.7 to 500	13 to 16	7,300	0
Freon 12	µg/m³	24	0	3.3 to 440	ND	2,100	0
Freon 113	µg/m³	24	4	5 to 680	14 to 47	310,000	0
Freon 114	µg/m³	24	0	4.6 to 620	ND	310,000	0
Hexachlorobutadiene	µg/m³	24	0	1.4 to 3,800	ND	0.86	0
Isopropanol	µg/m³	24	0	6.5 to 880	ND	11,000	0
Isopropylbenzene (cumene)	µg/m³	24	2	3.2 to 440	3400 to 3,800	4,000	0
Methyl ethyl ketone	µg/m³	24	4	2 to 260	7.4 to 27	51,000	0
Methyl isobutyl ketone	µg/m³	24	0	2.7 to 370	ND	31,000	0
Methyl tert-butyl ether	µg/m³	24	0	2.4 to 320	ND	74	0
Methylene chloride	µg/m³	24	2	2.3 to 310	4.2 to 4.5	41	0
n-Heptane	µg/m³	24	4	2.7 to 370	100 to 4,200	2,100	2

TABLE 25a

Results Summary - Soil Gas Probes (October 2004)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
n-Propylbenzene	µg/m³	24	2	3.2 to 440	8200 to 8,400	1,500	2
Styrene	µg/m³	24	0	2.8 to 380	ND	11,000	0
Tetrachloroethene	µg/m³	24	18	4.6 to 4.9	15 to 11,000	3.2	18
Tetrahydrofuran	µg/m³	24	2	1.9 to 260	2.7 to 490	9.9	1
Toluene	µg/m³	24	3	2.5 to 340	3.2 to 2,800	4,000	0
Total hexanes	µg/m³	24	4	2.3 to 320	140 to 240	2,100	0
trans-1,2-Dichloroethene	µg/m³	24	6	2.6 to 7.6	150 to 9,600	730	4
trans-1,3-Dichloropropene	µg/m³	24	0	3 to 410	ND	4.8	0
Trichloroethene	µg/m³	24	15	0.14 to 3.6	0.19 to 23,000	0.17	15
Vinyl acetate	µg/m³	24	0	9.3 to 1,300	ND	2,100	0
Vinyl chloride	µg/m³	24	5	0.034 to 100	37 to 3,300	1.1	5
Xylenes, total	µg/m³	24	6	2.9 to 390	3.4 to 21,900	1,100	2

Notes:

(1) Does not include field duplicates or rejected data.

(2) See Table 16c (Soil Gas Screening Levels) for source of screening levels.

NA not applicable

ND not detected above the reporting limit

NDRI not detected in soil gas during the Remedial Investigation phase

µg/m³ micrograms per cubic meter

Units are presented as reported by the laboratory

TABLE 25b
Results Summary - Soil Gas Probes (May 2005)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/m³	18	7	3.9 to 5.1	1.2 to 1,700	23,000	0
1,1,2,2-Tetrachloroethane	µg/m³	18	0	0.2 to 10	ND	0.33	0
1,1,2-Trichloroethane	µg/m³	18	2	0.16 to 8.1	0.29	1.2	0
1,1-Dichloroethane	µg/m³	18	6	2.8 to 3.8	24 to 1,100	12	6
1,1-Dichloroethene	µg/m³	18	1	2.7 to 83	3.4	2,100	0
1,2,4-Trichlorobenzene	µg/m³	18	0	20 to 620	ND	37	0
1,2,4-Trimethylbenzene	µg/m³	18	1	3.3 to 100	290	62	1
1,2-Dibromoethane	µg/m³	18	1	0.22 to 11	0.043	0.034	1
1,2-Dichlorobenzene	µg/m³	18	0	4.1 to 130	ND	2,100	0
1,2-Dichloroethane	µg/m³	18	0	0.12 to 6	ND	0.74	0
1,2-Dichloropropane	µg/m³	18	0	0.13 to 6.8	ND	0.99	0
1,3,5-Trimethylbenzene	µg/m³	18	2	3.3 to 16	34 to 170	62	1
1,3-Butadiene	µg/m³	18	0	1.5 to 46	ND	0.11	0
1,3-Dichlorobenzene	µg/m³	18	0	4.1 to 130	ND	1,100	0
1,4-Dichlorobenzene	µg/m³	18	0	4.1 to 130	ND	3.1	0
1,4-Dioxane (p-dioxane)	µg/m³	18	0	9.8 to 300	ND	6.1	0
2,2,4-Trimethylpentane	µg/m³	18	1	3.2 to 98	1.7	2,100	0
2-Hexanone	µg/m³	18	0	11 to 340	ND	NDRI	NA
3-Chloropropene	µg/m³	18	0	8.5 to 260	ND	10	0
4-Ethyltoluene	µg/m³	18	1	3.3 to 100	76	1,100	0
Acetone	µg/m³	18	7	6.8 to 200	2 to 16	33,000	0
Benzene	µg/m³	18	0	2.2 to 67	ND	2.5	0
Benzyl chloride	µg/m³	18	0	3.5 to 110	ND	0.4	0
Bromodichloromethane	µg/m³	18	0	4.6 to 140	ND	1.1	0
Bromoform	µg/m³	18	0	7 to 220	ND	17	0
Bromomethane	µg/m³	18	1	2.6 to 82	2.7	52	0
Carbon disulfide	µg/m³	18	10	2.1 to 65	0.75 to 17	7,300	0
Carbon tetrachloride	µg/m³	18	8	0.2 to 9.3	0.058 to 0.22	1.3	0
Chlorobenzene	µg/m³	18	0	3.1 to 97	ND	620	0
Chloroethane	µg/m³	18	0	1.8 to 55	ND	23	0
Chloroform	µg/m³	18	8	3.3 to 100	2 to 15	0.83	8
Chloromethane	µg/m³	18	1	5.6 to 170	1.1	950	0
cis-1,2-Dichloroethene	µg/m³	18	4	2.7 to 3.7	140 to 14,000	370	2
cis-1,3-Dichloropropene	µg/m³	18	0	3.1 to 95	ND	4.8	0
Cyclohexane	µg/m³	18	2	2.3 to 47	18 to 53	62,000	0
Dibromochloromethane	µg/m³	18	0	5.8 to 180	ND	0.8	0
Ethanol	µg/m³	18	1	5.1 to 160	5.5	18,000	0
Ethylbenzene	µg/m³	18	2	3 to 14	49 to 150	11,000	0
Freon 11	µg/m³	18	13	4.4 to 120	1.8 to 9.1	7,300	0
Freon 12	µg/m³	18	14	16 to 100	1.9 to 3	2,100	0
Freon 113	µg/m³	18	2	5.2 to 160	5.9	310,000	0
Freon 114	µg/m³	18	0	4.8 to 150	ND	310,000	0
Hexachlorobutadiene	µg/m³	18	0	1.5 to 79	ND	0.86	0
Isopropanol	µg/m³	18	8	7.2 to 210	0.52 to 21	11,000	0
Isopropylbenzene (cumene)	µg/m³	18	1	3.3 to 100	82	4,000	0
Methyl ethyl ketone	µg/m³	18	3	2.1 to 62	2.2 to 2.7	51,000	0
Methyl isobutyl ketone	µg/m³	18	0	2.8 to 86	ND	31,000	0
Methyl tert-butyl ether	µg/m³	18	0	2.4 to 76	ND	74	0
Methylene chloride	µg/m³	18	0	2.4 to 73	ND	41	0
Naphthalene	µg/m³	18	0	3.6 to 88	ND	0.56	0

TABLE 25b

Results Summary - Soil Gas Probes (May 2005)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
n-Heptane	µg/m³	18	1	2.8 to 86	140	2,100	0
n-Propylbenzene	µg/m³	18	1	3.3 to 100	180	1,500	0
Styrene	µg/m³	18	0	2.9 to 89	ND	11,000	0
Tetrachloroethene	µg/m³	18	14	5 to 5.6	8.5 to 5,200	3.2	14
Tetrahydrofuran	µg/m³	18	11	2 to 62	0.94 to 1.8	9.9	0
Toluene	µg/m³	18	3	2.6 to 79	1.4 to 23	4,000	0
Total hexanes	µg/m³	18	3	2.4 to 74	1 to 17	2,100	0
trans-1,2-Dichloroethene	µg/m³	18	4	2.7 to 3.7	58 to 490	730	0
trans-1,3-Dichloropropene	µg/m³	18	0	3.1 to 95	ND	4.8	0
Trichloroethene	µg/m³	18	10	0.15 to 0.24	0.27 to 4,800	0.17	10
Vinyl chloride	µg/m³	18	2	0.037 to 1.9	34 to 40	1.1	2
Xylenes, total	µg/m³	18	1	3 to 91	150	1,100	0

Notes:

(1) Does not include field duplicates or rejected data.

(2) See Table 16c (Soil Gas Screening Levels) for source of screening levels.

NA not applicable

ND not detected above the reporting limit

NDRI not detected in soil gas during the Remedial Investigation phase

µg/m³ micrograms per cubic meter

Units are presented as reported by the laboratory

TABLE 25c

Results Summary - Soil Gas Probes (November 2006)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Number of Results (1)	Number of Detects	Range of Reporting Limits	Range of Detected Concentrations	Screening Level (2)	Number of Detects >Screening Level
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/m³	12	7	0.76 to 220	0.5 to 5,300	23,000	0
1,1,2,2-Tetrachloroethane	µg/m³	12	0	0.19 to 270	ND	0.33	0
1,1,2-Trichloroethane	µg/m³	12	0	0.15 to 220	ND	1.2	0
1,1-Dichloroethane	µg/m³	12	9	0.11	0.019 to 1,500	12	5
1,1-Dichloroethene	µg/m³	12	3	0.54 to 26	4.8 to 710	2,100	0
1,2,4-Trichlorobenzene	µg/m³	12	0	5 to 1,200	ND	37	0
1,2,4-Trimethylbenzene	µg/m³	12	0	0.67 to 200	ND	62	0
1,2-Dibromoethane	µg/m³	12	0	1 to 300	ND	0.034	0
1,2-Dichlorobenzene	µg/m³	12	0	0.82 to 240	ND	2,100	0
1,2-Dichloroethane	µg/m³	12	1	0.11 to 160	0.53	0.74	0
1,2-Dichloropropane	µg/m³	12	0	0.63 to 180	ND	0.99	0
1,3,5-Trimethylbenzene	µg/m³	12	1	0.67 to 200	0.57	62	0
1,3-Dichlorobenzene	µg/m³	12	0	0.82 to 240	ND	1,100	0
1,4-Dichlorobenzene	µg/m³	12	0	0.82 to 240	ND	3.1	0
1,4-Dioxane (p-dioxane)	µg/m³	12	1	0.49 to 570	0.31	6.1	0
Benzene	µg/m³	12	2	0.22 to 48	22 to 210	2.5	2
Bromomethane	µg/m³	12	1	0.53 to 150	0.89	52	0
Carbon tetrachloride	µg/m³	12	0	0.86 to 250	ND	1.3	0
Chlorobenzene	µg/m³	12	1	0.63 to 70	110	620	0
Chloroethane	µg/m³	12	2	0.36 to 40	120 to 180	23	2
Chloroform	µg/m³	12	6	0.66 to 190	3.2 to 36	0.83	6
Chloromethane	µg/m³	12	0	0.28 to 330	ND	950	0
cis-1,2-Dichloroethene	µg/m³	12	10	0.11 to 0.19	0.037 to 42,000	370	3
cis-1,3-Dichloropropene	µg/m³	12	0	0.62 to 180	ND	4.8	0
Ethylbenzene	µg/m³	12	5	0.12 to 170	0.027 to 0.66	11,000	0
Freon 11	µg/m³	12	7	1.4 to 220	2.3 to 23	7,300	0
Freon 12	µg/m³	12	7	1.2 to 200	0.5 to 1.9	2,100	0
Freon 113	µg/m³	12	2	1 to 300	4.9 to 41	310,000	0
Freon 134a	µg/m³	12	9	140 to 660	1.1 to 93	310,000	0
Hexachlorobutadiene	µg/m³	12	0	7.2 to 1,700	ND	0.86	0
Methyl tert-butyl ether	µg/m³	12	1	0.49 to 140	0.31	74	0
Methylene chloride	µg/m³	12	3	0.94 to 140	1.2 to 150	41	1
Naphthalene	µg/m³	12	1	3.6 to 830	0.86	0.56	1
Styrene	µg/m³	12	0	0.58 to 170	ND	11,000	0
Tetrachloroethene	µg/m³	12	12	NA	0.31 to 12,000	3.2	9
Toluene	µg/m³	12	6	0.52 to 150	0.15 to 2.5	4,000	0
trans-1,2-Dichloroethene	µg/m³	12	7	0.54 to 11	0.04 to 6,800	730	1
trans-1,3-Dichloropropene	µg/m³	12	0	0.62 to 180	ND	4.8	0
Trichloroethene	µg/m³	12	11	0.15	0.11 to 17,000	0.17	8
Vinyl chloride	µg/m³	12	2	0.035 to 38	20 to 2,800	1.1	2
Xylenes, total	µg/m³	12	2	0.59 to 170	1.08 to 4.74	1,100	0

Notes:

(1) Does not include field duplicates or rejected data.

(2) See Table 16c (Soil Gas Screening Levels) for source of screening levels.

NA not applicable

ND not detected above the reporting limit

NDRI not detected in soil gas during the Remedial Investigation phase

µg/m³ micrograms per cubic meter

Units are presented as reported by the laboratory

TABLE 26a

1428 3rd Street Analytical Results - Soil Gas (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		Sample Location	1428SG
		Sample Date	11/7/2006
Analyte	**Screening Level[1]**	**Units**	**Analytical Results**
Volatile Organic Compounds			
1,1,1-Trichloroethane	23,000	µg/m³	12
1,1,2,2-Tetrachloroethane	0.33	µg/m³	ND (0.22)
1,1,2-Trichloroethane	1.2	µg/m³	ND (0.18)
1,1-Dichloroethane	12	µg/m³	4.9
1,1-Dichloroethene	2,100	µg/m³	ND (0.64)
1,2,4-Trichlorobenzene	37	µg/m³	ND (6)
1,2,4-Trimethylbenzene	62	µg/m³	ND (0.79)
1,2-Dibromoethane	0.034	µg/m³	ND (1.2)
1,2-Dichlorobenzene	2,100	µg/m³	ND (0.97)
1,2-Dichloroethane	0.74	µg/m³	ND (0.13)
1,2-Dichloropropane	0.99	µg/m³	ND (0.74)
1,3,5-Trimethylbenzene	62	µg/m³	ND (0.79)
1,3-Dichlorobenzene	1,100	µg/m³	ND (0.97)
1,4-Dichlorobenzene	3.1	µg/m³	ND (0.97)
1,4-Dioxane (p-dioxane)	6.1	µg/m³	ND (0.58)
Benzene	2.5	µg/m³	0.46 J
Bromomethane	52	µg/m³	ND (0.62)
Carbon tetrachloride	1.3	µg/m³	ND (1)
Chlorobenzene	620	µg/m³	ND (0.74)
Chloroethane	23	µg/m³	ND (0.42)
Chloroform	0.83	µg/m³	**9**
Chloromethane	950	µg/m³	ND (0.33)
cis-1,2-Dichloroethene	370	µg/m³	4.4
cis-1,3-Dichloropropene	4.8	µg/m³	ND (0.73)
Ethylbenzene	11,000	µg/m³	ND (0.14)
Freon 11	7,300	µg/m³	3.3
Freon 12	2,100	µg/m³	1.5
Freon 113	310,000	µg/m³	ND (1.2)
Freon 134a	310,000	µg/m³	29
Hexachlorobutadiene	0.86	µg/m³	ND (8.6)
Methyl tert-butyl ether	74	µg/m³	ND (0.58)
Methylene chloride	41	µg/m³	ND (1.1)
Naphthalene	0.56	µg/m³	ND (4.2)
Styrene	11,000	µg/m³	ND (0.68)
Tetrachloroethene	3.2	µg/m³	**42**
Toluene	4,000	µg/m³	0.39 J
trans-1,2-Dichloroethene	730	µg/m³	3.1
trans-1,3-Dichloropropene	4.8	µg/m³	ND (0.73)
Trichloroethene	0.17	µg/m³	**98**
Vinyl chloride	1.1	µg/m³	ND (0.041)
Xylenes, total	1,100	µg/m³	ND (0.7)

Notes:
Results greater than the screening level are bolded.
[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16c (Soil Gas Screening Levels) for source of screening levels.
Units are presented as reported by the laboratory.

ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
µg/m³	micrograms per cubic meter

TABLE 26b

1432 3rd Street Analytical Results - Soil Gas (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		Sample Location	1432SGa	1432SGb
		Sample Date	11/7/2006	11/7/2006
Analyte	**Screening Level[1]**	**Units**	**Analytical Results**	
Volatile Organic Compounds				
1,1,1-Trichloroethane	23,000	µg/m³	0.26 J	0.49 J
1,1,2,2-Tetrachloroethane	0.33	µg/m³	ND (0.18)	ND (0.18)
1,1,2-Trichloroethane	1.2	µg/m³	ND (0.14)	ND (0.15)
1,1-Dichloroethane	12	µg/m³	ND (0.11)	ND (0.11)
1,1-Dichloroethene	2,100	µg/m³	ND (0.52)	ND (0.53)
1,2,4-Trichlorobenzene	37	µg/m³	ND (4.9)	ND (5)
1,2,4-Trimethylbenzene	62	µg/m³	ND (0.65)	ND (0.66)
1,2-Dibromoethane	0.034	µg/m³	ND (1)	ND (1)
1,2-Dichlorobenzene	2,100	µg/m³	ND (0.79)	ND (0.8)
1,2-Dichloroethane	0.74	µg/m³	ND (0.11)	ND (0.11)
1,2-Dichloropropane	0.99	µg/m³	ND (0.61)	ND (0.62)
1,3,5-Trimethylbenzene	62	µg/m³	ND (0.65)	ND (0.66)
1,3-Dichlorobenzene	1,100	µg/m³	ND (0.79)	ND (0.8)
1,4-Dichlorobenzene	3.1	µg/m³	ND (0.79)	ND (0.8)
1,4-Dioxane (p-dioxane)	6.1	µg/m³	ND (0.48)	ND (0.48)
Benzene	2.5	µg/m³	0.6 J	0.59 J
Bromomethane	52	µg/m³	ND (0.51)	ND (0.52) J
Carbon tetrachloride	1.3	µg/m³	ND (0.83)	ND (0.84)
Chlorobenzene	620	µg/m³	ND (0.61)	ND (0.62)
Chloroethane	23	µg/m³	ND (0.35)	ND (0.35)
Chloroform	0.83	µg/m³	**1.4**	**1.6**
Chloromethane	950	µg/m³	0.8	ND (0.28)
cis-1,2-Dichloroethene	370	µg/m³	ND (0.1)	ND (0.11)
cis-1,3-Dichloropropene	4.8	µg/m³	ND (0.6)	ND (0.61)
Ethylbenzene	11,000	µg/m³	0.27	0.12
Freon 11	7,300	µg/m³	3.6	3.6
Freon 12	2,100	µg/m³	2.2	2
Freon 113	310,000	µg/m³	ND (1)	0.88 J
Freon 134a	310,000	µg/m³	6.9	23
Hexachlorobutadiene	0.86	µg/m³	ND (7)	ND (7.1)
Methyl tert-butyl ether	74	µg/m³	ND (0.48)	ND (0.48)
Methylene chloride	41	µg/m³	ND (0.92)	ND (0.93)
Naphthalene	0.56	µg/m³	ND (3.4)	ND (3.5)
Styrene	11,000	µg/m³	ND (0.56)	ND (0.57)
Tetrachloroethene	3.2	µg/m³	2.9	**11**
Toluene	4,000	µg/m³	1.9	0.8
trans-1,2-Dichloroethene	730	µg/m³	ND (0.52)	ND (0.53)
trans-1,3-Dichloropropene	4.8	µg/m³	ND (0.6)	ND (0.61)
Trichloroethene	0.17	µg/m³	ND (0.14)	ND (0.14)
Vinyl chloride	1.1	µg/m³	0.014 J	ND (0.034)
Xylenes, total	1,100	µg/m³	1.16 J	0.3 J

Notes:

Results greater than the screening level are bolded.

[1]Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16c (Soil Gas Screening Levels) for source of screening levels.

Units are presented as reported by the laboratory.

ND not detected above the laboratory's reporting limit shown in parentheses

J estimated value

µg/m³ micrograms per cubic meter

TABLE 26c

1436 3rd Street Analytical Results - Soil Gas (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		Sample Location	1436SG
		Sample Date	11/7/2006
Analyte	**Screening Level[1]**	**Units**	**Analytical Results**
Volatile Organic Compounds			
1,1,1-Trichloroethane	23,000	µg/m³	ND (0.92)
1,1,2,2-Tetrachloroethane	0.33	µg/m³	ND (0.23)
1,1,2-Trichloroethane	1.2	µg/m³	ND (0.18)
1,1-Dichloroethane	12	µg/m³	ND (0.14)
1,1-Dichloroethene	2,100	µg/m³	ND (0.67)
1,2,4-Trichlorobenzene	37	µg/m³	ND (6.2)
1,2,4-Trimethylbenzene	62	µg/m³	ND (0.82)
1,2-Dibromoethane	0.034	µg/m³	ND (1.3)
1,2-Dichlorobenzene	2,100	µg/m³	ND (1)
1,2-Dichloroethane	0.74	µg/m³	ND (0.14)
1,2-Dichloropropane	0.99	µg/m³	ND (0.78)
1,3,5-Trimethylbenzene	62	µg/m³	ND (0.82)
1,3-Dichlorobenzene	1,100	µg/m³	ND (1)
1,4-Dichlorobenzene	3.1	µg/m³	ND (1)
1,4-Dioxane (p-dioxane)	6.1	µg/m³	ND (0.6)
Benzene	2.5	µg/m³	1.1 J
Bromomethane	52	µg/m³	ND (0.65) J
Carbon tetrachloride	1.3	µg/m³	ND (1)
Chlorobenzene	620	µg/m³	ND (0.77)
Chloroethane	23	µg/m³	ND (0.44)
Chloroform	0.83	µg/m³	**1.6**
Chloromethane	950	µg/m³	ND (0.35)
cis-1,2-Dichloroethene	370	µg/m³	ND (0.13)
cis-1,3-Dichloropropene	4.8	µg/m³	ND (0.76)
Ethylbenzene	11,000	µg/m³	0.17
Freon 11	7,300	µg/m³	3.5
Freon 12	2,100	µg/m³	3.2
Freon 113	310,000	µg/m³	ND (1.3)
Freon 134a	310,000	µg/m³	350 J
Hexachlorobutadiene	0.86	µg/m³	ND (9)
Methyl tert-butyl ether	74	µg/m³	ND (0.6)
Methylene chloride	41	µg/m³	ND (1.2)
Naphthalene	0.56	µg/m³	ND (4.4)
Styrene	11,000	µg/m³	ND (0.72)
Tetrachloroethene	3.2	µg/m³	1.4
Toluene	4,000	µg/m³	1.1
trans-1,2-Dichloroethene	730	µg/m³	ND (0.67)
trans-1,3-Dichloropropene	4.8	µg/m³	ND (0.76)
Trichloroethene	0.17	µg/m³	ND (0.18)
Vinyl chloride	1.1	µg/m³	ND (0.043)
Xylenes, total	1,100	µg/m³	0.22 J

Notes:
Results greater than the screening level are bolded.
[1]Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16c (Soil Gas Screening Levels) for source of screening levels.
Units are presented as reported by the laboratory.
ND not detected above the laboratory's reporting limit shown in parentheses
J estimated value
µg/m³ micrograms per cubic meter

TABLE 26d

356 Center Street Analytical Results - Soil Gas (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Screening Level[1]	Units	Analytical Results
		Sample Location	**356SG**
		Sample Date	**11/7/2006**
Volatile Organic Compounds			
1,1,1-Trichloroethane	23,000	µg/m³	ND (0.83)
1,1,2,2-Tetrachloroethane	0.33	µg/m³	ND (0.21)
1,1,2-Trichloroethane	1.2	µg/m³	ND (0.16)
1,1-Dichloroethane	12	µg/m³	0.018 J
1,1-Dichloroethene	2,100	µg/m³	ND (0.6)
1,2,4-Trichlorobenzene	37	µg/m³	ND (5.6)
1,2,4-Trimethylbenzene	62	µg/m³	ND (0.75)
1,2-Dibromoethane	0.034	µg/m³	ND (1.2)
1,2-Dichlorobenzene	2,100	µg/m³	ND (0.91)
1,2-Dichloroethane	0.74	µg/m³	ND (0.12)
1,2-Dichloropropane	0.99	µg/m³	ND (0.7)
1,3,5-Trimethylbenzene	62	µg/m³	ND (0.75)
1,3-Dichlorobenzene	1,100	µg/m³	ND (0.91)
1,4-Dichlorobenzene	3.1	µg/m³	ND (0.91)
1,4-Dioxane (p-dioxane)	6.1	µg/m³	ND (0.55)
Benzene	2.5	µg/m³	0.95
Bromomethane	52	µg/m³	ND (0.59)
Carbon tetrachloride	1.3	µg/m³	ND (0.96)
Chlorobenzene	620	µg/m³	ND (0.7)
Chloroethane	23	µg/m³	ND (0.4)
Chloroform	0.83	µg/m³	**1.2**
Chloromethane	950	µg/m³	ND (0.31)
cis-1,2-Dichloroethene	370	µg/m³	ND (0.12)
cis-1,3-Dichloropropene	4.8	µg/m³	ND (0.69)
Ethylbenzene	11,000	µg/m³	ND (0.13)
Freon 11	7,300	µg/m³	4.8
Freon 12	2,100	µg/m³	1.7
Freon 113	310,000	µg/m³	ND (1.2)
Freon 134a	310,000	µg/m³	7.5
Hexachlorobutadiene	0.86	µg/m³	ND (8.1)
Methyl tert-butyl ether	74	µg/m³	ND (0.55)
Methylene chloride	41	µg/m³	ND (1)
Naphthalene	0.56	µg/m³	ND (4)
Styrene	11,000	µg/m³	ND (0.65)
Tetrachloroethene	3.2	µg/m³	**3.3**
Toluene	4,000	µg/m³	0.8
trans-1,2-Dichloroethene	730	µg/m³	ND (0.6)
trans-1,3-Dichloropropene	4.8	µg/m³	ND (0.69)
Trichloroethene	0.17	µg/m³	ND (0.16)
Vinyl chloride	1.1	µg/m³	ND (0.039)
Xylenes, total	1,100	µg/m³	ND (0.66)

Notes:
Results greater than the screening level are bolded.
[1]Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16c (Soil Gas Screening Levels) for source of screening levels.
Units are presented as reported by the laboratory.
ND not detected above the laboratory's reporting limit shown in parentheses
J estimated value
µg/m³ micrograms per cubic meter

TABLE 26e

360 Center Street Analytical Results - Soil Gas (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Screening Level[1]	Units	360SGa 11/7/2006	360SGb 11/7/2006	360SGb (FD) 11/7/2006	360SGc 11/7/2006
Volatile Organic Compounds						
1,1,1-Trichloroethane	23,000	µg/m³	ND (1.8)	ND (0.74)	ND (0.86)	ND (0.72)
1,1,2,2-Tetrachloroethane	0.33	µg/m³	ND (0.46)	ND (0.19)	ND (0.22)	ND (0.18)
1,1,2-Trichloroethane	1.2	µg/m³	ND (0.37)	ND (0.15)	ND (0.17)	ND (0.14)
1,1-Dichloroethane	12	µg/m³	ND (0.27)	ND (0.11)	ND (0.13)	ND (0.11)
1,1-Dichloroethene	2,100	µg/m³	ND (1.3)	ND (0.54)	ND (0.63)	ND (0.52)
1,2,4-Trichlorobenzene	37	µg/m³	ND (12)	ND (5)	ND (5.9)	ND (4.9)
1,2,4-Trimethylbenzene	62	µg/m³	ND (1.7)	ND (0.67)	ND (0.78)	0.77
1,2-Dibromoethane	0.034	µg/m³	ND (2.6)	ND (1)	ND (1.2)	ND (1)
1,2-Dichlorobenzene	2,100	µg/m³	0.71 J	ND (0.82)	ND (0.95)	ND (0.79)
1,2-Dichloroethane	0.74	µg/m³	ND (0.27)	ND (0.11)	ND (0.13)	0.06 J
1,2-Dichloropropane	0.99	µg/m³	ND (1.6)	ND (0.63)	ND (0.73)	ND (0.61)
1,3,5-Trimethylbenzene	62	µg/m³	ND (1.7)	ND (0.67)	ND (0.78)	0.32 J
1,3-Dichlorobenzene	1,100	µg/m³	ND (2)	ND (0.82)	ND (0.95)	ND (0.79)
1,4-Dichlorobenzene	3.1	µg/m³	ND (2)	ND (0.82)	ND (0.95)	0.32 J
1,4-Dioxane (p-dioxane)	6.1	µg/m³	ND (1.2)	ND (0.49)	ND (0.57)	ND (0.48)
Benzene	2.5	µg/m³	1.9 J	0.56 J	0.61 J	1.5 J
Bromomethane	52	µg/m³	ND (1.3)	ND (0.53)	ND (0.61)	ND (0.51)
Carbon tetrachloride	1.3	µg/m³	ND (2.1)	ND (0.86)	ND (0.99)	0.27 J
Chlorobenzene	620	µg/m³	ND (1.6)	ND (0.63)	ND (0.73)	ND (0.61)
Chloroethane	23	µg/m³	ND (0.89)	ND (0.36)	ND (0.42)	ND (0.35)
Chloroform	0.83	µg/m³	**2**	**3.6**	**3.9**	ND (0.64)
Chloromethane	950	µg/m³	ND (0.7)	ND (0.28)	ND (0.33)	0.48
cis-1,2-Dichloroethene	370	µg/m³	ND (0.27)	ND (0.11)	ND (0.12)	ND (0.1)
cis-1,3-Dichloropropene	4.8	µg/m³	ND (1.5) J	ND (0.62) J	ND (0.72) J	ND (0.6) J
Ethylbenzene	11,000	µg/m³	0.43	ND (0.12)	ND (0.14)	1.1
Freon 11	7,300	µg/m³	4.3	3.1	3.2	2.5
Freon 12	2,100	µg/m³	3.2 J	1.4 J	1.5 J	2
Freon 113	310,000	µg/m³	ND (2.6)	ND (1)	ND (1.2)	ND (1)
Freon 134a	310,000	µg/m³	4,400 J	1,100 J	1,300 J	15 J
Hexachlorobutadiene	0.86	µg/m³	ND (18)	ND (7.2)	ND (8.4)	ND (7)
Methyl tert-butyl ether	74	µg/m³	ND (1.2)	ND (0.49)	ND (0.57)	ND (0.48)
Methylene chloride	41	µg/m³	ND (2.3)	ND (0.94)	ND (1.1)	ND (0.92)
Naphthalene	0.56	µg/m³	ND (8.8)	ND (3.6)	ND (4.1)	ND (3.4)
Styrene	11,000	µg/m³	ND (1.4)	0.77	ND (0.67)	ND (0.56)
Tetrachloroethene	3.2	µg/m³	1.3	1.7	1.7	0.84
Toluene	4,000	µg/m³	2.6	0.58	0.63	3.2
trans-1,2-Dichloroethene	730	µg/m³	ND (1.3)	ND (0.54)	ND (0.63)	0.09 J
trans-1,3-Dichloropropene	4.8	µg/m³	ND (1.5)	ND (0.62)	ND (0.72)	ND (0.6)
Trichloroethene	0.17	µg/m³	ND (0.36)	ND (0.15)	ND (0.17)	0.041 J
Vinyl chloride	1.1	µg/m³	ND (0.086)	ND (0.035)	ND (0.04)	ND (0.034)
Xylenes, total	1,100	µg/m³	0.95 J	ND (0.59)	ND (0.69)	2.69

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16c (Soil Gas Screening Levels) for source of screening levels.

Units are presented as reported by the laboratory.

FD field duplicate

ND not detected above the laboratory's reporting limit shown in parentheses

J estimated value

µg/m³ micrograms per cubic meter

TABLE 26f

Prescott Park Analytical Results - Soil Gas (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Screening Level[1]	Units	PP-E	PP-NW
		Sample Location	PP-E	PP-NW
		Sample Date	11/7/2006	11/7/2006
			Analytical Results	
Volatile Organic Compounds				
1,1,1-Trichloroethane	23,000	µg/m³	ND (1.9)	ND (0.54)
1,1,2,2-Tetrachloroethane	0.33	µg/m³	ND (0.48)	ND (0.14)
1,1,2-Trichloroethane	1.2	µg/m³	ND (0.38)	ND (0.11)
1,1-Dichloroethane	12	µg/m³	0.076 J	0.032 J
1,1-Dichloroethene	2,100	µg/m³	ND (1.4)	ND (0.4)
1,2,4-Trichlorobenzene	37	µg/m³	ND (13)	ND (3.7)
1,2,4-Trimethylbenzene	62	µg/m³	ND (1.7)	ND (0.49)
1,2-Dibromoethane	0.034	µg/m³	ND (2.7)	ND (0.77)
1,2-Dichlorobenzene	2,100	µg/m³	ND (2.1)	ND (0.6)
1,2-Dichloroethane	0.74	µg/m³	ND (0.28)	0.017 J
1,2-Dichloropropane	0.99	µg/m³	ND (1.6)	ND (0.46)
1,3,5-Trimethylbenzene	62	µg/m³	0.27 J	0.11 J
1,3-Dichlorobenzene	1,100	µg/m³	ND (2.1)	ND (0.6)
1,4-Dichlorobenzene	3.1	µg/m³	ND (2.1)	ND (0.6)
1,4-Dioxane (p-dioxane)	6.1	µg/m³	ND (1.3)	ND (0.36)
Benzene	2.5	µg/m³	1.4 J	1.7 J
Bromomethane	52	µg/m³	ND (1.4)	ND (0.39)
Carbon tetrachloride	1.3	µg/m³	ND (2.2)	ND (0.63)
Chlorobenzene	620	µg/m³	ND (1.6)	ND (0.46)
Chloroethane	23	µg/m³	ND (0.92)	ND (0.26)
Chloroform	0.83	µg/m³	**61**	ND (0.49)
Chloromethane	950	µg/m³	0.79	ND (0.21)
cis-1,2-Dichloroethene	370	µg/m³	ND (0.28)	ND (0.079)
cis-1,3-Dichloropropene	4.8	µg/m³	ND (1.6) J	ND (0.45) J
Ethylbenzene	11,000	µg/m³	0.58	0.31
Freon 11	7,300	µg/m³	4.4	ND (0.56)
Freon 12	2,100	µg/m³	2.2	ND (0.49)
Freon 113	310,000	µg/m³	ND (2.7)	ND (0.77)
Freon 134a	310,000	µg/m³	61 J	460 J
Hexachlorobutadiene	0.86	µg/m³	ND (19)	ND (5.3)
Methyl tert-butyl ether	74	µg/m³	ND (1.3)	ND (0.36)
Methylene chloride	41	µg/m³	5.8	ND (0.69)
Naphthalene	0.56	µg/m³	ND (9.2)	ND (2.6)
Styrene	11,000	µg/m³	ND (1.5)	0.14 J
Tetrachloroethene	3.2	µg/m³	**7.6**	ND (0.14)
Toluene	4,000	µg/m³	4.5	38
trans-1,2-Dichloroethene	730	µg/m³	ND (1.4)	ND (0.4)
trans-1,3-Dichloropropene	4.8	µg/m³	ND (1.6)	ND (0.45)
Trichloroethene	0.17	µg/m³	**0.42**	ND (0.11)
Vinyl chloride	1.1	µg/m³	ND (0.089)	ND (0.026)
Xylenes, total	1,100	µg/m³	2.88 J	0.58 J

Notes:
Results greater than the screening level are bolded.
[1]Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16c (Soil Gas Screening Levels) for source of screening levels.
Units are presented as reported by the laboratory.
ND not detected above the laboratory's reporting limit shown in parentheses
J estimated value
µg/m³ micrograms per cubic meter

TABLE 27a
1414 3rd Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	West Oakland Background Air Results [2]	Neighborhood Background Air Results [3] 322BA AM 11/7/2006	Neighborhood Background Air Results [3] 322BA PM 11/7/2006	1414 3rd St 1414CAa 11/7/2006	1414 3rd St 1414CAa (FD) 11/7/2006	1414 3rd St 1414CAb 11/7/2006
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/m³	2,300	ND (0.27)	0.095 J	0.068 J	16	17	0.62
1,1,2,2-Tetrachloroethane	µg/m³	0.033	NE	ND (0.23)	ND (0.26)	ND (0.74)	ND (1.1)	ND (0.22)
1,1,2-Trichloroethane	µg/m³	0.12	NE	ND (0.093)	ND (0.1)	ND (0.29)	ND (0.43)	ND (0.088)
1,1-Dichloroethane	µg/m³	1.2	NE	ND (0.14)	ND (0.15)	**28**	**28**	1.1
1,1-Dichloroethene	µg/m³	210	NE	ND (0.068)	ND (0.074)	0.96	0.96	ND (0.064)
1,2,4-Trichlorobenzene	µg/m³	3.7	NE	ND (1.3)	ND (1.4)	ND (4)	ND (5.9)	ND (1.2)
1,2,4-Trimethylbenzene	µg/m³	6.2	NE	1.1	0.7	0.9	0.97	0.67
1,2-Dibromoethane	µg/m³	0.0034	NE	ND (0.26)	ND (0.29)	ND (0.82)	ND (1.2)	ND (0.25)
1,2-Dichlorobenzene	µg/m³	210	NE	ND (0.2)	ND (0.22)	ND (0.64)	ND (0.95)	ND (0.19)
1,2-Dichloroethane	µg/m³	0.074	ND (0.40)	ND (0.14)	ND (0.15)	ND (0.43)	ND (0.64)	ND (0.13)
1,2-Dichloropropane	µg/m³	0.099	NE	ND (0.079)	ND (0.086)	ND (0.25)	ND (0.36)	ND (0.074)
1,3,5-Trimethylbenzene	µg/m³	6.2	NE	0.3	0.2	0.27 J	0.32 J	0.21
1,3-Dichlorobenzene	µg/m³	110	NE	ND (0.2)	ND (0.22)	ND (0.64)	ND (0.95)	ND (0.19)
1,4-Dichlorobenzene	µg/m³	0.31	NE	0.19 J	0.1 J	ND (0.64)	ND (0.95)	ND (0.19)
1,4-Dioxane (p-dioxane)	µg/m³	0.61	NE	0.46 J	ND (0.67)	ND (1.9)	**1.3 J**	ND (0.58)
Benzene	µg/m³	0.25	**0.96**	**0.97**	**0.69**	**0.95**	**0.99 J**	**0.55**
Bromomethane	µg/m³	5.2	NE	0.12 J	ND (0.36)	ND (1)	ND (1.5)	ND (0.31)
Carbon tetrachloride	µg/m³	0.13	**0.69**	**0.48**	**0.45**	**0.44**	**0.47 J**	**0.38**
Chlorobenzene	µg/m³	62	NE	ND (0.16)	ND (0.17)	ND (0.49)	ND (0.73)	ND (0.15)
Chloroethane	µg/m³	2.3	NE	0.035 J	ND (0.25)	0.2 J	0.3 J	0.074 J
Chloroform	µg/m³	0.083	ND (0.10)	**0.1 J**	**0.091 J**	**0.6**	**0.66 J**	**0.22**
Chloromethane	µg/m³	95	NE	1.1	1.1	22	22	46
cis-1,2-Dichloroethene	µg/m³	37	NE	ND (0.14)	ND (0.15)	**380**	**400**	7.7
cis-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.49)	ND (0.72)	ND (0.15)
Ethylbenzene	µg/m³	1,100	NE	0.88	0.58	0.93	1.2	0.5
Freon 11	µg/m³	730	NE	2.7	1.4	4.6	4.8	4.3
Freon 12	µg/m³	210	NE	2.3 J	2 J	2.8 J	2.9	1.6
Freon 113	µg/m³	31,000	NE	0.52	0.55	ND (0.82)	0.7 J	0.45
Hexachlorobutadiene	µg/m³	0.086	NE	ND (1.8)	ND (2)	ND (5.7)	ND (8.4)	ND (1.7)
Methyl tert-butyl ether	µg/m³	7.4	ND (1.8)	ND (0.62)	ND (0.67)	ND (1.9)	ND (2.8)	ND (0.58)

TABLE 27a
1414 3rd Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		1414 3rd St		
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	322BA AM 11/7/2006	322BA PM 11/7/2006	1414CAa 11/7/2006	1414CAa (FD) 11/7/2006	1414CAb 11/7/2006
Volatile Organic Compounds								
Methylene chloride	µg/m³	4.1	ND (1.74)	ND (1.2)	ND (1.3)	ND (3.7)	ND (5.5)	ND (1.1)
Naphthalene	µg/m³	0.056	NE	ND (4.5)	ND (4.9)	ND (4.2)	**0.41 J**	**0.53 J**
Styrene	µg/m³	1,100	NE	0.46	0.15 J	0.2 J	0.33 J	0.13 J
Tetrachloroethene	µg/m³	0.32	ND (0.47)	**0.42**	0.31	**19**	**18**	**3**
Toluene	µg/m³	400	ND (3.0)	5.1	2.7	9.5	9.3	4.7
trans-1,2-Dichloroethene	µg/m³	73	NE	ND (0.68)	ND (0.74)	0.49 J	ND (3.1)	ND (0.64)
trans-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.49)	ND (0.72)	ND (0.15)
Trichloroethene	µg/m³	0.017	ND (0.43)	**0.22**	**0.069**	**25**	**26**	**3.1**
Vinyl chloride	µg/m³	0.11	ND (0.77)	ND (0.044)	ND (0.048)	**1.3**	**1.8**	**7.6**
Xylenes, total	µg/m³	110	NE	3.8	2.16	4.4	4.5	2.33

Notes:
Results greater than the screening level are bolded.
[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16d (Ambient and Crawlspace Air Screening Levels) for source of screening levels.
[2] West Oakland background results are from the Oakland-Filbert Street ambient air sampling station monitored by the Bay Area Air Quality Management District, located at 2419 Filbert Street (approximately one mile northeast, or crosswind, of the AMCO site); the result is from December 2002.
[3] Neighborhood background results are from samples collected at 322 Lewis Street (upwind of the AMCO site) in the morning and afternoon of the same day.
Units are presented as reported by the laboratory.

FD	field duplicate
ND	not detected above the laboratory's reporting limit shown in parentheses
NE	not established
J	estimated value
µg/m³	micrograms per cubic meter

TABLE 27b
1428 3rd Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		1428 3rd St		
				322BA AM	322BA PM	1428AA	1428CAa	1428CAc
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	11/7/2006	11/7/2006	11/7/2006	11/7/2006	11/7/2006
Volatile Organic Compounds								
1,1,1-Trichloroethane	µg/m³	2,300	ND (0.27)	0.095 J	0.068 J	0.075 J	0.12 J	0.14 J
1,1,2,2-Tetrachloroethane	µg/m³	0.033	NE	ND (0.23)	ND (0.26)	ND (0.22)	ND (0.22)	ND (0.2)
1,1,2-Trichloroethane	µg/m³	0.12	NE	ND (0.093)	ND (0.1)	ND (0.088)	ND (0.088)	ND (0.081)
1,1-Dichloroethane	µg/m³	1.2	NE	ND (0.14)	ND (0.15)	ND (0.13)	0.026 J	ND (0.12)
1,1-Dichloroethene	µg/m³	210	NE	ND (0.068)	ND (0.074)	ND (0.064)	ND (0.064)	ND (0.059)
1,2,4-Trichlorobenzene	µg/m³	3.7	NE	ND (1.3)	ND (1.4)	ND (1.2)	ND (1.2)	ND (1.1)
1,2,4-Trimethylbenzene	µg/m³	6.2	NE	1.1	0.7	0.9	0.5	0.57
1,2-Dibromoethane	µg/m³	0.0034	NE	ND (0.26)	ND (0.29)	ND (0.25)	ND (0.25)	ND (0.23)
1,2-Dichlorobenzene	µg/m³	210	NE	ND (0.2)	ND (0.22)	ND (0.19)	ND (0.19)	ND (0.18)
1,2-Dichloroethane	µg/m³	0.074	ND (0.40)	ND (0.14)	ND (0.15)	ND (0.13)	ND (0.13)	ND (0.12)
1,2-Dichloropropane	µg/m³	0.099	NE	ND (0.079)	ND (0.086)	ND (0.074)	ND (0.074)	ND (0.069)
1,3,5-Trimethylbenzene	µg/m³	6.2	NE	0.3	0.2	0.24	0.13 J	0.14 J
1,3-Dichlorobenzene	µg/m³	110	NE	ND (0.2)	ND (0.22)	ND (0.19)	ND (0.19)	ND (0.18)
1,4-Dichlorobenzene	µg/m³	0.31	NE	0.19 J	0.1 J	ND (0.19)	0.31	**0.38**
1,4-Dioxane (p-dioxane)	µg/m³	0.61	NE	0.46 J	ND (0.67)	ND (0.58)	ND (0.58)	ND (0.54)
Benzene	µg/m³	0.25	**0.96**	**0.97**	**0.69**	**0.85**	**0.49**	**0.51**
Bromomethane	µg/m³	5.2	NE	0.12 J	ND (0.36)	ND (0.31)	ND (0.31)	0.19 J
Carbon tetrachloride	µg/m³	0.13	**0.69**	**0.48**	**0.45**	**0.46**	**0.46**	**0.44**
Chlorobenzene	µg/m³	62	NE	ND (0.16)	ND (0.17)	ND (0.15)	0.047 J	ND (0.14)
Chloroethane	µg/m³	2.3	NE	0.035 J	ND (0.25)	ND (0.21)	ND (0.21) J	0.026 J
Chloroform	µg/m³	0.083	ND (0.10)	**0.1 J**	**0.091 J**	**0.14 J**	**0.23**	**0.21**
Chloromethane	µg/m³	95	NE	1.1	1.1	0.99	12	19
cis-1,2-Dichloroethene	µg/m³	37	NE	ND (0.14)	ND (0.15)	ND (0.13)	ND (0.13)	ND (0.12)
cis-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.15)	ND (0.14)
Ethylbenzene	µg/m³	1,100	NE	0.88	0.58	0.72	0.41	0.39
Freon 11	µg/m³	730	NE	2.7	1.4	1.5	2.1	4.7
Freon 12	µg/m³	210	NE	2.3 J	2 J	2	1.7	2.3
Freon 113	µg/m³	31,000	NE	0.52	0.55	0.55	0.6	0.59
Hexachlorobutadiene	µg/m³	0.086	NE	ND (1.8)	ND (2)	ND (1.7)	ND (1.7)	ND (1.6)
Methyl tert-butyl ether	µg/m³	7.4	ND (1.8)	ND (0.62)	ND (0.67)	ND (0.58)	ND (0.58)	ND (0.54)

TABLE 27b
1428 3rd Street Analytical Results - Air (November 2006)
Remedial Investigation Report
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				Neighborhood Background Air Results[3]		1428 3rd St		
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	322BA AM 11/7/2006	322BA PM 11/7/2006	1428AA 11/7/2006	1428CAa 11/7/2006	1428CAc 11/7/2006
Volatile Organic Compounds								
Methylene chloride	µg/m³	4.1	ND (1.74)	ND (1.2)	ND (1.3)	ND (1.1)	2	2.5
Naphthalene	µg/m³	0.056	NE	ND (4.5)	ND (4.9)	ND (4.2)	**0.58 J**	ND (3.9)
Styrene	µg/m³	1,100	NE	0.46	0.15 J	0.15	0.14	0.11 J
Tetrachloroethene	µg/m³	0.32	ND (0.47)	**0.42**	0.31	0.32	**0.58**	**4.8**
Toluene	µg/m³	400	ND (3.0)	5.1	2.7	3.7	2.2	2.7
trans-1,2-Dichloroethene	µg/m³	73	NE	ND (0.68)	ND (0.74)	ND (0.64)	ND (0.64)	ND (0.59)
trans-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.15)	ND (0.14)
Trichloroethene	µg/m³	0.017	ND (0.43)	**0.22**	**0.069**	**0.09**	**0.21**	**0.23**
Vinyl chloride	µg/m³	0.11	ND (0.77)	ND (0.044)	ND (0.048)	ND (0.041)	**1.5**	**10**
Xylenes, total	µg/m³	110	NE	3.8	2.16	3.1	1.76	1.93

Notes:
1428CAb was not sampled because it was no longer accessible.
Results greater than the screening level are bolded.
[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16d (Ambient and Crawlspace Air Screening Levels) for source of screening levels.
[2] West Oakland background results are from the Oakland-Filbert Street ambient air sampling station monitored by the Bay Area Air Quality Management District, located at 2419 Filbert Street (approximately one mile northeast, or crosswind, of the AMCO site); the result is from December 2002.
Units are presented as reported by the laboratory.
[3] Neighborhood background results are from samples collected at 322 Lewis Street (upwind of the AMCO site) in the morning and afternoon of the same day.

FD	field duplicate
ND	not detected above the laboratory's reporting limit shown in parentheses
NE	not established
J	estimated value
µg/m³	micrograms per cubic meter

TABLE 27c
1432 3rd Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results [3]		1432 3rd St	
				322BA AM	322BA PM	1432AA	1432CA
Analyte	**Units**	**Screening Level** [1]	**West Oakland Background Air Results** [2]	**11/7/2006**	**11/7/2006**	**11/7/2006**	**11/7/2006**
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/m³	2,300	ND (0.27)	0.095 J	0.068 J	0.076 J	0.11 J
1,1,2,2-Tetrachloroethane	µg/m³	0.033	NE	ND (0.23)	ND (0.26)	ND (0.24)	ND (0.23)
1,1,2-Trichloroethane	µg/m³	0.12	NE	ND (0.093)	ND (0.1)	ND (0.098)	ND (0.092)
1,1-Dichloroethane	µg/m³	1.2	NE	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)
1,1-Dichloroethene	µg/m³	210	NE	ND (0.068)	ND (0.074)	ND (0.071)	ND (0.067)
1,2,4-Trichlorobenzene	µg/m³	3.7	NE	ND (1.3)	ND (1.4)	ND (1.3)	ND (1.2)
1,2,4-Trimethylbenzene	µg/m³	6.2	NE	1.1	0.7	0.74	0.092 J
1,2-Dibromoethane	µg/m³	0.0034	NE	ND (0.26)	ND (0.29)	ND (0.28)	ND (0.26)
1,2-Dichlorobenzene	µg/m³	210	NE	ND (0.2)	ND (0.22)	ND (0.22)	ND (0.2)
1,2-Dichloroethane	µg/m³	0.074	ND (0.40)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)
1,2-Dichloropropane	µg/m³	0.099	NE	ND (0.079)	ND (0.086)	ND (0.083)	ND (0.078)
1,3,5-Trimethylbenzene	µg/m³	6.2	NE	0.3	0.2	0.18	ND (0.16)
1,3-Dichlorobenzene	µg/m³	110	NE	ND (0.2)	ND (0.22)	ND (0.22)	ND (0.2)
1,4-Dichlorobenzene	µg/m³	0.31	NE	0.19 J	0.1 J	ND (0.22)	ND (0.2)
1,4-Dioxane (p-dioxane)	µg/m³	0.61	NE	0.46 J	ND (0.67)	ND (0.64)	ND (0.6)
Benzene	µg/m³	0.25	**0.96**	**0.97**	**0.69**	**0.81**	0.19 J
Bromomethane	µg/m³	5.2	NE	0.12 J	ND (0.36)	ND (0.35)	0.3 J
Carbon tetrachloride	µg/m³	0.13	**0.69**	**0.48**	**0.45**	**0.45**	**0.48**
Chlorobenzene	µg/m³	62	NE	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.15)
Chloroethane	µg/m³	2.3	NE	0.035 J	ND (0.25)	ND (0.24)	ND (0.22)
Chloroform	µg/m³	0.083	ND (0.10)	**0.1 J**	**0.091 J**	**0.15 J**	**0.33**
Chloromethane	µg/m³	95	NE	1.1	1.1	0.98	7.2
cis-1,2-Dichloroethene	µg/m³	37	NE	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.13)
cis-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.15)
Ethylbenzene	µg/m³	1,100	NE	0.88	0.58	0.6	0.083 J
Freon 11	µg/m³	730	NE	2.7	1.4	1.4	1.9
Freon 12	µg/m³	210	NE	2.3 J	2 J	1.5	1.6
Freon 113	µg/m³	31,000	NE	0.52	0.55	0.52	0.58
Hexachlorobutadiene	µg/m³	0.086	NE	ND (1.8)	ND (2)	ND (1.9)	ND (1.8)
Methyl tert-butyl ether	µg/m³	7.4	ND (1.8)	ND (0.62)	ND (0.67)	ND (0.64)	ND (0.6)

TABLE 27c
1432 3rd Street Analytical Results - Air (November 2006)
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AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		1432 3rd St	
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	322BA AM 11/7/2006	322BA PM 11/7/2006	1432AA 11/7/2006	1432CA 11/7/2006
Volatile Organic Compounds							
Methylene chloride	µg/m³	4.1	ND (1.74)	ND (1.2)	ND (1.3)	ND (1.2)	ND (1.2)
Naphthalene	µg/m³	0.056	NE	ND (4.5)	ND (4.9)	**0.46 J**	ND (4.4)
Styrene	µg/m³	1,100	NE	0.46	0.15 J	0.14 J	ND (0.14)
Tetrachloroethene	µg/m³	0.32	ND (0.47)	**0.42**	0.31	0.3	**0.37**
Toluene	µg/m³	400	ND (3.0)	5.1	2.7	3.5	0.36
trans-1,2-Dichloroethene	µg/m³	73	NE	ND (0.68)	ND (0.74)	ND (0.71)	ND (0.67)
trans-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.15)
Trichloroethene	µg/m³	0.017	ND (0.43)	**0.22**	**0.069**	**0.079**	**0.14**
Vinyl chloride	µg/m³	0.11	ND (0.77)	ND (0.044)	ND (0.048)	ND (0.046)	**2.8**
Xylenes, total	µg/m³	110	NE	3.8	2.16	2.59	0.277 J

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16d (Ambient and Crawlspace Air Screening Levels) for source of screening levels.

[2] West Oakland background results are from the Oakland-Filbert Street ambient air sampling station monitored by the Bay Area Air Quality Management District, located at 2419 Filbert Street (approximately one mile northeast, or crosswind, of the AMCO site); the result is from December 2002.

[3] Neighborhood background results are from samples collected at 322 Lewis Street (upwind of the AMCO site) in the morning and afternoon of the same day.

Units are presented as reported by the laboratory.

FD field duplicate
ND not detected above the laboratory's reporting limit shown in parentheses
NE not established
J estimated value
µg/m³ micrograms per cubic meter

TABLE 27d
1436 3rd Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		1436 3rd St	
				322BA AM	322BA PM	1436AA	1436AA (FD)
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	11/7/2006	11/7/2006	11/7/2006	11/7/2006
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/m³	2,300	ND (0.27)	0.095 J	0.068 J	0.078 J	0.084 J
1,1,2,2-Tetrachloroethane	µg/m³	0.033	NE	ND (0.23)	ND (0.26)	ND (0.23)	ND (0.19)
1,1,2-Trichloroethane	µg/m³	0.12	NE	ND (0.093)	ND (0.1)	ND (0.093)	ND (0.076)
1,1-Dichloroethane	µg/m³	1.2	NE	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.11)
1,1-Dichloroethene	µg/m³	210	NE	ND (0.068)	ND (0.074)	ND (0.068)	ND (0.055)
1,2,4-Trichlorobenzene	µg/m³	3.7	NE	ND (1.3)	ND (1.4)	ND (1.3)	ND (1)
1,2,4-Trimethylbenzene	µg/m³	6.2	NE	1.1	0.7	1.1	1.3
1,2-Dibromoethane	µg/m³	0.0034	NE	ND (0.26)	ND (0.29)	ND (0.26)	ND (0.21)
1,2-Dichlorobenzene	µg/m³	210	NE	ND (0.2)	ND (0.22)	ND (0.2)	ND (0.17)
1,2-Dichloroethane	µg/m³	0.074	ND (0.40)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.11)
1,2-Dichloropropane	µg/m³	0.099	NE	ND (0.079)	ND (0.086)	ND (0.079)	ND (0.064)
1,3,5-Trimethylbenzene	µg/m³	6.2	NE	0.3	0.2	0.31	0.36
1,3-Dichlorobenzene	µg/m³	110	NE	ND (0.2)	ND (0.22)	ND (0.2)	ND (0.17)
1,4-Dichlorobenzene	µg/m³	0.31	NE	0.19 J	0.1 J	0.23	0.16 J
1,4-Dioxane (p-dioxane)	µg/m³	0.61	NE	0.46 J	ND (0.67)	ND (0.62)	ND (0.5)
Benzene	µg/m³	0.25	**0.96**	**0.97**	**0.69**	**1.2**	**1.2**
Bromomethane	µg/m³	5.2	NE	0.12 J	ND (0.36)	0.11 J	0.33
Carbon tetrachloride	µg/m³	0.13	**0.69**	**0.48**	**0.45**	**0.48**	**0.47**
Chlorobenzene	µg/m³	62	NE	ND (0.16)	ND (0.17)	0.045 J	0.048 J
Chloroethane	µg/m³	2.3	NE	0.035 J	ND (0.25)	0.036 J	0.07 J
Chloroform	µg/m³	0.083	ND (0.10)	**0.1 J**	**0.091 J**	**0.12 J**	**0.14**
Chloromethane	µg/m³	95	NE	1.1	1.1	8 J	1.5 J
cis-1,2-Dichloroethene	µg/m³	37	NE	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.11)
cis-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.13)
Ethylbenzene	µg/m³	1,100	NE	0.88	0.58	1.6	1.7
Freon 11	µg/m³	730	NE	2.7	1.4	1.6	1.6
Freon 12	µg/m³	210	NE	2.3 J	2 J	1.8 J	2.3 J
Freon 113	µg/m³	31,000	NE	0.52	0.55	0.55	0.58
Hexachlorobutadiene	µg/m³	0.086	NE	ND (1.8)	ND (2)	ND (1.8)	ND (1.5)
Methyl tert-butyl ether	µg/m³	7.4	ND (1.8)	ND (0.62)	ND (0.67)	ND (0.62)	ND (0.5)

TABLE 27d

1436 3rd Street Analytical Results - Air (November 2006)

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		1436 3rd St	
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	322BA AM 11/7/2006	322BA PM 11/7/2006	1436AA 11/7/2006	1436AA (FD) 11/7/2006
Volatile Organic Compounds							
Methylene chloride	µg/m³	4.1	ND (1.74)	ND (1.2)	ND (1.3)	1.3 J	**4.5 J**
Naphthalene	µg/m³	0.056	NE	ND (4.5)	ND (4.9)	ND (4.5)	ND (3.6)
Styrene	µg/m³	1,100	NE	0.46	0.15 J	0.33	0.34
Tetrachloroethene	µg/m³	0.32	ND (0.47)	**0.42**	0.31	0.31	0.3
Toluene	µg/m³	400	ND (3.0)	5.1	2.7	13	13
trans-1,2-Dichloroethene	µg/m³	73	NE	ND (0.68)	ND (0.74)	ND (0.68)	ND (0.55)
trans-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.13)
Trichloroethene	µg/m³	0.017	ND (0.43)	**0.22**	**0.069**	**0.14**	**0.17**
Vinyl chloride	µg/m³	0.11	ND (0.77)	ND (0.044)	ND (0.048)	**0.7 J**	ND (0.036) J
Xylenes, total	µg/m³	110	NE	3.8	2.16	6.7	7.5

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16d (Ambient and Crawlspace Air Screening Levels) for source of screening levels.

[2] West Oakland background results are from the Oakland-Filbert Street ambient air sampling station monitored by the Bay Area Air Quality Management District, located at 2419 Filbert Street (approximately one mile northeast, or crosswind, of the AMCO site); the result is from December 2002.

[3] Neighborhood background results are from samples collected at 322 Lewis Street (upwind of the AMCO site) in the morning and afternoon of the same day.

Units are presented as reported by the laboratory.

FD field duplicate

ND not detected above the laboratory's reporting limit shown in parentheses

NE not established

J estimated value

µg/m³ micrograms per cubic meter

TABLE 27e
360 Center Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		360 Center St
Analyte	Units	Screening Level[1]	West Oakland Background Air Results[2]	322BA AM 11/7/2006	322BA PM 11/7/2006	360AA 11/7/2006
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/m³	2,300	ND (0.27)	0.095 J	0.068 J	0.088 J
1,1,2,2-Tetrachloroethane	µg/m³	0.033	NE	ND (0.23)	ND (0.26)	ND (0.23)
1,1,2-Trichloroethane	µg/m³	0.12	NE	ND (0.093)	ND (0.1)	ND (0.093)
1,1-Dichloroethane	µg/m³	1.2	NE	ND (0.14)	ND (0.15)	ND (0.14)
1,1-Dichloroethene	µg/m³	210	NE	ND (0.068)	ND (0.074)	ND (0.068)
1,2,4-Trichlorobenzene	µg/m³	3.7	NE	ND (1.3)	ND (1.4)	ND (1.3)
1,2,4-Trimethylbenzene	µg/m³	6.2	NE	1.1	0.7	2.2
1,2-Dibromoethane	µg/m³	0.0034	NE	ND (0.26)	ND (0.29)	ND (0.26)
1,2-Dichlorobenzene	µg/m³	210	NE	ND (0.2)	ND (0.22)	ND (0.2)
1,2-Dichloroethane	µg/m³	0.074	ND (0.40)	ND (0.14)	ND (0.15)	ND (0.14)
1,2-Dichloropropane	µg/m³	0.099	NE	ND (0.079)	ND (0.086)	ND (0.079)
1,3,5-Trimethylbenzene	µg/m³	6.2	NE	0.3	0.2	0.73
1,3-Dichlorobenzene	µg/m³	110	NE	ND (0.2)	ND (0.22)	ND (0.2)
1,4-Dichlorobenzene	µg/m³	0.31	NE	0.19 J	0.1 J	0.16 J
1,4-Dioxane (p-dioxane)	µg/m³	0.61	NE	0.46 J	ND (0.67)	ND (0.62)
Benzene	µg/m³	0.25	**0.96**	**0.97**	**0.69**	**1.2**
Bromomethane	µg/m³	5.2	NE	0.12 J	ND (0.36)	ND (0.33)
Carbon tetrachloride	µg/m³	0.13	**0.69**	**0.48**	**0.45**	**0.46**
Chlorobenzene	µg/m³	62	NE	ND (0.16)	ND (0.17)	0.052 J
Chloroethane	µg/m³	2.3	NE	0.035 J	ND (0.25)	0.031 J
Chloroform	µg/m³	0.083	ND (0.10)	**0.1 J**	**0.091 J**	**0.16 J**
Chloromethane	µg/m³	95	NE	1.1	1.1	1.1
cis-1,2-Dichloroethene	µg/m³	37	NE	ND (0.14)	ND (0.15)	ND (0.14)
cis-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.16)
Ethylbenzene	µg/m³	1,100	NE	0.88	0.58	3.5
Freon 11	µg/m³	730	NE	2.7	1.4	1.5
Freon 12	µg/m³	210	NE	2.3 J	2 J	1.7 J
Freon 113	µg/m³	31,000	NE	0.52	0.55	0.58
Hexachlorobutadiene	µg/m³	0.086	NE	ND (1.8)	ND (2)	ND (1.8)
Methyl tert-butyl ether	µg/m³	7.4	ND (1.8)	ND (0.62)	ND (0.67)	ND (0.62)

TABLE 27e
360 Center Street Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		360 Center St
Analyte	**Units**	**Screening Level**[1]	**West Oakland Background Air Results**[2]	**322BA AM 11/7/2006**	**322BA PM 11/7/2006**	**360AA 11/7/2006**
Volatile Organic Compounds						
Methylene chloride	µg/m³	4.1	ND (1.74)	ND (1.2)	ND (1.3)	2.2
Naphthalene	µg/m³	0.056	NE	ND (4.5)	ND (4.9)	ND (4.5)
Styrene	µg/m³	1,100	NE	0.46	0.15 J	0.55
Tetrachloroethene	µg/m³	0.32	ND (0.47)	**0.42**	0.31	**0.4**
Toluene	µg/m³	400	ND (3.0)	5.1	2.7	34
trans-1,2-Dichloroethene	µg/m³	73	NE	ND (0.68)	ND (0.74)	ND (0.68)
trans-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.16)
Trichloroethene	µg/m³	0.017	ND (0.43)	**0.22**	**0.069**	**0.23**
Vinyl chloride	µg/m³	0.11	ND (0.77)	ND (0.044)	ND (0.048)	ND (0.044)
Xylenes, total	µg/m³	110	NE	3.8	2.16	15.4

Notes:
Results greater than the screening level are bolded.
[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16d (Ambient and Crawlspace Air Screening Levels) for source of screening levels.
[2] West Oakland background results are from the Oakland-Filbert Street ambient air sampling station monitored by the Bay Area Air Quality Management District, located at 2419 Filbert Street (approximately one mile northeast, or crosswind, of the AMCO site); the result is from December 2002.
[3] Neighborhood background results are from samples collected at 322 Lewis Street (upwind of the AMCO site) in the morning and afternoon of the same day.
Units are presented as reported by the laboratory.

FD	field duplicate
ND	not detected above the laboratory's reporting limit shown in parentheses
NE	not established
J	estimated value
µg/m³	micrograms per cubic meter

TABLE 27f
Prescott Park Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Units	Screening Level [1]	West Oakland Background Air Results [2]	Neighborhood Background Air Results [3] 322BA AM 11/7/2006	Neighborhood Background Air Results [3] 322BA PM 11/7/2006	Prescott Park PP-AA 11/7/2006
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/m³	2,300	ND (0.27)	0.095 J	0.068 J	0.08 J
1,1,2,2-Tetrachloroethane	µg/m³	0.033	NE	ND (0.23)	ND (0.26)	ND (0.21)
1,1,2-Trichloroethane	µg/m³	0.12	NE	ND (0.093)	ND (0.1)	ND (0.084)
1,1-Dichloroethane	µg/m³	1.2	NE	ND (0.14)	ND (0.15)	ND (0.12)
1,1-Dichloroethene	µg/m³	210	NE	ND (0.068)	ND (0.074)	ND (0.061)
1,2,4-Trichlorobenzene	µg/m³	3.7	NE	ND (1.3)	ND (1.4)	ND (1.2)
1,2,4-Trimethylbenzene	µg/m³	6.2	NE	1.1	0.7	0.86
1,2-Dibromoethane	µg/m³	0.0034	NE	ND (0.26)	ND (0.29)	ND (0.24)
1,2-Dichlorobenzene	µg/m³	210	NE	ND (0.2)	ND (0.22)	ND (0.19)
1,2-Dichloroethane	µg/m³	0.074	ND (0.40)	ND (0.14)	ND (0.15)	ND (0.12)
1,2-Dichloropropane	µg/m³	0.099	NE	ND (0.079)	ND (0.086)	ND (0.072)
1,3,5-Trimethylbenzene	µg/m³	6.2	NE	0.3	0.2	0.24
1,3-Dichlorobenzene	µg/m³	110	NE	ND (0.2)	ND (0.22)	ND (0.19)
1,4-Dichlorobenzene	µg/m³	0.31	NE	0.19 J	0.1 J	ND (0.19)
1,4-Dioxane (p-dioxane)	µg/m³	0.61	NE	0.46 J	ND (0.67)	ND (0.56)
Benzene	µg/m³	0.25	**0.96**	**0.97**	**0.69**	**0.86**
Bromomethane	µg/m³	5.2	NE	0.12 J	ND (0.36)	ND (0.3)
Carbon tetrachloride	µg/m³	0.13	**0.69**	**0.48**	**0.45**	**0.48**
Chlorobenzene	µg/m³	62	NE	ND (0.16)	ND (0.17)	ND (0.14)
Chloroethane	µg/m³	2.3	NE	0.035 J	ND (0.25)	0.021 J
Chloroform	µg/m³	0.083	ND (0.10)	**0.1 J**	**0.091 J**	**0.51**
Chloromethane	µg/m³	95	NE	1.1	1.1	1.2
cis-1,2-Dichloroethene	µg/m³	37	NE	ND (0.14)	ND (0.15)	ND (0.12)
cis-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.14)
Ethylbenzene	µg/m³	1,100	NE	0.88	0.58	0.67
Freon 11	µg/m³	730	NE	2.7	1.4	1.8
Freon 12	µg/m³	210	NE	2.3 J	2 J	2.4
Freon 113	µg/m³	31,000	NE	0.52	0.55	0.6
Hexachlorobutadiene	µg/m³	0.086	NE	ND (1.8)	ND (2)	ND (1.6)
Methyl tert-butyl ether	µg/m³	7.4	ND (1.8)	ND (0.62)	ND (0.67)	ND (0.56)

TABLE 27f
Prescott Park Analytical Results - Air (November 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

				Neighborhood Background Air Results[3]		Prescott Park
Analyte	**Units**	**Screening Level[1]**	**West Oakland Background Air Results[2]**	**322BA AM 11/7/2006**	**322BA PM 11/7/2006**	**PP-AA 11/7/2006**
Volatile Organic Compounds						
Methylene chloride	µg/m³	4.1	ND (1.74)	ND (1.2)	ND (1.3)	ND (1.1)
Naphthalene	µg/m³	0.056	NE	ND (4.5)	ND (4.9)	ND (4.1)
Styrene	µg/m³	1,100	NE	0.46	0.15 J	0.15
Tetrachloroethene	µg/m³	0.32	ND (0.47)	**0.42**	0.31	**0.42**
Toluene	µg/m³	400	ND (3.0)	5.1	2.7	3.6
trans-1,2-Dichloroethene	µg/m³	73	NE	ND (0.68)	ND (0.74)	ND (0.61)
trans-1,3-Dichloropropene	µg/m³	0.48	NE	ND (0.16)	ND (0.17)	ND (0.14)
Trichloroethene	µg/m³	0.017	ND (0.43)	**0.22**	**0.069**	**0.087**
Vinyl chloride	µg/m³	0.11	ND (0.77)	ND (0.044)	ND (0.048)	ND (0.04)
Xylenes, total	µg/m³	110	NE	3.8	2.16	2.72

Notes:

Results greater than the screening level are bolded.

[1] Screening levels are specific concentrations of chemicals that are considered health protective for human populations (including sensitive populations). See Table 16d (Ambient and Crawlspace Air Screening Levels) for source of screening levels.

[2] West Oakland background results are from the Oakland-Filbert Street ambient air sampling station monitored by the Bay Area Air Quality Management District, located at 2419 Filbert Street (approximately one mile northeast, or crosswind, of the AMCO site); the result is from December 2002.

[3] Neighborhood background results are from samples collected at 322 Lewis Street (upwind of the AMCO site) in the morning and afternoon of the same day.

Units are presented as reported by the laboratory.

FD field duplicate
ND not detected above the laboratory's reporting limit shown in parentheses
NE not established
J estimated value
µg/m³ micrograms per cubic meter

TABLE 28
Analytical Results - Produce Samples (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		1432 3rd St			
Analyte	**Units**	**Fig 10/19/2006**	**Grape 10/19/2006**	**Pomengranate 10/19/2006**	**Tomato 10/19/2006**
Volatile Organic Compounds					
1,1,1-Trichloroethane	mg/kg	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.022)
1,1,2,2-Tetrachloroethane	mg/kg	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.028)
1,1,2-Trichloroethane	mg/kg	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.02)
1,1-Dichloroethane	mg/kg	ND (0.017)	ND (0.017)	ND (0.016)	ND (0.018)
1,1-Dichloroethene	mg/kg	ND (0.022)	ND (0.022)	ND (0.021)	ND (0.024)
1,2,4-Trichlorobenzene	mg/kg	ND (0.039)	ND (0.04)	ND (0.039)	ND (0.043)
1,2,4-Trimethylbenzene	mg/kg	ND (0.026)	ND (0.026)	ND (0.025)	ND (0.028)
1,2-Dibromo-3-chloropropane	mg/kg	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.2)
1,2-Dibromoethane	mg/kg	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.015)
1,2-Dichlorobenzene	mg/kg	ND (0.016)	ND (0.016)	ND (0.015)	ND (0.017)
1,2-Dichloroethane	mg/kg	ND (0.021)	ND (0.021)	ND (0.021)	ND (0.023)
1,2-Dichloropropane	mg/kg	ND (0.034)	ND (0.035)	ND (0.034)	ND (0.038)
1,3-Dichlorobenzene	mg/kg	ND (0.019)	ND (0.019)	ND (0.018)	ND (0.02)
1,4-Dichlorobenzene	mg/kg	ND (0.016)	ND (0.016)	ND (0.016)	ND (0.018)
2-Hexanone	mg/kg	ND (0.71)	ND (0.72)	ND (0.7)	ND (0.78)
Acetone	mg/kg	ND (0.41)	ND (0.42)	ND (0.41)	ND (0.45)
Benzene	mg/kg	ND (0.019)	ND (0.019)	ND (0.019)	ND (0.021)
Bromochloromethane	mg/kg	ND (0.023)	ND (0.023)	ND (0.023)	ND (0.025)
Bromodichloromethane	mg/kg	ND (0.016)	ND (0.016)	ND (0.015)	ND (0.017)
Bromoform	mg/kg	ND (0.05)	ND (0.051)	ND (0.05)	ND (0.055)
Bromomethane	mg/kg	ND (0.039)	ND (0.04)	ND (0.039)	ND (0.043)
Carbon disulfide	mg/kg	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.032)
Carbon tetrachloride	mg/kg	ND (0.022)	ND (0.023)	ND (0.022)	ND (0.025)
Chlorobenzene	mg/kg	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.019)
Chloroethane	mg/kg	ND (0.031)	ND (0.032)	ND (0.031)	ND (0.034)
Chloroform	mg/kg	ND (0.018)	ND (0.018)	ND (0.017)	ND (0.019)
Chloromethane	mg/kg	ND (0.025)	ND (0.025)	ND (0.024)	ND (0.027)
cis-1,2-Dichloroethene	mg/kg	ND (0.021)	ND (0.021)	ND (0.021)	ND (0.023)
cis-1,3-Dichloropropene	mg/kg	ND (0.015)	ND (0.015)	ND (0.015)	ND (0.016)
Cyclohexane	mg/kg	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.02)
Dibromochloromethane	mg/kg	ND (0.015)	ND (0.015)	ND (0.015)	ND (0.017)
Ethylbenzene	mg/kg	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.02)
Freon 11	mg/kg	ND (0.024)	ND (0.024)	ND (0.024)	ND (0.026)
Freon 113	mg/kg	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.024)
Freon 12	mg/kg	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.033)
Isopropylbenzene (cumene)	mg/kg	ND (0.013)	ND (0.013)	ND (0.012)	ND (0.014)
Methyl acetate	mg/kg	0.053 J	ND (0.017)	ND (0.017)	ND (0.019)
Methyl ethyl ketone	mg/kg	ND (0.58)	ND (0.58)	ND (0.57)	ND (0.64)
Methyl isobutyl ketone	mg/kg	ND (0.5)	ND (0.51)	ND (0.5)	ND (0.55)
Methyl tert-butyl ether	mg/kg	ND (0.014)	ND (0.014)	ND (0.013)	ND (0.015)
Methylcyclohexane	mg/kg	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.012)
Methylene chloride	mg/kg	ND (0.035)	ND (0.035)	ND (0.035)	ND (0.038)
Styrene	mg/kg	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.019)
tert-Butyl alcohol	mg/kg	ND (0.19) R	ND (0.19) R	ND (0.19) R	ND (0.21) R
Tetrachloroethene	mg/kg	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.022)
Toluene	mg/kg	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.02)
trans-1,2-Dichloroethene	mg/kg	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.028)
trans-1,3-Dichloropropene	mg/kg	ND (0.016)	ND (0.016)	ND (0.016)	ND (0.017)
Trichloroethene	mg/kg	ND (0.034)	ND (0.034)	ND (0.034)	ND (0.037)
Vinyl chloride	mg/kg	ND (0.038)	ND (0.038)	ND (0.038)	ND (0.042)
Xylenes, total	mg/kg	ND (0.034)	ND (0.034)	ND (0.033)	ND (0.037)
Metals					
Arsenic	mg/kg	ND (0.06)	ND (0.06)	0.08	ND (0.06)
Chromium	mg/kg	0.79	0.44	0.49	0.88
Lead	mg/kg	0.28	0.86	0.16	0.75

TABLE 28
Analytical Results - Produce Samples (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		1436 3rd St							
Analyte	Units	Bell Pepper 10/19/2006	Green Chili 10/19/2006	Lemon 10/19/2006	Lemon (FD) 10/19/2006	Mint 10/19/2006	Red Chili 10/19/2006	Tomatillo 10/19/2006	Tomato 10/19/2006
Volatile Organic Compounds									
1,1,1-Trichloroethane	mg/kg	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.022)	ND (0.019)	ND (0.019)	ND (0.02)	ND (0.018)
1,1,2,2-Tetrachloroethane	mg/kg	ND (0.024)	ND (0.02)	ND (0.021)	ND (0.028)	ND (0.024)	ND (0.023)	ND (0.024)	ND (0.023)
1,1,2-Trichloroethane	mg/kg	ND (0.017)	ND (0.015)	ND (0.015)	ND (0.02)	ND (0.017)	ND (0.017)	ND (0.018)	ND (0.016)
1,1-Dichloroethane	mg/kg	ND (0.016)	ND (0.013)	ND (0.014)	ND (0.018)	ND (0.016)	ND (0.015)	ND (0.016)	ND (0.015)
1,1-Dichloroethene	mg/kg	ND (0.021)	ND (0.017)	ND (0.018)	ND (0.024)	ND (0.021)	ND (0.02)	ND (0.021)	ND (0.02)
1,2,4-Trichlorobenzene	mg/kg	ND (0.037)	ND (0.031)	ND (0.033)	ND (0.043)	ND (0.037)	ND (0.036)	ND (0.038)	ND (0.036)
1,2,4-Trimethylbenzene	mg/kg	ND (0.024)	ND (0.02)	ND (0.021)	ND (0.028)	ND (0.024)	ND (0.023)	ND (0.025)	ND (0.023)
1,2-Dibromo-3-chloropropane	mg/kg	ND (0.17)	ND (0.14)	ND (0.15)	ND (0.2)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.16)
1,2-Dibromoethane	mg/kg	ND (0.013)	ND (0.011)	ND (0.011)	ND (0.015)	ND (0.013)	ND (0.012)	ND (0.013)	ND (0.012)
1,2-Dichlorobenzene	mg/kg	ND (0.015)	ND (0.012)	ND (0.013)	ND (0.017)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.014)
1,2-Dichloroethane	mg/kg	ND (0.02)	ND (0.017)	ND (0.017)	ND (0.023)	ND (0.02)	ND (0.019)	ND (0.02)	ND (0.019)
1,2-Dichloropropane	mg/kg	ND (0.032)	ND (0.027)	ND (0.029)	ND (0.038)	ND (0.033)	ND (0.031)	ND (0.033)	ND (0.031)
1,3-Dichlorobenzene	mg/kg	ND (0.018)	ND (0.015)	ND (0.016)	ND (0.02)	ND (0.018)	ND (0.017)	ND (0.018)	ND (0.017)
1,4-Dichlorobenzene	mg/kg	ND (0.015)	ND (0.013)	ND (0.013)	ND (0.018)	ND (0.015)	ND (0.015)	ND (0.016)	ND (0.015)
2-Hexanone	mg/kg	ND (0.67)	ND (0.56)	ND (0.59)	ND (0.78)	ND (0.67)	ND (0.65)	ND (0.69)	ND (0.64)
Acetone	mg/kg	ND (0.39)	ND (0.33)	ND (0.34)	ND (0.45)	ND (0.39)	ND (0.38)	ND (0.4)	ND (0.37)
Benzene	mg/kg	ND (0.018)	ND (0.015)	ND (0.016)	ND (0.021)	ND (0.018)	ND (0.018)	ND (0.019)	ND (0.017)
Bromochloromethane	mg/kg	ND (0.022)	ND (0.018)	ND (0.019)	ND (0.025)	ND (0.022)	ND (0.021)	ND (0.022)	ND (0.021)
Bromodichloromethane	mg/kg	ND (0.015)	ND (0.012)	ND (0.013)	ND (0.017)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.014)
Bromoform	mg/kg	ND (0.047)	ND (0.04)	ND (0.042)	ND (0.055)	ND (0.048)	ND (0.046)	ND (0.049)	ND (0.045)
Bromomethane	mg/kg	ND (0.037)	ND (0.031)	ND (0.033)	ND (0.043)	ND (0.037)	ND (0.036)	ND (0.038)	ND (0.035)
Carbon disulfide	mg/kg	ND (0.027)	ND (0.023)	ND (0.024)	ND (0.032)	ND (0.027)	ND (0.026)	ND (0.028)	ND (0.026)
Carbon tetrachloride	mg/kg	ND (0.021)	ND (0.018)	ND (0.019)	ND (0.025)	ND (0.021)	ND (0.02)	ND (0.022)	ND (0.02)
Chlorobenzene	mg/kg	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.019)	ND (0.016)	ND (0.016)	ND (0.017)	ND (0.016)
Chloroethane	mg/kg	ND (0.03)	ND (0.025)	ND (0.026)	ND (0.034)	ND (0.03)	ND (0.029)	ND (0.031)	ND (0.028)
Chloroform	mg/kg	ND (0.017)	ND (0.014)	ND (0.015)	ND (0.019)	ND (0.017)	ND (0.016)	ND (0.017)	ND (0.016)
Chloromethane	mg/kg	ND (0.023)	ND (0.02)	ND (0.021)	ND (0.027)	ND (0.023)	ND (0.023)	ND (0.024)	ND (0.022)
cis-1,2-Dichloroethene	mg/kg	ND (0.02)	ND (0.017)	ND (0.018)	ND (0.023)	ND (0.02)	ND (0.019)	ND (0.021)	ND (0.019)
cis-1,3-Dichloropropene	mg/kg	ND (0.014)	ND (0.012)	ND (0.012)	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.015)	ND (0.014)
Cyclohexane	mg/kg	ND (0.017)	ND (0.015)	ND (0.015)	ND (0.02)	ND (0.017)	ND (0.017)	ND (0.018)	ND (0.017)
Dibromochloromethane	mg/kg	ND (0.014)	ND (0.012)	ND (0.013)	ND (0.017)	ND (0.014)	ND (0.014)	ND (0.015)	ND (0.014)
Ethylbenzene	mg/kg	ND (0.017)	ND (0.014)	ND (0.015)	ND (0.02)	ND (0.017)	ND (0.016)	ND (0.017)	ND (0.016)
Freon 11	mg/kg	ND (0.023)	ND (0.019)	ND (0.02)	ND (0.026)	ND (0.023)	ND (0.022)	ND (0.023)	ND (0.022)
Freon 113	mg/kg	ND (0.021)	ND (0.018)	ND (0.018)	ND (0.024)	ND (0.021)	ND (0.02)	ND (0.021)	ND (0.02)
Freon 12	mg/kg	ND (0.028)	ND (0.024)	ND (0.025)	ND (0.033)	ND (0.028)	ND (0.027)	ND (0.029)	ND (0.027)
Isopropylbenzene (cumene)	mg/kg	ND (0.012)	ND (0.0096)	ND (0.011)	ND (0.014)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.011)
Methyl acetate	mg/kg	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.019)	0.19	0.13 J	ND (0.017)	ND (0.016)
Methyl ethyl ketone	mg/kg	ND (0.55)	ND (0.46)	ND (0.48)	ND (0.64)	ND (0.55)	ND (0.53)	ND (0.56)	ND (0.52)
Methyl isobutyl ketone	mg/kg	ND (0.48)	ND (0.4)	ND (0.42)	ND (0.55)	ND (0.48)	ND (0.46)	ND (0.49)	ND (0.46)
Methyl tert-butyl ether	mg/kg	ND (0.013)	ND (0.011)	ND (0.011)	ND (0.015)	ND (0.013)	ND (0.012)	ND (0.013)	ND (0.012)
Methylcyclohexane	mg/kg	ND (0.01)	ND (0.0084)	ND (0.0088)	ND (0.012)	ND (0.01)	ND (0.0096)	ND (0.011)	ND (0.0096)
Methylene chloride	mg/kg	ND (0.033)	ND (0.028)	ND (0.029)	ND (0.038)	ND (0.033)	ND (0.032)	ND (0.034)	ND (0.032)
Styrene	mg/kg	ND (0.016)	ND (0.014)	ND (0.014)	ND (0.019)	ND (0.016)	ND (0.016)	ND (0.017)	ND (0.016)
tert-Butyl alcohol	mg/kg	ND (0.18) R	ND (0.15) R	ND (0.16) R	ND (0.21) R	ND (0.18) R	ND (0.17) R	ND (0.18) R	ND (0.17) R
Tetrachloroethene	mg/kg	ND (0.019)	ND (0.016)	ND (0.017)	ND (0.022)	ND (0.019)	ND (0.018)	ND (0.019)	ND (0.018)
Toluene	mg/kg	ND (0.017)	ND (0.014)	ND (0.015)	ND (0.02)	ND (0.017)	ND (0.016)	ND (0.017)	ND (0.016)
trans-1,2-Dichloroethene	mg/kg	ND (0.024)	ND (0.02)	ND (0.021)	ND (0.028)	ND (0.024)	ND (0.023)	ND (0.025)	ND (0.023)
trans-1,3-Dichloropropene	mg/kg	ND (0.015)	ND (0.013)	ND (0.013)	ND (0.017)	ND (0.015)	ND (0.015)	ND (0.015)	ND (0.014)
Trichloroethene	mg/kg	ND (0.032)	ND (0.027)	ND (0.028)	ND (0.037)	ND (0.032)	ND (0.031)	ND (0.033)	ND (0.031)
Vinyl chloride	mg/kg	ND (0.036)	ND (0.03)	ND (0.032)	ND (0.042)	ND (0.036)	ND (0.035)	ND (0.037)	ND (0.035)
Xylenes, total	mg/kg	ND (0.032)	ND (0.027)	ND (0.028)	ND (0.037)	ND (0.032)	ND (0.031)	ND (0.033)	ND (0.03)
Metals									
Arsenic	mg/kg	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	0.07	ND (0.06)	0.06
Chromium	mg/kg	0.58	0.68	0.7	0.59	1.07	0.39	0.68	0.73
Lead	mg/kg	0.13	0.15	0.19	0.16	8.47	0.77	0.65	1

TABLE 28
Analytical Results - Produce Samples (October 2006)
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		356 Center St
Analyte	Units	Apple 10/19/2006
Volatile Organic Compounds		
1,1,1-Trichloroethane	mg/kg	ND (0.017) J
1,1,2,2-Tetrachloroethane	mg/kg	ND (0.021) J
1,1,2-Trichloroethane	mg/kg	ND (0.015) J
1,1-Dichloroethane	mg/kg	ND (0.014) J
1,1-Dichloroethene	mg/kg	ND (0.018) J
1,2,4-Trichlorobenzene	mg/kg	ND (0.033) J
1,2,4-Trimethylbenzene	mg/kg	ND (0.021) J
1,2-Dibromo-3-chloropropane	mg/kg	ND (0.15) J
1,2-Dibromoethane	mg/kg	ND (0.011) J
1,2-Dichlorobenzene	mg/kg	ND (0.013) J
1,2-Dichloroethane	mg/kg	ND (0.017) J
1,2-Dichloropropane	mg/kg	ND (0.028) J
1,3-Dichlorobenzene	mg/kg	ND (0.016) J
1,4-Dichlorobenzene	mg/kg	ND (0.013) J
2-Hexanone	mg/kg	ND (0.59) J
Acetone	mg/kg	ND (0.34) J
Benzene	mg/kg	ND (0.016) J
Bromochloromethane	mg/kg	ND (0.019) J
Bromodichloromethane	mg/kg	ND (0.013) J
Bromoform	mg/kg	ND (0.042) J
Bromomethane	mg/kg	ND (0.032) J
Carbon disulfide	mg/kg	ND (0.024) J
Carbon tetrachloride	mg/kg	ND (0.019) J
Chlorobenzene	mg/kg	ND (0.014) J
Chloroethane	mg/kg	ND (0.026) J
Chloroform	mg/kg	ND (0.015) J
Chloromethane	mg/kg	ND (0.021) J
cis-1,2-Dichloroethene	mg/kg	ND (0.018) J
cis-1,3-Dichloropropene	mg/kg	ND (0.012) J
Cyclohexane	mg/kg	ND (0.015) J
Dibromochloromethane	mg/kg	ND (0.013) J
Ethylbenzene	mg/kg	ND (0.015) J
Freon 11	mg/kg	ND (0.02) J
Freon 113	mg/kg	ND (0.018) J
Freon 12	mg/kg	ND (0.025) J
Isopropylbenzene (cumene)	mg/kg	ND (0.011) J
Methyl acetate	mg/kg	ND (0.014) J
Methyl ethyl ketone	mg/kg	ND (0.48) J
Methyl isobutyl ketone	mg/kg	ND (0.42) J
Methyl tert-butyl ether	mg/kg	ND (0.011) J
Methylcyclohexane	mg/kg	ND (0.0087) J
Methylene chloride	mg/kg	ND (0.029) J
Styrene	mg/kg	ND (0.014) J
tert-Butyl alcohol	mg/kg	ND (0.16) R
Tetrachloroethene	mg/kg	ND (0.017) J
Toluene	mg/kg	ND (0.015) J
trans-1,2-Dichloroethene	mg/kg	ND (0.021) J
trans-1,3-Dichloropropene	mg/kg	ND (0.013) J
Trichloroethene	mg/kg	ND (0.028) J
Vinyl chloride	mg/kg	ND (0.032) J
Xylenes, total	mg/kg	ND (0.028) J
Metals		
Arsenic	mg/kg	ND (0.06)
Chromium	mg/kg	0.3
Lead	mg/kg	0.3

TABLE 28
Analytical Results - Produce Samples (October 2006)
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		360 Center St			
		Apple	Blackberry	Cactus	Cactus (FD)
Analyte	Units	10/19/2006	10/19/2006	10/19/2006	10/19/2006
Volatile Organic Compounds					
1,1,1-Trichloroethane	mg/kg	ND (0.017)	ND (0.018)	ND (0.016)	ND (0.023)
1,1,2,2-Tetrachloroethane	mg/kg	ND (0.021)	ND (0.022)	ND (0.019)	ND (0.029)
1,1,2-Trichloroethane	mg/kg	ND (0.015)	ND (0.016)	ND (0.014)	ND (0.021)
1,1-Dichloroethane	mg/kg	ND (0.014)	ND (0.015)	ND (0.013)	ND (0.019)
1,1-Dichloroethene	mg/kg	ND (0.018)	ND (0.019)	ND (0.017)	ND (0.025)
1,2,4-Trichlorobenzene	mg/kg	ND (0.032)	ND (0.034)	ND (0.03)	ND (0.045)
1,2,4-Trimethylbenzene	mg/kg	ND (0.021)	ND (0.022)	ND (0.02)	ND (0.029)
1,2-Dibromo-3-chloropropane	mg/kg	ND (0.15)	ND (0.16)	ND (0.14)	ND (0.21)
1,2-Dibromoethane	mg/kg	ND (0.011)	ND (0.012)	ND (0.01)	ND (0.015)
1,2-Dichlorobenzene	mg/kg	ND (0.013)	ND (0.014)	ND (0.012)	ND (0.018)
1,2-Dichloroethane	mg/kg	ND (0.017)	ND (0.018)	ND (0.016)	ND (0.024)
1,2-Dichloropropane	mg/kg	ND (0.028)	ND (0.03)	ND (0.026)	ND (0.039)
1,3-Dichlorobenzene	mg/kg	ND (0.015)	ND (0.016)	ND (0.014)	ND (0.021)
1,4-Dichlorobenzene	mg/kg	ND (0.013)	ND (0.014)	ND (0.012)	ND (0.018)
2-Hexanone	mg/kg	ND (0.58)	ND (0.62)	ND (0.55)	ND (0.81)
Acetone	mg/kg	ND (0.34)	ND (0.36)	ND (0.32)	ND (0.47)
Benzene	mg/kg	ND (0.016)	ND (0.017)	ND (0.015)	ND (0.022)
Bromochloromethane	mg/kg	ND (0.019)	ND (0.02)	ND (0.018)	ND (0.026)
Bromodichloromethane	mg/kg	ND (0.013)	ND (0.014)	ND (0.012)	ND (0.018)
Bromoform	mg/kg	ND (0.041)	ND (0.044)	ND (0.039)	ND (0.057)
Bromomethane	mg/kg	ND (0.032)	ND (0.034)	ND (0.03)	ND (0.045)
Carbon disulfide	mg/kg	ND (0.024)	ND (0.025)	ND (0.022)	ND (0.033)
Carbon tetrachloride	mg/kg	ND (0.018)	ND (0.02)	ND (0.017)	ND (0.025)
Chlorobenzene	mg/kg	ND (0.014)	ND (0.015)	ND (0.013)	ND (0.019)
Chloroethane	mg/kg	ND (0.026)	ND (0.027)	ND (0.024)	ND (0.036)
Chloroform	mg/kg	ND (0.014)	ND (0.015)	ND (0.014)	ND (0.02)
Chloromethane	mg/kg	ND (0.02)	ND (0.022)	ND (0.019)	ND (0.028)
cis-1,2-Dichloroethene	mg/kg	ND (0.017)	ND (0.018)	ND (0.016)	ND (0.024)
cis-1,3-Dichloropropene	mg/kg	ND (0.012)	ND (0.013)	ND (0.012)	ND (0.017)
Cyclohexane	mg/kg	ND (0.015)	ND (0.016)	ND (0.014)	ND (0.021)
Dibromochloromethane	mg/kg	ND (0.012)	ND (0.013)	ND (0.012)	ND (0.017)
Ethylbenzene	mg/kg	ND (0.015)	ND (0.016)	ND (0.014)	ND (0.02)
Freon 11	mg/kg	ND (0.02)	ND (0.021)	ND (0.018)	ND (0.027)
Freon 113	mg/kg	ND (0.018)	ND (0.019)	ND (0.017)	ND (0.025)
Freon 12	mg/kg	ND (0.025)	ND (0.026)	ND (0.023)	ND (0.034)
Isopropylbenzene (cumene)	mg/kg	ND (0.01)	ND (0.011)	ND (0.0093)	ND (0.014)
Methyl acetate	mg/kg	ND (0.014)	ND (0.015)	ND (0.013)	ND (0.02)
Methyl ethyl ketone	mg/kg	ND (0.47)	ND (0.5)	ND (0.44)	ND (0.66)
Methyl isobutyl ketone	mg/kg	ND (0.41)	ND (0.44)	ND (0.39)	ND (0.57)
Methyl tert-butyl ether	mg/kg	ND (0.011)	ND (0.012)	ND (0.011)	ND (0.015)
Methylcyclohexane	mg/kg	ND (0.0086)	ND (0.0092)	ND (0.0081)	ND (0.012)
Methylene chloride	mg/kg	ND (0.029)	ND (0.03)	ND (0.027)	ND (0.04)
Styrene	mg/kg	ND (0.014)	ND (0.015)	0.022 J	ND (0.02)
tert-Butyl alcohol	mg/kg	ND (0.16) R	ND (0.16) R	ND (0.15) R	ND (0.21) R
Tetrachloroethene	mg/kg	ND (0.016)	ND (0.017)	ND (0.015)	ND (0.023)
Toluene	mg/kg	ND (0.015)	ND (0.016)	ND (0.014)	ND (0.02)
trans-1,2-Dichloroethene	mg/kg	ND (0.021)	ND (0.022)	ND (0.019)	ND (0.029)
trans-1,3-Dichloropropene	mg/kg	ND (0.013)	ND (0.014)	ND (0.012)	ND (0.018)
Trichloroethene	mg/kg	ND (0.028)	ND (0.03)	ND (0.026)	ND (0.039)
Vinyl chloride	mg/kg	ND (0.031)	ND (0.033)	ND (0.029)	ND (0.043)
Xylenes, total	mg/kg	ND (0.028)	ND (0.029)	ND (0.026)	ND (0.038)
Metals					
Arsenic	mg/kg	0.07	ND (0.06)	ND (0.06)	ND (0.06)
Chromium	mg/kg	0.46	0.66	0.75	0.66
Lead	mg/kg	0.23	3.27	2.7 J	1.21 J

Notes:

FD	field duplicate
ND	not detected above the laboratory's reporting limit shown in parentheses
J	estimated value
R	rejected for failure to meet quality control requirements
mg/kg	milligrams per kilogram

TABLE 29
Chemicals of Potential Concern
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Site					Residential					BG and PP	
	Soil		Groundwater		Soil Gas	Soil		Soil Gas	Ambient Air	Crawl Space Air	Soil Gas	Ambient Air
	Shallow	Deep	Grab	MW		Shallow	Deep					
Metals												
Aluminum	X	X	---	X	---	X	X	---	---	---	---	---
Antimony	X	X	---	X	---	X	X	---	---	---	---	---
Arsenic	X	X	---	X	---	X	X	---	---	---	---	---
Barium	X	X	---	X	---	X	X	---	---	---	---	---
Beryllium	X	X	---	X	---	X	X	---	---	---	---	---
Boron	---	---	---	X	---	---	---	---	---	---	---	---
Cadmium	X	X	---	X	---	X	X	---	---	---	---	---
Chromium	X	X	---	X	---	X	X	---	---	---	---	---
Cobalt	X	X	---	X	---	X	X	---	---	---	---	---
Copper	X	X	---	X	---	X	X	---	---	---	---	---
Iron	X	X	---	X	---	X	X	---	---	---	---	---
Lead	X	X	---	X	---	X	X	---	---	---	---	---
Manganese	X	X	---	X	---	X	X	---	---	---	---	---
Mercury	X	X	---	X	---	X	X	---	---	---	---	---
Molybdenum	---	---	---	X	---	---	---	---	---	---	---	---
Nickel	X	X	---	X	---	X	X	---	---	---	---	---
Selenium	X	X	---	X	---	X	X	---	---	---	---	---
Silver	X	X	---	X	---	X	X	---	---	---	---	---
Thallium	X	X	---	X	---	X	X	---	---	---	---	---
Vanadium	X	X	---	X	---	X	X	---	---	---	---	---
Zinc	X	X	---	X	---	X	X	---	---	---	---	---
Hexavalent Chromium												
Chromium, hexavalent	---	---	---	X	---	---	---	---	---	---	---	---
Cyanide												
Cyanide	ND	ND	---	X	---	X	ND	---	---	---	---	---
Organochlorine Pesticides												
4,4'-DDD	X	X	---	X	---	X	X	---	---	---	---	---
4,4'-DDE	X	X	---	X	---	X	X	---	---	---	---	---
4,4'-DDT	X	X	---	X	---	X	X	---	---	---	---	---
Aldrin	X	X	---	X	---	X	X	---	---	---	---	---
alpha-BHC	X	X	---	X	---	X	X	---	---	---	---	---
alpha-Chlordane	X	X	---	X	---	X	X	---	---	---	---	---
beta-BHC	X	X	---	X	---	X	X	---	---	---	---	---
delta-BHC	X	X	---	X	---	X	X	---	---	---	---	---
Dieldrin	X	X	---	X	---	X	X	---	---	---	---	---
Endosulfan I	X	X	---	X	---	X	X	---	---	---	---	---
Endosulfan II	X	X	---	X	---	X	X	---	---	---	---	---
Endosulfan sulfate	X	X	---	X	---	X	X	---	---	---	---	---
Endrin	X	X	---	X	---	X	X	---	---	---	---	---
Endrin aldehyde	X	X	---	X	---	X	X	---	---	---	---	---
Endrin ketone	X	X	---	X	---	X	X	---	---	---	---	---

TABLE 29
Chemicals of Potential Concern
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Site					Residential					BG and PP	
	Soil		Groundwater		Soil Gas	Soil		Soil Gas	Ambient Air	Crawl Space Air	Soil Gas	Ambient Air
	Shallow	Deep	Grab	MW		Shallow	Deep					
Organochlorine Pesticides												
gamma-BHC	X	X	---	X	---	X	X	---	---	---	---	---
gamma-Chlordane	X	X	---	X	---	X	X	---	---	---	---	---
Heptachlor	X	X	---	X	---	X	X	---	---	---	---	---
Heptachlor epoxide	X	X	---	X	---	X	X	---	---	---	---	---
Methoxychlor	X	ND	---	X	---	X	X	---	---	---	---	---
Organophosphorus Pesticides												
Diazinon	---	---	---	X	---	---	---	---	---	---	---	---
Herbicides												
Atrazine	ND	ND	---	X	---	ND	ND	---	---	---	---	---
PCBs												
Aroclor-1254	ND	ND	---	ND	---	X	X	---	---	---	---	---
Aroclor-1260	X	X	---	X	---	ND	ND	---	---	---	---	---
Semivolatile Organic Compounds												
1,1'-Biphenyl	X	X	---	X	---	X	ND	---	---	---	---	---
1,4-Dioxane (p-dioxane)	ND	X	X	X	X	ND	X	X	X	X	ND	X
2,4,6-Trichlorophenol	ND	ND	---	X	---	ND	ND	---	---	---	---	---
2,4-Dichlorophenol	ND	ND	---	X	---	ND	ND	---	---	---	---	---
2,4-Dimethylphenol	ND	ND	---	X	---	X	ND	---	---	---	---	---
2,6-Dinitrotoluene	ND	ND	---	ND	---	X	X	---	---	---	---	---
2-Chlorophenol	ND	ND	---	X	---	ND	ND	---	---	---	---	---
2-Methylnaphthalene	X	X	---	X	---	X	X	---	---	---	---	---
2-Methylphenol	X	ND	---	X	---	ND	ND	---	---	---	---	---
2-Nitroaniline	ND	ND	---	X	---	ND	ND	---	---	---	---	---
3&4-Methylphenol	---	---	---	X	---	---	---	---	---	---	---	---
3-Nitroaniline	ND	ND	---	ND	---	X	ND	---	---	---	---	---
4-Chloro-3-methylphenol	X	ND	---	X	---	ND	ND	---	---	---	---	---
4-Methylphenol	X	X	---	X	---	ND	ND	---	---	---	---	---
4-Nitrophenol	ND	ND	---	ND	---	X	ND	---	---	---	---	---
Acenaphthene	X	X	---	X	---	X	ND	---	---	---	---	---
Acenaphthylene	X	X	---	X	---	X	X	---	---	---	---	---
Acetophenone	X	X	---	X	---	ND	ND	---	---	---	---	---
Anthracene	X	X	---	X	---	X	X	---	---	---	---	---
Benzo(a)anthracene	X	X	---	X	---	X	X	---	---	---	---	---
Benzo(a)pyrene	X	X	---	X	---	X	X	---	---	---	---	---
Benzo(b)fluoranthene	X	X	---	X	---	X	X	---	---	---	---	---
Benzo(g,h,i)perylene	X	X	---	X	---	X	X	---	---	---	---	---
Benzo(k)fluoranthene	X	X	---	X	---	X	X	---	---	---	---	---
Benzyl butyl phthalate	X	X	---	ND	---	X	X	---	---	---	---	---
bis(2-Chloroethoxy)methane	ND	ND	---	X	---	ND	ND	---	---	---	---	---
bis(2-Ethylhexyl)phthalate	X	X	---	X	---	X	X	---	---	---	---	---
Caprolactam	X	X	---	X	---	X	X	---	---	---	---	---

TABLE 29
Chemicals of Potential Concern
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Site					Residential					BG and PP	
	Soil		Groundwater		Soil Gas	Soil		Soil Gas	Ambient Air	Crawl Space Air	Soil Gas	Ambient Air
	Shallow	Deep	Grab	MW		Shallow	Deep					
Semivolatile Organic Compounds												
Carbazole	X	ND	---	X	---	X	X	---	---	---	---	---
Chrysene	X	X	---	X	---	X	X	---	---	---	---	---
Dibenz(a,h)anthracene	X	X	---	X	---	ND	ND	---	---	---	---	---
Dibenzofuran	X	X	---	ND	---	X	X	---	---	---	---	---
Diethylphthalate	ND	X	---	X	---	ND	ND	---	---	---	---	---
Di-n-butyl phthalate	X	X	---	X	---	X	X	---	---	---	---	---
Di-n-octyl phthalate	ND	ND	---	X	---	X	ND	---	---	---	---	---
Fluoranthene	X	X	---	X	---	X	X	---	---	---	---	---
Fluorene	X	X	---	X	---	X	X	---	---	---	---	---
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	ND	ND
Hexachloroethane	ND	ND	---	X	---	ND	ND	---	---	---	---	---
Indeno(1,2,3-c,d)pyrene	X	X	---	X	---	X	X	---	---	---	---	---
Naphthalene	X	X	X	X	X	X	X	X	X	X	X	X
Nitrobenzene	ND	ND	---	X	---	ND	ND	---	---	---	---	---
N-Nitrosodi-n-propylamine	ND	ND	---	X	---	ND	ND	---	---	---	---	---
N-Nitrosodiphenylamine	ND	ND	---	X	---	ND	ND	---	---	---	---	---
Pentachlorophenol	ND	X	---	X	---	ND	ND	---	---	---	---	---
Phenanthrene	X	X	---	X	---	X	X	---	---	---	---	---
Phenol	X	X	---	X	---	ND	X	---	---	---	---	---
Pyrene	X	X	---	X	---	X	X	---	---	---	---	---
Volatile Organic Compounds												
1,1,1-Trichloroethane	X	X	X	X	X	ND	ND	X	X	X	X	X
1,1,2,2-Tetrachloroethane	ND	ND	ND	X	X	ND	ND	X	X	X	X	X
1,1,2-Trichloroethane	X	ND	ND	X	X	ND	ND	X	X	X	ND	ND
1,1-Dichloroethane	X	X	X	X	X	ND	X	X	ND	X	X	X
1,1-Dichloroethene	X	X	X	X	X	ND	X	X	ND	ND	ND	X
1,2,3-Trichlorobenzene	ND	ND	X	X	---	ND	ND	---	---	---	---	---
1,2,4-Trichlorobenzene	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	X	X	X	X	ND	X	X	X	X	X
1,2-Dibromo-3-chloropropane	ND	ND	X	ND	---	ND	ND	---	---	---	---	---
1,2-Dibromoethane	ND	ND	ND	ND	X	ND	ND	ND	ND	X	ND	ND
1,2-Dichlorobenzene	X	X	X	X	X	ND	X	X	X	X	ND	ND
1,2-Dichloroethane	X	X	X	X	X	ND	ND	X	X	X	X	X
1,2-Dichloropropane	ND	ND	X	X	ND	ND	ND	ND	X	X	ND	X
1,3,5-Trimethylbenzene	ND	ND	X	X	X	ND	ND	X	X	X	X	X
1,3-Butadiene	---	---	---	---	ND	---	---	ND	---	---	X	---
1,3-Dichlorobenzene	X	X	X	X	X	ND	ND	X	X	X	ND	ND
1,4-Dichlorobenzene	X	X	X	X	X	ND	X	X	X	X	X	X
2,2,4-Trimethylpentane	---	---	---	---	X	---	---	ND	---	---	X	---
2,2-Dichloropropane	---	---	ND	X	---	---	---	---	---	---	---	---
2-Chlorotoluene	---	---	X	ND	---	---	---	---	---	---	---	---

TABLE 29
Chemicals of Potential Concern
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Site					Residential					BG and PP	
	Soil		Groundwater		Soil Gas	Soil		Soil Gas	Ambient Air	Crawl Space Air	Soil Gas	Ambient Air
	Shallow	Deep	Grab	MW		Shallow	Deep					
Volatile Organic Compounds												
2-Hexanone	ND	ND	---	X	ND	ND	ND	ND	---	---	ND	---
4-Ethyltoluene	---	---	---	---	X	---	---	X	---	---	ND	---
Acetone	X	X	X	X	X	X	X	X	---	---	X	---
Benzene	X	X	X	X	X	X	X	X	X	X	X	X
Bromoform	ND	ND	ND	X	ND	ND	ND	ND	---	---	ND	---
Bromomethane	ND	ND	ND	ND	X	ND	ND	X	X	X	X	X
Carbon disulfide	X	X	---	X	X	X	X	X	---	---	X	---
Carbon tetrachloride	ND	ND	X	X	X	ND	ND	X	X	X	X	X
Chlorobenzene	X	X	X	X	X	ND	X	X	X	X	ND	X
Chloroethane	X	X	X	X	X	ND	ND	X	X	X	X	X
Chloroform	ND	ND	X	X	X	ND	ND	X	X	X	X	X
Chloromethane	X	ND	X	X	X	ND	ND	X	X	X	X	X
cis-1,2-Dichloroethene	X	X	X	X	X	ND	X	X	X	X	X	X
cis-1,3-Dichloropropene	ND	ND	X	X	ND	ND	ND	ND	X	X	ND	X
Cyclohexane	X	X	---	X	X	ND	ND	ND	---	---	X	---
Ethanol	---	---	---	---	X	---	---	X	---	---	X	---
Ethyl tert-butyl ether	ND	ND	---	X	---	ND	ND	---	---	---	---	---
Ethylbenzene	X	X	X	X	X	X	ND	X	X	X	X	X
Freon 11	ND	ND	ND	X	X	X	X	X	X	X	X	X
Freon 113	X	ND	ND	ND	X	ND	ND	X	X	X	X	X
Freon 114	---	---	---	---	ND	---	---	ND	X	X	ND	X
Freon 12	ND	ND	ND	ND	X	ND	ND	X	X	X	X	X
Freon 134a	---	---	---	---	X	---	---	X	---	---	X	---
Isopropanol	---	---	---	---	X	---	---	X	---	---	X	---
Isopropyl ether	---	---	---	X	---	ND	ND	---	---	---	---	---
Isopropylbenzene (cumene)	X	X	X	X	X	ND	ND	ND	---	---	ND	---
Methyl acetate	ND	X	---	X	---	X	ND	---	---	---	---	---
Methyl ethyl ketone	X	X	X	X	X	X	X	X	---	---	X	---
Methyl isobutyl ketone	X	X	---	X	ND	ND	ND	ND	---	---	ND	---
Methyl tert-butyl ether	X	X	X	X	X	ND	ND	ND	X	X	ND	X
Methylcyclohexane	X	X	---	X	---	ND	ND	---	---	---	---	---
Methylene chloride	X	X	X	X	X	X	ND	X	X	X	X	X
n-Butylbenzene	---	---	X	X	---	---	---	---	---	---	---	---
n-Heptane	---	---	---	---	X	---	---	X	---	---	X	---
n-Propylbenzene	---	---	X	X	X	---	---	ND	---	---	ND	---
p-Cymene (p-isopropyltoluene)	---	---	X	X	---	---	---	---	---	---	---	---
sec-Butylbenzene	---	---	X	X	---	---	---	---	---	---	---	---
Styrene	X	ND	ND	X	X	ND	ND	X	X	X	X	X
tert-Butyl alcohol	ND	ND	---	X	---	ND	ND	---	---	---	---	---
tert-Butylbenzene	---	---	ND	X	---	---	---	---	---	---	---	---
Tetrachloroethene	X	X	X	X	X	X	X	X	X	X	X	X

TABLE 29
Chemicals of Potential Concern
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Site					Residential					BG and PP	
	Soil		Groundwater		Soil Gas	Soil		Soil Gas	Ambient Air	Crawl Space Air	Soil Gas	Ambient Air
	Shallow	Deep	Grab	MW		Shallow	Deep					
Volatile Organic Compounds												
Tetrahydrofuran	---	---	---	---	X	---	---	X	---	---	X	---
Toluene	X	X	X	X	X	X	X	X	X	X	X	X
Total hexanes	---	---	---	---	X	---	---	X	---	---	X	---
trans-1,2-Dichloroethene	X	X	X	X	X	ND	ND	X	X	ND	X	ND
trans-1,3-Dichloropropene	ND	ND	ND	X	ND	ND	ND	ND	X	X	ND	X
Trichloroethene	X	X	X	X	X	X	X	X	X	X	X	X
Vinyl chloride	X	X	X	X	X	ND	X	X	X	X	X	ND
Xylenes, m & p	X	ND	---	X	X	X	ND	X	X	X	X	X
Xylenes, o	X	ND	---	X	X	X	ND	X	X	X	X	X
Xylenes, total	X	X	---	X	---	---	---	---	---	---	---	---
Dioxins/Furans												
1,2,3,4,6,7,8-HpCDD	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,4,6,7,8-HpCDF	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,4,7,8,9-HpCDF	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,4,7,8-HxCDD	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,4,7,8-HxCDF	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,6,7,8-HxCDD	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,6,7,8-HxCDF	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,7,8,9-HxCDD	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,7,8,9-HxCDF	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,7,8-PeCDD	X	---	---	X	---	---	---	---	---	---	---	---
1,2,3,7,8-PeCDF	X	---	---	X	---	---	---	---	---	---	---	---
2,3,4,6,7,8-HxCDF	X	---	---	X	---	---	---	---	---	---	---	---
2,3,4,7,8-PeCDF	X	---	---	X	---	---	---	---	---	---	---	---
2,3,7,8-TCDD	X	---	---	ND	---	---	---	---	---	---	---	---
2,3,7,8-TCDF	X	---	---	X	---	---	---	---	---	---	---	---
OCDD	X	---	---	X	---	---	---	---	---	---	---	---
OCDF	X	---	---	X	---	---	---	---	---	---	---	---
Total Petroleum Hydrocarbons												
Diesel c10-c24	X	X	---	---	---	X	X	---	---	---	---	---
Gasoline c6-c10	X	X	---	---	---	ND	X	---	---	---	---	---
General												
Alkalinity, bicarbonate (as $CaCO_3$)	---	---	---	X	---	---	---	---	---	---	---	---
Alkalinity, total (as $CaCO_3$)	---	---	---	X	---	---	---	---	---	---	---	---

BG Background
PP Prescott Park
MW Monitoring Well
X Detected
--- Not analyzed
ND Not detected

TABLE 30

Soil Exposure Assumptions

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Exposure Parameter		Units	Reasonable Maximum Exposure (RME) Scenario: Occupational Worker		Construction Worker		Residential Adult		Residential Child		Intake Equation
Incidental Ingestion of Soil											
Concentration in Soil	C_s	mg/kg	Chemical specific		Chemical specific		Chemical specific		Chemical specific		
Ingestion Rate	IngR	mg/day	100	EPA, 1989	330	EPA, 1989	100	EPA, 1989	200	EPA, 1989	
Exposure Frequency	EF	days/yr	250	EPA, 1989	250	EPA, 1989	350	EPA, 1989	350	EPA, 1989	$\frac{Cs \times IngR \times EF \times ED \times CF}{BW \times AT}$
Exposure Duration	ED	years	25	EPA, 1989	1	EPA, 1989	24	EPA, 1989	6	EPA, 1989	
Conversion Factor	CF	kg/mg	1.00E-06		1.00E-06		1.00E-06		1.00E-06		
Body Weight	BW	kg	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989	15	EPA, 1989	
Averaging Time for carcinogens	AT_C	days	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	
Averaging Time for noncarcinogens	AT_{NC}	days	9,125	EPA, 1989	365	EPA, 1989	8,760	EPA, 1989	2,190	EPA, 1989	
Inhalation of Particulates											
Concentration in Soil	C_s	mg/kg	Chemical specific		Chemical specific		Chemical specific		Chemical specific		
Inhalation Rate	InhR	m^3/day	20	EPA, 1989	20	EPA, 1989	20	EPA, 1989	10	EPA, 1989	
Exposure Frequency	EF	days/yr	250	EPA, 1989	250	EPA, 1989	350	EPA, 1989	350	EPA, 1989	
Exposure Duration	ED	years	25	EPA, 1989	1	EPA, 1989	24	EPA, 1989	6	EPA, 1989	$\frac{Cs \times InhR \times EF \times ED \times [(1/PEF)+(1/VF)]}{BW \times AT}$
1/Particulate Emission Factor	1/PEF	kg/m^3	7.60E-10	EPA, 1996	1.00E-06	EPA, 1996	7.60E-10	EPA, 1996	7.60E-10	EPA, 1996	
1/Volatilization Factor	1/VF	kg/m^3	Chemical specific	EPA, 2004	Chemical specific	EPA, 2004	Chemical specific	EPA, 2004	Chemical specific	EPA, 2004	
Body Weight	BW	kg	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989	15	EPA, 1989	
Averaging Time for carcinogens	AT_C	days	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	
Averaging Time for noncarcinogens	AT_{NC}	days	9,125	EPA, 1989	365	EPA, 1989	8,760	EPA, 1989	2,190	EPA, 1989	
Dermal Contact with Soil											
Concentration in Soil	C_s	mg/kg	Chemical specific		Chemical specific		Chemical specific		Chemical specific		
Exposure Frequency	EF	days/yr	250	EPA, 1989	250	EPA, 1989	350	EPA, 1989	350	EPA, 1989	
Exposure Duration	ED	years	25	EPA, 1989	1	EPA, 1989	24	EPA, 1989	6	EPA, 1989	
Skin Surface Area	SA	cm^2	5700	CalEPA, 2005	5700	CALEPA, 2005	5700	CalEPA, 2005	2900	CalEPA, 2005	$\frac{Cs \times SA \times EF \times ED \times AF \times ABS \times CF}{BW \times AT}$
Soil-Skin Adherence Factor	AF	mg/cm^2/day	0.2	CalEPA, 2005	0.8	CALEPA, 2005	0.07	CalEPA, 2005	0.2	CalEPA, 2005	
Absorption Factor	ABS	unitless	Chemical specific	CalEPA, 2005	Chemical specific	CalEPA, 2005	Chemical specific	CalEPA, 2005	Chemical specific	CalEPA, 2005	
Conversion Factor	CF	kg/mg	1.00E-06		1.00E-06		1.00E-06		1.00E-06		
Body Weight	BW	kg	70	EPA, 1989	70	EPA, 1989	70	EPA, 1989	15	EPA, 1989	
Averaging Time for carcinogens	AT_C	days	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	
Averaging Time for noncarcinogens	ATnc	days	9,125	EPA, 1989	365	EPA, 1989	8,760	EPA, 1989	2,190	EPA, 1989	

Notes:

AT_C = 70 years x 365 days/year

AT_{NC} = ED (years) x 365 days/year

PEF = 1.32E-09 m^3/kg

RME = Reasonable maximum exposure.

EPA, 1989: Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual Part A.

EPA, 1996: Soil Screening Guidance.

EPA, 2004: User's Guide and Background Technical Document for Preliminary Remediation Goals (PRG). Region 9. October.

CalEPA, DTSC, HERD, 2005: Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Military Facilities.

TABLE 31
Groundwater Exposure Assumptions - Future Residents
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Exposure Parameter		Units	Reasonable Maximum Exposure (RME) Scenario: Residential Adult		Reasonable Maximum Exposure (RME) Scenario: Residential Child		Intake Equation
Ingestion of Groundwater							
Concentration in Groundwater	C_{gw}	mg/L	Chemical specific		Chemical specific		$\frac{C_{gw} \times IngR \times EF \times ED}{BW \times AT}$
Ingestion Rate	IngR	L/day	2	EPA, 1989	1	EPA, 1989	
Exposure Frequency	EF	days/year	350	EPA, 1989	350	EPA, 1989	
Exposure Duration	ED	years	24	EPA, 1989	6	EPA, 1989	
Body Weight	BW	kg	70	EPA, 1989	15	EPA, 2004[b]	
Averaging Time for carcinogens	AT_C	days	25,550	EPA, 1989	25,550	EPA, 1989	
Averaging Time for noncarcinogens	AT_{NC}	days	8,760	EPA, 1989	2,190	EPA, 1989	
Inhalation of VOCs in Groundwater							
Concentration in Groundwater	C_{gw}	mg/L	Chemical specific		Chemical specific		$\frac{C_{gw} \times InhR \times VF \times ET \times EF \times ED}{BW \times AT}$
Inhalation Rate	InhR	m^3/day	20	EPA, 1989	10	EPA, 1989	
Volatilization Factor	VF	L/m^3	0.5	EPA, 2004[b]	0.5	EPA, 2004[b]	
Exposure Time	ET	hours/day	24	EPA, 1989	24	EPA, 1989	
Exposure Frequency	EF	days/year	350	EPA, 1989	350	EPA, 1989	
Exposure Duration	ED	years	24	EPA, 1989	6	EPA, 1989	
Body Weight	BW	kg	70	EPA, 1989	15	EPA, 1989	
Averaging Time for carcinogens	AT_C	days	25,550	EPA, 1989	25,550	EPA, 1989	
Averaging Time for noncarcinogens	AT_{NC}	days	8,760	EPA, 1989	2,190	EPA, 1989	
Dermal Contact with Groundwater While Showering							
Concentration in Groundwater	C_{gw}	mg/L	Chemical specific		Chemical specific		$\frac{DA_{event} \times SA \times EF \times ED}{BW \times AT}$
Absorbed dose per event per area of skin exposed	DA_{event}	mg/cm^2-event	Chemical specific	EPA, 2004[a]	Chemical specific	EPA, 2004[a]	
Event Duration	t_{event}	hours/event	0.58	EPA, 2004[a]	1	EPA, 2004[a]	Where for Organics:
Time to reach steady state	t*	hours	Chemical specific	EPA, 2004[a]	Chemical specific	EPA, 2004[a]	
Skin Permeability Constant for chemicals in groundwater	K_P	cm/hour	Chemical specific	EPA, 2004[a]	Chemical specific	EPA, 2004[a]	If $t_{event} > t^*$
Lag time per event	τ	hours/event	Chemical specific	EPA, 2004[a]	Chemical specific	EPA, 2004[a]	$DA_{event} = FA \times K_p \times C_{gw} \left[\frac{t_{event}}{1+B} + 2\tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$
Dimensionless coefficient	B	cm/hour	Chemical specific	EPA, 2004[a]	Chemical specific	EPA, 2004[a]	
Fraction Absorbed	FA	unitless	Chemical specific	EPA, 2004[a]	Chemical specific	EPA, 2004[a]	
Skin Surface Area	SA	cm^2/day	18,000	EPA, 1997	6,600	EPA, 2004[a]	If $t_{event} < t^*$
Exposure Frequency	EF	days/year	350	EPA, 1989	350	EPA, 1989	$DA_{event} = 2\ FA \times K_p \times C_{gw} \sqrt{\frac{6\tau \times t_{event}}{\Pi}}$
Exposure Duration	ED	years	24	EPA, 1989	6	EPA, 1989	
Body Weight	BW	kg	70	EPA, 1997	15	EPA, 1989	For Inorganics:
Averaging Time for carcinogens	AT_C	days	25,550	EPA, 1989	25,550	EPA, 1989	
Averaging Time for noncarcinogens	AT_{NC}	days	8,760	EPA, 1989	2,190	EPA, 1989	$DA_{event} = K_p \times C_{gw} \times t_{event}$

Notes:
AT_C = 70 years x 365 days/year
AT_{NC} = ED (years) x 365 days/year
RME = Reasonable maximum exposure.
EPA, 1989: Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual Part A.
EPA, 1997: Exposure Factors Handbook. Volume I, General Factors. August.
EPA, 2004[a]: RAGS Part E, Supplemental Guidance for Dermal Risk Assessment.
EPA, 2004[b]: User's Guide and Background Technical Document for Preliminary Remediation Goals Table. Region 9. October.

TABLE 32
Groundwater Exposure Assumptions - Trench Workers
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

		Reasonable Maximum Exposure (RME) Scenario			
		Units	Trench Worker		Intake Equation
Inhalation of VOCs in Groundwater While Working in a Trench					
Concentration in Groundwater	C_{gw}	mg/L	Chemical specific		
Concentration (VOCs) in breathing zone	C_{air}	ug/m^3	Chemical specific	CalEPA, 2006	
Total emission rate	Ei	mg/s	Chemical specific	CalEPA, 2006	$\frac{C_{air} \times InhR \times ET \times EF \times ED \times CF_1}{BW \times AT}$
Inhalation Rate	InhR	m^3/hour	2.5	CalEPA, 2005	
Assumed velocity of air in the trench	u	m/s	0.152	CalEPA, 2006	
Mixing Height (adult breating zone)	H	m	1.83	CalEPA, 2006	
Width of trench perpendicular to wind direction	W	m	3.05	CalEPA, 2006	
Overall mass transfer coefficient	Ki	cm/s	Chemical specific	CalEPA, 2006	
Bottom area of the trench covered with contaminated water	A_w	cm^2	65,032	CalEPA, 2006	$C_{air} = \frac{E_i \times CF_2}{u \times H \times W}$
Exposure Time	ET	hours/day	8	CalEPA, 2005	
Exposure Frequency	EF	days/year	90	CalEPA, 2006	
Exposure Duration	ED	years	1	CalEPA, 2006	
Conversion Factor$_1$	CF_1	mg/ug	0.001		
Conversion Factor$_2$	CF_2	ug/mg	1000		$E_i = K_i \times A_w \times C_{gw}$
Body Weight	BW	kg	70	EPA, 1989	
Averaging Time for carcinogens	ATc	days	25,550	EPA, 1989	
Averaging Time for noncarcinogens	ATnc	days	365	CalEPA, 2006	
Dermal Contact with Groundwater While Working in a Trench					
Concentration in Groundwater	C_{gw}	mg/L	Chemical specific		
Absorbed dose per event per area of skin exposed	DA_{event}	mg/cm^2-event	Chemical specific	EPA, 2004	$\frac{DA_{event} \times SA \times EF \times ED}{BW \times AT}$
Event Duration	t_{event}	hours/event	8	CalEPA, 2005	For Organics:
Time to reach steady state	t*	hours	Chemical specific	EPA, 2004	
groundwater	K_P	cm/hour	Chemical specific	EPA, 2004	If t_{event} < t*
Lag time per event	τ	hours/event	Chemical specific	EPA, 2004	$DA_{event} = FA \times K_p C_{gw} \left[\frac{t_{event}}{1+B} + 2\tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$
Dimensionless coefficient	B	cm/hour	Chemical specific	EPA, 2004	
Fraction Absorbed	FA	unitless	Chemical specific	EPA, 2004	
Skin Surface Area	SA	cm^2/day	5,700	CalEPA, 2005	If t_{event} > t*
Exposure Frequency	EF	days/year	90	CalEPA, 2006	$DA_{event} = 2\ FA \times K_p \times C_{gw} \sqrt{\frac{6\tau \times t_{event}}{\Pi}}$
Exposure Duration	ED	years	1	CalEPA, 2006	
Body Weight	BW	kg	70	EPA, 1989	For Inorganics:
Averaging Time for carcinogens	ATc	days	25,550	EPA, 1989	$DA_{event} = K_p \times C_{gw} \times t_{event}$
Averaging Time for noncarcinogens	ATnc	days	365	CalEPA, 2006	

Notes:
RME = Reasonable maximum exposure.
EPA, 1989: Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual Part A.
EPA, 2004: RAGS Part E, Supplemental Guidance for Dermal Risk Assessment.
CalEPA, DTSC, HERD, 2005: Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Military Facilities.
CalEPA, DTSC, HERD, 2006: Memorandum: Risk Assessment Issues, PAHs and Exposure Routes…,T.Taros, Staff Toxicologist, DTSC, 8810 Cal Center Drive, Sacramento, CA. August 11.

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Former AMCO Chemical Facility - Shallow			
Metals			
Aluminum	mg/kg	12,600	95% Student's-t UCL
Antimony	mg/kg	14	95% Chebyshev (MVUE) UCL
Arsenic	mg/kg	8	95% Approximate Gamma UCL
Barium	mg/kg	513	95% Approximate Gamma UCL
Beryllium	mg/kg	1	95% Approximate Gamma UCL
Cadmium	mg/kg	2	95% H-UCL
Chromium	mg/kg	1,410	99% Chebyshev (Mean, Sd) UCL
Cobalt	mg/kg	9	95% Approximate Gamma UCL
Copper	mg/kg	229	95% Chebyshev (MVUE) UCL
Iron	mg/kg	26,100	95% Approximate Gamma UCL
Lead	mg/kg	640	95% Approximate Gamma UCL
Manganese	mg/kg	1,140	95% Chebyshev (Mean, Sd) UCL
Nickel	mg/kg	42	95% Student's-t UCL
Selenium	mg/kg	3	Maximum Result
Silver	mg/kg	1	95% Approximate Gamma UCL
Thallium	mg/kg	3	95% Chebyshev (Mean, Sd) UCL
Vanadium	mg/kg	42	95% Approximate Gamma UCL
Zinc	mg/kg	591	95% Approximate Gamma UCL
Pesticides/PCBs			
4,4'-DDD	ug/kg	9,160	95% Adjusted Gamma UCL
4,4'-DDE	ug/kg	3,560	95% Adjusted Gamma UCL
4,4'-DDT	ug/kg	325	99% Chebyshev (Mean, Sd) UCL
Aldrin	ug/kg	1,290	99% Chebyshev (Mean, Sd) UCL
alpha-BHC	ug/kg	26	Maximum Result
alpha-Chlordane	ug/kg	40	95% Chebyshev (MVUE) UCL
beta-BHC	ug/kg	35	Maximum Result
delta-BHC	ug/kg	4	Maximum Result
Dieldrin	ug/kg	1,340	95% Adjusted Gamma UCL
Endosulfan sulfate	ug/kg	2	Maximum Result
Endrin	ug/kg	5	Maximum Result
Endrin aldehyde	ug/kg	1	Maximum Result
Endrin ketone	ug/kg	12	Maximum Result
gamma-Chlordane	ug/kg	109	99% Chebyshev (Mean, Sd) UCL
Heptachlor	ug/kg	9	Maximum Result
Methoxychlor	ug/kg	4	Maximum Result
Aroclor-1260	ug/kg	640	Maximum Result
SVOCs/VOCs			
1,2,4-Trichlorobenzene	ug/kg	1,540	99% Chebyshev (Mean, Sd) UCL
1,2-Dichlorobenzene	ug/kg	54,700	95% Hall's Bootstrap UCL
1,3-Dichlorobenzene	ug/kg	2,020	99% Chebyshev (Mean, Sd) UCL
1,4-Dichlorobenzene	ug/kg	25,500	99% Chebyshev (Mean, Sd) UCL
2-Methylnaphthalene	ug/kg	114,000	95% Hall's Bootstrap UCL
2-Methylphenol	ug/kg	990	Maximum Result
4-Chloro-3-methylphenol	ug/kg	7,200	Maximum Result
4-Methylphenol	ug/kg	3,600	Maximum Result
Acenaphthene	ug/kg	9,180	99% Chebyshev (Mean, Sd) UCL
Anthracene	ug/kg	1,100	Maximum Result
Benzo(a)anthracene	ug/kg	550	Maximum Result
Benzo(a)pyrene	ug/kg	500	Maximum Result
Benzo(b)fluoranthene	ug/kg	420	Maximum Result
Benzo(g,h,i)perylene	ug/kg	430	Maximum Result
Benzo(k)fluoranthene	ug/kg	430	Maximum Result
Benzyl butyl phthalate	ug/kg	7,600	Maximum Result
Biphenyl (diphenyl)	ug/kg	4,400	Maximum Result

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
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AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
bis(2-Ethylhexyl)phthalate	ug/kg	9,850	99% Chebyshev (Mean, Sd) UCL
Caprolactam	ug/kg	95	Maximum Result
Carbazole	ug/kg	1,100	Maximum Result
Chrysene	ug/kg	910	Maximum Result
Dibenz(a,h)anthracene	ug/kg	120	Maximum Result
Dibenzofuran	ug/kg	4,100	Maximum Result
Di-n-butyl phthalate	ug/kg	2,900	Maximum Result
Fluoranthene	ug/kg	4,200	Maximum Result
Fluorene	ug/kg	8,310	99% Chebyshev (Mean, Sd) UCL
Indeno(1,2,3-c,d)pyrene	ug/kg	440	Maximum Result
Naphthalene	ug/kg	52,800	99% Chebyshev (Mean, Sd) UCL
Phenanthrene	ug/kg	12,100	99% Chebyshev (Mean, Sd) UCL
Pyrene	ug/kg	3,970	95% Approximate Gamma UCL
1,1,1-Trichloroethane	ug/kg	25	95% Chebyshev (Mean, Sd) UCL
1,1-Dichloroethane	ug/kg	10,100	99% Chebyshev (Mean, Sd) UCL
1,1-Dichloroethene	ug/kg	68	95% Chebyshev (Mean, Sd) UCL
1,2-Dichloroethane	ug/kg	61	95% Chebyshev (Mean, Sd) UCL
Acetone	ug/kg	226	95% Approximate Gamma UCL
Benzene	ug/kg	1,930	99% Chebyshev (Mean, Sd) UCL
Carbon disulfide	ug/kg	6	95% Student's-t UCL
Chlorobenzene	ug/kg	10,100	99% Chebyshev (Mean, Sd) UCL
Chloroethane	ug/kg	24	95% Chebyshev (Mean, Sd) UCL
Chloromethane	ug/kg	127	95% Chebyshev (Mean, Sd) UCL
cis-1,2-Dichloroethene	ug/kg	149,000	95% Hall's Bootstrap UCL
Cyclohexane	ug/kg	2,550	99% Chebyshev (Mean, Sd) UCL
Ethylbenzene	ug/kg	22,400	95% Hall's Bootstrap UCL
Isopropylbenzene (cumene)	ug/kg	5,350	95% Hall's Bootstrap UCL
Methyl ethyl ketone	ug/kg	314	99% Chebyshev (Mean, Sd) UCL
Methyl isobutyl ketone	ug/kg	5,740	99% Chebyshev (Mean, Sd) UCL
Methyl tert-butyl ether	ug/kg	4	Maximum Result
Methylcyclohexane	ug/kg	10,200	95% Hall's Bootstrap UCL
Methylene chloride	ug/kg	8	95% Student's-t UCL
Styrene	ug/kg	514	99% Chebyshev (Mean, Sd) UCL
Tetrachloroethene	ug/kg	88	99% Chebyshev (Mean, Sd) UCL
Toluene	ug/kg	116,000	95% Hall's Bootstrap UCL
trans-1,2-Dichloroethene	ug/kg	638	99% Chebyshev (Mean, Sd) UCL
Trichloroethene	ug/kg	521	99% Chebyshev (Mean, Sd) UCL
Vinyl chloride	ug/kg	1,280	99% Chebyshev (Mean, Sd) UCL
Xylenes, total	ug/kg	157,000	95% Hall's Bootstrap UCL

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Dioxins/Furans			
1,2,3,4,6,7,8-HpCDD	ng/kg	972	95% Student's-t UCL
1,2,3,4,6,7,8-HpCDF	ng/kg	160	95% Student's-t UCL
1,2,3,4,7,8,9-HpCDF	ng/kg	8	95% Student's-t UCL
1,2,3,4,7,8-HxCDD	ng/kg	16	Maximum Result
1,2,3,4,7,8-HxCDF	ng/kg	2	95% Student's-t UCL
1,2,3,6,7,8-HxCDD	ng/kg	74	Maximum Result
1,2,3,6,7,8-HxCDF	ng/kg	15	95% Student's-t UCL
1,2,3,7,8,9-HxCDD	ng/kg	41	Maximum Result
1,2,3,7,8,9-HxCDF	ng/kg	9	Maximum Result
1,2,3,7,8-PeCDD	ng/kg	15	Maximum Result
2,3,4,6,7,8-HxCDF	ng/kg	15	95% Student's-t UCL
2,3,4,7,8-PeCDF	ng/kg	37	95% Student's-t UCL
2,3,7,8-TCDF	ng/kg	5	95% Student's-t UCL
OCDD	ng/kg	8,200	95% Student's-t UCL
OCDF	ng/kg	325	95% Student's-t UCL

Former AMCO Chemical Facility - Deep

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Metals			
Aluminum	mg/kg	12,500	95% Student's-t UCL
Antimony	mg/kg	21	99% Chebyshev (Mean, Sd) UCL
Arsenic	mg/kg	8	95% Approximate Gamma UCL
Barium	mg/kg	555	95% H-UCL
Beryllium	mg/kg	1	95% Approximate Gamma UCL
Cadmium	mg/kg	2	95% Chebyshev (Mean, Sd) UCL
Chromium	mg/kg	495	95% Chebyshev (Mean, Sd) UCL
Cobalt	mg/kg	8	95% Approximate Gamma UCL
Copper	mg/kg	145	95% Approximate Gamma UCL
Iron	mg/kg	23,400	95% Approximate Gamma UCL
Lead	mg/kg	605	95% Approximate Gamma UCL
Manganese	mg/kg	843	95% Chebyshev (Mean, Sd) UCL
Nickel	mg/kg	37	95% Student's-t UCL
Selenium	mg/kg	3	95% Chebyshev (Mean, Sd) UCL
Silver	mg/kg	1	95% Approximate Gamma UCL
Thallium	mg/kg	3	95% Chebyshev (Mean, Sd) UCL
Vanadium	mg/kg	41	95% Approximate Gamma UCL
Zinc	mg/kg	441	95% Approximate Gamma UCL
Pesticides/PCBs			
4,4'-DDD	ug/kg	8,400	95% Hall's Bootstrap UCL
4,4'-DDE	ug/kg	5,640	99% Chebyshev (Mean, Sd) UCL
4,4'-DDT	ug/kg	247	99% Chebyshev (Mean, Sd) UCL
Aldrin	ug/kg	924	99% Chebyshev (Mean, Sd) UCL
alpha-BHC	ug/kg	26	Maximum Result
alpha-Chlordane	ug/kg	70	99% Chebyshev (Mean, Sd) UCL
beta-BHC	ug/kg	35	Maximum Result
delta-BHC	ug/kg	4	Maximum Result
Dieldrin	ug/kg	2,080	99% Chebyshev (Mean, Sd) UCL
Endosulfan sulfate	ug/kg	2	Maximum Result
Endrin	ug/kg	5	Maximum Result
Endrin aldehyde	ug/kg	1	Maximum Result
Endrin ketone	ug/kg	12	Maximum Result
gamma-BHC	ug/kg	3	Maximum Result
gamma-Chlordane	ug/kg	88	99% Chebyshev (Mean, Sd) UCL
Heptachlor	ug/kg	9	Maximum Result
Methoxychlor	ug/kg	4	Maximum Result
Aroclor-1260	ug/kg	980	Maximum Result
SVOCs/VOCs			

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
1,2,4-Trichlorobenzene	ug/kg	1,050	99% Chebyshev (Mean, Sd) UCL
1,2-Dichlorobenzene	ug/kg	40,200	95% Hall's Bootstrap UCL
1,3-Dichlorobenzene	ug/kg	1,380	99% Chebyshev (Mean, Sd) UCL
1,4-Dichlorobenzene	ug/kg	17,600	99% Chebyshev (Mean, Sd) UCL
1,4-Dioxane (p-dioxane)	ug/kg	872	95% Chebyshev (Mean, Sd) UCL
2-Methylnaphthalene	ug/kg	402,000	99% Chebyshev (Mean, Sd) UCL
2-Methylphenol	ug/kg	990	Maximum Result
4-Chloro-3-methylphenol	ug/kg	7,200	Maximum Result
4-Methylphenol	ug/kg	3,600	Maximum Result
Acenaphthene	ug/kg	8,320	99% Chebyshev (Mean, Sd) UCL
Acetophenone	ug/kg	8,730	99% Chebyshev (Mean, Sd) UCL
Anthracene	ug/kg	1,100	Maximum Result
Benzo(a)anthracene	ug/kg	550	Maximum Result
Benzo(a)pyrene	ug/kg	500	Maximum Result
Benzo(b)fluoranthene	ug/kg	420	Maximum Result
Benzo(g,h,i)perylene	ug/kg	430	Maximum Result
Benzo(k)fluoranthene	ug/kg	430	Maximum Result
Benzyl butyl phthalate	ug/kg	7,600	Maximum Result
Biphenyl (diphenyl)	ug/kg	7,100	Maximum Result
bis(2-Ethylhexyl)phthalate	ug/kg	8,860	99% Chebyshev (Mean, Sd) UCL
Caprolactam	ug/kg	95	Maximum Result
Carbazole	ug/kg	1,100	Maximum Result
Chrysene	ug/kg	3,500	Maximum Result
Dibenz(a,h)anthracene	ug/kg	120	Maximum Result
Dibenzofuran	ug/kg	4,100	Maximum Result
Di-n-butyl phthalate	ug/kg	2,900	Maximum Result
Fluoranthene	ug/kg	5,900	Maximum Result
Fluorene	ug/kg	8,100	99% Chebyshev (Mean, Sd) UCL
Indeno(1,2,3-c,d)pyrene	ug/kg	440	Maximum Result
Naphthalene	ug/kg	51,000	99% Chebyshev (Mean, Sd) UCL
Pentachlorophenol	ug/kg	6,700	Maximum Result
Phenanthrene	ug/kg	15,100	99% Chebyshev (Mean, Sd) UCL
Pyrene	ug/kg	7,300	99% Chebyshev (Mean, Sd) UCL
1,1,1-Trichloroethane	ug/kg	23	95% Chebyshev (Mean, Sd) UCL
1,1-Dichloroethane	ug/kg	7,300	99% Chebyshev (Mean, Sd) UCL
1,1-Dichloroethene	ug/kg	53	95% Chebyshev (Mean, Sd) UCL
1,2-Dichloroethane	ug/kg	43	95% Chebyshev (Mean, Sd) UCL
Acetone	ug/kg	209	95% Approximate Gamma UCL
Benzene	ug/kg	1,420	99% Chebyshev (Mean, Sd) UCL
Carbon disulfide	ug/kg	7	95% Student's-t UCL
Chlorobenzene	ug/kg	6,890	99% Chebyshev (Mean, Sd) UCL
Chloroethane	ug/kg	19	95% Chebyshev (Mean, Sd) UCL
Chloromethane	ug/kg	88	95% Chebyshev (Mean, Sd) UCL
cis-1,2-Dichloroethene	ug/kg	134,000	95% Hall's Bootstrap UCL
Cyclohexane	ug/kg	2,380	99% Chebyshev (Mean, Sd) UCL
Ethylbenzene	ug/kg	25,200	95% Hall's Bootstrap UCL
Isopropylbenzene (cumene)	ug/kg	14,700	99% Chebyshev (Mean, Sd) UCL
Methyl ethyl ketone	ug/kg	281	99% Chebyshev (Mean, Sd) UCL
Methyl isobutyl ketone	ug/kg	4,190	99% Chebyshev (Mean, Sd) UCL
Methyl tert-butyl ether	ug/kg	4	Maximum Result
Methylcyclohexane	ug/kg	16,200	95% Hall's Bootstrap UCL
Methylene chloride	ug/kg	9	95% Student's-t UCL
Styrene	ug/kg	174	95% Chebyshev (Mean, Sd) UCL
Tetrachloroethene	ug/kg	509	99% Chebyshev (Mean, Sd) UCL
Toluene	ug/kg	494,000	95% Hall's Bootstrap UCL
trans-1,2-Dichloroethene	ug/kg	529	99% Chebyshev (Mean, Sd) UCL
Trichloroethene	ug/kg	2,630	99% Chebyshev (Mean, Sd) UCL
Vinyl chloride	ug/kg	895	99% Chebyshev (Mean, Sd) UCL

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Xylenes, total	ug/kg	140,000	95% Hall's Bootstrap UCL
Dioxins/Furans			
1,2,3,4,6,7,8-HpCDD	ng/kg	972	95% Student's-t UCL
1,2,3,4,6,7,8-HpCDF	ng/kg	160	95% Student's-t UCL
1,2,3,4,7,8,9-HpCDF	ng/kg	8	95% Student's-t UCL
1,2,3,4,7,8-HxCDD	ng/kg	16	Maximum Result
1,2,3,4,7,8-HxCDF	ng/kg	2	95% Student's-t UCL
1,2,3,6,7,8-HxCDD	ng/kg	74	Maximum Result
1,2,3,6,7,8-HxCDF	ng/kg	15	95% Student's-t UCL
1,2,3,7,8,9-HxCDD	ng/kg	41	Maximum Result
1,2,3,7,8,9-HxCDF	ng/kg	9	Maximum Result
1,2,3,7,8-PeCDD	ng/kg	15	Maximum Result
2,3,4,6,7,8-HxCDF	ng/kg	15	95% Student's-t UCL
2,3,4,7,8-PeCDF	ng/kg	37	95% Student's-t UCL
2,3,7,8-TCDF	ng/kg	5	95% Student's-t UCL
OCDD	ng/kg	8,200	95% Student's-t UCL
OCDF	ng/kg	325	95% Student's-t UCL
Parking Lot - Shallow			
Metals			
Aluminum	mg/kg	13,500	Maximum Result
Antimony	mg/kg	216	Maximum Result
Arsenic	mg/kg	20	Maximum Result
Barium	mg/kg	3,800	Maximum Result
Beryllium	mg/kg	1	Maximum Result
Cadmium	mg/kg	11	Maximum Result
Chromium	mg/kg	102	Maximum Result
Cobalt	mg/kg	15	Maximum Result
Copper	mg/kg	418	Maximum Result
Iron	mg/kg	74,500	Maximum Result
Lead	mg/kg	2,170	Maximum Result
Manganese	mg/kg	1,110	Maximum Result
Nickel	mg/kg	72	Maximum Result
Selenium	mg/kg	5	Maximum Result
Silver	mg/kg	1	Maximum Result
Thallium	mg/kg	5	Maximum Result
Vanadium	mg/kg	64	Maximum Result
Zinc	mg/kg	8,030	Maximum Result
Pesticides/PCBs			
4,4'-DDD	ug/kg	10	Maximum Result
4,4'-DDE	ug/kg	4	Maximum Result
4,4'-DDT	ug/kg	10	Maximum Result
Endrin	ug/kg	6	Maximum Result
Endrin ketone	ug/kg	14	Maximum Result
gamma-Chlordane	ug/kg	2	Maximum Result
Methoxychlor	ug/kg	10	Maximum Result
SVOCs/VOCs			
2-Methylnaphthalene	ug/kg	170	Maximum Result
Acenaphthylene	ug/kg	690	Maximum Result
Anthracene	ug/kg	860	Maximum Result
Benzo(a)anthracene	ug/kg	1,300	Maximum Result
Benzo(a)pyrene	ug/kg	2,600	Maximum Result
Benzo(b)fluoranthene	ug/kg	1,700	Maximum Result
Benzo(g,h,i)perylene	ug/kg	2,300	Maximum Result
Benzo(k)fluoranthene	ug/kg	1,500	Maximum Result
Biphenyl (diphenyl)	ug/kg	160	Maximum Result
Chrysene	ug/kg	1,800	Maximum Result

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
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AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Fluoranthene	ug/kg	3,000	Maximum Result
Fluorene	ug/kg	500	Maximum Result
Indeno(1,2,3-c,d)pyrene	ug/kg	2,300	Maximum Result
Naphthalene	ug/kg	160	Maximum Result
Phenanthrene	ug/kg	4,400	Maximum Result
Pyrene	ug/kg	4,400	Maximum Result
Acetone	ug/kg	50	Maximum Result
cis-1,2-Dichloroethene	ug/kg	2	Maximum Result
Methyl ethyl ketone	ug/kg	21	Maximum Result
Methylene chloride	ug/kg	4	Maximum Result
Toluene	ug/kg	9	Maximum Result
Xylenes, total	ug/kg	5	Maximum Result

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)	
Dioxins/Furans				**Dioxin/Furans TEQ**
1,2,3,4,6,7,8-HpCDD	ng/kg	35	Maximum Result	0.351
1,2,3,4,6,7,8-HpCDF	ng/kg	31	Maximum Result	0.308
1,2,3,4,7,8,9-HpCDF	ng/kg	3	Maximum Result	0.0283
1,2,3,4,7,8-HxCDD	ng/kg	3	Maximum Result	0.283
1,2,3,4,7,8-HxCDF	ng/kg	17	Maximum Result	1.74
1,2,3,6,7,8-HxCDD	ng/kg	6	Maximum Result	0.559
1,2,3,6,7,8-HxCDF	ng/kg	11	Maximum Result	1.13
1,2,3,7,8,9-HxCDD	ng/kg	4	Maximum Result	0.375
1,2,3,7,8,9-HxCDF	ng/kg	4	Maximum Result	0.379
1,2,3,7,8-PeCDD	ng/kg	3	Maximum Result	3.37
1,2,3,7,8-PeCDF	ng/kg	4	Maximum Result	0.1173
2,3,4,6,7,8-HxCDF	ng/kg	16	Maximum Result	1.55
2,3,4,7,8-PeCDF	ng/kg	33	Maximum Result	9.96
2,3,7,8-TCDD	ng/kg	1	Maximum Result	0.898
2,3,7,8-TCDF	ng/kg	8	Maximum Result	0.822
OCDD	ng/kg	357	Maximum Result	0.1071
OCDF	ng/kg	19	Maximum Result	0.00564

Parking Lot - Deep

Metals			
Aluminum	mg/kg	13,000	95% Student's-t UCL
Antimony	mg/kg	216	Maximum Result
Arsenic	mg/kg	13	95% Student's-t UCL
Barium	mg/kg	3,500	95% Approximate Gamma UCL
Beryllium	mg/kg	1	95% Approximate Gamma UCL
Cadmium	mg/kg	11	Maximum Result
Chromium	mg/kg	80	95% Student's-t UCL
Cobalt	mg/kg	12	95% Approximate Gamma UCL
Copper	mg/kg	307	95% Student's-t UCL
Iron	mg/kg	57,400	95% Approximate Gamma UCL
Lead	mg/kg	1,450	95% Student's-t UCL
Manganese	mg/kg	857	95% Approximate Gamma UCL
Nickel	mg/kg	59	95% Student's-t UCL
Selenium	mg/kg	4	95% Approximate Gamma UCL
Silver	mg/kg	1	95% Student's-t UCL
Thallium	mg/kg	4	95% Approximate Gamma UCL
Vanadium	mg/kg	50	95% Student's-t UCL
Zinc	mg/kg	8,030	Maximum Result
Pesticides/PCBs			
4,4'-DDD	ug/kg	61	95% Approximate Gamma UCL
4,4'-DDE	ug/kg	24	95% Chebyshev (Mean, Sd) UCL
4,4'-DDT	ug/kg	9	95% Chebyshev (Mean, Sd) UCL
Dieldrin	ug/kg	9	95% Chebyshev (Mean, Sd) UCL
Endrin	ug/kg	4	95% Approximate Gamma UCL
Endrin ketone	ug/kg	13	95% Chebyshev (Mean, Sd) UCL
gamma-Chlordane	ug/kg	1	95% Approximate Gamma UCL
Methoxychlor	ug/kg	10	Maximum Result
SVOCs/VOCs			
2-Methylnaphthalene	ug/kg	1,910	95% Chebyshev (Mean, Sd) UCL
Acenaphthylene	ug/kg	1,200	Maximum Result
Anthracene	ug/kg	940	Maximum Result
Benzo(a)anthracene	ug/kg	4,140	95% Approximate Gamma UCL
Benzo(a)pyrene	ug/kg	8,900	Maximum Result
Benzo(b)fluoranthene	ug/kg	5,600	Maximum Result
Benzo(g,h,i)perylene	ug/kg	9,000	Maximum Result
Benzo(k)fluoranthene	ug/kg	3,400	95% Approximate Gamma UCL

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)	
Biphenyl (diphenyl)	ug/kg	160	Maximum Result	
Chrysene	ug/kg	6,500	Maximum Result	
Dibenz(a,h)anthracene	ug/kg	1,020	95% Chebyshev (Mean, Sd) UCL	
Fluoranthene	ug/kg	12,000	Maximum Result	
Fluorene	ug/kg	423	95% Approximate Gamma UCL	
Indeno(1,2,3-c,d)pyrene	ug/kg	8,300	Maximum Result	
Naphthalene	ug/kg	799	95% Chebyshev (Mean, Sd) UCL	
Phenanthrene	ug/kg	4,400	Maximum Result	
Pyrene	ug/kg	16,000	Maximum Result	
Acetone	ug/kg	34	95% Student's-t UCL	
cis-1,2-Dichloroethene	ug/kg	2	Maximum Result	
Methyl ethyl ketone	ug/kg	19	95% Chebyshev (Mean, Sd) UCL	
Methylene chloride	ug/kg	4	Maximum Result	
Toluene	ug/kg	8	95% Student's-t UCL	
Xylenes, total	ug/kg	5	Maximum Result	
Dioxins/Furans				**Dioxin/Furans TEQ**
1,2,3,4,6,7,8-HpCDD	ng/kg	35	Maximum Result	0.351
1,2,3,4,6,7,8-HpCDF	ng/kg	31	Maximum Result	0.308
1,2,3,4,7,8,9-HpCDF	ng/kg	3	Maximum Result	0.0283
1,2,3,4,7,8-HxCDD	ng/kg	3	Maximum Result	0.283
1,2,3,4,7,8-HxCDF	ng/kg	17	Maximum Result	1.74
1,2,3,6,7,8-HxCDD	ng/kg	6	Maximum Result	0.559
1,2,3,6,7,8-HxCDF	ng/kg	11	Maximum Result	1.13
1,2,3,7,8,9-HxCDD	ng/kg	4	Maximum Result	0.375
1,2,3,7,8,9-HxCDF	ng/kg	4	Maximum Result	0.379
1,2,3,7,8-PeCDD	ng/kg	3	Maximum Result	3.37
1,2,3,7,8-PeCDF	ng/kg	4	Maximum Result	0.1173
2,3,4,6,7,8-HxCDF	ng/kg	16	Maximum Result	1.55
2,3,4,7,8-PeCDF	ng/kg	33	Maximum Result	9.96
2,3,7,8-TCDD	ng/kg	1	Maximum Result	0.898
2,3,7,8-TCDF	ng/kg	8	Maximum Result	0.822
OCDD	ng/kg	357	Maximum Result	0.1071
OCDF	ng/kg	19	Maximum Result	0.00564

Large Vacant Lot - Shallow

Metals			
Aluminum	mg/kg	9,210	95% Approximate Gamma UCL
Antimony	mg/kg	4	95% Approximate Gamma UCL
Arsenic	mg/kg	27	95% Approximate Gamma UCL
Barium	mg/kg	937	95% Chebyshev (Mean, Sd) UCL
Beryllium	mg/kg	0	95% Student's-t UCL
Cadmium	mg/kg	2	95% Chebyshev (Mean, Sd) UCL
Chromium	mg/kg	154	95% Approximate Gamma UCL
Cobalt	mg/kg	7	95% Student's-t UCL
Copper	mg/kg	149	95% Approximate Gamma UCL
Iron	mg/kg	24,900	95% Approximate Gamma UCL
Lead	mg/kg	4,360	99% Chebyshev (Mean, Sd) UCL
Manganese	mg/kg	360	95% Student's-t UCL
Nickel	mg/kg	26	95% Student's-t UCL
Selenium	mg/kg	3	Maximum Result
Silver	mg/kg	1	95% Approximate Gamma UCL
Thallium	mg/kg	3	Maximum Result
Vanadium	mg/kg	33	95% Approximate Gamma UCL
Zinc	mg/kg	453	95% Approximate Gamma UCL
Pesticides/PCBs			
4,4'-DDD	ug/kg	9,090	95% Adjusted Gamma UCL
4,4'-DDE	ug/kg	5,260	95% Adjusted Gamma UCL

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
4,4'-DDT	ug/kg	140,000	Maximum Result
alpha-BHC	ug/kg	6	Maximum Result
alpha-Chlordane	ug/kg	81	Maximum Result
beta-BHC	ug/kg	24	Maximum Result
Dieldrin	ug/kg	86	Maximum Result
Endosulfan sulfate	ug/kg	4	Maximum Result
Endrin	ug/kg	14	Maximum Result
Endrin aldehyde	ug/kg	5	Maximum Result
Endrin ketone	ug/kg	7	Maximum Result
gamma-BHC	ug/kg	347	99% Chebyshev (Mean, Sd) UCL
gamma-Chlordane	ug/kg	83	Maximum Result
Heptachlor	ug/kg	1	Maximum Result
Heptachlor epoxide	ug/kg	3	Maximum Result
Methoxychlor	ug/kg	7	Maximum Result
Aroclor-1260	ug/kg	33	Maximum Result
SVOCs/VOCs			
1,2-Dichlorobenzene	ug/kg	8	95% Student's-t UCL
1,4-Dichlorobenzene	ug/kg	2	Maximum Result
2-Methylnaphthalene	ug/kg	3,870	99% Chebyshev (Mean, Sd) UCL
Acetophenone	ug/kg	260	95% Student's-t UCL
Benzo(a)anthracene	ug/kg	488	95% H-UCL
Benzo(a)pyrene	ug/kg	651	95% H-UCL
Benzo(b)fluoranthene	ug/kg	640	95% Chebyshev (Mean, Sd) UCL
Benzo(g,h,i)perylene	ug/kg	660	95% H-UCL
Benzo(k)fluoranthene	ug/kg	623	95% Chebyshev (Mean, Sd) UCL
bis(2-Ethylhexyl)phthalate	ug/kg	1,070	95% Chebyshev (Mean, Sd) UCL
Caprolactam	ug/kg	230	Maximum Result
Chrysene	ug/kg	797	95% Chebyshev (Mean, Sd) UCL
Dibenz(a,h)anthracene	ug/kg	313	95% Student's-t UCL
Fluoranthene	ug/kg	668	95% H-UCL
Indeno(1,2,3-c,d)pyrene	ug/kg	694	95% H-UCL
Naphthalene	ug/kg	283	95% Student's-t UCL
Phenanthrene	ug/kg	378	95% H-UCL
Pyrene	ug/kg	1,350	95% Chebyshev (Mean, Sd) UCL
Acetone	ug/kg	150	Maximum Result
Chlorobenzene	ug/kg	22	95% Chebyshev (Mean, Sd) UCL
cis-1,2-Dichloroethene	ug/kg	21	95% Chebyshev (Mean, Sd) UCL
Ethylbenzene	ug/kg	21	95% Chebyshev (Mean, Sd) UCL
Isopropylbenzene (cumene)	ug/kg	338	99% Chebyshev (Mean, Sd) UCL
Methyl ethyl ketone	ug/kg	24	95% Chebyshev (Mean, Sd) UCL
Methyl isobutyl ketone	ug/kg	7	95% Student's-t UCL
Methylcyclohexane	ug/kg	346	99% Chebyshev (Mean, Sd) UCL
Methylene chloride	ug/kg	7	95% Student's-t UCL
Tetrachloroethene	ug/kg	7	95% Student's-t UCL
Toluene	ug/kg	69	95% Chebyshev (Mean, Sd) UCL
Trichloroethene	ug/kg	4	Maximum Result
Xylenes, total	ug/kg	291	99% Chebyshev (Mean, Sd) UCL

Large Vacant Lot - Deep

Metals			
Aluminum	mg/kg	8,240	95% Student's-t UCL
Antimony	mg/kg	3	95% H-UCL
Arsenic	mg/kg	18	95% Approximate Gamma UCL
Barium	mg/kg	652	95% Chebyshev (Mean, Sd) UCL
Beryllium	mg/kg	0	95% Approximate Gamma UCL
Cadmium	mg/kg	2	95% Chebyshev (Mean, Sd) UCL
Chromium	mg/kg	166	95% Chebyshev (Mean, Sd) UCL

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Cobalt	mg/kg	6	95% Student's-t UCL
Copper	mg/kg	114	95% Approximate Gamma UCL
Iron	mg/kg	21,400	95% Approximate Gamma UCL
Lead	mg/kg	2,750	99% Chebyshev (Mean, Sd) UCL
Manganese	mg/kg	324	95% Student's-t UCL
Nickel	mg/kg	25	95% Student's-t UCL
Selenium	mg/kg	4	Maximum Result
Silver	mg/kg	0	95% H-UCL
Thallium	mg/kg	3	Maximum Result
Vanadium	mg/kg	29	95% Approximate Gamma UCL
Zinc	mg/kg	321	95% Approximate Gamma UCL
Pesticides/PCBs			
4,4'-DDD	ug/kg	3,790	95% Adjusted Gamma UCL
4,4'-DDE	ug/kg	2,100	95% Adjusted Gamma UCL
4,4'-DDT	ug/kg	80,500	99% Chebyshev (MVUE) UCL
alpha-BHC	ug/kg	6	Maximum Result
alpha-Chlordane	ug/kg	81	Maximum Result
beta-BHC	ug/kg	24	Maximum Result
Dieldrin	ug/kg	86	Maximum Result
Endosulfan I	ug/kg	1	Maximum Result
Endosulfan sulfate	ug/kg	4	Maximum Result
Endrin	ug/kg	14	Maximum Result
Endrin aldehyde	ug/kg	5	Maximum Result
Endrin ketone	ug/kg	7	Maximum Result
gamma-BHC	ug/kg	216	99% Chebyshev (Mean, Sd) UCL
gamma-Chlordane	ug/kg	83	Maximum Result
Heptachlor	ug/kg	1	Maximum Result
Heptachlor epoxide	ug/kg	3	Maximum Result
Methoxychlor	ug/kg	7	Maximum Result
Aroclor-1260	ug/kg	33	Maximum Result
SVOCs/VOCs			
1,1-Dichloroethane	ug/kg	7	95% Student's-t UCL
1,2-Dichlorobenzene	ug/kg	1,050	99% Chebyshev (Mean, Sd) UCL
1,3-Dichlorobenzene	ug/kg	2	Maximum Result
1,4-Dichlorobenzene	ug/kg	74	95% Chebyshev (Mean, Sd) UCL
2-Methylnaphthalene	ug/kg	1,360	95% Chebyshev (Mean, Sd) UCL
Acetophenone	ug/kg	236	95% Student's-t UCL
Anthracene	ug/kg	81	Maximum Result
Benzo(a)anthracene	ug/kg	495	95% Chebyshev (Mean, Sd) UCL
Benzo(a)pyrene	ug/kg	617	95% Chebyshev (Mean, Sd) UCL
Benzo(b)fluoranthene	ug/kg	501	95% Chebyshev (Mean, Sd) UCL
Benzo(g,h,i)perylene	ug/kg	581	95% Chebyshev (Mean, Sd) UCL
Benzo(k)fluoranthene	ug/kg	495	95% Chebyshev (Mean, Sd) UCL
Benzyl butyl phthalate	ug/kg	270	Maximum Result
bis(2-Ethylhexyl)phthalate	ug/kg	904	95% Chebyshev (Mean, Sd) UCL
Caprolactam	ug/kg	230	Maximum Result
Chrysene	ug/kg	597	95% Chebyshev (Mean, Sd) UCL
Dibenz(a,h)anthracene	ug/kg	267	95% Student's-t UCL
Fluoranthene	ug/kg	735	95% Chebyshev (Mean, Sd) UCL
Indeno(1,2,3-c,d)pyrene	ug/kg	600	95% Chebyshev (Mean, Sd) UCL
Naphthalene	ug/kg	249	95% Student's-t UCL
Phenanthrene	ug/kg	308	95% Student's-t UCL
Pyrene	ug/kg	1,020	95% Chebyshev (Mean, Sd) UCL
Acetone	ug/kg	61	95% Approximate Gamma UCL
Chlorobenzene	ug/kg	2,240	99% Chebyshev (Mean, Sd) UCL
cis-1,2-Dichloroethene	ug/kg	18	95% Chebyshev (Mean, Sd) UCL
Ethylbenzene	ug/kg	10	95% Student's-t UCL
Isopropylbenzene (cumene)	ug/kg	105	95% Chebyshev (Mean, Sd) UCL

TABLE 33
Exposure Point Concentrations for Soil Exposure Areas
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Units	Exposure Point Concentration (may be Max)	EPC Basis (may be Max)
Methyl ethyl ketone	ug/kg	18	95% Chebyshev (Mean, Sd) UCL
Methyl isobutyl ketone	ug/kg	7	95% Student's-t UCL
Methylcyclohexane	ug/kg	107	95% Chebyshev (Mean, Sd) UCL
Methylene chloride	ug/kg	6	95% Student's-t UCL
Tetrachloroethene	ug/kg	6	95% Student's-t UCL
Toluene	ug/kg	44	95% Chebyshev (Mean, Sd) UCL
Trichloroethene	ug/kg	4	Maximum Result
Vinyl chloride	ug/kg	1	Maximum Result
Xylenes, total	ug/kg	91	95% Chebyshev (Mean, Sd) UCL

Small Vacant Lot - Shallow

Metals			
Aluminum	mg/kg	8,020	Maximum Result
Arsenic	mg/kg	14	Maximum Result
Barium	mg/kg	278	Maximum Result
Beryllium	mg/kg	0	Maximum Result
Cadmium	mg/kg	2	Maximum Result
Chromium	mg/kg	34	Maximum Result
Cobalt	mg/kg	7	Maximum Result
Copper	mg/kg	96	Maximum Result
Iron	mg/kg	16,300	Maximum Result
Lead	mg/kg	386	Maximum Result
Manganese	mg/kg	312	Maximum Result
Nickel	mg/kg	24	Maximum Result
Selenium	mg/kg	1	Maximum Result
Silver	mg/kg	1	Maximum Result
Thallium	mg/kg	1	Maximum Result
Vanadium	mg/kg	27	Maximum Result
Zinc	mg/kg	736	Maximum Result
Pesticides/PCBs			
4,4'-DDD	ug/kg	6	Maximum Result
4,4'-DDE	ug/kg	18	Maximum Result
4,4'-DDT	ug/kg	45	Maximum Result
alpha-Chlordane	ug/kg	8	Maximum Result
Dieldrin	ug/kg	1	Maximum Result
gamma-Chlordane	ug/kg	6	Maximum Result

TABLE 34
Exposure Point Concentrations for Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical	Units	Exposure Point Concentration	EPC Basis
Metals			
Aluminum	ug/L	9,398	97.5% Chebyshev (Mean, Sd) UCL
Antimony	ug/L	1.5	95% Student's-t UCL
Arsenic	ug/L	287	95% H-UCL
Barium	ug/L	168	95% H-UCL
Beryllium	ug/L	0.8	95% Chebyshev (Mean, Sd) UCL
Boron	ug/L	4,307	95% Approximate Gamma UCL
Cadmium	ug/L	1.3	95% Chebyshev (Mean, Sd) UCL
Chromium	ug/L	36	97.5% Chebyshev (Mean, Sd) UCL
Chromium (VI)	ug/L	0.4	Maximum Result
Cobalt	ug/L	8.9	95% Approximate Gamma UCL
Copper	ug/L	47	95% H-UCL
Iron	ug/L	53,504	95% Chebyshev (MVUE) UCL
Lead	ug/L	40	95% H-UCL
Manganese	ug/L	4,331	95% Approximate Gamma UCL
Mercury	ug/L	0.1	95% Student's-t UCL
Molybdenum	ug/L	5.6	95% Chebyshev (Mean, Sd) UCL
Nickel	ug/L	55	95% H-UCL
Selenium	ug/L	19	95% Chebyshev (Mean, Sd) UCL
Silver	ug/L	0.1	Maximum Result
Thallium	ug/L	0.1	Maximum Result
Vanadium	ug/L	32	97.5% Chebyshev (Mean, Sd) UCL
Zinc	ug/L	303	95% H-UCL
Cyanide	ug/L	63	Maximum Result
Pesticides/PCBs			
4,4'-DDD	ug/L	5.0	99% Chebyshev (Mean, Sd) UCL
4,4'-DDE	ug/L	0.8	97.5% Chebyshev (Mean, Sd) UCL
4,4'-DDT	ug/L	0.2	Maximum Result
Aldrin	ug/L	0.4	97.5% Chebyshev (Mean, Sd) UCL
alpha-BHC	ug/L	0.3	Maximum Result
alpha-Chlordane	ug/L	0.3	97.5% Chebyshev (Mean, Sd) UCL
Atrazine	ug/L	2.0	Maximum Result
beta-BHC	ug/L	0.4	97.5% Chebyshev (Mean, Sd) UCL
delta-BHC	ug/L	0.2	Maximum Result
Diazinon	ug/L	0.3	95% Chebyshev (Mean, Sd) UCL
Dieldrin	ug/L	0.9	97.5% Chebyshev (Mean, Sd) UCL
Endosulfan I	ug/L	0.3	97.5% Chebyshev (Mean, Sd) UCL
Endosulfan II	ug/L	0.2	Maximum Result
Endosulfan sulfate	ug/L	0.1	Maximum Result
Endrin	ug/L	0.6	97.5% Chebyshev (Mean, Sd) UCL
Endrin aldehyde	ug/L	0.1	Maximum Result
Endrin ketone	ug/L	0.2	Maximum Result
gamma-BHC	ug/L	0.3	97.5% Chebyshev (Mean, Sd) UCL
gamma-Chlordane	ug/L	0.3	Maximum Result
Heptachlor	ug/L	0.1	97.5% Chebyshev (Mean, Sd) UCL
Heptachlor epoxide	ug/L	0.1	Maximum Result

TABLE 34
Exposure Point Concentrations for Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical	Units	Exposure Point Concentration	EPC Basis
Methoxychlor	ug/L	0.1	Maximum Result
Aroclor-1260	ug/L	1.0	95% Chebyshev (Mean, Sd) UCL
SVOCs/VOCs			
1,4-Dioxane (p-dioxane)	ug/L	780	Maximum Result
2,4,6-Trichlorophenol	ug/L	7	97.5% Chebyshev (Mean, Sd) UCL
2,4-Dimethylphenol	ug/L	79	97.5% Chebyshev (Mean, Sd) UCL
2-Chlorophenol	ug/L	4.3	Maximum Result
2-Methylnaphthalene	ug/L	226	99% Chebyshev (Mean, Sd) UCL
2-Methylphenol	ug/L	123	97.5% Chebyshev (Mean, Sd) UCL
2-Nitroaniline	ug/L	10	Maximum Result
3,4-methylphenol	ug/L	840	Maximum Result
4-Chloro-3-methylphenol	ug/L	24	95% Chebyshev (Mean, Sd) UCL
4-Methylphenol	ug/L	194	97.5% Chebyshev (Mean, Sd) UCL
Acenaphthene	ug/L	4.5	Maximum Result
Acenaphthylene	ug/L	10	97.5% Chebyshev (Mean, Sd) UCL
Anthracene	ug/L	3.2	Maximum Result
Benzo(a)anthracene	ug/L	0.9	Maximum Result
Benzo(a)pyrene	ug/L	0.5	Maximum Result
Benzo(b)fluoranthene	ug/L	0.8	Maximum Result
Benzo(g,h,i)perylene	ug/L	0.2	Maximum Result
Benzo(k)fluoranthene	ug/L	0.5	Maximum Result
Biphenyl (Diphenyl)	ug/L	1.3	Maximum Result
bis(2-Chloroethoxy)methane	ug/L	0.2	Maximum Result
bis(2-Ethylhexyl)phthalate	ug/L	17	97.5% Chebyshev (Mean, Sd) UCL
Bromoform	ug/L	12	Maximum Result
Caprolactam	ug/L	2.4	Maximum Result
Carbazole	ug/L	13	99% Chebyshev (Mean, Sd) UCL
Chrysene	ug/L	1.1	Maximum Result
Dibenz(a,h)anthracene	ug/L	0.0	Maximum Result
Diethylphthalate	ug/L	10	95% Chebyshev (Mean, Sd) UCL
Di-n-butyl phthalate	ug/L	12	95% Chebyshev (Mean, Sd) UCL
Fluoranthene	ug/L	2.4	Maximum Result
Fluorene	ug/L	2.6	Maximum Result
Hexachloroethane	ug/L	1.0	Maximum Result
Indeno(1,2,3-c,d)pyrene	ug/L	0.2	Maximum Result
Naphthalene	ug/L	136	99% Chebyshev (Mean, Sd) UCL
Nitrobenzene	ug/L	2.0	Maximum Result
N-Nitrosodi-n-propylamine	ug/L	2.0	Maximum Result
N-Nitrosodiphenylamine	ug/L	1.2	Maximum Result
Pentachlorophenol	ug/L	11	97.5% Chebyshev (Mean, Sd) UCL
Phenanthrene	ug/L	6.0	Maximum Result
Pyrene	ug/L	2.4	Maximum Result
1,1-Dichloroethane	ug/L	557	99% Chebyshev (Mean, Sd) UCL
1,1-Dichloroethene	ug/L	42	97.5% Chebyshev (Mean, Sd) UCL
1,1,1-Trichloroethane	ug/L	118	97.5% Chebyshev (Mean, Sd) UCL
1,1,2-Trichloroethane	ug/L	13	97.5% Chebyshev (Mean, Sd) UCL

TABLE 34
Exposure Point Concentrations for Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical	Units	Exposure Point Concentration	EPC Basis
1,1,2,2-Tetrachloroethane	ug/L	13	97.5% Chebyshev (Mean, Sd) UCL
1,2,3-Trichlorobenzene	ug/L	2.7	97.5% Chebyshev (Mean, Sd) UCL
1,2,4-Trichlorobenzene	ug/L	15	97.5% Chebyshev (Mean, Sd) UCL
1,2,4-Trimethylbenzene	ug/L	278	99% Chebyshev (Mean, Sd) UCL
1,2-Dibromo-3-chloropropane	ug/L	2.4	Maximum Result
1,2-Dichlorobenzene	ug/L	734	99% Chebyshev (Mean, Sd) UCL
1,2-Dichloroethane	ug/L	14	97.5% Chebyshev (Mean, Sd) UCL
1,2-Dichloropropane	ug/L	5.1	Maximum Result
1,3-Dichlorobenzene	ug/L	27	97.5% Chebyshev (Mean, Sd) UCL
1,3,5-Trimethylbenzene	ug/L	110	99% Chebyshev (Mean, Sd) UCL
1,4-Dichlorobenzene	ug/L	218	97.5% Chebyshev (Mean, Sd) UCL
2-Chlorotoluene	ug/L	2.9	97.5% Chebyshev (Mean, Sd) UCL
2-Hexanone	ug/L	24	95% Chebyshev (Mean, Sd) UCL
2,2-Dichloropropane	ug/L	0.5	Maximum Result
Acetone	ug/L	485	97.5% Chebyshev (Mean, Sd) UCL
Benzene	ug/L	400	99% Chebyshev (Mean, Sd) UCL
Carbon disulfide	ug/L	3.1	Maximum Result
Carbon tetrachloride	ug/L	0.3	Maximum Result
Chlorobenzene	ug/L	674	99% Chebyshev (Mean, Sd) UCL
Chloroethane	ug/L	97	99% Chebyshev (Mean, Sd) UCL
Chloroform	ug/L	4.4	Maximum Result
Chloromethane	ug/L	7.4	Maximum Result
cis-1,2-Dichloroethene	ug/L	13,720	99% Chebyshev (Mean, Sd) UCL
cis-1,3-Dichloropropene	ug/L	4.2	Maximum Result
Cyclohexane	ug/L	18	Maximum Result
Ethyl tert-butyl ether (ETBE)	ug/L	1.2	Maximum Result
Ethylbenzene	ug/L	449	99% Chebyshev (Mean, Sd) UCL
Isopropyl ether	ug/L	430	Maximum Result
Isopropylbenzene (cumene)	ug/L	27	97.5% Chebyshev (Mean, Sd) UCL
Methyl acetate	ug/L	23	97.5% Chebyshev (Mean, Sd) UCL
Methyl ethyl ketone	ug/L	430	97.5% Chebyshev (Mean, Sd) UCL
Methyl isobutyl ketone	ug/L	4,858	99% Chebyshev (Mean, Sd) UCL
Methyl tert-butyl ether	ug/L	20	97.5% Chebyshev (Mean, Sd) UCL
Methylcyclohexane	ug/L	25	97.5% Chebyshev (Mean, Sd) UCL
Methylene chloride	ug/L	8.2	97.5% Chebyshev (Mean, Sd) UCL
n-Butylbenzene	ug/L	6.1	97.5% Chebyshev (Mean, Sd) UCL
n-Propylbenzene	ug/L	56	99% Chebyshev (Mean, Sd) UCL
p-Cymene (p-isopropyltoluene)	ug/L	79	99% Chebyshev (Mean, Sd) UCL
Phenol	ug/L	48	97.5% Chebyshev (Mean, Sd) UCL
sec-Butylbenzene	ug/L	5.6	97.5% Chebyshev (Mean, Sd) UCL
Styrene	ug/L	14	97.5% Chebyshev (Mean, Sd) UCL
tert-Butylbenzene	ug/L	2.1	Maximum Result
tert-Butyl alcohol	ug/L	117	97.5% Chebyshev (Mean, Sd) UCL
Tetrachloroethene	ug/L	12	Maximum Result
Toluene	ug/L	6,112	99% Chebyshev (Mean, Sd) UCL
trans-1,2-Dichloroethene	ug/L	401	99% Chebyshev (Mean, Sd) UCL

TABLE 34
Exposure Point Concentrations for Groundwater
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Chemical	Units	Exposure Point Concentration	EPC Basis
trans-1,3-Dichloropropene	ug/L	4.1	Maximum Result
Trichloroethene	ug/L	57	97.5% Chebyshev (Mean, Sd) UCL
Vinyl chloride	ug/L	1,627	99% Chebyshev (Mean, Sd) UCL
m,p-Xylene	ug/L	944	99% Chebyshev (Mean, Sd) UCL
o-Xylene	ug/L	445	99% Chebyshev (Mean, Sd) UCL
Xylenes, total	ug/L	1,600	99% Chebyshev (Mean, Sd) UCL
Dioxans/Furans			
1,2,3,4,6,7,8-HpCDD	pg/L	464	99% Chebyshev (Mean, Sd) UCL
1,2,3,4,6,7,8-HpCDF	pg/L	95	99% Chebyshev (Mean, Sd) UCL
1,2,3,4,7,8,9-HpCDF	pg/L	10	99% Chebyshev (Mean, Sd) UCL
1,2,3,4,7,8-HxCDD	pg/L	2.6	95% Chebyshev (Mean, Sd) UCL
1,2,3,4,7,8-HxCDF	pg/L	8.5	99% Chebyshev (Mean, Sd) UCL
1,2,3,6,7,8-HxCDD	pg/L	13	99% Chebyshev (Mean, Sd) UCL
1,2,3,6,7,8-HxCDF	pg/L	1.6	95% Chebyshev (Mean, Sd) UCL
1,2,3,7,8,9-HxCDD	pg/L	4.4	95% Chebyshev (Mean, Sd) UCL
1,2,3,7,8,9-HxCDF	pg/L	3.9	99% Chebyshev (Mean, Sd) UCL
1,2,3,7,8-PeCDD	pg/L	1.1	95% H-UCL
1,2,3,7,8-PeCDF	pg/L	2.3	95% Chebyshev (Mean, Sd) UCL
2,3,4,6,7,8-HxCDF	pg/L	3.9	99% Chebyshev (Mean, Sd) UCL
2,3,4,7,8-PeCDF	pg/L	2.6	95% Chebyshev (Mean, Sd) UCL
2,3,7,8-TCDF	pg/L	1.7	95% Chebyshev (Mean, Sd) UCL
OCDF	pg/L	744	99% Chebyshev (Mean, Sd) UCL
OCDD	pg/L	2180	95% Hall's Bootstrap UCL

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
1414 3rd St	Crawlspace Air	1,1,1-Trichloroethane	$\mu g/m^3$	15.8	95% Approximate Gamma UCL
1414 3rd St	Crawlspace Air	1,1,2-Trichloroethane	$\mu g/m^3$	0.041	Maximum Result
1414 3rd St	Crawlspace Air	1,1-Dichloroethane	$\mu g/m^3$	21.3	95% Approximate Gamma UCL
1414 3rd St	Crawlspace Air	1,1-Dichloroethene	$\mu g/m^3$	1.05	95% KM (Chebyshev) UCL
1414 3rd St	Crawlspace Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	2.14	95% H-UCL
1414 3rd St	Crawlspace Air	1,2-Dibromoethane	$\mu g/m^3$	0.11	Maximum Result
1414 3rd St	Crawlspace Air	1,2-Dichloroethane	$\mu g/m^3$	0.802	95% KM (Chebyshev) UCL
1414 3rd St	Crawlspace Air	1,2-Dichloropropane	$\mu g/m^3$	0.0619	95% KM (t) UCL
1414 3rd St	Crawlspace Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.364	95% KM (Percentile Bootstrap) UCL
1414 3rd St	Crawlspace Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.417	95% KM (t) UCL
1414 3rd St	Crawlspace Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.724	Too Few Unique Detected Values *
1414 3rd St	Crawlspace Air	Benzene	$\mu g/m^3$	0.724	95% Approximate Gamma UCL
1414 3rd St	Crawlspace Air	Bromomethane	$\mu g/m^3$	0.189	95% KM (t) UCL
1414 3rd St	Crawlspace Air	Carbon tetrachloride	$\mu g/m^3$	6.05	95% Chebyshev (Mean, Sd) UCL
1414 3rd St	Crawlspace Air	Chlorobenzene	$\mu g/m^3$	0.0878	95% KM (t) UCL
1414 3rd St	Crawlspace Air	Chloroethane	$\mu g/m^3$	0.384	95% KM (Percentile Bootstrap) UCL
1414 3rd St	Crawlspace Air	Chloroform	$\mu g/m^3$	1.35	95% KM (Chebyshev) UCL
1414 3rd St	Crawlspace Air	Chloromethane	$\mu g/m^3$	24.2	97.5% KM (Chebyshev) UCL
1414 3rd St	Crawlspace Air	cis-1,2-Dichloroethene	$\mu g/m^3$	272	95% Approximate Gamma UCL
1414 3rd St	Crawlspace Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.056	Maximum Result
1414 3rd St	Crawlspace Air	Ethylbenzene	$\mu g/m^3$	1.11	95% Student's-t UCL
1414 3rd St	Crawlspace Air	Freon 11	$\mu g/m^3$	2.68	95% Student's-t UCL
1414 3rd St	Crawlspace Air	Freon 113	$\mu g/m^3$	0.675	95% Student's-t UCL
1414 3rd St	Crawlspace Air	Freon 12	$\mu g/m^3$	4.23	95% Student's-t UCL
1414 3rd St	Crawlspace Air	Methyl tert-butyl ether	$\mu g/m^3$	0.0777	95% KM (t) UCL
1414 3rd St	Crawlspace Air	Methylene chloride	$\mu g/m^3$	0.801	95% KM (t) UCL
1414 3rd St	Crawlspace Air	Naphthalene	$\mu g/m^3$	0.638	95% KM (t) UCL
1414 3rd St	Crawlspace Air	Styrene	$\mu g/m^3$	0.347	95% KM (t) UCL
1414 3rd St	Crawlspace Air	Tetrachloroethene	$\mu g/m^3$	9.47	95% Approximate Gamma UCL
1414 3rd St	Crawlspace Air	Toluene	$\mu g/m^3$	9.3	95% Student's-t UCL
1414 3rd St	Crawlspace Air	trans-1,2-Dichloroethene	$\mu g/m^3$	0.635	95% KM (Chebyshev) UCL
1414 3rd St	Crawlspace Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.057	Maximum Result
1414 3rd St	Crawlspace Air	Trichloroethene	$\mu g/m^3$	13.6	95% Approximate Gamma UCL
1414 3rd St	Crawlspace Air	Vinyl chloride	$\mu g/m^3$	1.61	95% KM (BCA) UCL
1414 3rd St	Crawlspace Air	Xylenes, m & p	$\mu g/m^3$	3.86	95% Student's-t UCL
1428 3rd St	Crawlspace Air	Xylenes, o	$\mu g/m^3$	0.985	95% Student's-t UCL
1428 3rd St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0941	95% KM (t) UCL
1428 3rd St	Ambient Air	1,1,2,2-Tetrachloroethane	$\mu g/m^3$	0.159	95% KM (t) UCL
1428 3rd St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	4.74	95% Chebyshev (MVUE) UCL
1428 3rd St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.126	95% KM (Percentile Bootstrap) UCL
1428 3rd St	Ambient Air	1,2-Dichloropropane	$\mu g/m^3$	0.0513	95% KM (t) UCL
1428 3rd St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	4.09	95% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	1,3-Dichlorobenzene	$\mu g/m^3$	51	Maximum Result
1428 3rd St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	1.14	95% KM (t) UCL
1428 3rd St	Ambient Air	Benzene	$\mu g/m^3$	3.2	95% Chebyshev (Mean, Sd) UCL
1428 3rd St	Ambient Air	Bromomethane	$\mu g/m^3$	0.244	95% KM (t) UCL
1428 3rd St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.565	95% Student's-t UCL
1428 3rd St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.3	Maximum Result
1428 3rd St	Ambient Air	Chloroethane	$\mu g/m^3$	0.089	95% KM (t) UCL
1428 3rd St	Ambient Air	Chloroform	$\mu g/m^3$	0.208	95% KM (Percentile Bootstrap) UCL
1428 3rd St	Ambient Air	Chloromethane	$\mu g/m^3$	1.28	95% Student's-t UCL
1428 3rd St	Ambient Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.052	Maximum Result

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
1428 3rd St	Ambient Air	Ethylbenzene	$\mu g/m^3$	12	Maximum Result
1428 3rd St	Ambient Air	Freon 11	$\mu g/m^3$	2.08	95% Student's-t UCL
1428 3rd St	Ambient Air	Freon 113	$\mu g/m^3$	0.672	95% Student's-t UCL
1428 3rd St	Ambient Air	Freon 114	$\mu g/m^3$	0.13	Maximum Result
1428 3rd St	Ambient Air	Freon 12	$\mu g/m^3$	2.71	95% Student's-t UCL
1428 3rd St	Ambient Air	Methyl tert-butyl ether	$\mu g/m^3$	0.023	Maximum Result
1428 3rd St	Ambient Air	Methylene chloride	$\mu g/m^3$	6.26	95% KM (t) UCL
1428 3rd St	Ambient Air	Naphthalene	$\mu g/m^3$	5.18	95% KM (t) UCL
1428 3rd St	Ambient Air	Styrene	$\mu g/m^3$	6.8	Maximum Result
1428 3rd St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	1.16	95% Chebyshev (Mean, Sd) UCL
1428 3rd St	Ambient Air	Toluene	$\mu g/m^3$	12.5	95% Chebyshev (MVUE) UCL
1428 3rd St	Ambient Air	trans-1,2-Dichloroethene	$\mu g/m^3$	0.042	Maximum Result
1428 3rd St	Ambient Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.041	Maximum Result
1428 3rd St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.261	95% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	Vinyl chloride	$\mu g/m^3$	0.0385	Too Few Unique Detected Values *
1428 3rd St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	44	Maximum Result
1428 3rd St	Ambient Air	Xylenes, o	$\mu g/m^3$	18	Maximum Result
1428 3rd St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.114	95% KM (t) UCL
1428 3rd St	Ambient Air	1,1,2,2-Tetrachloroethane	$\mu g/m^3$	0.074	Maximum Result
1428 3rd St	Ambient Air	1,1,2-Trichloroethane	$\mu g/m^3$	0.065	Maximum Result
1428 3rd St	Ambient Air	1,1-Dichloroethane	$\mu g/m^3$	0.026	Maximum Result
1428 3rd St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	33.5	99% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	1,2-Dibromoethane	$\mu g/m^3$	0.034	Maximum Result
1428 3rd St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	2.1	99% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	1,2-Dichloropropane	$\mu g/m^3$	0.0906	95% KM (t) UCL
1428 3rd St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	9.46	99% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.565	95% KM (t) UCL
1428 3rd St	Ambient Air	Benzene	$\mu g/m^3$	1.1	95% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	Bromomethane	$\mu g/m^3$	0.185	95% KM (t) UCL
1428 3rd St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.501	95% KM (BCA) UCL
1428 3rd St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.0372	95% KM (t) UCL
1428 3rd St	Ambient Air	Chloroethane	$\mu g/m^3$	0.178	95% KM (BCA) UCL
1428 3rd St	Ambient Air	Chloroform	$\mu g/m^3$	2.53	95% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	Chloromethane	$\mu g/m^3$	8.88	97.5% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	Ethylbenzene	$\mu g/m^3$	1.26	95% Approximate Gamma UCL
1428 3rd St	Ambient Air	Freon 11	$\mu g/m^3$	2.95	95% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	Freon 113	$\mu g/m^3$	0.654	95% KM (t) UCL
1428 3rd St	Ambient Air	Freon 12	$\mu g/m^3$	2.54	95% KM (t) UCL
1428 3rd St	Ambient Air	Methylene chloride	$\mu g/m^3$	2.17	95% KM (t) UCL
1428 3rd St	Ambient Air	Naphthalene	$\mu g/m^3$	1.09	95% KM (t) UCL
1428 3rd St	Ambient Air	Styrene	$\mu g/m^3$	0.498	95% KM (Chebyshev) UCL
1428 3rd St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	1.74	95% Chebyshev (Mean, Sd) UCL
1428 3rd St	Ambient Air	Toluene	$\mu g/m^3$	12.6	95% Approximate Gamma UCL
1428 3rd St	Ambient Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.018	Maximum Result
1428 3rd St	Ambient Air	Trichloroethene	$\mu g/m^3$	3.37	99% Chebyshev (Mean, Sd) UCL
1428 3rd St	Ambient Air	Vinyl chloride	$\mu g/m^3$	1.58	95% KM (t) UCL
1428 3rd St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	5.49	95% Approximate Gamma UCL
1428 3rd St	Ambient Air	Xylenes, o	$\mu g/m^3$	3.43	95% Chebyshev (MVUE) UCL
1432 3rd St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0823	95% KM (t) UCL
1432 3rd St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	0.983	95% KM (Chebyshev) UCL
1432 3rd St	Ambient Air	1,2-Dichlorobenzene	$\mu g/m^3$	0.13	Maximum Result
1432 3rd St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.0557	95% KM (t) UCL

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
1432 3rd St	Ambient Air	1,2-Dichloropropane	$\mu g/m^3$	0.0438	95% KM (t) UCL
1432 3rd St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.354	95% KM (Chebyshev) UCL
1432 3rd St	Ambient Air	1,3-Dichlorobenzene	$\mu g/m^3$	0.092	Maximum Result
1432 3rd St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.25	Maximum Result
1432 3rd St	Ambient Air	Benzene	$\mu g/m^3$	0.852	95% Approximate Gamma UCL
1432 3rd St	Ambient Air	Bromomethane	$\mu g/m^3$	1.18	95% KM (Chebyshev) UCL
1432 3rd St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.525	95% Student's-t UCL
1432 3rd St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.022	Maximum Result
1432 3rd St	Ambient Air	Chloroethane	$\mu g/m^3$	0.0991	95% KM (t) UCL
1432 3rd St	Ambient Air	Chloroform	$\mu g/m^3$	0.234	95% KM (t) UCL
1432 3rd St	Ambient Air	Chloromethane	$\mu g/m^3$	1.21	95% Student's-t UCL
1432 3rd St	Ambient Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.051	Maximum Result
1432 3rd St	Ambient Air	Ethylbenzene	$\mu g/m^3$	0.642	95% Approximate Gamma UCL
1432 3rd St	Ambient Air	Freon 11	$\mu g/m^3$	2.05	95% Student's-t UCL
1432 3rd St	Ambient Air	Freon 113	$\mu g/m^3$	0.645	95% Student's-t UCL
1432 3rd St	Ambient Air	Freon 114	$\mu g/m^3$	0.13	Maximum Result
1432 3rd St	Ambient Air	Freon 12	$\mu g/m^3$	2.52	95% Student's-t UCL
1432 3rd St	Ambient Air	Methyl tert-butyl ether	$\mu g/m^3$	0.019	Maximum Result
1432 3rd St	Ambient Air	Methylene chloride	$\mu g/m^3$	1.78	95% KM (t) UCL
1432 3rd St	Ambient Air	Naphthalene	$\mu g/m^3$	0.74	Maximum Result
1432 3rd St	Ambient Air	Styrene	$\mu g/m^3$	0.193	95% KM (t) UCL
1432 3rd St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.239	95% KM (t) UCL
1432 3rd St	Ambient Air	Toluene	$\mu g/m^3$	3.96	95% Approximate Gamma UCL
1432 3rd St	Ambient Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.046	Maximum Result
1432 3rd St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.102	95% KM (t) UCL
1432 3rd St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	2.12	95% Approximate Gamma UCL
1432 3rd St	Ambient Air	Xylenes, o	$\mu g/m^3$	0.704	95% Approximate Gamma UCL
1432 3rd St	Crawlspace Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0961	95% KM (t) UCL
1432 3rd St	Crawlspace Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	30.9	99% Chebyshev (Mean, Sd) UCL
1432 3rd St	Crawlspace Air	1,2-Dichlorobenzene	$\mu g/m^3$	0.16	Maximum Result
1432 3rd St	Crawlspace Air	1,2-Dichloroethane	$\mu g/m^3$	0.627	97.5% KM (Chebyshev) UCL
1432 3rd St	Crawlspace Air	1,2-Dichloropropane	$\mu g/m^3$	0.0615	95% KM (t) UCL
1432 3rd St	Crawlspace Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	11	Maximum Result
1432 3rd St	Crawlspace Air	1,3-Dichlorobenzene	$\mu g/m^3$	63	Maximum Result
1432 3rd St	Crawlspace Air	1,4-Dichlorobenzene	$\mu g/m^3$	1.63	95% KM (t) UCL
1432 3rd St	Crawlspace Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.26	Maximum Result
1432 3rd St	Crawlspace Air	Benzene	$\mu g/m^3$	16	Maximum Result
1432 3rd St	Crawlspace Air	Bromomethane	$\mu g/m^3$	0.33	95% KM (t) UCL
1432 3rd St	Crawlspace Air	Carbon tetrachloride	$\mu g/m^3$	0.531	95% Student's-t UCL
1432 3rd St	Crawlspace Air	Chlorobenzene	$\mu g/m^3$	0.146	95% KM (t) UCL
1432 3rd St	Crawlspace Air	Chloroethane	$\mu g/m^3$	0.166	95% KM (t) UCL
1432 3rd St	Crawlspace Air	Chloroform	$\mu g/m^3$	0.389	95% KM (t) UCL
1432 3rd St	Crawlspace Air	Chloromethane	$\mu g/m^3$	3.07	95% H-UCL
1432 3rd St	Crawlspace Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.036	Maximum Result
1432 3rd St	Crawlspace Air	Ethylbenzene	$\mu g/m^3$	20	99% Chebyshev (Mean, Sd) UCL
1432 3rd St	Crawlspace Air	Freon 11	$\mu g/m^3$	2.16	95% Student's-t UCL
1432 3rd St	Crawlspace Air	Freon 113	$\mu g/m^3$	0.676	95% Student's-t UCL
1432 3rd St	Crawlspace Air	Freon 114	$\mu g/m^3$	0.23	Maximum Result
1432 3rd St	Crawlspace Air	Freon 12	$\mu g/m^3$	2.54	95% Student's-t UCL
1432 3rd St	Crawlspace Air	Methyl tert-butyl ether	$\mu g/m^3$	0.019	Maximum Result
1432 3rd St	Crawlspace Air	Methylene chloride	$\mu g/m^3$	1.37	95% KM (t) UCL
1432 3rd St	Crawlspace Air	Naphthalene	$\mu g/m^3$	0.882	95% KM (t) UCL

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
1432 3rd St	Crawlspace Air	Styrene	$\mu g/m^3$	5.56	95% KM (Chebyshev) UCL
1432 3rd St	Crawlspace Air	Tetrachloroethene	$\mu g/m^3$	2.21	97.5% KM (Chebyshev) UCL
1432 3rd St	Crawlspace Air	Toluene	$\mu g/m^3$	30.6	95% Approximate Gamma UCL
1432 3rd St	Crawlspace Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.04	Maximum Result
1432 3rd St	Crawlspace Air	Trichloroethene	$\mu g/m^3$	0.886	95% KM (Chebyshev) UCL
1432 3rd St	Crawlspace Air	Vinyl chloride	$\mu g/m^3$	2.8	Maximum Result
1432 3rd St	Crawlspace Air	Xylenes, m & p	$\mu g/m^3$	93.7	99% Chebyshev (Mean, Sd) UCL
1432 3rd St	Crawlspace Air	Xylenes, o	$\mu g/m^3$	32.9	99% Chebyshev (Mean, Sd) UCL
1436 3rd St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.099	95% KM (t) UCL
1436 3rd St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	1.59	95% Student's-t UCL
1436 3rd St	Ambient Air	1,2-Dichlorobenzene	$\mu g/m^3$	0.1	Maximum Result
1436 3rd St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.061	95% KM (t) UCL
1436 3rd St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.537	95% Student's-t UCL
1436 3rd St	Ambient Air	1,3-Dichlorobenzene	$\mu g/m^3$	0.074	Maximum Result
1436 3rd St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.204	95% KM (t) UCL
1436 3rd St	Ambient Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.22	Maximum Result
1436 3rd St	Ambient Air	Benzene	$\mu g/m^3$	1.32	95% Student's-t UCL
1436 3rd St	Ambient Air	Bromomethane	$\mu g/m^3$	0.295	95% KM (t) UCL
1436 3rd St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.568	95% Student's-t UCL
1436 3rd St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.048	Maximum Result
1436 3rd St	Ambient Air	Chloroethane	$\mu g/m^3$	0.0689	95% KM (t) UCL
1436 3rd St	Ambient Air	Chloroform	$\mu g/m^3$	0.274	95% KM (BCA) UCL
1436 3rd St	Ambient Air	Chloromethane	$\mu g/m^3$	7.27	95% Chebyshev (Mean, Sd) UCL
1436 3rd St	Ambient Air	Ethylbenzene	$\mu g/m^3$	1.57	95% Student's-t UCL
1436 3rd St	Ambient Air	Freon 11	$\mu g/m^3$	1.98	95% Student's-t UCL
1436 3rd St	Ambient Air	Freon 113	$\mu g/m^3$	0.692	95% Student's-t UCL
1436 3rd St	Ambient Air	Freon 114	$\mu g/m^3$	0.14	Maximum Result
1436 3rd St	Ambient Air	Freon 12	$\mu g/m^3$	2.81	95% Student's-t UCL
1436 3rd St	Ambient Air	Methylene chloride	$\mu g/m^3$	6.99	95% KM (t) UCL
1436 3rd St	Ambient Air	Naphthalene	$\mu g/m^3$	0.62	Maximum Result
1436 3rd St	Ambient Air	Styrene	$\mu g/m^3$	0.314	95% KM (t) UCL
1436 3rd St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.252	95% KM (t) UCL
1436 3rd St	Ambient Air	Toluene	$\mu g/m^3$	14	Maximum Result
1436 3rd St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.189	95% KM (t) UCL
1436 3rd St	Ambient Air	Vinyl chloride	$\mu g/m^3$	0.627	Too Few Unique Detected Values *
1436 3rd St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	7.9	Maximum Result
1436 3rd St	Ambient Air	Xylenes, o	$\mu g/m^3$	1.65	95% Student's-t UCL
320 Center St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0868	95% Student's-t UCL
320 Center St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	1.72	95% Student's-t UCL
320 Center St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.0785	95% Student's-t UCL
320 Center St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.83	Maximum Result
320 Center St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.19	Maximum Result
320 Center St	Ambient Air	Benzene	$\mu g/m^3$	1.35	95% Student's-t UCL
320 Center St	Ambient Air	Bromomethane	$\mu g/m^3$	0.18	Maximum Result
320 Center St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.546	95% Student's-t UCL
320 Center St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.02	Maximum Result
320 Center St	Ambient Air	Chloroform	$\mu g/m^3$	0.311	95% KM (t) UCL
320 Center St	Ambient Air	Chloromethane	$\mu g/m^3$	1.1	Maximum Result
320 Center St	Ambient Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.046	Maximum Result
320 Center St	Ambient Air	Ethylbenzene	$\mu g/m^3$	1.27	95% Student's-t UCL
320 Center St	Ambient Air	Freon 11	$\mu g/m^3$	3.09	95% Approximate Gamma UCL
320 Center St	Ambient Air	Freon 113	$\mu g/m^3$	0.736	95% KM (t) UCL

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
320 Center St	Ambient Air	Freon 12	$\mu g/m^3$	2.66	95% Student's-t UCL
320 Center St	Ambient Air	Methylene chloride	$\mu g/m^3$	3.01	95% KM (t) UCL
320 Center St	Ambient Air	Naphthalene	$\mu g/m^3$	1.9	Maximum Result
320 Center St	Ambient Air	Styrene	$\mu g/m^3$	0.315	95% KM (t) UCL
320 Center St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.27	Maximum Result
320 Center St	Ambient Air	Toluene	$\mu g/m^3$	8.71	95% Student's-t UCL
320 Center St	Ambient Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.037	Maximum Result
320 Center St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.1	Maximum Result
320 Center St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	6.4	Maximum Result
320 Center St	Ambient Air	Xylenes, o	$\mu g/m^3$	2.2	Maximum Result
320 Center St	Crawlspace Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.117	95% Student's-t UCL
320 Center St	Crawlspace Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	1.94	95% H-UCL
320 Center St	Crawlspace Air	1,2-Dichloroethane	$\mu g/m^3$	1.17	95% Approximate Gamma UCL
320 Center St	Crawlspace Air	1,2-Dichloropropane	$\mu g/m^3$	0.14	Maximum Result
320 Center St	Crawlspace Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.678	95% Chebyshev (Mean, Sd) UCL
320 Center St	Crawlspace Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.916	95% KM (t) UCL
320 Center St	Crawlspace Air	Benzene	$\mu g/m^3$	1.32	95% Student's-t UCL
320 Center St	Crawlspace Air	Bromomethane	$\mu g/m^3$	0.353	95% KM (t) UCL
320 Center St	Crawlspace Air	Carbon tetrachloride	$\mu g/m^3$	0.537	95% Student's-t UCL
320 Center St	Crawlspace Air	Chlorobenzene	$\mu g/m^3$	0.032	Maximum Result
320 Center St	Crawlspace Air	Chloroethane	$\mu g/m^3$	0.029	Maximum Result
320 Center St	Crawlspace Air	Chloroform	$\mu g/m^3$	0.353	95% KM (BCA) UCL
320 Center St	Crawlspace Air	Chloromethane	$\mu g/m^3$	1.04	95% Student's-t UCL
320 Center St	Crawlspace Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.053	Maximum Result
320 Center St	Crawlspace Air	Ethylbenzene	$\mu g/m^3$	1.67	95% Chebyshev (Mean, Sd) UCL
320 Center St	Crawlspace Air	Freon 11	$\mu g/m^3$	2.71	95% Approximate Gamma UCL
320 Center St	Crawlspace Air	Freon 113	$\mu g/m^3$	0.64	95% Student's-t UCL
320 Center St	Crawlspace Air	Freon 12	$\mu g/m^3$	2.5	95% Student's-t UCL
320 Center St	Crawlspace Air	Methyl tert-butyl ether	$\mu g/m^3$	0.022	Maximum Result
320 Center St	Crawlspace Air	Methylene chloride	$\mu g/m^3$	4.4	95% KM (BCA) UCL
320 Center St	Crawlspace Air	Styrene	$\mu g/m^3$	0.462	95% Student's-t UCL
320 Center St	Crawlspace Air	Tetrachloroethene	$\mu g/m^3$	0.539	95% Approximate Gamma UCL
320 Center St	Crawlspace Air	Toluene	$\mu g/m^3$	14.1	95% Student's-t UCL
320 Center St	Crawlspace Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.047	Maximum Result
320 Center St	Crawlspace Air	Trichloroethene	$\mu g/m^3$	1.19	95% Student's-t UCL
320 Center St	Crawlspace Air	Vinyl chloride	$\mu g/m^3$	0.0202	95% KM (t) UCL
326 Center St	Crawlspace Air	Xylenes, m & p	$\mu g/m^3$	5.8	95% Chebyshev (Mean, Sd) UCL
326 Center St	Crawlspace Air	Xylenes, o	$\mu g/m^3$	2.02	95% Chebyshev (Mean, Sd) UCL
326 Center St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0861	95% KM (t) UCL
326 Center St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	0.612	95% Approximate Gamma UCL
326 Center St	Ambient Air	1,2-Dichlorobenzene	$\mu g/m^3$	0.083	Maximum Result
326 Center St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.0526	95% KM (t) UCL
326 Center St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.511	95% KM (Chebyshev) UCL
326 Center St	Ambient Air	1,3-Dichlorobenzene	$\mu g/m^3$	0.047	Maximum Result
326 Center St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.85	Maximum Result
326 Center St	Ambient Air	Benzene	$\mu g/m^3$	1.01	95% Approximate Gamma UCL
326 Center St	Ambient Air	Bromomethane	$\mu g/m^3$	0.269	95% KM (BCA) UCL
326 Center St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.516	95% Student's-t UCL
326 Center St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.015	Maximum Result
326 Center St	Ambient Air	Chloroethane	$\mu g/m^3$	0.0629	95% KM (t) UCL
326 Center St	Ambient Air	Chloroform	$\mu g/m^3$	0.255	95% KM (Chebyshev) UCL
326 Center St	Ambient Air	Chloromethane	$\mu g/m^3$	1.19	95% KM (t) UCL

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
326 Center St	Ambient Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.052	Maximum Result
326 Center St	Ambient Air	Ethylbenzene	$\mu g/m^3$	1.06	95% Approximate Gamma UCL
326 Center St	Ambient Air	Freon 11	$\mu g/m^3$	1.58	95% Student's-t UCL
326 Center St	Ambient Air	Freon 113	$\mu g/m^3$	0.66	95% Student's-t UCL
326 Center St	Ambient Air	Freon 12	$\mu g/m^3$	2.61	95% KM (t) UCL
326 Center St	Ambient Air	Methyl tert-butyl ether	$\mu g/m^3$	0.023	Maximum Result
326 Center St	Ambient Air	Methylene chloride	$\mu g/m^3$	3.14	Too Few Unique Detected Values *
326 Center St	Ambient Air	Naphthalene	$\mu g/m^3$	0.036	Maximum Result
326 Center St	Ambient Air	Styrene	$\mu g/m^3$	0.0831	95% KM (t) UCL
326 Center St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.26	95% KM (t) UCL
326 Center St	Ambient Air	Toluene	$\mu g/m^3$	10	Maximum Result
326 Center St	Ambient Air	trans-1,3-Dichloropropene	$\mu g/m^3$	0.048	Maximum Result
326 Center St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.0761	95% KM (t) UCL
326 Center St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	3.99	95% Approximate Gamma UCL
326 Center St	Ambient Air	Xylenes, o	$\mu g/m^3$	1.31	95% Approximate Gamma UCL
326 Center St	Crawlspace Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0864	95% KM (t) UCL
326 Center St	Crawlspace Air	1,1,2,2-Tetrachloroethane	$\mu g/m^3$	0.39	Too Few Unique Detected Values *
326 Center St	Crawlspace Air	1,1,2-Trichloroethane	$\mu g/m^3$	0.076	Maximum Result
326 Center St	Crawlspace Air	1,1-Dichloroethane	$\mu g/m^3$	0.015	Maximum Result
326 Center St	Crawlspace Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	1.08	95% Approximate Gamma UCL
326 Center St	Crawlspace Air	1,2-Dichlorobenzene	$\mu g/m^3$	0.13	Maximum Result
326 Center St	Crawlspace Air	1,2-Dichloroethane	$\mu g/m^3$	1.57	97.5% KM (Chebyshev) UCL
326 Center St	Crawlspace Air	1,2-Dichloropropane	$\mu g/m^3$	0.102	95% KM (t) UCL
326 Center St	Crawlspace Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.22	95% KM (t) UCL
326 Center St	Crawlspace Air	1,3-Dichlorobenzene	$\mu g/m^3$	0.096	Maximum Result
326 Center St	Crawlspace Air	1,4-Dichlorobenzene	$\mu g/m^3$	2.5	95% KM (BCA) UCL
326 Center St	Crawlspace Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.18	Maximum Result
326 Center St	Crawlspace Air	Benzene	$\mu g/m^3$	0.978	95% Student's-t UCL
326 Center St	Crawlspace Air	Bromomethane	$\mu g/m^3$	0.204	95% KM (t) UCL
326 Center St	Crawlspace Air	Carbon tetrachloride	$\mu g/m^3$	0.519	95% Student's-t UCL
326 Center St	Crawlspace Air	Chlorobenzene	$\mu g/m^3$	0.033	95% KM (t) UCL
326 Center St	Crawlspace Air	Chloroethane	$\mu g/m^3$	0.0607	95% KM (t) UCL
326 Center St	Crawlspace Air	Chloroform	$\mu g/m^3$	0.272	95% KM (BCA) UCL
326 Center St	Crawlspace Air	Chloromethane	$\mu g/m^3$	1.06	95% Student's-t UCL
326 Center St	Crawlspace Air	cis-1,2-Dichloroethene	$\mu g/m^3$	0.018	Maximum Result
326 Center St	Crawlspace Air	cis-1,3-Dichloropropene	$\mu g/m^3$	0.039	Maximum Result
326 Center St	Crawlspace Air	Ethylbenzene	$\mu g/m^3$	1	95% Student's-t UCL
326 Center St	Crawlspace Air	Freon 11	$\mu g/m^3$	2.14	95% Approximate Gamma UCL
326 Center St	Crawlspace Air	Freon 113	$\mu g/m^3$	0.668	95% Student's-t UCL
326 Center St	Crawlspace Air	Freon 114	$\mu g/m^3$	0.11	Maximum Result
326 Center St	Crawlspace Air	Freon 12	$\mu g/m^3$	2.84	95% Student's-t UCL
326 Center St	Crawlspace Air	Hexachlorobutadiene	$\mu g/m^3$	0.68	Maximum Result
326 Center St	Crawlspace Air	Methyl tert-butyl ether	$\mu g/m^3$	0.016	Maximum Result
326 Center St	Crawlspace Air	Methylene chloride	$\mu g/m^3$	2.12	95% KM (t) UCL
326 Center St	Crawlspace Air	Styrene	$\mu g/m^3$	0.508	95% KM (BCA) UCL
326 Center St	Crawlspace Air	Tetrachloroethene	$\mu g/m^3$	0.469	95% KM (t) UCL
326 Center St	Crawlspace Air	Toluene	$\mu g/m^3$	16.2	95% Student's-t UCL
326 Center St	Crawlspace Air	Trichloroethene	$\mu g/m^3$	1.69	95% KM (Chebyshev) UCL
326 Center St	Crawlspace Air	Vinyl chloride	$\mu g/m^3$	0.0357	95% KM (t) UCL
326 Center St	Crawlspace Air	Xylenes, m & p	$\mu g/m^3$	3.78	95% Student's-t UCL
326 Center St	Crawlspace Air	Xylenes, o	$\mu g/m^3$	0.913	95% Student's-t UCL
339 Center St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.062	Maximum Result

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
339 Center St	Ambient Air	1,1,2,2-Tetrachloroethane	$\mu g/m^3$	0.18	Maximum Result
339 Center St	Ambient Air	1,1,2-Trichloroethane	$\mu g/m^3$	0.033	Maximum Result
339 Center St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	0.37	Maximum Result
339 Center St	Ambient Air	1,2-Dichlorobenzene	$\mu g/m^3$	0.22	Maximum Result
339 Center St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.067	Maximum Result
339 Center St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.16	Maximum Result
339 Center St	Ambient Air	1,3-Dichlorobenzene	$\mu g/m^3$	0.19	Maximum Result
339 Center St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.24	Maximum Result
339 Center St	Ambient Air	Benzene	$\mu g/m^3$	0.38	Maximum Result
339 Center St	Ambient Air	Bromomethane	$\mu g/m^3$	0.41	Maximum Result
339 Center St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.4	Maximum Result
339 Center St	Ambient Air	Chloromethane	$\mu g/m^3$	0.92	Maximum Result
339 Center St	Ambient Air	Ethylbenzene	$\mu g/m^3$	0.21	Maximum Result
339 Center St	Ambient Air	Freon 11	$\mu g/m^3$	1.1	Maximum Result
339 Center St	Ambient Air	Freon 113	$\mu g/m^3$	0.45	Maximum Result
339 Center St	Ambient Air	Freon 12	$\mu g/m^3$	2	Maximum Result
339 Center St	Ambient Air	Methyl tert-butyl ether	$\mu g/m^3$	0.03	Maximum Result
339 Center St	Ambient Air	Methylene chloride	$\mu g/m^3$	0.46	Maximum Result
339 Center St	Ambient Air	Naphthalene	$\mu g/m^3$	1.1	Maximum Result
339 Center St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.096	Maximum Result
339 Center St	Ambient Air	Toluene	$\mu g/m^3$	1.2	Maximum Result
339 Center St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.13	Maximum Result
339 Center St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	0.67	Maximum Result
339 Center St	Ambient Air	Xylenes, o	$\mu g/m^3$	0.28	Maximum Result
356 Center St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.065	Maximum Result
356 Center St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	0.79	Maximum Result
356 Center St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.054	Maximum Result
356 Center St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.19	Maximum Result
356 Center St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.62	Maximum Result
356 Center St	Ambient Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.89	Maximum Result
356 Center St	Ambient Air	Benzene	$\mu g/m^3$	0.41	Maximum Result
356 Center St	Ambient Air	Bromomethane	$\mu g/m^3$	0.36	Maximum Result
356 Center St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.5	Maximum Result
356 Center St	Ambient Air	Chloromethane	$\mu g/m^3$	0.98	Maximum Result
356 Center St	Ambient Air	cis-1,2-Dichloroethene	$\mu g/m^3$	0.031	Maximum Result
356 Center St	Ambient Air	Ethylbenzene	$\mu g/m^3$	0.53	Maximum Result
356 Center St	Ambient Air	Freon 11	$\mu g/m^3$	1.2	Maximum Result
356 Center St	Ambient Air	Freon 113	$\mu g/m^3$	0.68	Maximum Result
356 Center St	Ambient Air	Freon 12	$\mu g/m^3$	2.4	Maximum Result
356 Center St	Ambient Air	Methylene chloride	$\mu g/m^3$	0.6	Maximum Result
356 Center St	Ambient Air	Naphthalene	$\mu g/m^3$	1.9	Maximum Result
356 Center St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.12	Maximum Result
356 Center St	Ambient Air	Toluene	$\mu g/m^3$	2.1	Maximum Result
356 Center St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.034	Maximum Result
356 Center St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	1.2	Maximum Result
356 Center St	Ambient Air	Xylenes, o	$\mu g/m^3$	0.57	Maximum Result
360 Center St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.103	95% KM (t) UCL
360 Center St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	5.8	Maximum Result
360 Center St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.106	95% KM (t) UCL
360 Center St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	1.12	95% KM (t) UCL
360 Center St	Ambient Air	1,4-Dichlorobenzene	$\mu g/m^3$	0.243	95% KM (t) UCL
360 Center St	Ambient Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.36	Maximum Result

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
360 Center St	Ambient Air	Benzene	$\mu g/m^3$	1.47	95% KM (t) UCL
360 Center St	Ambient Air	Bromomethane	$\mu g/m^3$	0.311	95% KM (t) UCL
360 Center St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.666	95% Student's-t UCL
360 Center St	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.052	Maximum Result
360 Center St	Ambient Air	Chloroethane	$\mu g/m^3$	0.075	Maximum Result
360 Center St	Ambient Air	Chloroform	$\mu g/m^3$	0.272	95% KM (t) UCL
360 Center St	Ambient Air	Chloromethane	$\mu g/m^3$	1.18	95% Student's-t UCL
360 Center St	Ambient Air	Ethylbenzene	$\mu g/m^3$	3.5	Maximum Result
360 Center St	Ambient Air	Freon 11	$\mu g/m^3$	1.63	95% Student's-t UCL
360 Center St	Ambient Air	Freon 113	$\mu g/m^3$	0.626	95% Student's-t UCL
360 Center St	Ambient Air	Freon 114	$\mu g/m^3$	0.12	Maximum Result
360 Center St	Ambient Air	Freon 12	$\mu g/m^3$	2.6	Maximum Result
360 Center St	Ambient Air	Methylene chloride	$\mu g/m^3$	3.25	95% KM (t) UCL
360 Center St	Ambient Air	Naphthalene	$\mu g/m^3$	0.041	Maximum Result
360 Center St	Ambient Air	Styrene	$\mu g/m^3$	0.397	95% KM (t) UCL
360 Center St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.322	95% KM (t) UCL
360 Center St	Ambient Air	Toluene	$\mu g/m^3$	34	Maximum Result
360 Center St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.151	95% KM (t) UCL
360 Center St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	12	Maximum Result
360 Center St	Ambient Air	Xylenes, o	$\mu g/m^3$	3.4	Maximum Result
366 Center St	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.051	Maximum Result
366 Center St	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	0.32	Maximum Result
366 Center St	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.11	Maximum Result
366 Center St	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.11	Maximum Result
366 Center St	Ambient Air	Benzene	$\mu g/m^3$	0.42	Maximum Result
366 Center St	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.48	Maximum Result
366 Center St	Ambient Air	Chloromethane	$\mu g/m^3$	1.2	Maximum Result
366 Center St	Ambient Air	Ethylbenzene	$\mu g/m^3$	0.74	Maximum Result
366 Center St	Ambient Air	Freon 11	$\mu g/m^3$	1.1	Maximum Result
366 Center St	Ambient Air	Freon 113	$\mu g/m^3$	0.52	Maximum Result
366 Center St	Ambient Air	Freon 12	$\mu g/m^3$	2	Maximum Result
366 Center St	Ambient Air	Methylene chloride	$\mu g/m^3$	0.78	Maximum Result
366 Center St	Ambient Air	Styrene	$\mu g/m^3$	0.23	Maximum Result
366 Center St	Ambient Air	Tetrachloroethene	$\mu g/m^3$	0.26	Maximum Result
366 Center St	Ambient Air	Toluene	$\mu g/m^3$	2	Maximum Result
366 Center St	Ambient Air	Trichloroethene	$\mu g/m^3$	0.045	Maximum Result
366 Center St	Ambient Air	Xylenes, m & p	$\mu g/m^3$	2.5	Maximum Result
366 Center St	Ambient Air	Xylenes, o	$\mu g/m^3$	0.85	Maximum Result
Prescott Park	Ambient Air	1,1,1-Trichloroethane	$\mu g/m^3$	0.0983	95% Student's-t UCL
Prescott Park	Ambient Air	1,1,2,2-Tetrachloroethane	$\mu g/m^3$	0.024	Maximum Result
Prescott Park	Ambient Air	1,2,4-Trimethylbenzene	$\mu g/m^3$	0.751	95% KM (t) UCL
Prescott Park	Ambient Air	1,2-Dichloroethane	$\mu g/m^3$	0.183	95% KM (t) UCL
Prescott Park	Ambient Air	1,3,5-Trimethylbenzene	$\mu g/m^3$	0.245	95% KM (t) UCL
Prescott Park	Ambient Air	1,4-Dioxane (p-dioxane)	$\mu g/m^3$	0.891	Too Few Unique Detected Values *
Prescott Park	Ambient Air	Benzene	$\mu g/m^3$	0.937	95% Student's-t UCL
Prescott Park	Ambient Air	Bromomethane	$\mu g/m^3$	1.12	95% KM (t) UCL
Prescott Park	Ambient Air	Carbon tetrachloride	$\mu g/m^3$	0.577	95% Student's-t UCL
Prescott Park	Ambient Air	Chlorobenzene	$\mu g/m^3$	0.034	Maximum Result
Prescott Park	Ambient Air	Chloroethane	$\mu g/m^3$	0.0833	95% KM (t) UCL
Prescott Park	Ambient Air	Chloroform	$\mu g/m^3$	0.373	95% KM (t) UCL
Prescott Park	Ambient Air	Chloromethane	$\mu g/m^3$	1.2	Maximum Result
Prescott Park	Ambient Air	cis-1,2-Dichloroethene	$\mu g/m^3$	0.038	Maximum Result

TABLE 35
Exposure Point Concentrations for Crawlspace and Ambient Air
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Location	Matrix	Chemical	Units	Exposure Point Concentration	EPC Basis
Prescott Park	Ambient Air	Ethylbenzene	µg/m^3	0.651	95% Student's-t UCL
Prescott Park	Ambient Air	Freon 11	µg/m^3	1.84	95% Student's-t UCL
Prescott Park	Ambient Air	Freon 113	µg/m^3	0.719	95% Student's-t UCL
Prescott Park	Ambient Air	Freon 12	µg/m^3	2.8	95% Student's-t UCL
Prescott Park	Ambient Air	Methyl tert-butyl ether	µg/m^3	0.0097	Maximum Result
Prescott Park	Ambient Air	Methylene chloride	µg/m^3	0.4	Maximum Result
Prescott Park	Ambient Air	Styrene	µg/m^3	0.231	95% KM (t) UCL
Prescott Park	Ambient Air	Tetrachloroethene	µg/m^3	0.314	95% Student's-t UCL
Prescott Park	Ambient Air	Toluene	µg/m^3	3.45	95% Student's-t UCL
Prescott Park	Ambient Air	Trichloroethene	µg/m^3	0.105	95% KM (t) UCL
Prescott Park	Ambient Air	Xylenes, m & p	µg/m^3	1.96	95% Student's-t UCL
Prescott Park	Ambient Air	Xylenes, o	µg/m^3	0.688	95% Student's-t UCL
Combined Background	Ambient Air	1,1,1-Trichloroethane	µg/m^3	0.0797	95% KM (t) UCL
Combined Background	Ambient Air	1,1-Dichloroethane	µg/m^3	0.011	Maximum Result
Combined Background	Ambient Air	1,1-Dichloroethene	µg/m^3	0.0392	Too Few Unique Detected Values *
Combined Background	Ambient Air	1,2,4-Trimethylbenzene	µg/m^3	0.639	95% H-UCL
Combined Background	Ambient Air	1,2-Dichloroethane	µg/m^3	0.0535	95% KM (t) UCL
Combined Background	Ambient Air	1,2-Dichloropropane	µg/m^3	0.0448	95% KM (t) UCL
Combined Background	Ambient Air	1,3,5-Trimethylbenzene	µg/m^3	0.272	95% KM (Chebyshev) UCL
Combined Background	Ambient Air	1,4-Dichlorobenzene	µg/m^3	0.0948	95% KM (t) UCL
Combined Background	Ambient Air	1,4-Dioxane (p-dioxane)	µg/m^3	0.383	Too Few Unique Detected Values *
Combined Background	Ambient Air	Benzene	µg/m^3	0.8	95% Approximate Gamma UCL
Combined Background	Ambient Air	Bromomethane	µg/m^3	0.682	95% KM (Chebyshev) UCL
Combined Background	Ambient Air	Carbon tetrachloride	µg/m^3	0.526	95% Student's-t UCL
Combined Background	Ambient Air	Chlorobenzene	µg/m^3	0.0268	95% KM (t) UCL
Combined Background	Ambient Air	Chloroethane	µg/m^3	0.0484	95% KM (t) UCL
Combined Background	Ambient Air	Chloroform	µg/m^3	0.154	95% KM (BCA) UCL
Combined Background	Ambient Air	Chloromethane	µg/m^3	1.16	95% Student's-t UCL
Combined Background	Ambient Air	cis-1,2-Dichloroethene	µg/m^3	0.025	Maximum Result
Combined Background	Ambient Air	cis-1,3-Dichloropropene	µg/m^3	0.0593	95% KM (t) UCL
Combined Background	Ambient Air	Ethylbenzene	µg/m^3	0.582	95% H-UCL
Combined Background	Ambient Air	Freon 11	µg/m^3	1.89	95% Student's-t UCL
Combined Background	Ambient Air	Freon 113	µg/m^3	0.674	95% Student's-t UCL
Combined Background	Ambient Air	Freon 114	µg/m^3	0.12	Maximum Result
Combined Background	Ambient Air	Freon 12	µg/m^3	2.56	95% Student's-t UCL
Combined Background	Ambient Air	Methyl tert-butyl ether	µg/m^3	0.23	95% KM (t) UCL
Combined Background	Ambient Air	Methylene chloride	µg/m^3	0.233	95% KM (t) UCL
Combined Background	Ambient Air	Naphthalene	µg/m^3	0.376	95% KM (t) UCL
Combined Background	Ambient Air	Styrene	µg/m^3	0.182	95% KM (BCA) UCL
Combined Background	Ambient Air	Tetrachloroethene	µg/m^3	0.286	95% KM (BCA) UCL
Combined Background	Ambient Air	Toluene	µg/m^3	3.31	95% H-UCL
Combined Background	Ambient Air	trans-1,3-Dichloropropene	µg/m^3	0.056	Maximum Result
Combined Background	Ambient Air	Trichloroethene	µg/m^3	0.089	95% KM (t) UCL
Combined Background	Ambient Air	Xylenes, m & p	µg/m^3	2.5	95% Chebyshev (Mean, Sd) UCL
Combined Background	Ambient Air	Xylenes, o	µg/m^3	0.853	95% Chebyshev (Mean, Sd) UCL

TABLE 36
Irrigation Well Detected Analytical Results
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Analyte	Screening Level	Agricultural Water Quality Limit	Units	9/2/2004	6/24/2005	10/12/2005
Volatile Organic Compounds						
Acetone	5,500	NE	µg/L	ND (4)	4 J	---
cis-1,2-Dichloroethene	6	NE	µg/L	0.6	ND (0.5)	---
Methyl tert-butyl ether	13	NE	µg/L	0.6	ND (0.5)	---
trans-1,2-Dichloroethene	10	NE	µg/L	0.2 J	ND (0.5)	---
Trichloroethene	5	NE	µg/L	0.3 J	ND (0.5)	---
Semivolatile Organic Compounds						
1,4-Dioxane (p-dioxane)	6.1	NE	µg/L	1.1	ND (1)	---
bis(2-Ethylhexyl)phthalate	4.8	NE	µg/L	1.8	---	---
Metals						
Aluminum	1,000	5,000	µg/L	320	---	---
Antimony	6	NE	µg/L	4.2	---	---
Arsenic	10	100	µg/L	2.3	---	---
Barium	1,000	NE	µg/L	170	---	---
Boron	7,300	700	µg/L	2,800	---	---
Cadmium	5	10	µg/L	2.2	---	---
Calcium	NA	NE	µg/L	190,000	---	---
Chromium	50	NE	µg/L	3.2	---	---
Cobalt	730	50	µg/L	2.2	---	---
Copper	1,300	200	µg/L	40	---	---
Iron	11,000	5,000	µg/L	1,400	---	---
Lead	15	5,000	µg/L	**79**	---	---
Magnesium	NA	NE	µg/L	34,000	---	---
Manganese	880	200	µg/L	390	---	---
Mercury	2	NE	µg/L	0.23	---	---
Molybdenum	180	10	µg/L	6.2	---	---
Nickel	100	200	µg/L	25	---	---
Potassium	NA	NE	µg/L	33,000	---	---
Sodium	NA	69,000	µg/L	150,000	---	---
Zinc	11,000	2,000	µg/L	520	---	---
Organochlorine Pesticides/PCBs						
4,4'-DDD	0.28	NE	µg/L	---	0.004 J	---
4,4'-DDT	0.2	NE	µg/L	---	0.003 J	---
Water Quality Indicators						
Hardness (as CaCO3)	NA	NE	µg/L	610,000	---	---

Notes:
Only Organophosphorus Pesticides were analyzed for the sample collected on 10/12/2005 and none of the results were detected above the reporting limit.
Screening levels are the lower of the Federal or California Primary MCL, or EPA Region 9 tap water PRG, if a Primary MCL is not available.
Agricultural Water Quality Limit - suitability of water for irrigation of plants/crops (Ayers, R.S., and D.W. Westcot, 1985)
Results greater than the Screening Level ae bolded.

--- not analyzed
NA not applicable
NE not established
µg/L micrograms per liter
ND not detected above the reporting limit
J estimated value

TABLE 37

Cancer and Noncancer Toxicity Values for COPCs

Baseline Human Health Risk Assessment

AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Oral RfD (mg/kg-day)	References	REL or Reference Conc (mg/m^3)	Inhalation RFD (mg/kg-day)	References	Primary Target Organ/Effect	Uncertainty/ Modifying Factors	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	References	Inhalation Unit Risk $(mg/m^3)^{-1}$	Inhalation Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	References
Aluminum	1	PPRTV	0.005	0.0014	PPRTV	NA	--	NA	--	NA	NA	--
Antimony	0.0004	IRIS	NA	NA	--	Blood (glucose), Mortality	--	NA	--	NA	NA	--
Arsenic	0.0003	IRIS	NA	NA	--	Skin, Circulatory System	--	1.5	IRIS	4.3	15.1	IRIS
Arsenic	NA	--	1.5E-05	0.000004	OEHHA	--	--	1.5	OEHHA	3.3	12	OEHHA
Barium	0.2	IRIS	0.0005	0.00014	HEAST	Kidney	--	NA	--	NA	NA	--
Beryllium	0.002	IRIS	2.0E-05	0.000006	IRIS	GI (Small intestinal lesions)	--	NA	--	NA	8.4	IRIS
Beryllium	NA	--	7.0E-06	0.000002	OEHHA	--	--	NA	--	2.4	8.4	OEHHA
Boron	0.2	IRIS	2.0E-02	0.0057	HEAST	Testes	--	NA	--	NA	NA	--
Cadmium	0.0005	IRIS	1.0E-05	0.000003	ATSDR	Kidney	--	NA	--	NA	6.3	IRIS
Cadmium	0.000011	OEHHA*	0.02	0.000006	OEHHA	--	--	NA	--	4.2	14.7	OEHHA
Chromium	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Hexavalent Chromium	0.003	IRIS	1.0E-04	0.000029	IRIS	NOAEL	--	0.5	NJ	84	2.9E+02	IRIS
Cobalt	0.0003	PPRTV	6.0E-06	0.000002	PPRTV	Circulatory	--	NA	--	9	3.2E+01	PPRTV
Copper	0.04	HEAST	NA	NA	--	GI	--	NA	--	NA	NA	--
Iron	0.7	PPRTV	NA	NA	--	NA	--	NA	--	NA	NA	--
Lead	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Manganese	0.024	IRIS	5.0E-05	0.000014	IRIS	CNS	--	NA	--	NA	NA	--
Manganese	0.03	OEHHA*	9.0E-05	0.000026	OEHHA	--	--	NA	--	NA	NA	--
Mercury	0.0003	IRIS	NA	NA	--	CNS	--	NA	--	NA	NA	--
Molybdenum	0.005	IRIS	NA	NA	--	Kidney	--	NA	--	NA	NA	--
Nickel	0.02	IRIS	9.0E-05	2.6E-05	ATSDR	Whole body	--	NA	--	NA	NA	--
Nickel	0.011	OEHHA*	5.0E-02	1.4E-02	OEHHA	--	--	NA	--	0.26	0.91	OEHHA
Selenium	0.005	IRIS	0.02	0.0057	OEHHA	Respiratory system - selenosis	--	NA	--	NA	NA	--
Silver	0.005	IRIS	NA	NA	--	Skin	--	NA	--	NA	NA	--
Thallium	0.000066	IRIS	NA	NA	--	NA	3000/1	NA	--	NA	NA	--
Vanadium	0.005	RSL	NA	NA	--	NA	--	NA	--	NA	NA	--
Zinc	0.3	IRIS	NA	NA	--	Red blood cells	--	NA	--	NA	NA	--
Cyanide	0.02	IRIS	NA	NA	--	Weight loss, thyroid effects and myelin degeneration	100/5	NA	--	NA	NA	--
4,4'-DDD	NA	--	NA	NA	--	--	--	0.24	IRIS	0.069	0.24	OEHHA/ Route Extrapolation
4,4'-DDE	NA	--	NA	NA	--	--	--	0.34	IRIS	0.097	0.34	OEHHA/ Route Extrapolation
4,4'-DDT	0.0005	IRIS	NA	NA	--	Liver	--	0.34	IRIS	0.097	0.34	IRIS
Aldrin	0.00003	IRIS	NA	NA	--	Liver	1000/1	17	IRIS	4.9	17.2	IRIS/OEHHA
alpha-BHC	0.0005	NCEA	NA	NA	--	NA	NA	6.3	IRIS	1.8	6.3	IRIS
alpha-BHC	NA	--	NA	NA	--	--	NA	2.7	OEHHA	0.77	2.7	OEHHA

TABLE 37
Cancer and Noncancer Toxicity Values for COPCs
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Oral RfD (mg/kg-day)	References	REL or Reference Conc (mg/m^3)	Inhalation RFD (mg/kg-day)	References	Primary Target Organ/Effect	Uncertainty/ Modifying Factors	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	References	Inhalation Unit Risk (mg/m^3)$^{-1}$	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	References
alpha-Chlordane	0.0005	IRIS	7.0E-04	0.0002	IRIS	Liver	300/1	0.35	IRIS	0.1	0.35	IRIS
alpha-Chlordane	0.000033	OEHHA*	NA	NA	--	--	300/1	1.3	OEHHA	0.34	1.2	OEHHA
beta-BHC	NA	--	NA	NA	--	--	NA	1.8	IRIS	0.53	1.9	IRIS
beta-BHC	NA	--	NA	NA	--	--	NA	1.5	OEHHA	0.43	1.5	OEHHA
delta-BHC	NA	--	NA	NA	--	--	NA	NA	--	NA	NA	--
Diazinon	0.0007	ATSDR	NA	NA	--	Liver	--	NA	--	NA	NA	--
Dieldrin	0.00005	IRIS	NA	NA	--	Liver	100/1	16	IRIS	4.6	16.1	IRIS
Endosulfan I	0.006	IRIS	NA	NA	--	Reduced body weight	100/1	NA	--	NA	NA	--
Endosulfan II	0.006	IRIS	NA	NA	--	Reduced body weight	100/1	NA	--	NA	NA	--
Endosulfan sulfate	0.006	IRIS	NA	NA	--	Reduced body weight	100/1	NA	--	NA	NA	--
Endrin	0.0003	IRIS	NA	NA	--	Liver	100/1	NA	--	NA	NA	--
Endrin aldehyde	0.0003	IRIS	NA	NA	--	Liver	100/1	NA	--	NA	NA	--
Endrin ketone	0.0003	IRIS	NA	NA	--	Liver	100/1	NA	--	NA	NA	--
gamma-BHC	0.0003	IRIS	NA	NA	--	Liver	1000/1	1.1	Cal/EPA	NA	NA	--
gamma-BHC	NA	--	NA	NA	--	--	1000/1	1.1	OEHHA	0.31	1.1	OEHHA
gamma-Chlordane	0.0005	IRIS	7.0E-04	0.0002	IRIS	Liver	300/1	0.35	IRIS	0.1	0.35	IRIS
gamma-Chlordane	0.000033	OEHHA*	NA	NA	--	--	300/1	1.2	OEHHA	0.34	1.2	OEHHA
Heptachlor	0.0005	IRIS	NA	NA	--	Liver	300/1	4.5	IRIS	1.3	4.55	IRIS
Heptachlor	0.00003	OEHHA*	NA	NA	--	--	300/1	4.1	OEHHA	NA	4.1	OEHHA
Heptachlor epoxide	0.000013	IRIS	NA	NA	--	Liver	1000/1	9.1	IRIS	NA	9.1	IRIS
Heptachlor epoxide	0.000013	OEHHA*	NA	NA	--	--	1000/1	5.5	OEHHA	NA	5.5	OEHHA
Methoxychlor	0.005	IRIS	NA	NA	--	Reproductive	1000/1	NA	--	NA	NA	--
Methoxychlor	0.00002	OEHHA*		NA	--	--	NA	NA	--	NA	NA	--
Toxaphene	NA	--	NA	NA	--	--	NA	1.1	IRIS	0.34	1.2	IRIS
Toxaphene	NA	--	NA	NA	--	--	NA	1.2	OEHHA	0.34	1.2	OEHHA
Aroclor-1016	0.00007	IRIS	NA	NA	--	Reduced birth weight	100/1	0.07	IRIS	0.02	0.07	IRIS
Aroclor-1221	0.00002	Surrogate	NA	NA	--	--	--	2	IRIS	0.57	2	IRIS
Aroclor-1232	0.00002	Surrogate	NA	NA	--	--	--	2	IRIS	0.57	2	IRIS
Aroclor-1242	0.00002	Surrogate	NA	NA	--	--	--	2	IRIS	0.57	2	IRIS
Aroclor-1248	0.00002	Surrogate	NA	NA	--	--	--	2	IRIS	0.57	2	IRIS
Aroclor-1254	0.00002	IRIS	NA	NA	--	Eyes	300/1	2	IRIS	0.57	2	IRIS
Aroclor-1260	0.00002	Surrogate	NA	NA	--	Eyes	300/1	2	IRIS	0.57	2	IRIS
1,2,4,5-Tetrachlorobenzene	0.0003	IRIS	NA	NA	--	--	--	NA	--	NA	NA	--
2,4,5-Trichlorophenol	0.1	IRIS	NA	NA	--	--	--	NA	--	NA	NA	--
2,4,6-Trichlorophenol	0.001	PPRTV	NA	NA	--	--	--	0.011	IRIS	0.02	0.07	IRIS
2,4,6-Trichlorophenol	NA	--	NA	NA	--	--	--	0.07	OEHHA	0.02	0.07	OEHHA
2,2-Dichloropropane	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--

TABLE 37

Cancer and Noncancer Toxicity Values for COPCs

Baseline Human Health Risk Assessment

AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Oral RfD (mg/kg-day)	References	REL or Reference Conc (mg/m^3)	Inhalation RFD (mg/kg-day)	References	Primary Target Organ/Effect	Uncertainty/ Modifying Factors	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	References	Inhalation Unit Risk (mg/m^3)$^{-1}$	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	References
2,4-Dichlorophenol	0.003	IRIS	NA	NA	--	Decreased delayed hypersensitivity response	100/1	NA	--	NA	NA	--
2,4-Dimethylphenol	0.02	IRIS	NA	NA	--	Clinical signs (lethargy, prostration, ataxia) and hematological changes	3000/1	NA	--	NA	NA	--
2,4-Dinitrophenol	0.002	IRIS	NA	NA	--	Cataract formation	1000/1	NA	--	NA	NA	--
2,4-Dinitrotoluene	0.002	IRIS	NA	NA	--	Neurotoxicity, Heinz bodies and biliary tract hyperplasia	100/1	0.68	IRIS	0.089	0.31	Cal/EPA
2,4-Dinitrotoluene	NA	--	NA	NA	--	--	100/1	0.31	OEHHA	0.089	0.31	OEHHA
2,6-Dinitrotoluene	0.001	PPRTV	NA	NA	--	--	--	NA	--	NA	NA	--
2-Chloronaphthalene	0.08	IRIS	NA	NA	--	Dyspnea, abnormal appearance, liver enlargement	3000/1	NA	--	NA	NA	--
2-Chlorophenol	0.005	IRIS	NA	NA	--	Reproductive effects	1000/1	NA	--	NA	NA	--
2-Chlorotoluene	0.02	IRIS	NA	NA	--	Decrease in body weight gain	1000/1	NA	--	NA	NA	--
2-Methylnaphthalene	0.004	IRIS	NA	NA	--	Pulmonary alveolar proteinosis	1000/1	NA	--	NA	NA	--
2-Methylphenol	0.05	IRIS	0.6	0.17	Cal/EPA	Decreased body weight & Neurotoxicity	1000/1	NA	--	NA	NA	--
2-Nitroaniline	0.01	X	0.00005	0.000014	X	NA	--	NA	--	NA	NA	--
2-Nitrophenol	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
3,3'-Dichlorobenzidine	NA	--	NA	NA	--	--	--	0.45	IRIS	0.34	1.2	Cal/EPA
3,3'-Dichlorobenzidine	NA	--	NA	NA	--	--	--	1.2	OEHHA	0.34	1.2	OEHHA
3,4-Methylphenol	0.005	HEAST	0.6	0.171429	Cal/EPA	Decreased body weights and neurotoxicity	1000/1	NA	--	NA	NA	--
3-Nitroaniline	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
4,6-Dinitro-2-methylphenol	8.00E-05	X	NA	NA	--	--	--	NA	--	NA	NA	--
4-Bromophenylphenyl ether	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
4-Chloro-3-methylphenol	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
4-Chloroaniline	0.004	IRIS	NA	NA	--	Nonneoplastic lesions of splenic capsule	3000/1	0.2	PPRTV	NA	NA	--
4-Chlorophenylphenyl ether	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
4-Methylphenol	0.005	HEAST	0.6	0.17	Cal/EPA	--	--	NA	--	NA	NA	--
4-Nitroaniline	0.004	PPRTV	0.006	0.002	PPRTV	--	--	0.02	PPRTV	NA	NA	--

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4-Nitrophenol	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Acenaphthene	0.06	IRIS	NA	NA	--	Hepatotoxicity	3000/1	NA	--	NA	NA	--
Acenaphthylene	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Acetophenone	0.1	IRIS	NA	NA	--	General toxicity	3000/1	NA	--	NA	NA	--
Anthracene	0.3	IRIS	NA	NA	--	No observed effects	3000/1	NA	--	NA	NA	--
Atrazine	0.035	IRIS	NA	NA	--	Decreased body weight gain	100/1	0.23	Cal/EPA	NA	NA	--
Atrazine	NA	--	NA	NA	--	--	100/1	0.23	OEHHA	NA	NA	--
Benzaldehyde	0.1	IRIS	NA	NA	--	Forestomach lesions, kidney toxicity	1000/1	NA	--	NA	NA	--
Benzo(a)anthracene	NA	--	NA	NA	--	--	--	0.73	ECAO	0.11	0.39	Cal/EPA
Benzo(a)anthracene	NA	--	NA	NA	--	--	--	1.2	OEHHA	0.11	0.39	OEHHA
Benzo(a)pyrene	NA	--	NA	NA	--	--	--	7.3	IRIS	1.1	3.85	Cal/EPA
Benzo(a)pyrene	NA	--	NA	NA	--	--	--	12	OEHHA	1.1	3.85	OEHHA
Benzo(b)fluoranthene	NA	--	NA	NA	--	--	--	0.73	ECAO	0.11	0.39	Cal/EPA
Benzo(b)fluoranthene	NA	--	NA	NA	--	--	--	1.2	OEHHA	0.11	0.39	OEHHA
Benzo(g,h,i)perylene	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Benzo(k)fluoranthene	NA	--	NA	NA	--	--	--	0.073	NCEA	0.11	0.39	Cal/EPA
Benzo(k)fluoranthene	NA	--	NA	NA	--	--	--	1.2	OEHHA	0.11	0.39	OEHHA
Benzyl butyl phthalate	0.2	IRIS	NA	NA	--	Significantly increased liver-to-body weight and liver-to-brain weight ratios	1000/1	0.0019	PPRTV	NA	NA	--
Biphenyl (diphenyl)	0.05	IRIS	NA	NA	--	Kidney damage	100/10	NA	--	NA	NA	--
bis(2-Chloroethoxy)methane	0.003	PPRTV	NA	NA	--	--	--	NA	--	NA	NA	--
bis(2-Chloroethyl)ether	NA	--	NA	NA	--	--	--	1.1	IRIS	0.33	1.2	IRIS
bis(2-Chloroethyl)ether	NA	--	NA	NA	--	--	--	2.5	OEHHA	0.71	2.5	OEHHA
bis(2-Ethylhexyl)phthalate	0.02	IRIS	--	--	--	Increased relative liver weight	1000/1	0.014	IRIS	0.0024	0.0084	Cal/EPA
bis(2-Ethylhexyl)phthalate	NA	--	NA	NA	--	--	1000/1	0.003	OEHHA	0.0024	0.0084	OEHHA
Caprolactam	0.5	IRIS	NA	NA	--	Reduced offspring body weight	100/1	NA	--	NA	NA	--
Carbazole	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Chrysene	NA	--	NA	NA	--	--	--	0.0073	ECAO	0.011	0.039	Cal/EPA
Chrysene	NA	--	NA	NA	--	--	--	0.12	OEHHA	0.011	0.039	OEHHA
Dibenz(a,h)anthracene	NA	--	NA	NA	--	--	--	4.1	OEHHA	1.2	4.2	OEHHA
Dibenzofuran	0.002	NCEA	NA	NA	--	--	--	NA	--	NA	NA	--

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Diethylphthalate	0.8	IRIS	NA	NA	--	Decreased growth rate, food consumption and altered organ weights	1000/1	NA	--	NA	NA	--
Dimethylphthalate	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Di-n-butyl phthalate	0.1	IRIS	NA	NA	--	Increased mortality	1000/1	NA	--	NA	NA	--
Di-n-octyl phthalate	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Fluoranthene	0.04	IRIS	NA	NA	--	Kidney, Liver, Circulatory	3000/1	NA	--	NA	NA	--
Fluorene	0.04	IRIS	NA	NA	--	Kidney, Liver, Circulatory	3000/1	NA	--	NA	NA	--
Hexachlorobenzene	0.0008	IRIS	NA	NA	--	Liver effects	100/1	0.078	IRIS	0.46	1.6	IRIS
Hexachlorobenzene	--	--	NA	NA	--	--	100/1	1.8	OEHHA	0.51	1.8	OEHHA
Hexachlorobutadiene	0.001	PPRTV	NA	0.0003	Route Extrapolation	--	--	0.078	IRIS	0.022	0.077	IRIS
Hexachlorocyclopentadiene	0.006	IRIS	0.0002	0.000057	IRIS	Chronic irritation	1000/1	NA	--	NA	NA	--
Hexachloroethane	0.001	IRIS	NA	NA	--	Atrophy and degeneration of the renal tubules	1000/1	0.014	IRIS	0.004	0.014	IRIS
Hexachloroethane	NA	--	NA	NA	--	--	1000/1	0.039	OEHHA	0.011	0.04	OEHHA
Indeno(1,2,3-c,d)pyrene	NA	--	NA	NA	--	--	--	0.73	NCEA	0.011	0.04	Cal/EPA
Indeno(1,2,3-c,d)pyrene	NA	--	NA	NA	--	--	--	1.2	OEHHA	0.011	0.39	OEHHA
Isophorone	0.2	IRIS	2	0.57	Cal/EPA	No observed effects	1000/1	0.00095	IRIS	NA	NA	--
p-Cymene (p-Isopropyltoluene)	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Naphthalene	0.02	IRIS	0.003	0.00086	IRIS	Decreased body weight	3000/1	NA	--	0.034	0.12	Cal/EPA
Naphthalene	NA	--	9	2.6	OEHHA	--	3000/1	0.12	OEHHA	0.034	0.12	OEHHA
Nitrobenzene	0.002	IRIS	0.009	0.0026	IRIS	Hematologic, adrenal, renal and hepatic lesions	10000/1	NA	--	0.04	0.14	IRIS
N-Nitrosodi-n-propylamine	NA	--	NA	NA	--	--	--	7	IRIS	0.002	7	OEHHA
N-Nitrosodiphenylamine	0.02	PPRTV	NA	0.02	PPRTV	--	--	0.0049	IRIS	0.0026	0.009	Cal/EPA
N-Nitrosodiphenylamine	NA	--	NA	NA	--	--	--	0.009	OEHHA	0.0026	0.009	OEHHA
Pentachlorophenol	0.03	IRIS	--	--	--	Liver and kidney pathology	100/1	0.12	IRIS	0.0051	0.018	Cal/EPA
Pentachlorophenol	0.003	OEHHA*	NA	NA	--	--	--	0.018	OEHHA	0.0051	0.018	OEHHA
Phenanthrene	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Phenol	NA	--	0.2	0.057	OEHHA	--	300/1	NA	--	NA	NA	--
n-Propylbenzene	0.04	NCEA	NA	NA	--	--	--	NA	--	NA	NA	--
Pyrene	0.03	IRIS	NA	NA	--	tubular pathology,	3000/1	NA	--	NA	NA	--
1,1,1-Trichloroethane	2	IRIS	5	1.4	IRIS	--	--	NA	--	NA	NA	--

TABLE 37
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1,1,2,2-Tetrachloroethane	0.004	PPRTV	NA	0.06	Route Extrapolation	--	--	0.2	IRIS	0.058	0.2	IRIS
1,1,2,2-Tetrachloroethane	NA	--	NA	NA	--	--	--	0.27	OEHHA	0.058	0.2	OEHHA
1,1,2-Trichloroethane	0.004	IRIS	NA	NA	--	Clinical serum chemistry	1000/1	0.057	IRIS	0.016	0.056	IRIS
1,1,2-Trichloroethane	NA	--	NA	NA	--	--	1000/1	0.072	OEHHA	0.016	0.057	OEHHA
1,1-Dichloroethane	0.2	PPRTV	NA	NA	--	--	--	0.0057	OEHHA	0.0016	0.0057	OEHHA
1,1-Dichloroethene	0.05	IRIS	0.2	0.057	IRIS	--	--	NA	--	NA	0.091	IRIS
1,1-Dichloroethene	NA	--	0.07	0.02	OEHHA	--	--	NA	--	NA	NA	--
1,2,3-Trichlorobenzene	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
1,2,4-Trichlorobenzene	NA	--	NA	NA	--	--	--	0.0036	OEHHA	NA	NA	--
1,2,4-Trimethylbenzene	0.007	PPRTV	NA	NA	--	NA	--	NA	--	NA	NA	--
1,2-Dibromo-3-chloropropane	0.0002	PPRTV	0.0002	0.000057	IRIS	--	--	0.8	PPRTV	0.006	0.021	PPRTV
1,2-Dibromo-3-chloropropane	NA	--	NA	NA	--	--	--	7	OEHHA	2	7	OEHHA
1,2-Dibromoethane	0.009	IRIS	0.009	0.0026	IRIS	Testicular atrophy, liver peliosis, and adrenal cortical degeneration	3000/1	2	IRIS	0.6	2	IRIS
1,2-Dibromoethane	NA	--	NA	NA	--	--	--	3.6	OEHHA	0.071	0.25	OEHHA
1,2-Dichlorobenzene	0.09	IRIS	0.2	0.057	HEAST	No adverse effects observed	1000/1	NA	--	NA	NA	--
1,2-Dichloroethane	NA	--	NA	NA	--	--	--	0.047	OEHHA	0.021	0.074	OEHHA
1,2-Dichloropropane	0.09	ATSDR	0.004	0.0011	IRIS	--	--	0.036	OEHHA	0.01	0.035	OEHHA
1,3-Butadiene	NA	--	0.002	0.00057	IRIS	--	--	3.4	OEHHA	0.03	0.11	OEHHA
1,3-Dichlorobenzene	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
1,3,5-Trimethylbenzene	0.01	X	NA	NA	--	NA	--	NA	--	NA	NA	--
1,4-Dichlorobenzene	0.07	ATSDR	0.8	0.23	IRIS	--	--	0.0054	OEHHA	0.011	0.04	OEHHA
1,4-Dioxane (p-dioxane)	0.1	ATSDR	3.6	1.03	ATSDR	--	--	0.011	IRIS	0.0077	0.027	Cal/EPA
1,4-Dioxane (p-dioxane)	NA	--	3	0.86	OEHHA	--	--	0.027	OEHHA	0.0077	0.027	OEHHA
2-Hexanone	0.005	IRIS	0.03	0.009	IRIS	--	--	NA	--	NA	NA	--
Acetone	0.9	IRIS	31	8.86	ATSDR	Nephropathy	1000/1	NA	--	NA	NA	--
Benzene	0.004	IRIS	0.03	0.0086	IRIS	Immune system (decreased lymphocyte count)	300/1	0.055	IRIS	0.0078	0.027	IRIS
Benzene	NA	--	0.06	0.017	OEHHA	--	300/1	0.1	OEHHA	0.029	0.1	OEHHA
Bromodichloromethane	0.02	IRIS	NA	NA	--	Renal cytomegaly	1000/1	0.062	IRIS	0.037	0.13	Cal/EPA
Bromodichloromethane	NA	--	NA	NA	--	--	1000/1	0.13	OEHHA	0.037	0.1	OEHHA
Bromoform	0.02	IRIS	NA	NA	--	Hepatic lesions	1000/1	0.0079	IRIS	0.0011	0.0039	IRIS
Bromoform	NA	--	NA	NA	--	--	1000/1	0.011	OEHHA	NA	NA	--
Bromomethane	0.0014	IRIS	0.005	0.0014	IRIS	Epithelial hyperplasia of the forestomach	1000/1	NA	--	NA	NA	--
Carbon disulfide	NA	--	0.8	0.23	OEHHA	--	100/1	NA	--	NA	NA	--
Carbon tetrachloride	0.004	IRIS	0.1	0.03	IRIS	Liver lesions	1000/1	0.07	IRIS	0.006	0.021	IRIS
Carbon tetrachloride	NA	--	0.04	0.011	OEHHA	--	1000/1	0.15	OEHHA	0.042	0.15	OEHHA

TABLE 37
Cancer and Noncancer Toxicity Values for COPCs
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Oral RfD (mg/kg-day)	References	REL or Reference Conc (mg/m^3)	Inhalation RFD (mg/kg-day)	References	Primary Target Organ/Effect	Uncertainty/ Modifying Factors	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	References	Inhalation Unit Risk (mg/m^3)$^{-1}$	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	References
Chlorobenzene	0.02	IRIS	0.05	0.014	PPRTV	Histopathologic changes in liver	1000/1	NA	--	NA	NA	--
Chlorobenzene	NA	--	1	0.29	OEHHA	--	1000/1	NA	--	NA	NA	--
Chloroethane	NA	--	10	2.86	IRIS	--	--	NA	--	NA	0.0029	Route Extrapolation
Chloroform	0.01	IRIS	0.098	0.028	ATSDR	Moderate/marked fatty cyst formation in the liver and elevated SGPT	100/1	0.031	OEHHA	0.0053	0.019	OEHHA
Chloromethane	NA	--	0.09	0.026	IRIS	Brain (cerebellar lesions)	1000/1	NA	--	NA	NA	--
cis-1,2-Dichloroethene	0.01	PPRTV	NA	NA	--	Decreased hematocrit and hemoglobin (Blood)	--	NA	--	NA	NA	--
cis-1,3-Dichloropropene	0.03	IRIS	0.02	0.0057	IRIS	Chronic irritation	100/1	0.1	IRIS	0.004	0.014	IRIS
cis-1,3-Dichloropropene	NA	--	NA	NA	--	--	100/1	0.091	OEHHA	0.016	0.056	OEHHA
Cyclohexane	NA	--	6	1.7	IRIS	--	--	NA	--	NA	NA	--
Dibromochloromethane	0.02	IRIS	NA	NA	--	Hepatic lesions	1000/1	0.084	IRIS	0.027	0.095	CalEPA
Dibromochloromethane	NA	--	NA	NA	--	--	1000/1	0.094	OEHHA	0.027	0.095	OEHHA
Ethyl tertiary butyl ether	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Ethylbenzene	NA	--	2	0.57	OEHHA	--	1000/1	0.011	OEHHA	0.0025	0.00875	OEHHA
Freon 11	0.3	IRIS	0.7	0.20	HEAST	Survival and histopathology	1000/1	NA	--	NA	NA	--
Freon 113	30	IRIS	30	8.57	HEAST	Psychomotor impairment	10/1	NA	--	NA	NA	--
Freon 12	0.2	IRIS	0.2	0.057	HEAST	Reduced body weight	100/1	NA	--	NA	NA	--
Isopropylbenzene (cumene)	0.1	IRIS	0.4	0.11	IRIS	Increased kidney weights in female rats and adrenal weights in male and female rats	1000/1	NA	--	NA	NA	--
Isopropyl ether	NA	--	NA	NA	--	--	--	NA	--	NA	NA	--
Methyl acetate	1	HEAST	NA	NA	--	--	--	NA	--	NA	NA	--
Methyl ethyl ketone	0.6	IRIS	5	1.4	IRIS	Decreased pup body weight	1000/1	NA	--	NA	NA	--
Methyl isobutyl ketone	0.08	HEAST	3	0.86	IRIS	--	--	NA	--	NA	NA	--
Methyl tert-butyl ether	NA	--	8	2.3	OEHHA	--	--	0.0018	OEHHA	0.00026	0.00091	OEHHA
Methylcyclohexane	NA	--	NA	0.86	HEAST	--	--	NA	--	NA	NA	--
Methylene chloride	0.06	IRIS	1	0.29	ATSDR	Liver toxicity	100/1	0.0075	IRIS	0.00047	0.0016	IRIS
Methylene chloride	NA	--	0.4	0.11	OEHHA	--	100/1	0.014	OEHHA	0.001	0.0035	OEHHA
n-Butylbenzene	0.04	NCEA	NA	NA	--	--	--	NA	--	NA	NA	--
Styrene	0.2	IRIS	1	0.29	IRIS	Red blood cell and liver effects	1000/1	NA	--	NA	NA	--
Styrene	NA	--	0.9	0.26	OEHHA	--	1000/1	NA	--	NA	NA	--
sec-Butylbenzene	0.04	NCEA	NA	0.04	Route Extrapolation	--	--	NA	--	NA	NA	--

TABLE 37
Cancer and Noncancer Toxicity Values for COPCs
Baseline Human Health Risk Assessment
AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Oral RfD (mg/kg-day)	References	REL or Reference Conc (mg/m^3)	Inhalation RFD (mg/kg-day)	References	Primary Target Organ/Effect	Uncertainty/ Modifying Factors	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	References	Inhalation Unit Risk $(mg/m^3)^{-1}$	Inhalation Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	References
tert-Butyl alcohol	0.1	IRIS	NA	0.0026	NCEA	--	--	NA	--	NA	NA	--
tert-Butylbenzene	0.04	NCEA		NA	--	--	--	NA	--	NA	NA	--
Tetrachloroethene	0.01	IRIS	0.27	0.08	ATSDR	Hepatotoxicity in mice, weight gain in rats	1000/1	0.54	OEHHA	0.0059	0.021	OEHHA
Tetrachloroethene	NA		0.035	0.01	OEHHA	--	--	0.54	OEHHA	0.0059	0.021	OEHHA
Toluene	0.08	IRIS	5	1.43	IRIS	Kidney	3000/1	NA	--	NA	NA	--
Toluene	NA	--	0.3	0.086	OEHHA	--	--	NA	--	NA	NA	--
trans-1,2-Dichloroethene	0.02	IRIS	0.06	0.02	PPRTV	Increased serum alkaline phosphatase in male mice	1000/1	NA	--	NA	NA	--
trans-1,3-Dichloropropene	0.03	IRIS	0.02	0.0057	IRIS	Chronic irritation	100/1	0.1	IRIS	0.004	0.014	IRIS
trans-1,3-Dichloropropene	NA	--	NA	NA	--	--	--	0.091	OEHHA	0.016	0.056	OEHHA
Trichloroethene	0.0003	NCEA	NA	0.01	NCEA	NA	--	NA	--	NA	NA	--
Trichloroethene	NA	--	600	0.17	OEHHA	--	--	0.0059	OEHHA	0.002	0.007	OEHHA
Vinyl chloride	0.003	IRIS	0.1	0.0286	IRIS	Liver	30/1	0.72	IRIS	0.0044	0.0154	IRIS
Vinyl chloride	NA	--	NA	NA	--	--	30/1	0.27	OEHHA	0.078	0.27	OEHHA
o-Xylene	0.2	IRIS	0.7	0.2	OEHHA	Decreased body weight, increased mortality	1000/1	NA	--	NA	NA	--
m,p-Xylenes	0.2	IRIS	0.7	0.2	OEHHA	Decreased body weight, increased mortality	1000/1	NA	--	NA	NA	--
Xylenes, total	NA	--	0.7	0.2	OEHHA	--	1000/1	NA	--	NA	NA	--
1,2,3,4,6,7,8-HpCDD	NA	--	NA	NA	--	--	--	1500	calc using TEF	NA	1500	calc using TEF
1,2,3,4,6,7,8-HpCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	1300	OEHHA	380000	1300	OEHHA
1,2,3,4,6,7,8-HpCDF	NA	--	NA	NA	--	--	--	1500	calc using TEF	NA	1500	calc using TEF
1,2,3,4,6,7,8-HpCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	1300	OEHHA	380000	1300	OEHHA
1,2,3,4,7,8,9-HpCDF	NA	--	NA	NA	--	--	--	1500	calc using TEF	NA	1500	calc using TEF
1,2,3,4,7,8,9-HpCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	1300	OEHHA	380000	1300	OEHHA
1,2,3,4,7,8-HxCDD	NA	--	NA	NA	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
1,2,3,4,7,8-HxCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
1,2,3,4,7,8-HxCDF	NA	--	NA	NA	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
1,2,3,4,7,8-HxCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
1,2,3,6,7,8-HxCDD	NA	--	NA	NA	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
1,2,3,6,7,8-HxCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
1,2,3,6,7,8-HxCDF	NA	--	NA	NA	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
1,2,3,6,7,8-HxCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
1,2,3,7,8,9-HxCDD	NA	--	NA	NA	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
1,2,3,7,8,9-HxCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
1,2,3,7,8,9-HxCDF	NA	--	NA	--	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
1,2,3,7,8,9-HxCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
1,2,3,7,8-PeCDD	NA	--	NA	--	--	--	--	150000	calc using TEF	NA	150000	calc using TEF

TABLE 37

Cancer and Noncancer Toxicity Values for COPCs

Baseline Human Health Risk Assessment

AMCO Chemical Superfund Site, Oakland, California

Chemical of Potential Concern	Oral RfD (mg/kg-day)	References	REL or Reference Conc (mg/m^3)	Inhalation RFD (mg/kg-day)	References	Primary Target Organ/Effect	Uncertainty/ Modifying Factors	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	References	Inhalation Unit Risk (mg/m^3)$^{-1}$	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	References
1,2,3,7,8-PeCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	6500	OEHHA	37600000	130000	OEHHA
1,2,3,7,8-PeCDF	NA	--	NA	--	--	--	--	7500	calc using TEF	NA	7500	calc using TEF
1,2,3,7,8-PeCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	6500	OEHHA	1857140	6500	OEHHA
2,3,4,6,7,8-HxCDF	NA	--	NA	--	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
2,3,4,6,7,8-HxCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
2,3,4,7,8-PeCDF	NA	--	NA	--	--	--	--	75000	calc using TEF	NA	75000	calc using TEF
2,3,4,7,8-PeCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	65000	OEHHA	18571300	65000	OEHHA
2,3,7,8-TCDD	NA	--	NA	--	--	--	--	150000	HEAST	NA	150000	HEAST
2,3,7,8-TCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	130000	OEHHA	37600000	130000	OEHHA
2,3,7,8-TCDF	NA	--	NA	--	--	--	--	15000	calc using TEF	NA	15000	calc using TEF
2,3,7,8-TCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	13000	OEHHA	3760000	13000	OEHHA
OCDD	NA	--	NA	--	--	--	--	15	calc using TEF	NA	15	calc using TEF
OCDD	NA	--	0.00004	0.00000001	OEHHA	--	--	13	OEHHA	3800	13	OEHHA
OCDF	NA	--	NA	--	--	--	--	15	calc using TEF	NA	15	calc using TEF
OCDF	NA	--	0.00004	0.00000001	OEHHA	--	--	13	OEHHA	3800	13	OEHHA

References

HEAST: Health Effects Assessment Summary Tables (1997)

IRIS: Integrated Risk Information System (EPA 2010)

NCEA: National Center for Environmental Assessment (as cited on the RSL Table, 2010)

OEHHA: California Office of Environmental Health Hazard Assessment. Toxicity Criteria Database (2010)

OEHHA*: California Office of Environmental Health Hazard Assessment. Child Reference Dose (2007)

PPRTV : Provisional Peer Reviewed Toxicity Value (as cited on the RSL Table, 2010)

Shaded values are State of California toxicity values

TABLE 38

Summary of Cancer Risks and Noncancer Hazards - Soil

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

	Former AMCO Chemical Facility			Parking Lot			Large Vacant Lot		
Exposure Scenario/ Receptor	**Cancer**	**Noncancer**	**Risk Drivers**	**Cancer**	**Noncancer**	**Risk Drivers**	**Cancer**	**Noncancer**	**Risk Drivers**
Worker									
Industrial Worker									
Shallow Soil	1E-04	1	Vinyl chloride, xylenes, naphthalene, 2-methylnaphthalene, manganese, aluminum, cadmium, aldrin and dieldrin	5E-05	1	Lead, arsenic[1], benzo(a)pyrene, antimony and cadmium	6E-05	0.7	Lead, arsenic[1], DDT, benzo(a)pyrene, and cadmium
Deep Soil	1E-04	1		1E-04	1		4E-05	0.5	
Future Construction Worker									
Shallow Soil	1E-05	23		9E-06	30		1E-05	12	
Deep Soil	1E-05	20		2E-05	25		7E-06	10	
Hypothetical Resident									
Future Adult Resident (24 years)									
Shallow Soil	1E-04	1		5E-05	1		6E-05	0.8	
Deep Soil	1E-04	2		1E-04	1		4E-05	0.6	
Future Child Resident (6 years)									
Shallow Soil	2E-04	10		1E-04	26		1E-04	10	
Deep Soil	2E-04	11		2E-04	25		9E-05	7	
Sum of Adult plus Child (30 years)									
Shallow Soil	3E-04			2E-04			2E-04		
Deep Soil	3E-04			4E-04			1E-04		

Notes:

[1] Although arsenic is a risk driver, concentrations of arsenic detected in this exposure area are similar to or less than arsenic levels found in the background data set; therefore, the risk contributions from arsenic may not be site-related.

TABLE 38
Summary of Cancer Risks and Noncancer Hazards - Soil
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

	Small Vacant Lot			Background		
Exposure Scenario/ Receptor	**Cancer**	**Noncancer**	**Risk Drivers**	**Cancer**	**Noncancer**	**Risk Drivers**
Worker						
Industrial Worker						
Shallow Soil	4E-05	0.4	Arsenic[1], dieldrin, DDT, aluminum, and cadmium	1E-05	0.8	Arsenic and thallium
Future Construction Worker						
Shallow Soil	7E-06	7		1E-06	3	
Hypothetical Resident						
Future Adult Resident (24 years)						
Shallow Soil	5E-05	0.4		1E-05	1	
Future Child Resident (6 years)						
Shallow Soil	1E-04	12		3E-05	11	
Sum of Adult plus Child (30 years)						
Shallow Soil	1E-04			4E-05		

Notes:

[1] Although arsenic is a risk driver, concentrations of arsenic detected in this exposure area are similar to or less than arsenic levels found in the background data set; therefore, the risk contributions from arsenic may not be site-related.

TABLE 39

Summary of Cancer Risks and Noncancer Hazards - Groundwater

Remedial Investigation Report

AMCO Chemical Superfund Site, Oakland, California

Exposure Scenario/ Receptor	Cancer	Noncancer	Risk Drivers
Trench Worker	1E-04	34	Vinyl chloride, arsenic, benzene, cis-1, 2-dichloroethene, benzo(a)pyrene, and Aroclor-1260
Hypothetical Resident			
Future Adult Resident (24 years)	5E-02	262	
Future Child Resident (6 years)	3E-02	628	
Sum of Adult plus Child (30 years)	7E-02		

TABLE 40

Risk and Hazards Summary for Vapor Intrusion Evaluation

Baseline Human Health Risk Assessment

AMCO Chemical Superfund Site, Oakland, California

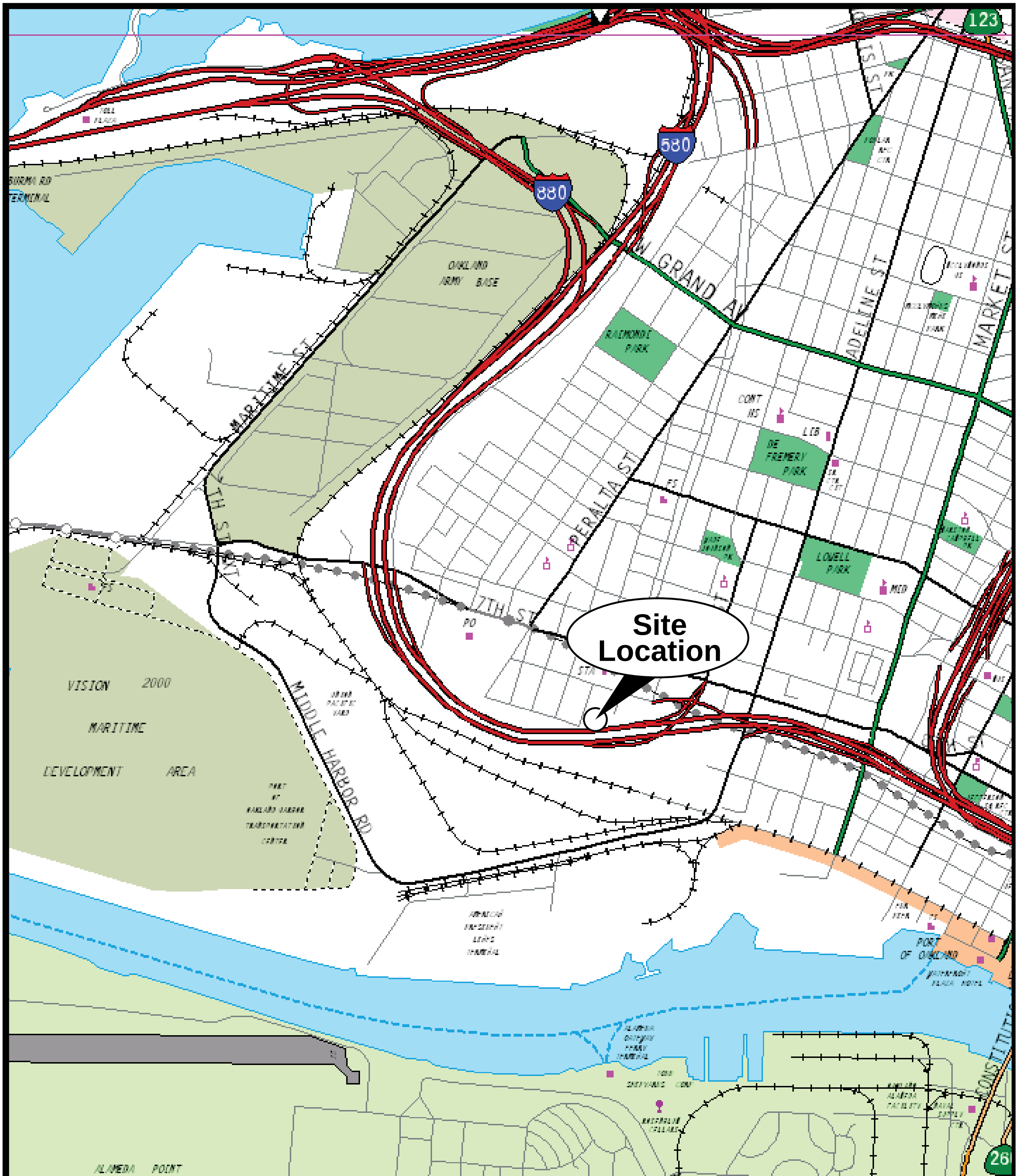
Location	Crawlspace Air		Outdoor Air	
	Cancer Risk	**Noncancer HI**	**Cancer Risk**	**Noncancer HI**
Commercial/Industrial Scenario				
1414 3rd St	6E-05	0.6		
Residential Scenario				
1428 3rd St	3E-04	7	2E-04	4
1432 3rd St	6E-04	8	4E-05	0.8
1436 3rd St			1E-04	0.8
320 Center St	6E-05	0.7	6E-05	1
326 Center St	8E-05	0.5	3E-05	0.4
339 Center St			4E-05	0.7
356 Center St			5E-05	0.9
360 Center St			4E-05	1
366 Center St			2E-05	0.1
Prescott Park			3E-05	0.5
Combined Background			3E-05	0.5

TABLE 41
Summary of Surrogate Toxicity Values
Remedial Investigation Report
AMCO Chemical Superfund Site, Oakland, California

Compound	Surrogate	Oral RfD (mg/kg-day)	Reference	Inhalation RfD (mg/kg-day)	Reference	Oral CSF $(mg/kg\text{-}day)^{-1}$	Reference	Inhalation CSF (mg/kg-day)-1	Reference
alpha-Chlordane gamma-Chlordane	Chlordane	0.0005	IRIS	0.0002	IRIS	1.2	OEHHA	1.2	OEHHA
Endosulfan I Endosulfan II Endosulfan sulfate	Endosulfan	0.006	IRIS	0.006	Route Extrapolation	NA	--	NA	--
Endrin aldehyde Endrin ketone	Endrin	0.0003	IRIS	0.0003	Route Extrapolation	NA	--	NA	--
Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1260	Aroclor-1254	0.00002	IRIS	0.00002	Route Extrapolation	2.0	IRIS	2.0	IRIS
o-Xylene m,p-Xylenes	Xylenes	0.2	IRIS	0.03	IRIS	NA	--	NA	--

Notes:
IRIS - Integrated Risk Information System (http://www.epa.gov/iris/)
RfD - Reference Dose
CSF - Cancer Slope Factor
NA - Toxicity value not available
OEHHA - Office of Environmental Health and Hazard Assessment, California State

Figures



Reference: Thomas Bros. Maps

N

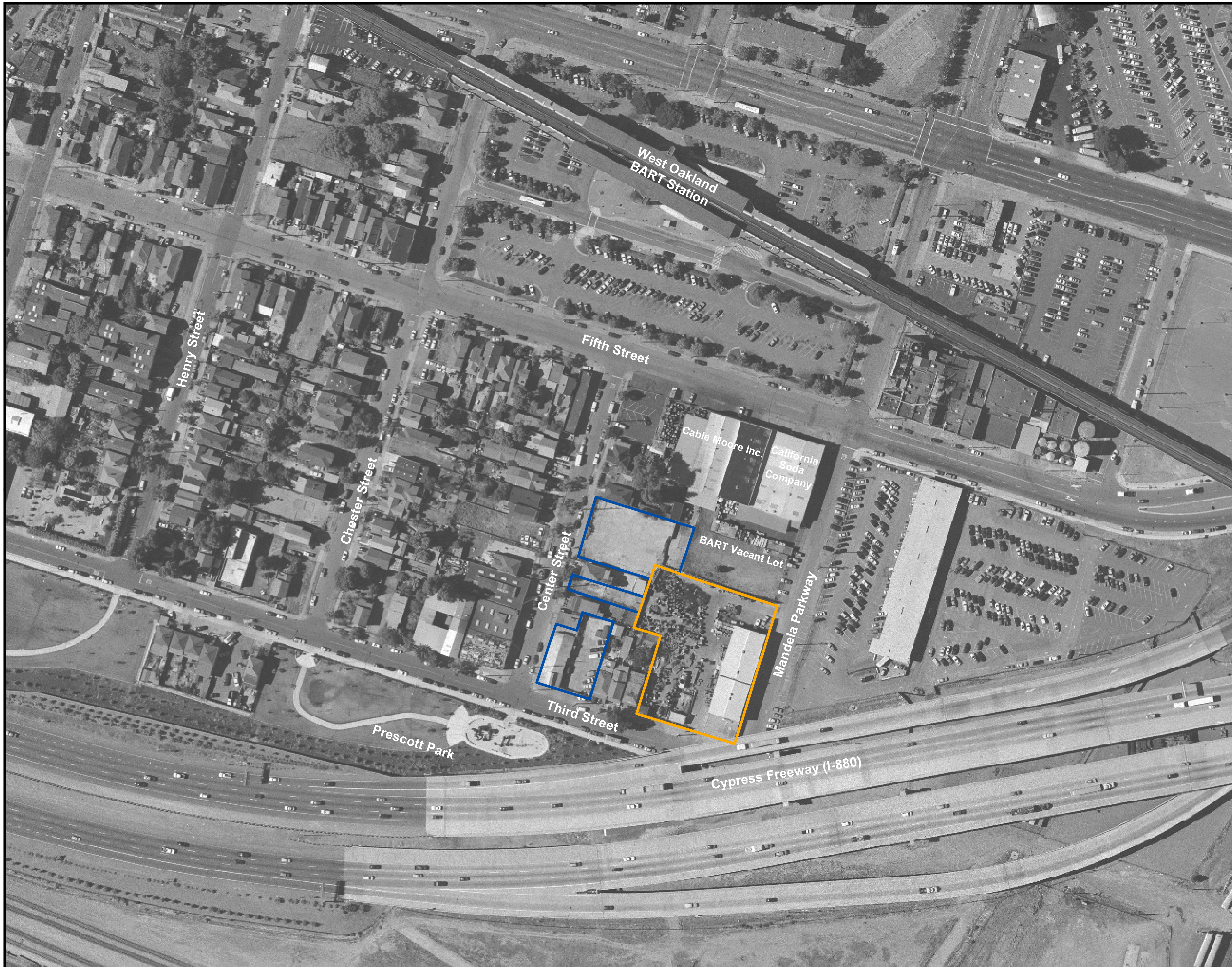
0 1800

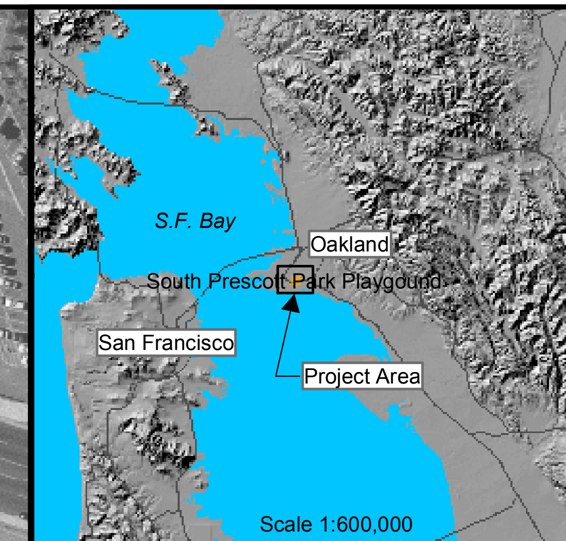
feet

FIGURE 1
SITE LOCATION MAP
REMEDIAL INVESTIGATION REPORT
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES122006002BAO_Fig_2-1_SiteLocMap.ai_082807_lho





LEGEND

Former AMCO Chemical Facility Boundary

Off-facility Properties

NOTE: Aerial photo taken 2002

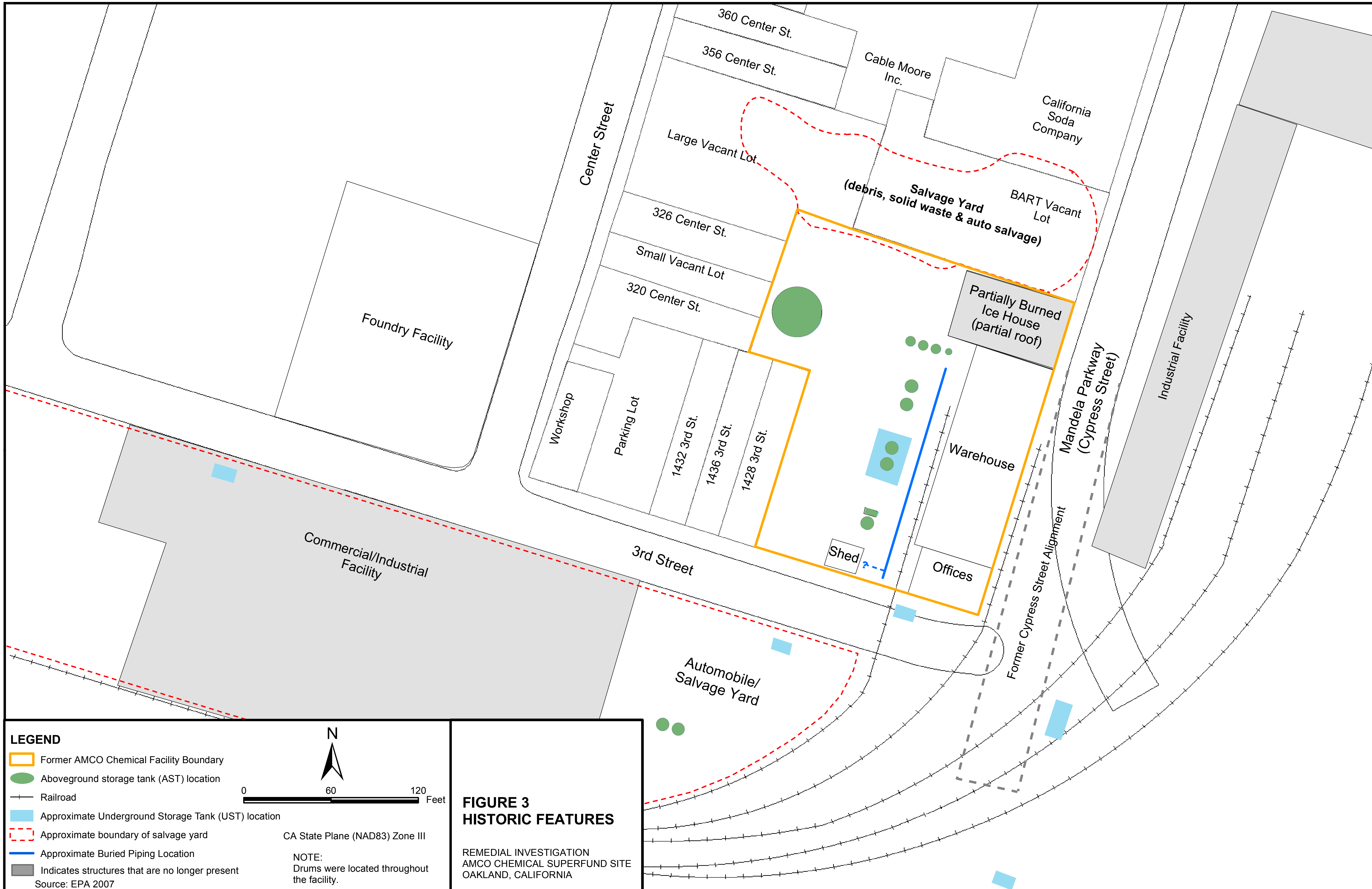
N

0 150 300 Feet

CA State Plane (NAD83) Zone III

FIGURE 2
FORMER AMCO FACILITY VICINITY MAP
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



LEGEND

- Former AMCO Chemical Facility Boundary
- Aboveground storage tank (AST) location
- Railroad
- Approximate Underground Storage Tank (UST) location
- Approximate boundary of salvage yard
- Approximate Buried Piping Location
- Indicates structures that are no longer present

Source: EPA 2007

CA State Plane (NAD83) Zone III

NOTE:
Drums were located throughout the facility.

FIGURE 3
HISTORIC FEATURES

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\GW\HISTORICAL_SITE_11X17.MXD MCLAY1 1/4/2011

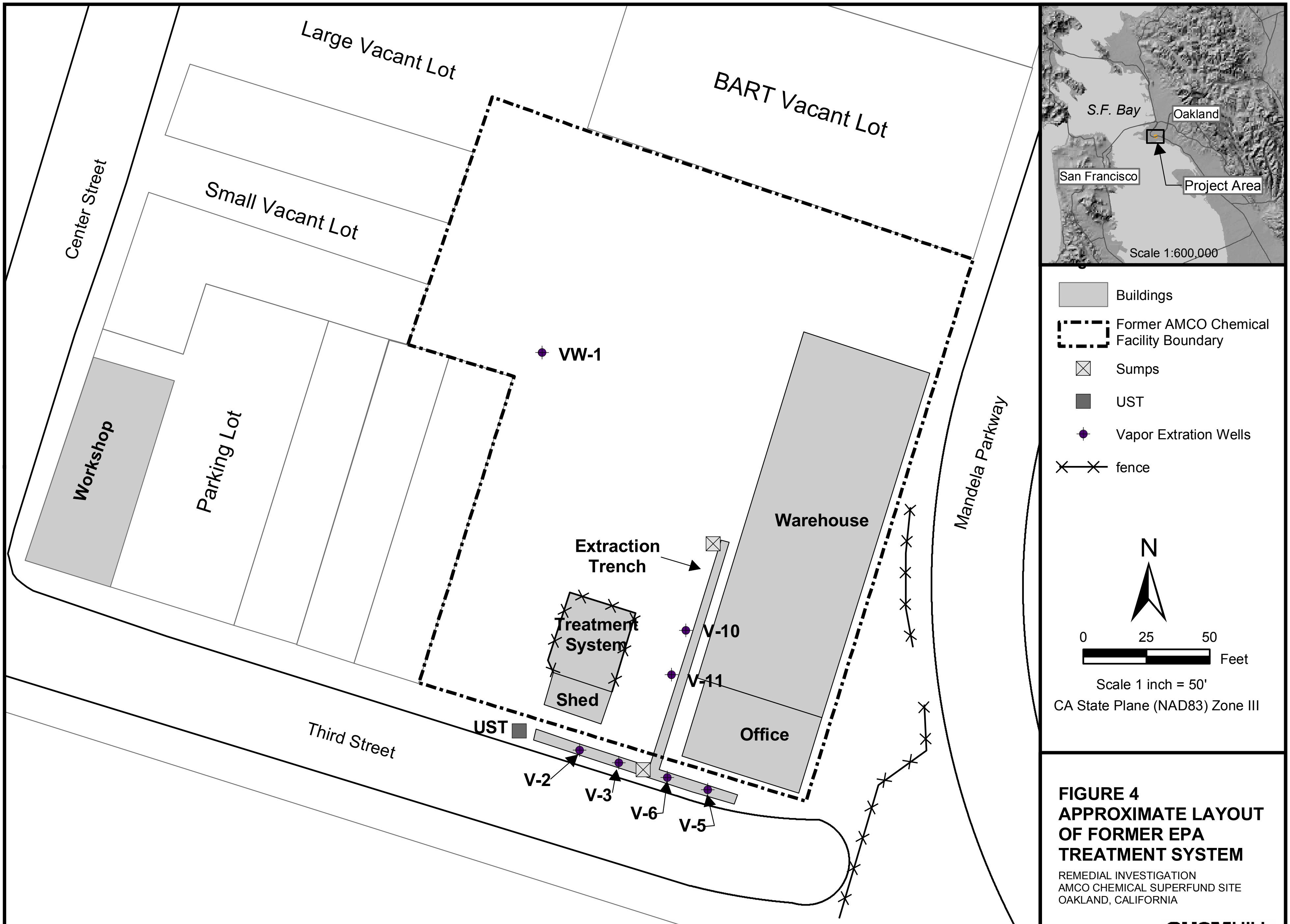


FIGURE 4
APPROXIMATE LAYOUT OF FORMER EPA TREATMENT SYSTEM

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\AMCO_FORMER_TREAT_SYS.MXD AMCO_FORMER_TREAT_SYS.PDF 2/27/2008 15:37:01

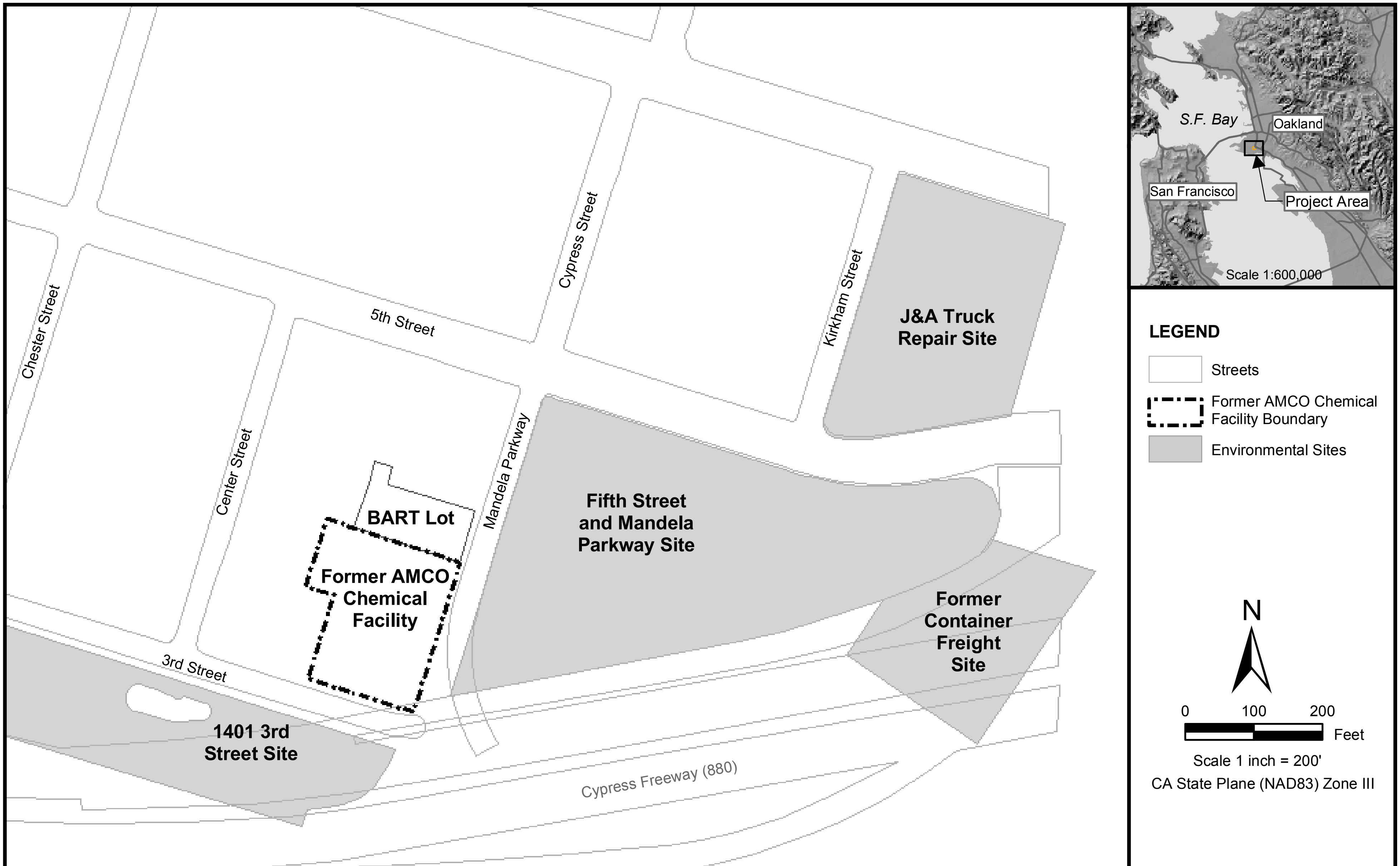
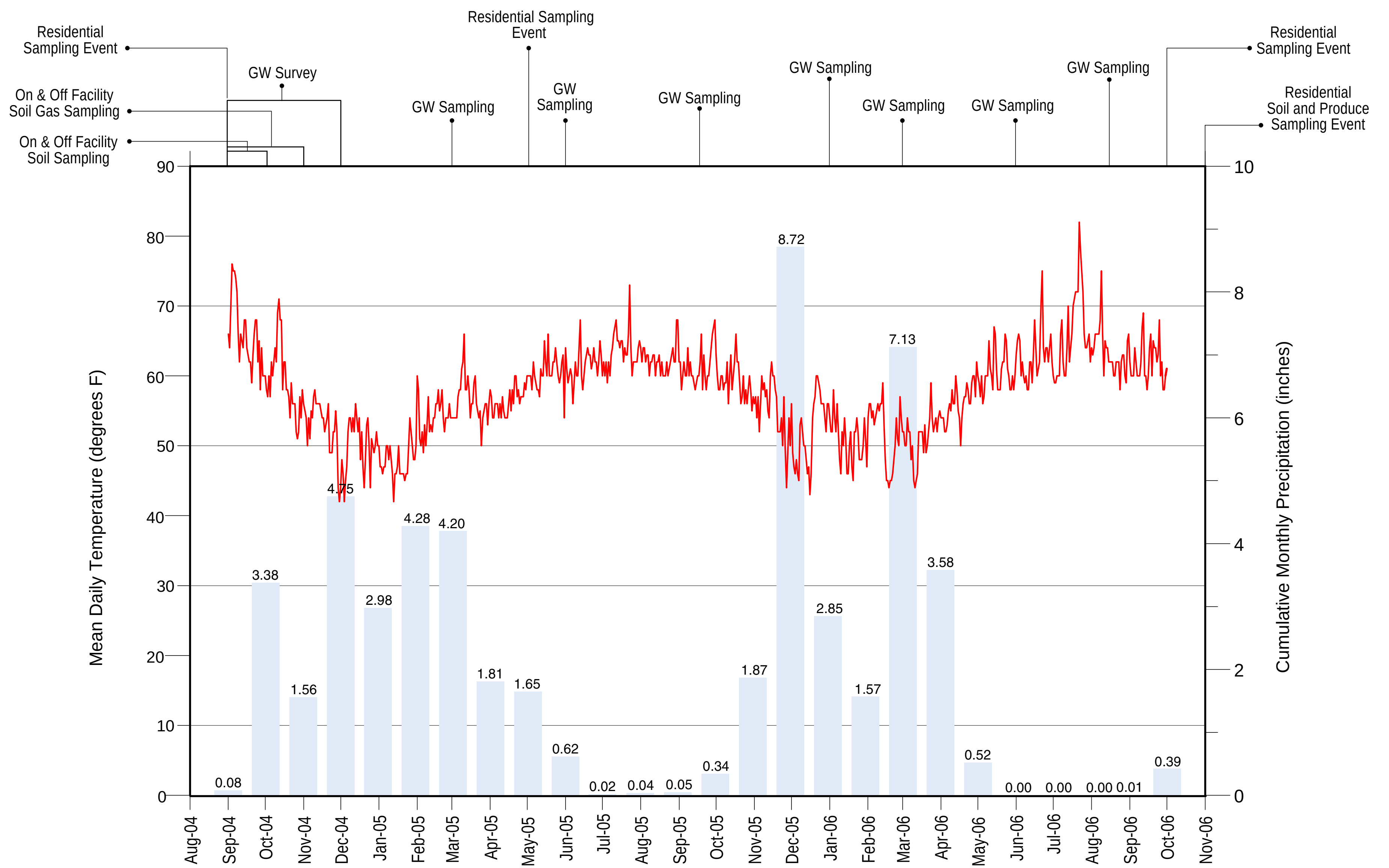


FIGURE 5
LOCATIONS OF NEARBY ENVIRONMENTAL SITES

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\AMCO_SITES.MXD AMCO_SITES.PDF 2/27/2008 15:34:56



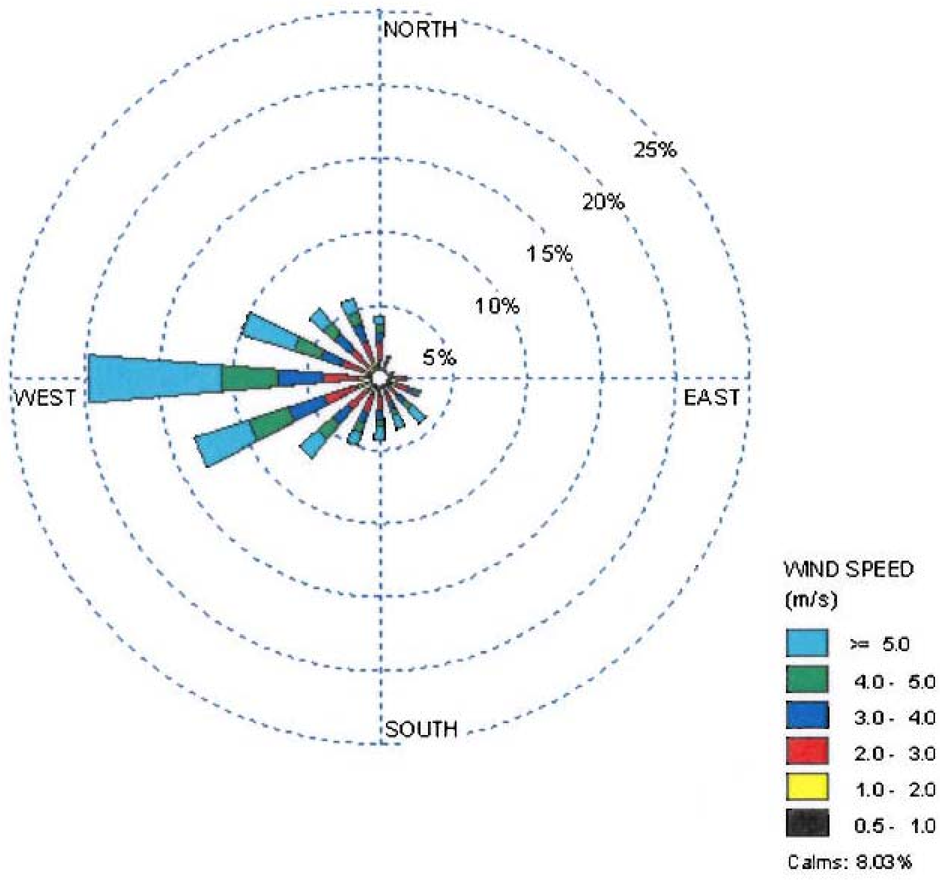
Legend

- Cumulative Precipitation
- Mean Temperature

FIGURE 6
OAKLAND, CALIFORNIA
TEMPERATURE AND PRECIPITATION TRENDS
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES032007001BAO AMCO_Oakland_Temp_Precip_Fig_6.ai 02-29-08 lho



Notes: Denotes directions from which wind originates.
Data collected 1994-1996

Source: University of Utah, Department of Meterology
http://www.met.utah.edu/jimsteen/jstewart/windroses.html

FIGURE 7
WIND ROSE FOR
ALAMEDA NAVAL AIR STATION
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES032007001BAO_Fig7_WindRose.ai 10-04-07 dash

FIGURE 8
SURFACE COVER THICKNESS

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\GW\CONCRETE.MXD MCLAY1 1/4/2011

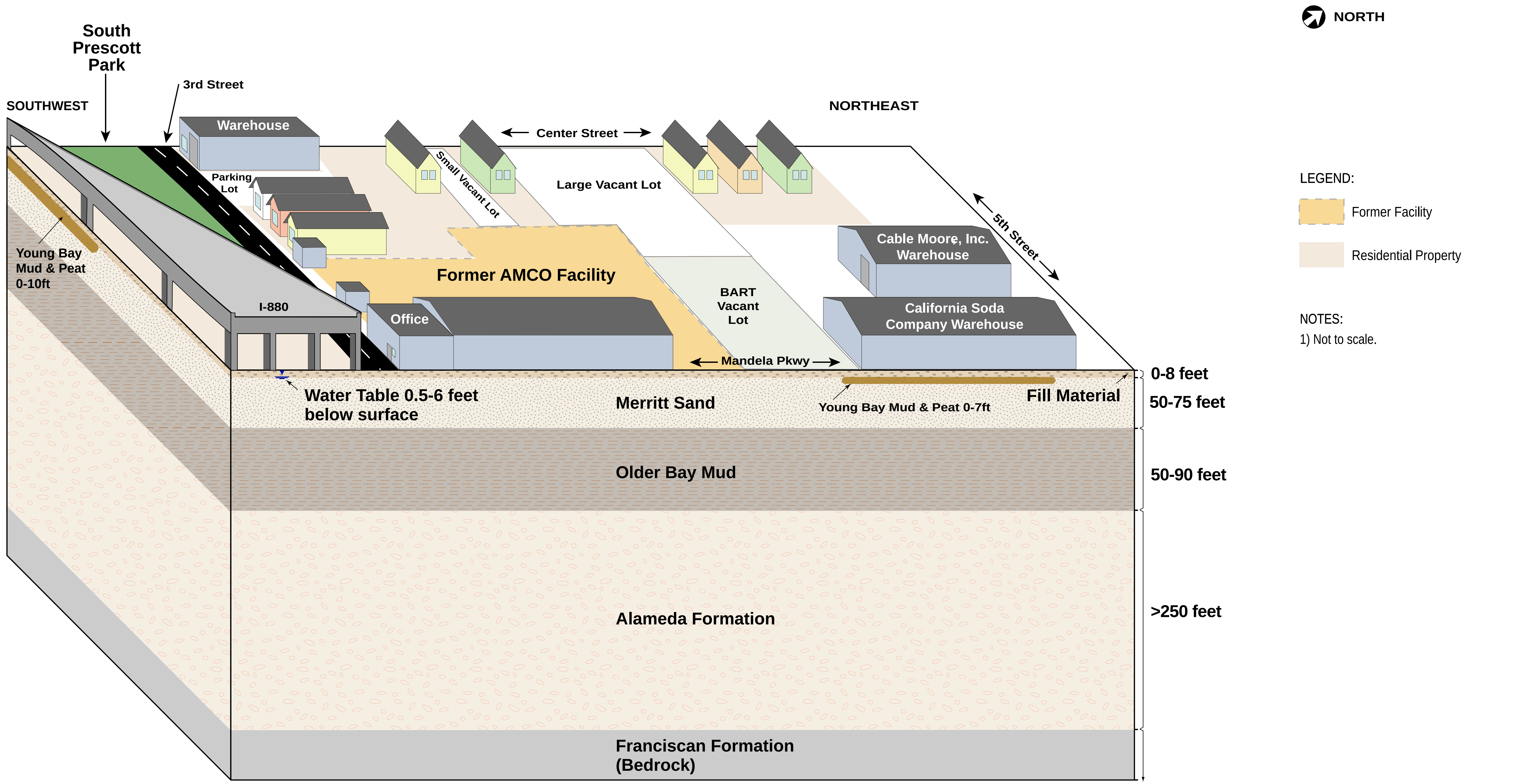


FIGURE 9
CONCEPTUAL GEOLOGIC MODEL
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES122006002BAO_Fig9_ConceptualGeologicModel_082407_lho

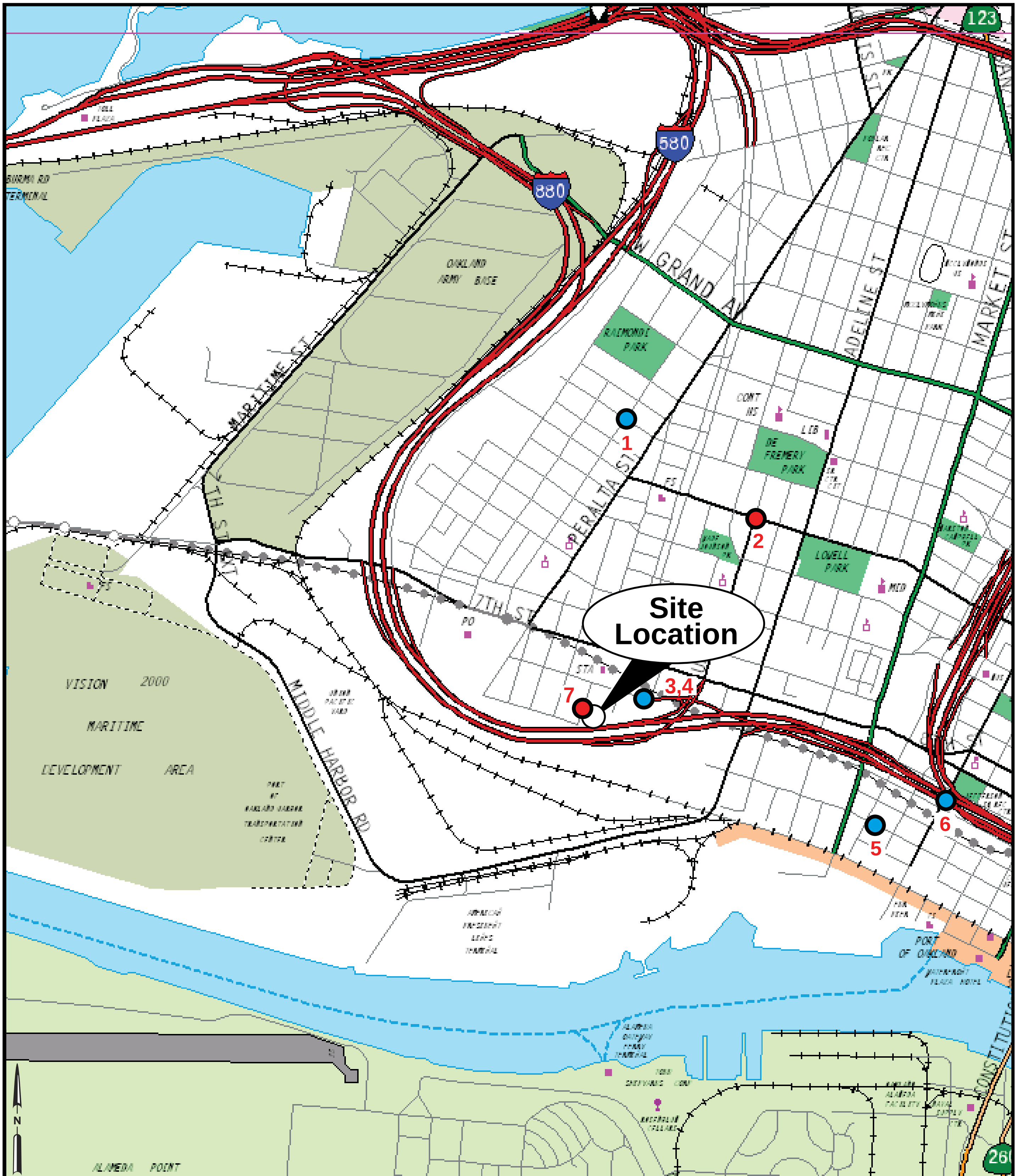
Source:
City of Oakland Sewer Map - 1880
Social Statistics of Cities,
Compiled by George E. Waring, Jr.,
United States. Census Office, Part I, 1886.

FIGURE 10
HISTORIC SHORELINE AND TIDAL CHANNEL MAP

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\GIS\PROJECTS\AMCO\GIS\MXDS\2007\OAKLAND_SEWERAGE.MXD OAKLAND_SEWERAGE.PDF 8/30/2007 17:01:30



Reference: Thomas Bros. Maps

LEGEND

- Industrial Well Location
- Irrigation Well Location

0 1800
feet

FIGURE 11
LOCATION OF INDUSTRIAL AND IRRIGATION WELLS WITHIN ONE MILE RADIUS
REMEDIAL INVESTIGATION REPORT
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES122006002BAO_Fig_12_Loc_1MileRadius.ai_082407_lho

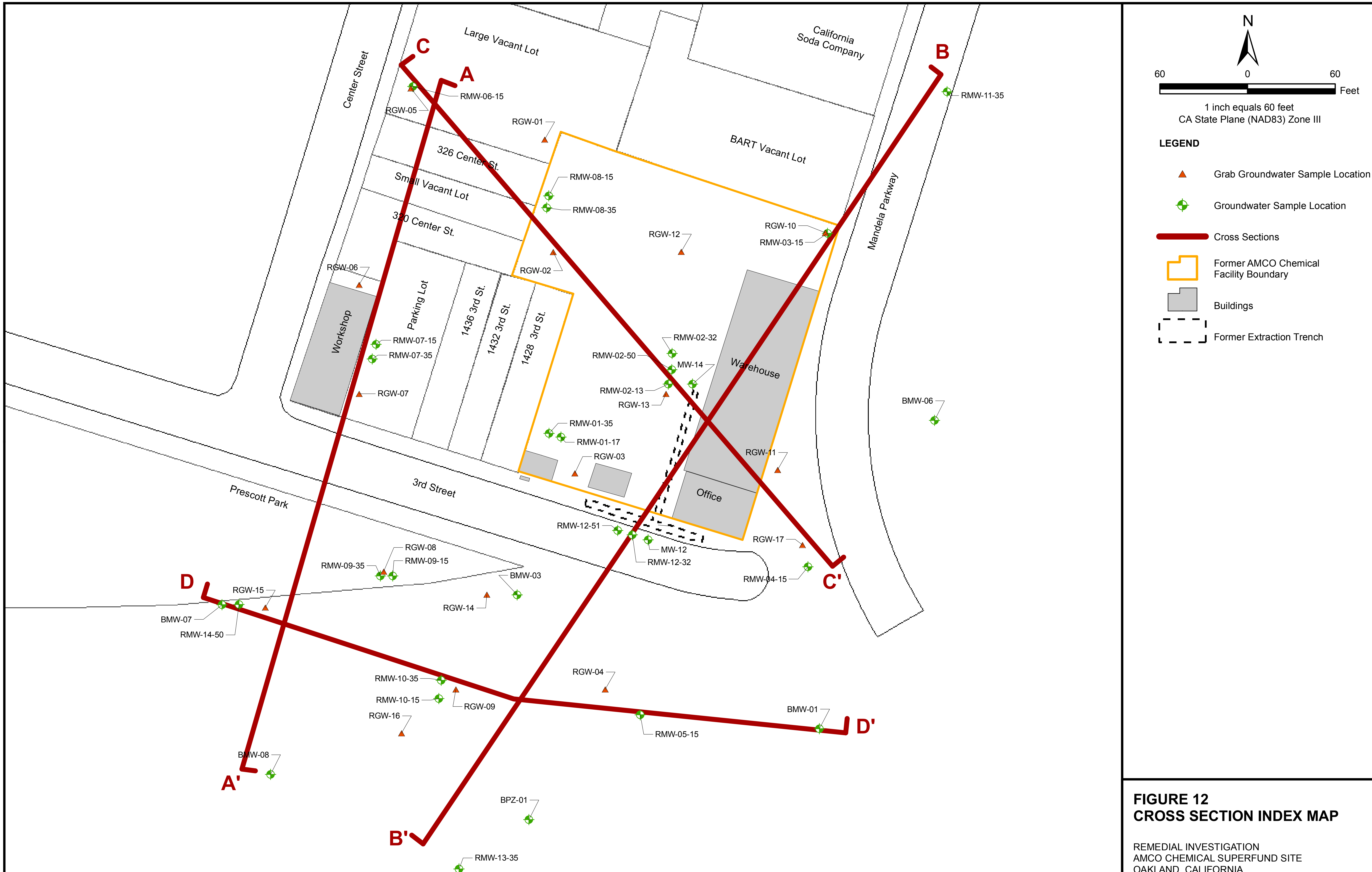


FIGURE 12
CROSS SECTION INDEX MAP

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_CROSS_SECTION.MXD SITE_MAP_CROSS_SECTION.PDF 2/27/2008 15:29:18

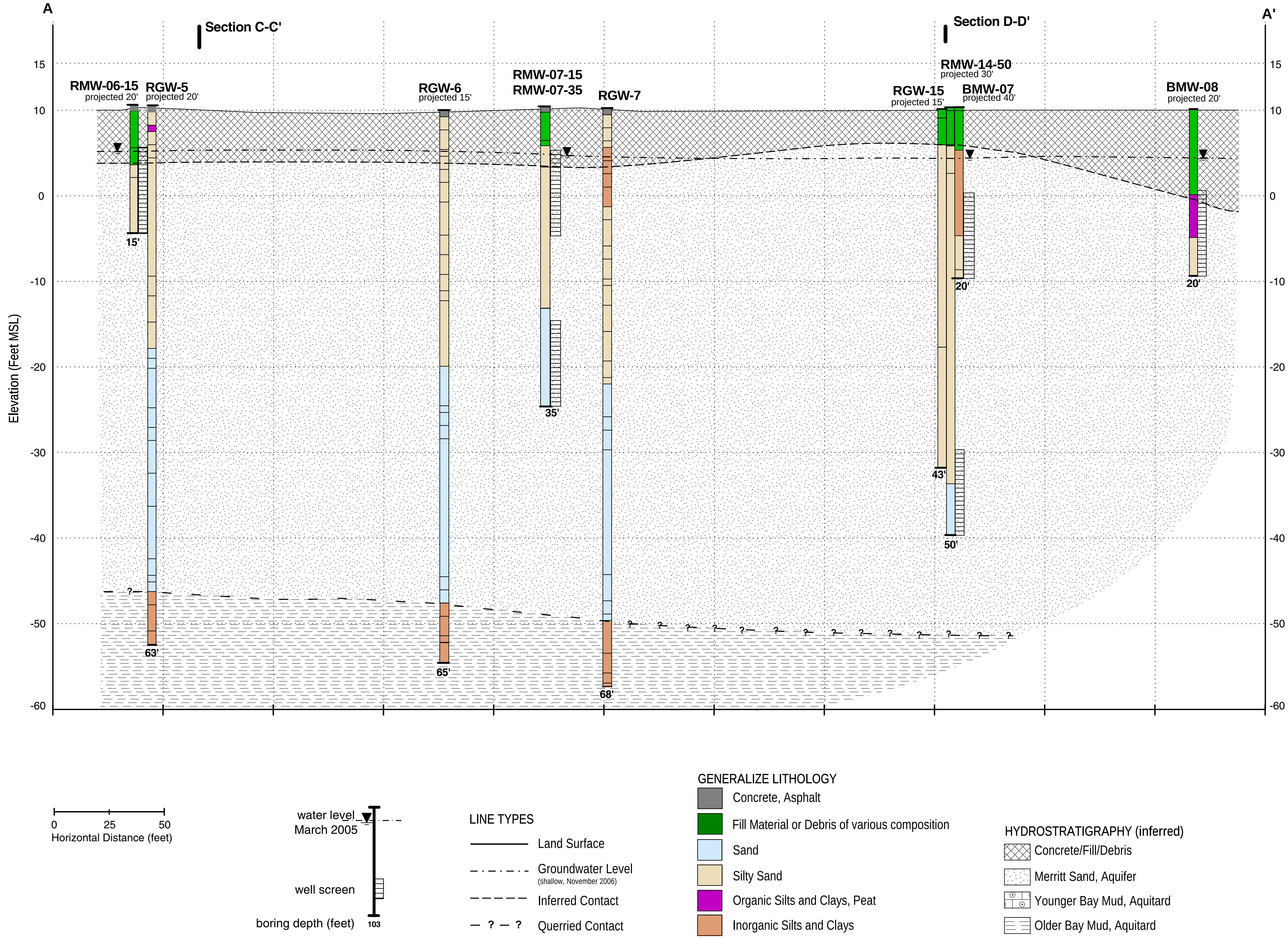
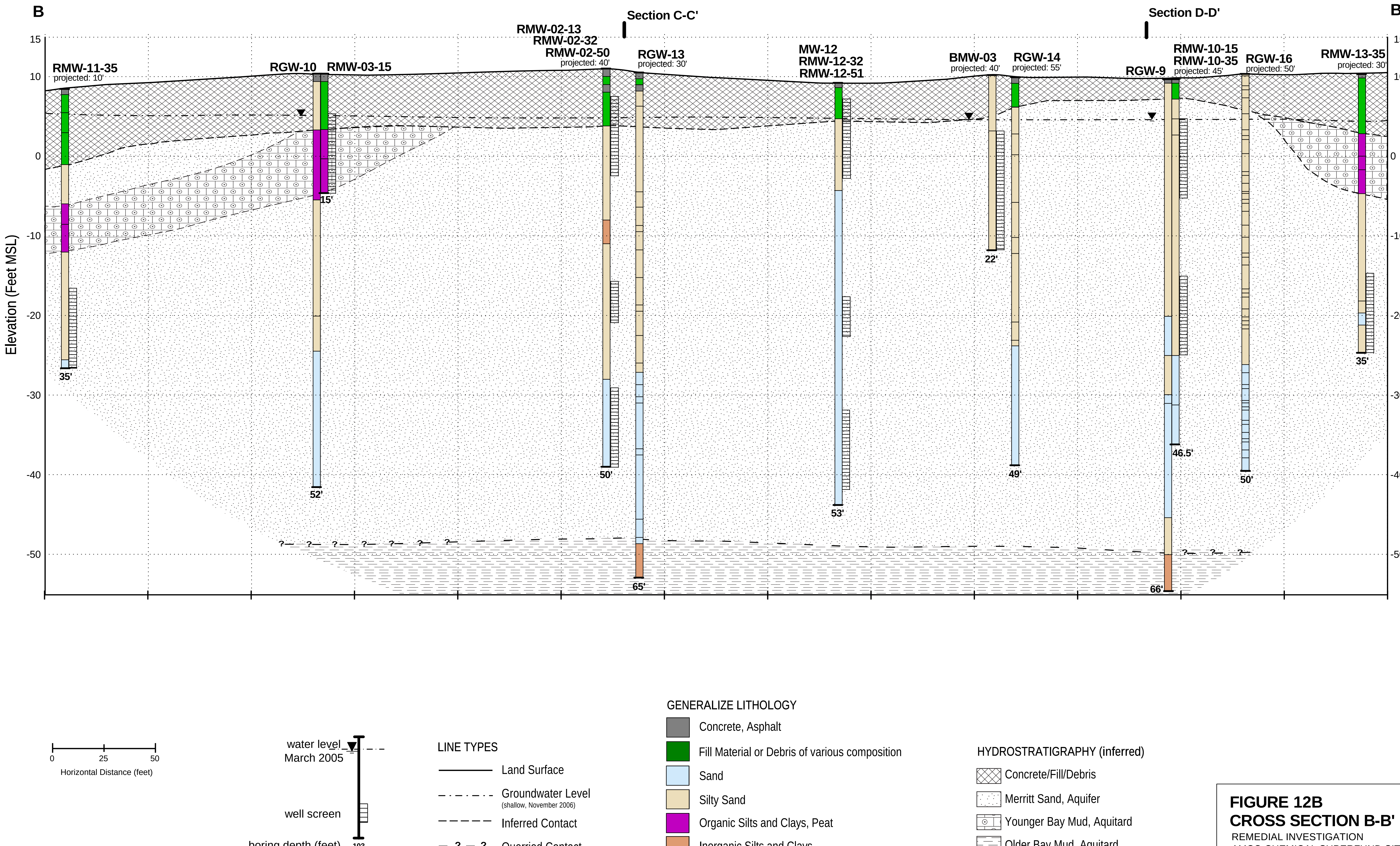


FIGURE 12A
CROSS SECTION A-A'
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES122006002BAO_sec_a-a_v4.ai_120110_lho



LINE TYPES

- Land Surface
- Groundwater Level (shallow, November 2006)
- Inferred Contact
- — ? — ? Querried Contact

GENERALIZE LITHOLOGY

- Concrete, Asphalt
- Fill Material or Debris of various composition
- Sand
- Silty Sand
- Organic Silts and Clays, Peat
- Inorganic Silts and Clays

HYDROSTRATIGRAPHY (inferred)

- Concrete/Fill/Debris
- Merritt Sand, Aquifer
- Younger Bay Mud, Aquitard
- Older Bay Mud, Aquitard

FIGURE 12B
CROSS SECTION B-B'
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL.

ES122006002BAO_sec_b-b_v3.ai_111710_lho

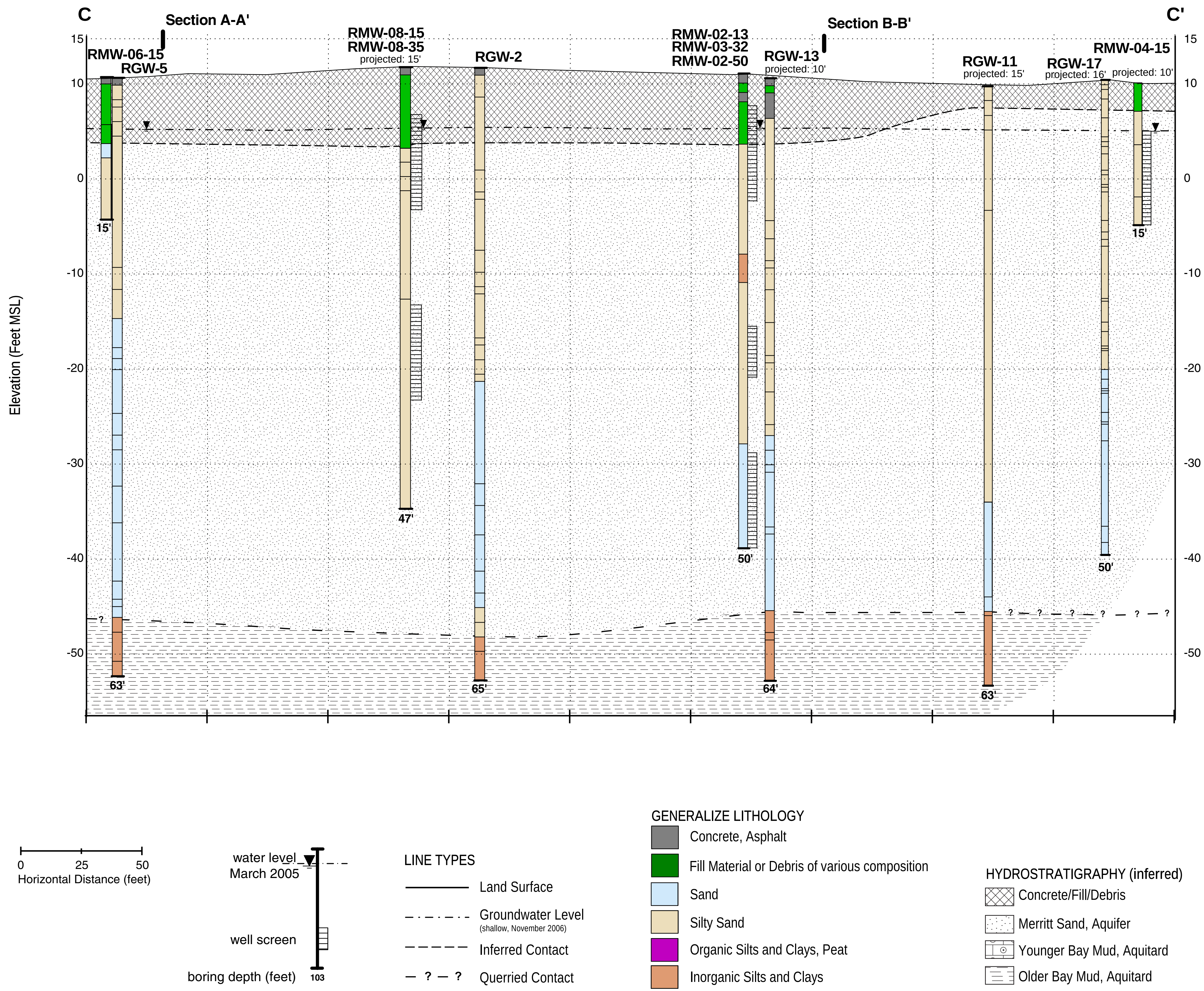


FIGURE 12C
CROSS SECTION C-C'
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL.

ES122006002BAO_sec_c-c_v3.ai_111710_lho

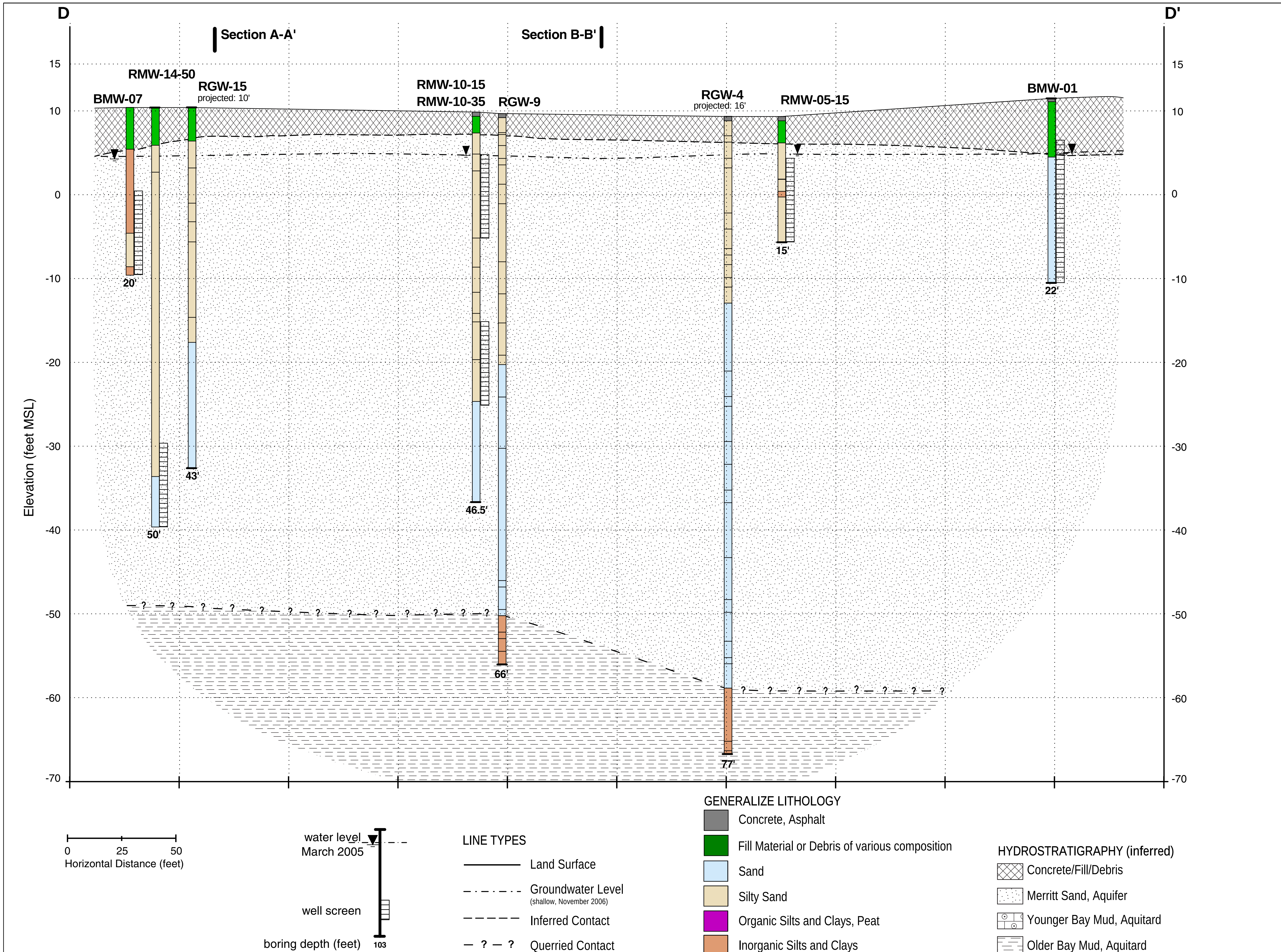


FIGURE 12D
CROSS SECTION D-D'
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL.

ES122006002BAO_sec_d-d_v3.ai_112410_lho

FIGURE 13A
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
MARCH 2005

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

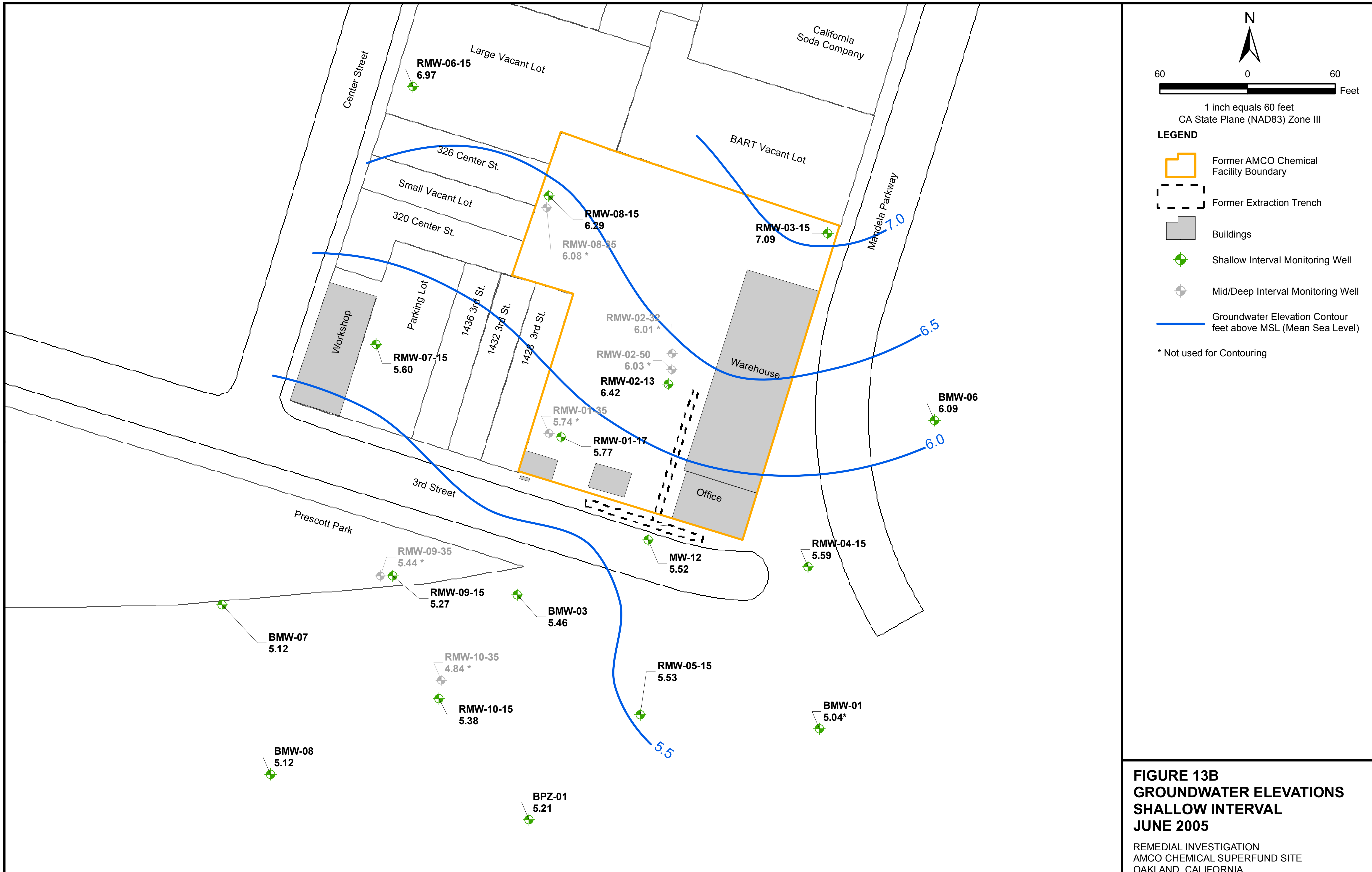


FIGURE 13B
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
JUNE 2005

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

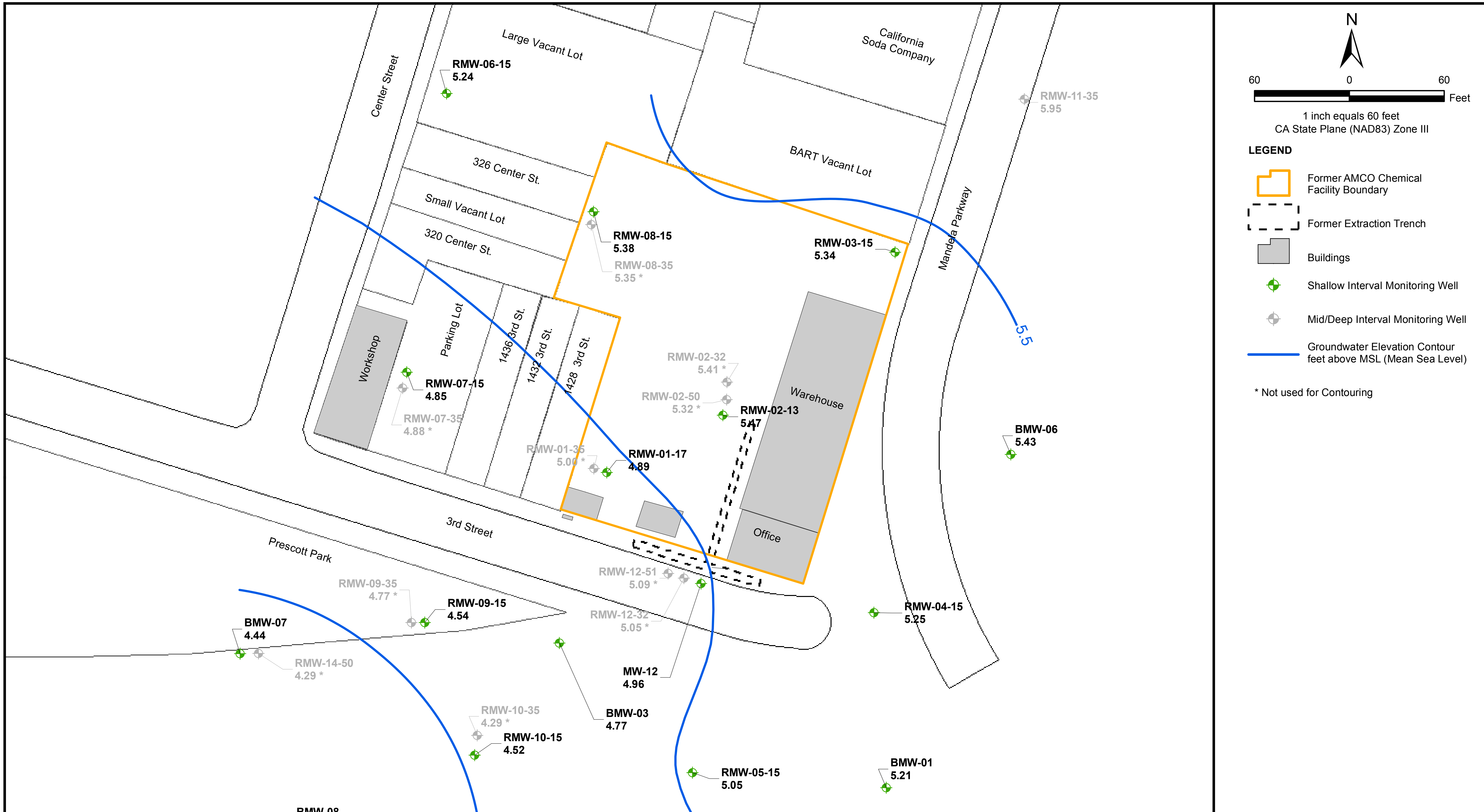


FIGURE 13C
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
SEPTEMBER 2005

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

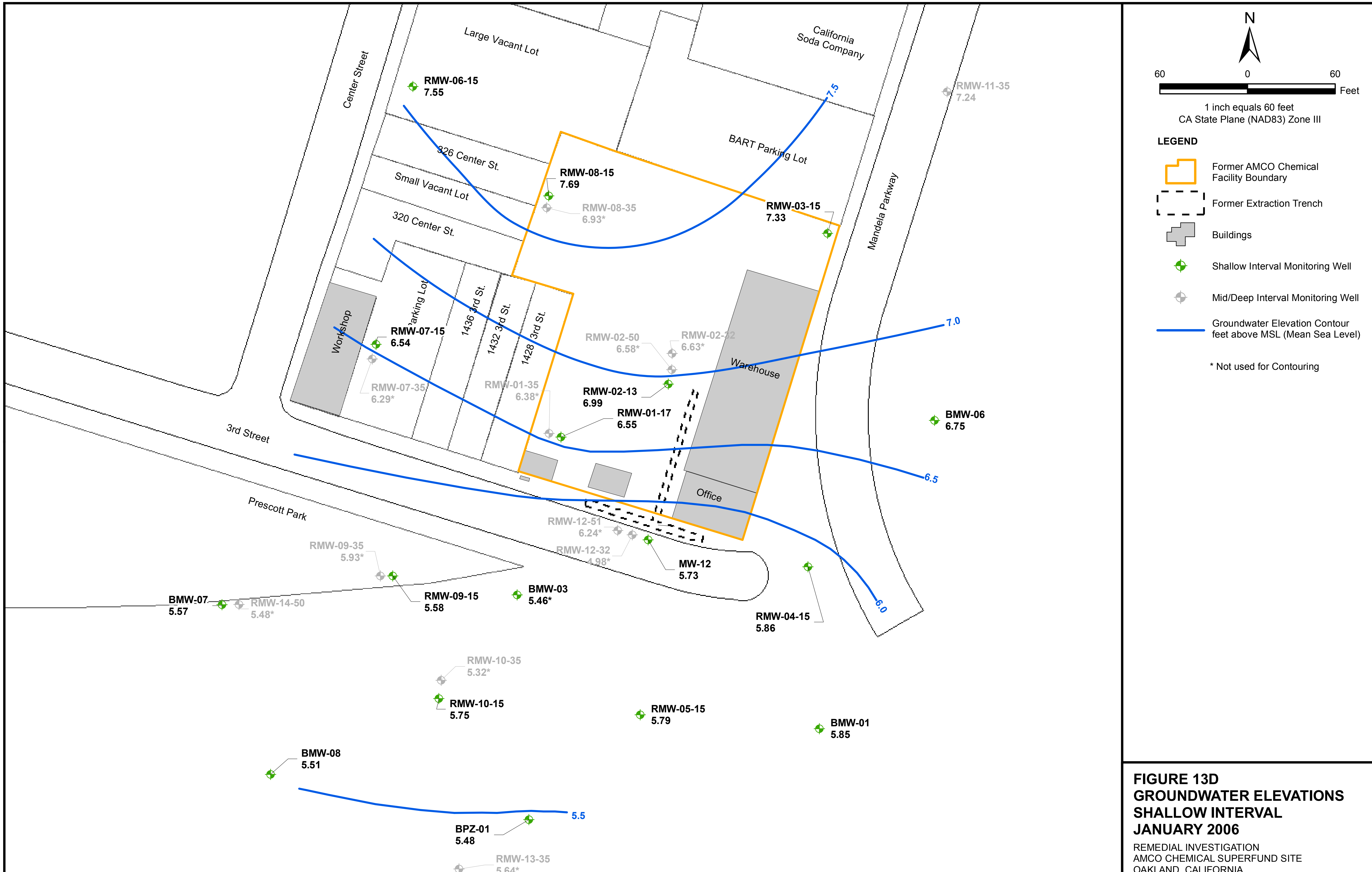


FIGURE 13D
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
JANUARY 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\GW_ELEV\Q4_05_GW_CONTOURS.MXD Q4_05_GW_CONTOURS.PDF 2/28/2008 10:21:11

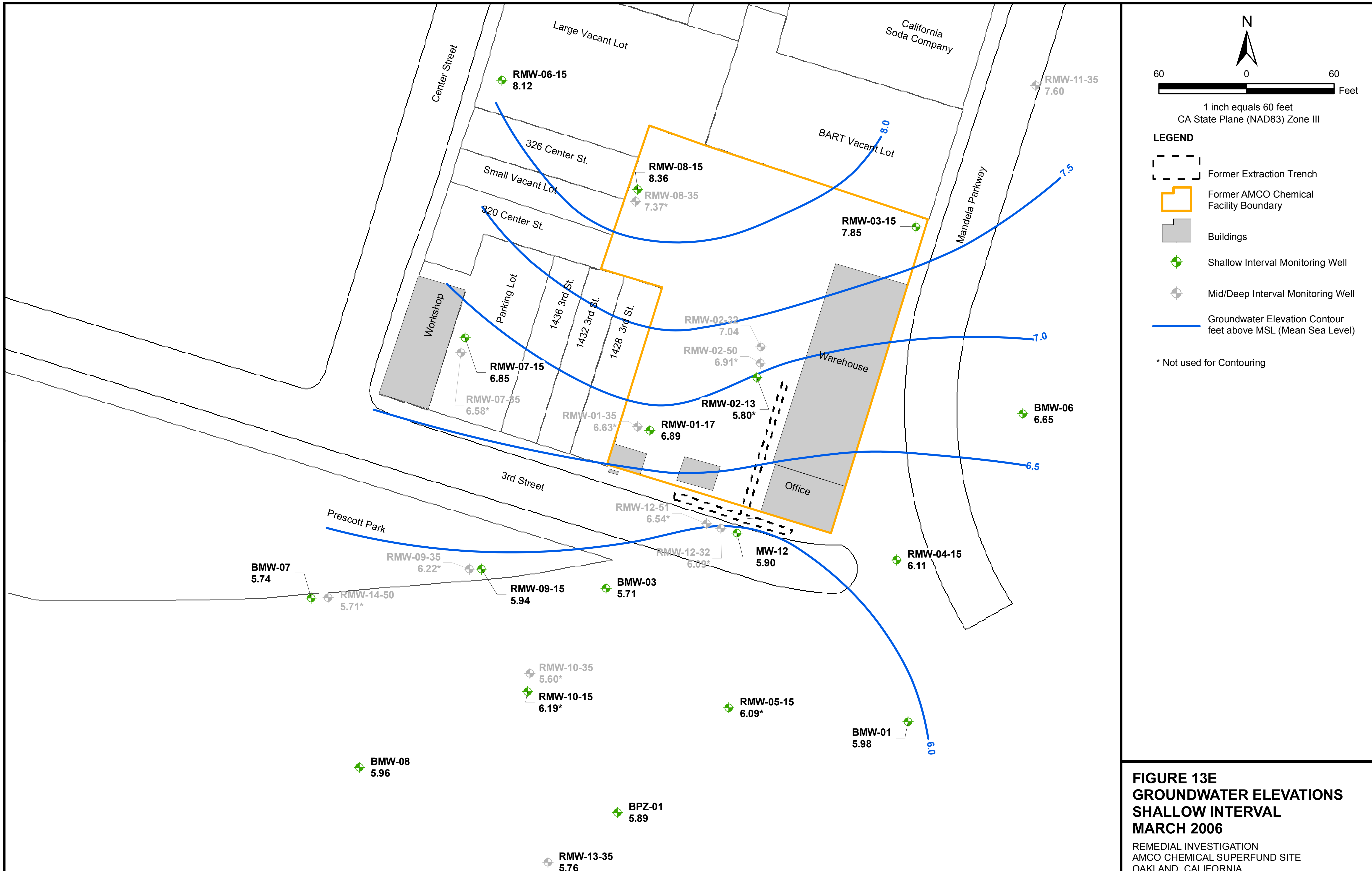
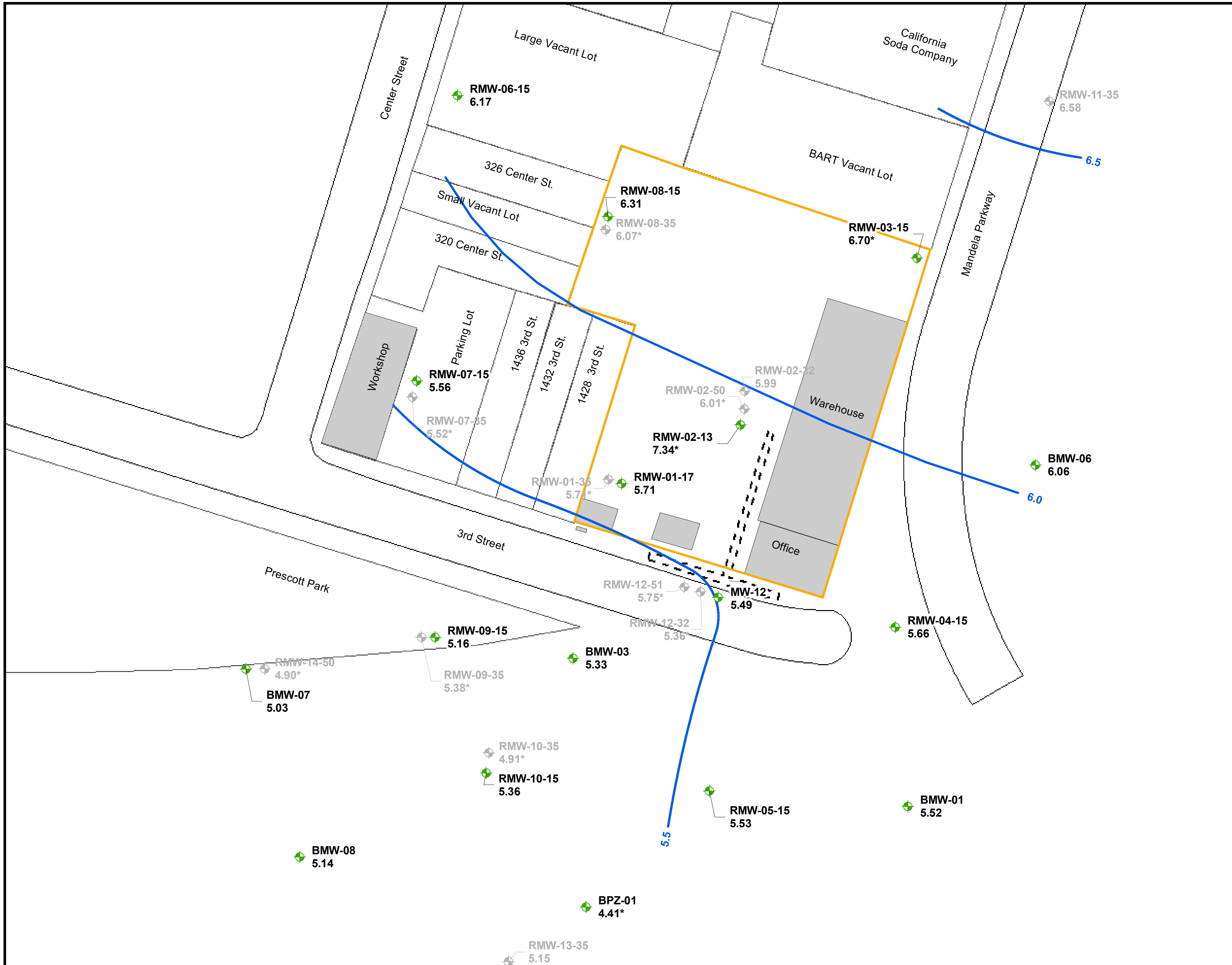


FIGURE 13E
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
MARCH 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

60 0 60 Feet

1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former Extraction Trench
- Former AMCO Chemical Facility Boundary
- Buildings
- Shallow Interval Monitoring Well
- Mid/Deep Interval Monitoring Well
- Groundwater Elevation Contour feet above MSL (Mean Sea Level)

* Not used for Contouring

FIGURE 13F
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
JUNE 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\GW_ELEV\Q2_06_GW_CONTOURS.MXD Q2_06_GW_CONTOURS.PDF 2/28/2008 11:09:24

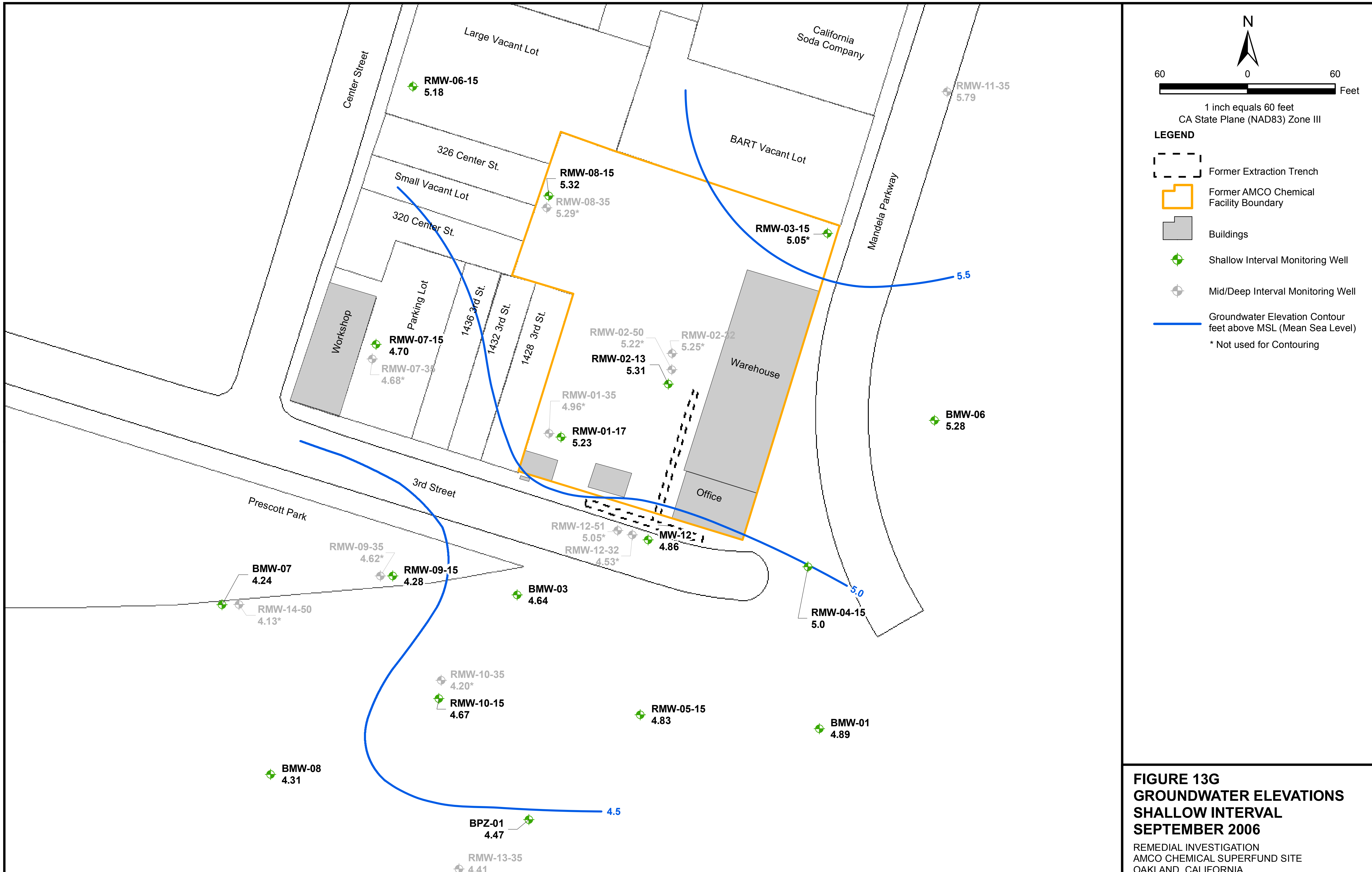


FIGURE 13G
GROUNDWATER ELEVATIONS
SHALLOW INTERVAL
SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\GW_ELEV\Q3_06_GW_CONTOURS.MXD Q3_06_GW_CONTOURS.PDF 2/28/2008 11:19:59

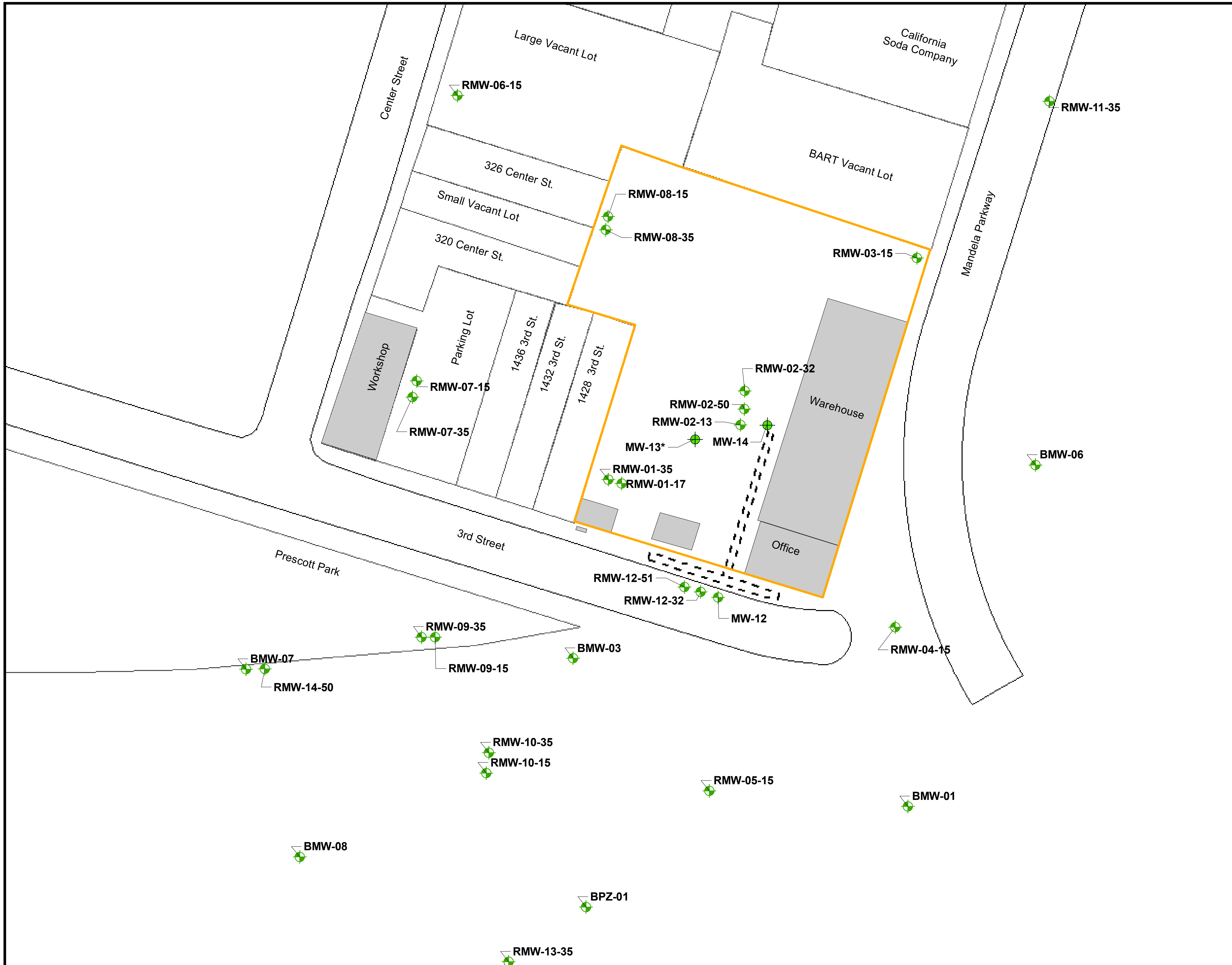


FIGURE 14
GROUNDWATER MONITORING WELL LOCATIONS
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_RMW.MXD SITE_MAP_RMW.PDF 2/27/2008 15:53:44

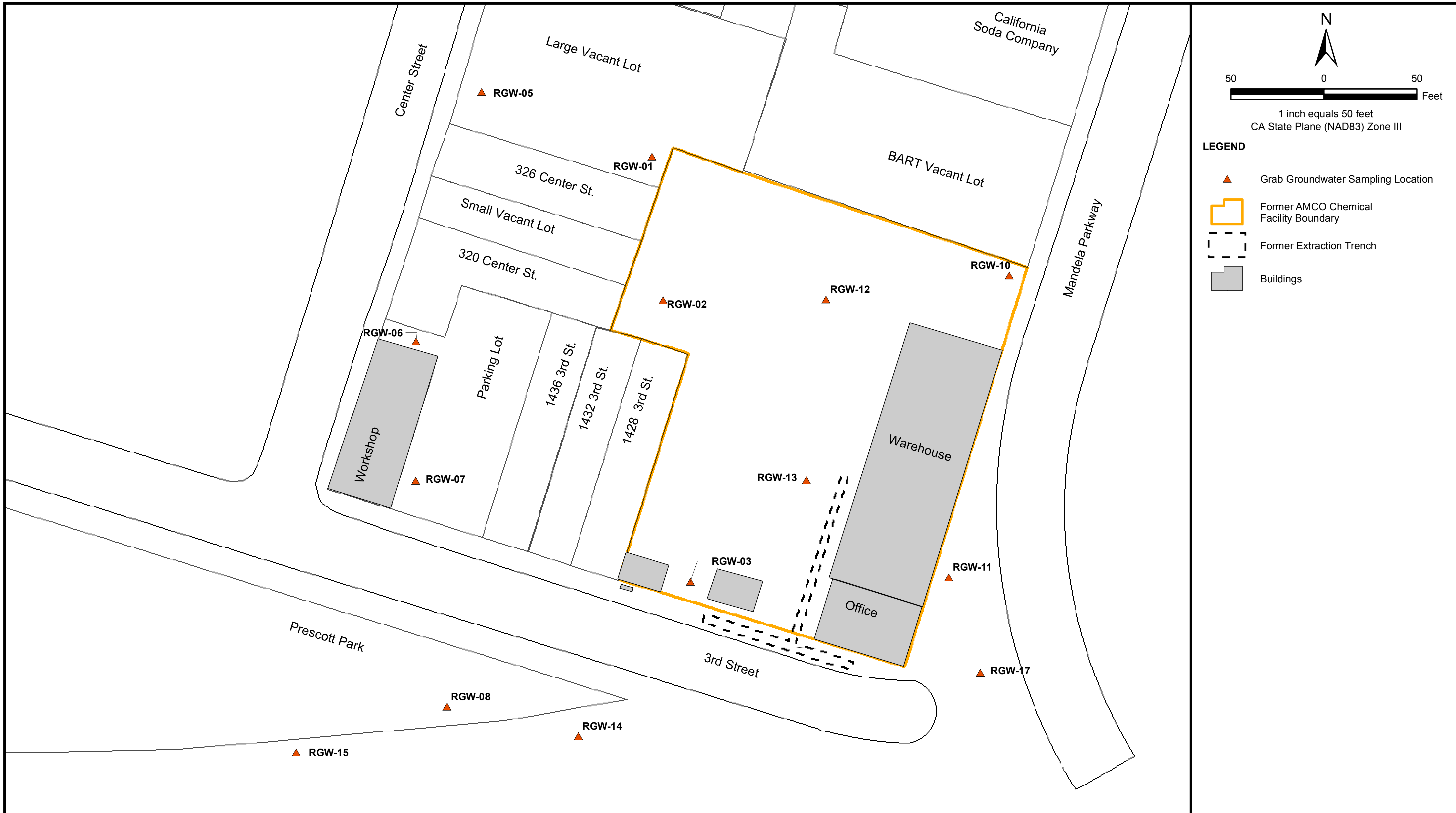


FIGURE 15
GRAB GROUNDWATER SAMPLING LOCATIONS
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_RGW.MXD SITE_MAP_RGW.PDF 2/27/2008 15:54:18

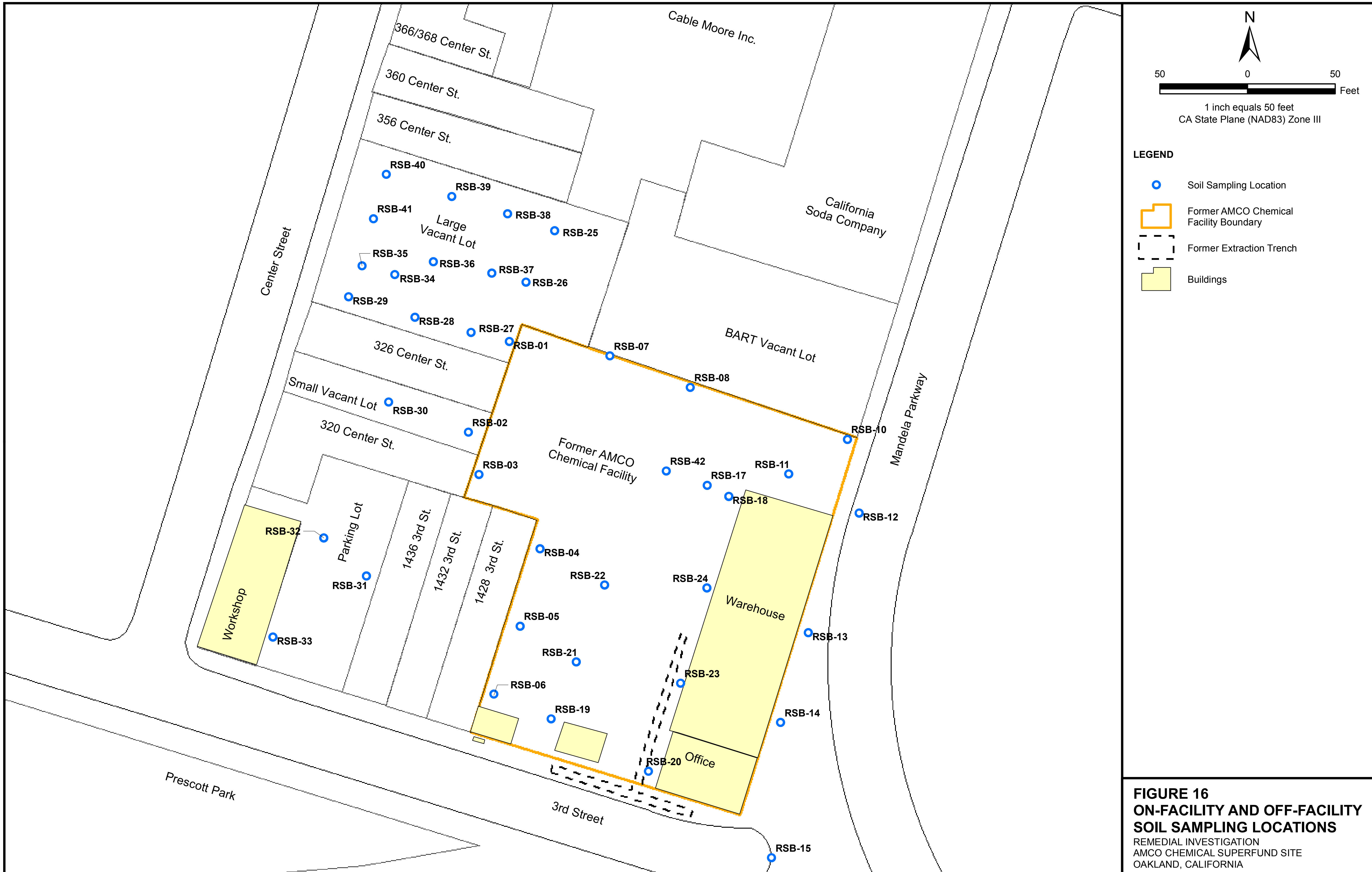


FIGURE 16
ON-FACILITY AND OFF-FACILITY SOIL SAMPLING LOCATIONS
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_RSB.MXD SITE_MAP_RSB.PDF 2/27/2008 16:01:52

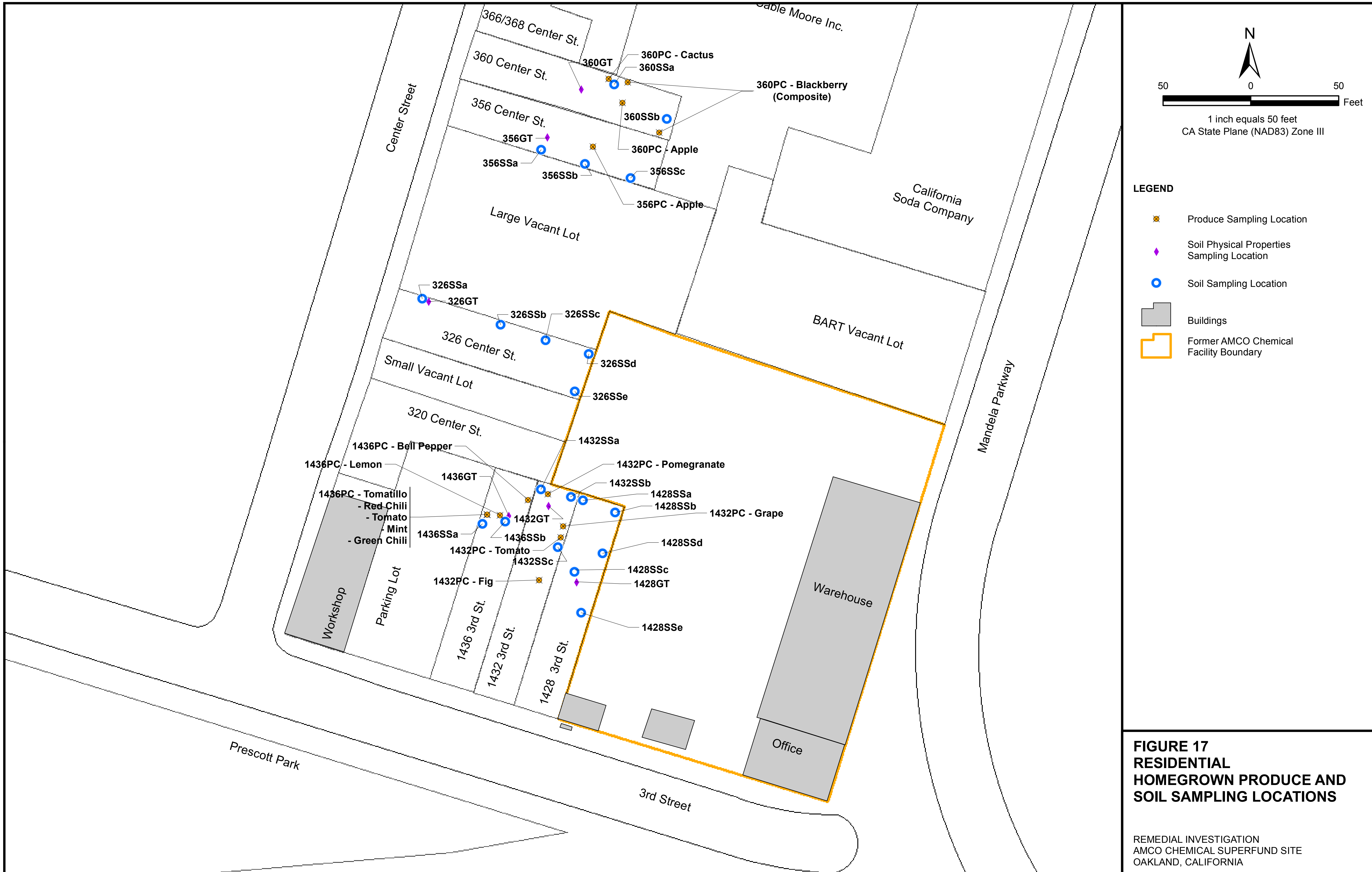


FIGURE 17
RESIDENTIAL HOMEGROWN PRODUCE AND SOIL SAMPLING LOCATIONS

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_RESRSP_PROD.MXD SITE_MAP_RESRSP_PROD.PDF 2/27/2008 15:50:58

FIGURE 18
ON-FACILITY AND OFF-FACILITY SOIL GAS SURVEY SAMPLING LOCATIONS
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_RSG.MXD SITE_MAP_RGW.PDF 2/27/2008 15:59:19

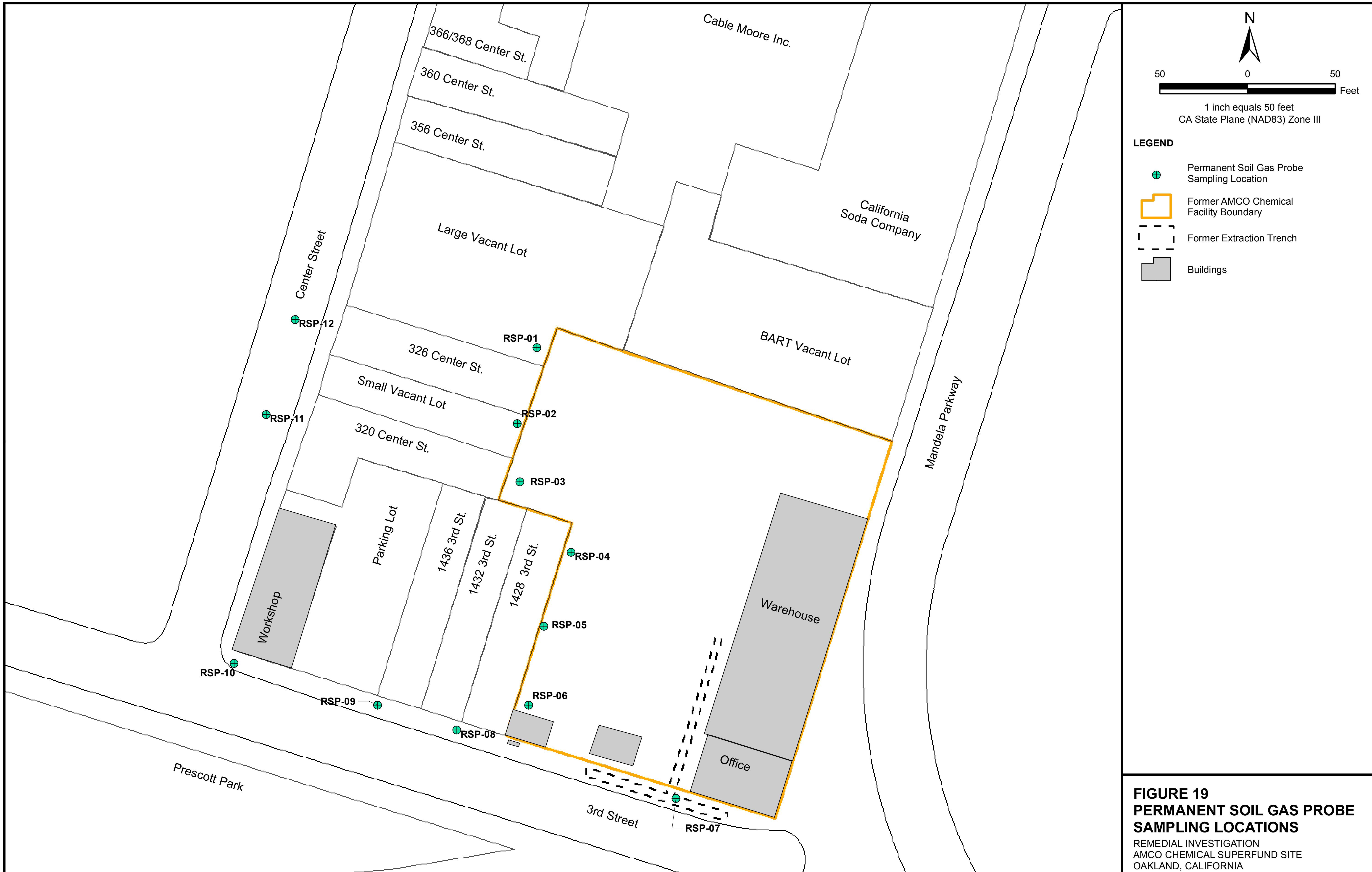


FIGURE 19
PERMANENT SOIL GAS PROBE SAMPLING LOCATIONS
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_RSP.MXD SITE_MAP_RSP.PDF 2/27/2008 16:05:52

FIGURE 20A
RESIDENTIAL AMBIENT AIR, CRAWLSPACE AIR, AND SOIL GAS SAMPLING LOCATIONS SEPTEMBER 2004

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_PHASE1.MXD SITE_MAP_PHASE1.PDF 2/27/2008 15:47:29

N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Ambient Air Sampling Location
- Crawlspace Air Sampling Location
- Soil Gas Sampling Location
- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings

FIGURE 20B
RESIDENTIAL AMBIENT AIR, CRAWLSPACE AIR, AND SOIL GAS SAMPLING LOCATIONS
MAY 2005

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

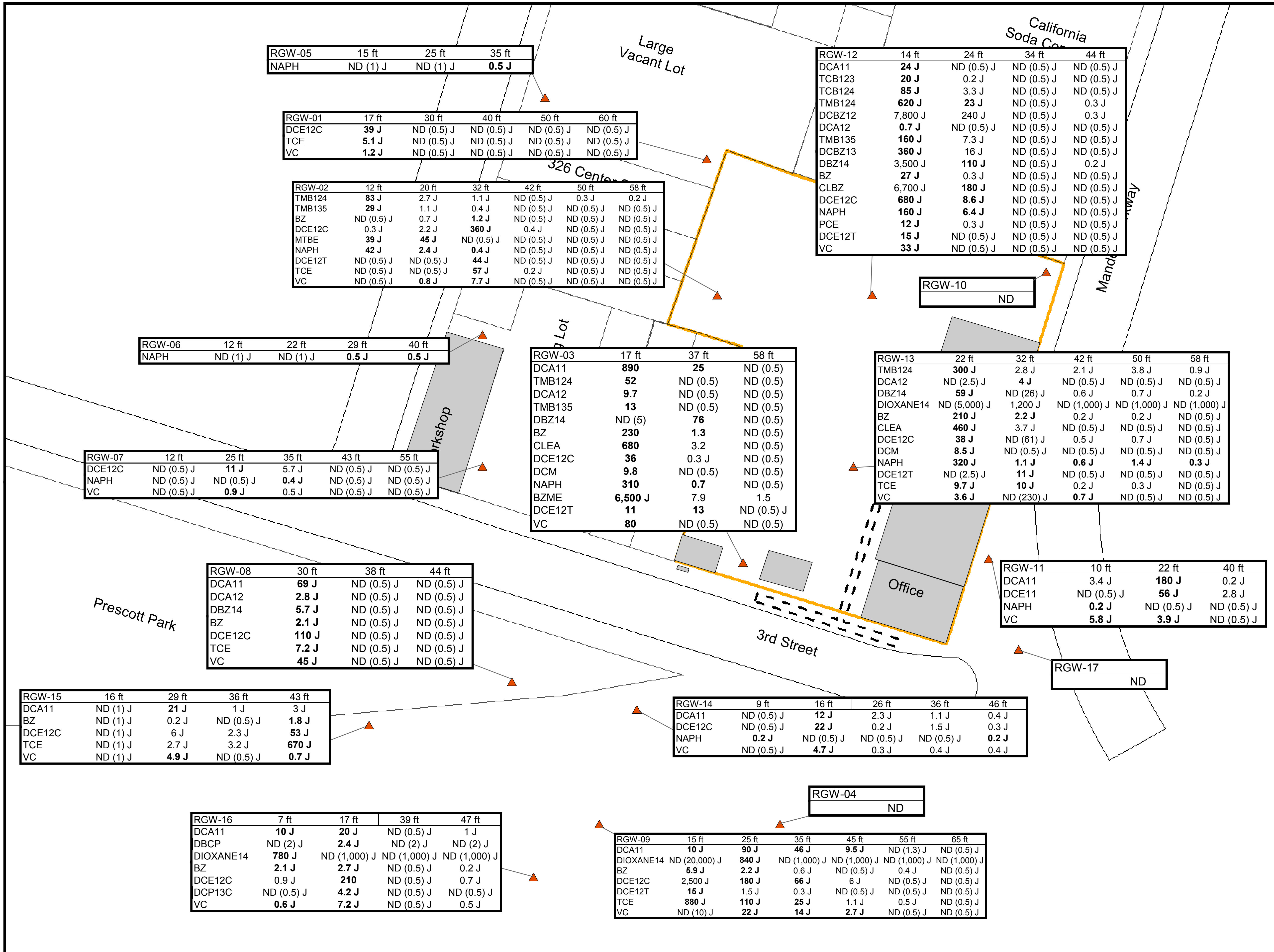
BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_PHASE2.MXD SITE_MAP_PHASE2.PDF 2/27/2008 15:48:08

FIGURE 20C
RESIDENTIAL AMBIENT AIR, CRAWLSPACE AIR, AND SOIL GAS SAMPLING LOCATIONS NOVEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\SITE_FIGS\SITE_MAP_PHASE3.MXD SITE_MAP_PHASE3.PDF 2/27/2008 15:52:11



RGW-05	15 ft	25 ft	35 ft
NAPH	ND (1) J	ND (1) J	**0.5 J**

RGW-01	17 ft	30 ft	40 ft	50 ft	60 ft
DCE12C	**39 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J	ND (0.5) J
TCE	**5.1 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J	ND (0.5) J
VC	**1.2 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J	ND (0.5) J

RGW-02	12 ft	20 ft	32 ft	42 ft	50 ft	58 ft
TMB124	**83 J**	2.7 J	1.1 J	ND (0.5) J	0.3 J	0.2 J
TMB135	**29 J**	1.1 J	0.4 J	ND (0.5) J	ND (0.5) J	ND (0.5) J
BZ	ND (0.5) J	0.7 J	**1.2 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
DCE12C	0.3 J	2.2 J	**360 J**	0.4 J	ND (0.5) J	ND (0.5) J
MTBE	**39 J**	**45 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J	ND (0.5) J
NAPH	**42 J**	**2.4 J**	**0.4 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
DCE12T	ND (0.5) J	ND (0.5) J	**44 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
TCE	ND (0.5) J	ND (0.5) J	**57 J**	0.2 J	ND (0.5) J	ND (0.5) J
VC	ND (0.5) J	**0.8 J**	**7.7 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J

RGW-12	14 ft	24 ft	34 ft	44 ft
DCA11	**24 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
TCB123	**20 J**	0.2 J	ND (0.5) J	ND (0.5) J
TCB124	**85 J**	3.3 J	ND (0.5) J	ND (0.5) J
TMB124	**620 J**	**23 J**	ND (0.5) J	0.3 J
DCBZ12	7,800 J	240 J	ND (0.5) J	0.3 J
DCA12	**0.7 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
TMB135	**160 J**	7.3 J	ND (0.5) J	ND (0.5) J
DCBZ13	**360 J**	16 J	ND (0.5) J	ND (0.5) J
DBZ14	3,500 J	**110 J**	ND (0.5) J	0.2 J
BZ	**27 J**	0.3 J	ND (0.5) J	ND (0.5) J
CLBZ	6,700 J	**180 J**	ND (0.5) J	ND (0.5) J
DCE12C	**680 J**	**8.6 J**	ND (0.5) J	ND (0.5) J
NAPH	**160 J**	**6.4 J**	ND (0.5) J	ND (0.5) J
PCE	**12 J**	0.3 J	ND (0.5) J	ND (0.5) J
DCE12T	**15 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
VC	**33 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J

RGW-06	12 ft	22 ft	29 ft	40 ft
NAPH	ND (1) J	ND (1) J	**0.5 J**	**0.5 J**

RGW-03	17 ft	37 ft	58 ft
DCA11	**890**	**25**	ND (0.5)
TMB124	**52**	ND (0.5)	ND (0.5)
DCA12	**9.7**	ND (0.5)	ND (0.5)
TMB135	**13**	ND (0.5)	ND (0.5)
DBZ14	ND (5)	**76**	ND (0.5)
BZ	**230**	**1.3**	ND (0.5)
CLEA	**680**	3.2	ND (0.5)
DCE12C	**36**	0.3 J	ND (0.5)
DCM	**9.8**	ND (0.5)	ND (0.5)
NAPH	**310**	**0.7**	ND (0.5)
BZME	**6,500 J**	7.9	1.5
DCE12T	**11**	**13**	ND (0.5) J
VC	**80**	ND (0.5)	ND (0.5)

RGW-13	22 ft	32 ft	42 ft	50 ft	58 ft
TMB124	**300 J**	2.8 J	2.1 J	3.8 J	0.9 J
DCA12	ND (2.5) J	**4 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
DBZ14	**59 J**	ND (26) J	0.6 J	0.7 J	0.2 J
DIOXANE14	ND (5,000) J	1,200 J	ND (1,000) J	ND (1,000) J	ND (1,000) J
BZ	**210 J**	**2.2 J**	0.2 J	0.2 J	ND (0.5) J
CLEA	**460 J**	3.7 J	ND (0.5) J	ND (0.5) J	ND (0.5) J
DCE12C	**38 J**	ND (61) J	0.5 J	0.7 J	ND (0.5) J
DCM	**8.5 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J	ND (0.5) J
NAPH	**320 J**	**1.1 J**	**0.6 J**	**1.4 J**	**0.3 J**
DCE12T	ND (2.5) J	**11 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J
TCE	**9.7 J**	**10 J**	0.2 J	0.3 J	ND (0.5) J
VC	**3.6 J**	ND (230) J	**0.7 J**	ND (0.5) J	ND (0.5) J

RGW-07	12 ft	25 ft	35 ft	43 ft	55 ft
DCE12C	ND (0.5) J	**11 J**	5.7 J	ND (0.5) J	ND (0.5) J
NAPH	ND (0.5) J	ND (0.5) J	**0.4 J**	ND (0.5) J	ND (0.5) J
VC	ND (0.5) J	**0.9 J**	0.5 J	ND (0.5) J	ND (0.5) J

RGW-08	30 ft	38 ft	44 ft
DCA11	**69 J**	ND (0.5) J	ND (0.5) J
DCA12	**2.8 J**	ND (0.5) J	ND (0.5) J
DBZ14	**5.7 J**	ND (0.5) J	ND (0.5) J
BZ	**2.1 J**	ND (0.5) J	ND (0.5) J
DCE12C	**110 J**	ND (0.5) J	ND (0.5) J
TCE	**7.2 J**	ND (0.5) J	ND (0.5) J
VC	**45 J**	ND (0.5) J	ND (0.5) J

RGW-11	10 ft	22 ft	40 ft
DCA11	3.4 J	**180 J**	0.2 J
DCE11	ND (0.5) J	**56 J**	2.8 J
NAPH	**0.2 J**	ND (0.5) J	ND (0.5) J
VC	**5.8 J**	**3.9 J**	ND (0.5) J

RGW-15	16 ft	29 ft	36 ft	43 ft
DCA11	ND (1) J	**21 J**	1 J	3 J
BZ	ND (1) J	0.2 J	ND (0.5) J	**1.8 J**
DCE12C	ND (1) J	6 J	2.3 J	**53 J**
TCE	ND (1) J	2.7 J	3.2 J	**670 J**
VC	ND (1) J	**4.9 J**	ND (0.5) J	**0.7 J**

RGW-14	9 ft	16 ft	26 ft	36 ft	46 ft
DCA11	ND (0.5) J	**12 J**	2.3 J	1.1 J	0.4 J
DCE12C	ND (0.5) J	**22 J**	0.2 J	1.5 J	0.3 J
NAPH	**0.2 J**	ND (0.5) J	ND (0.5) J	ND (0.5) J	**0.2 J**
VC	ND (0.5) J	**4.7 J**	0.3 J	0.4 J	0.4 J

RGW-16	7 ft	17 ft	39 ft	47 ft
DCA11	**10 J**	**20 J**	ND (0.5) J	1 J
DBCP	ND (2) J	**2.4 J**	ND (2) J	ND (2) J
DIOXANE14	**780 J**	ND (1,000) J	ND (1,000) J	ND (1,000) J
BZ	**2.1 J**	**2.7 J**	ND (0.5) J	0.2 J
DCE12C	0.9 J	**210**	ND (0.5) J	0.7 J
DCP13C	ND (0.5) J	**4.2 J**	ND (0.5) J	ND (0.5) J
VC	**0.6 J**	**7.2 J**	ND (0.5) J	0.5 J

RGW-09	15 ft	25 ft	35 ft	45 ft	55 ft	65 ft
DCA11	**10 J**	**90 J**	**46 J**	**9.5 J**	ND (1.3) J	ND (0.5) J
DIOXANE14	ND (20,000) J	**840 J**	ND (1,000) J	ND (1,000) J	ND (1,000) J	ND (1,000) J
BZ	**5.9 J**	**2.2 J**	0.6 J	ND (0.5) J	0.4 J	ND (0.5) J
DCE12C	2,500 J	**180 J**	**66 J**	6 J	ND (0.5) J	ND (0.5) J
DCE12T	**15 J**	1.5 J	0.3 J	ND (0.5) J	ND (0.5) J	ND (0.5) J
TCE	**880 J**	**110 J**	**25 J**	1.1 J	0.5 J	ND (0.5) J
VC	ND (10) J	**22 J**	**14 J**	**2.7 J**	ND (0.5) J	ND (0.5) J

N

0 50 100 Feet

CA State Plane (NAD83) Zone III

LEGEND

Grab Groundwater Sample Location

Former AMCO Chemical Facility Boundary

Former Extraction Trench

Buildings

Legend		
Abbreviation	Chemical Name	Screening level
DCA11	1,1-Dichloroethane	5
DCE11	1,1-Dichloroethene	6
TCB123	1,2,3-Trichlorobenzene	7.2
TCB124	1,2,4-Trichlorobenzene	5
TMB124	1,2,4-Trimethylbenzene	12
DBCP	1,2-Dibromo-3-chloropropane	0.2
DCBZ12	1,2-Dichlorobenzene	600
DCA12	1,2-Dichloroethane	0.5
TMB135	1,3,5-Trimethylbenzene	12
DCBZ13	1,3-Dichlorobenzene	180
DCBZ14	1,4-Dichlorobenzene	5
DIOXANE14	1,4-Dioxane (p-dioxane)	6.1
BZ	Benzene	1
CLBZ	Chlorobenzene	70
CLEA	Chloroethane	4.6
DCE12C	cis-1,2-Dichloroethene	6
DCP13C	cis-1,3-Dichloropropene	0.5
TBUTMEE	Methyl tert-butyl ether	13
MTLNCL	Methylene chloride	5
NAPH	Naphthalene	0.093
PCE	Tetrachloroethene	5
BZME	Toluene	150
DCE12T	trans-1,2-Dichloroethene	10
TCE	Trichloroethene	5
VC	Vinyl chloride	0.5

All results and screening limits in µg/L
Bold - detected above screening level
J - Estimated
ND( ) - not detected at listed reporting limit

Locations RGW-04, RGW-10, and RGW-17 did not have any analytes detected over screening level.

FIGURE 21
DEPTH-DISCRETE GROUNDWATER SURVEY SUMMARY

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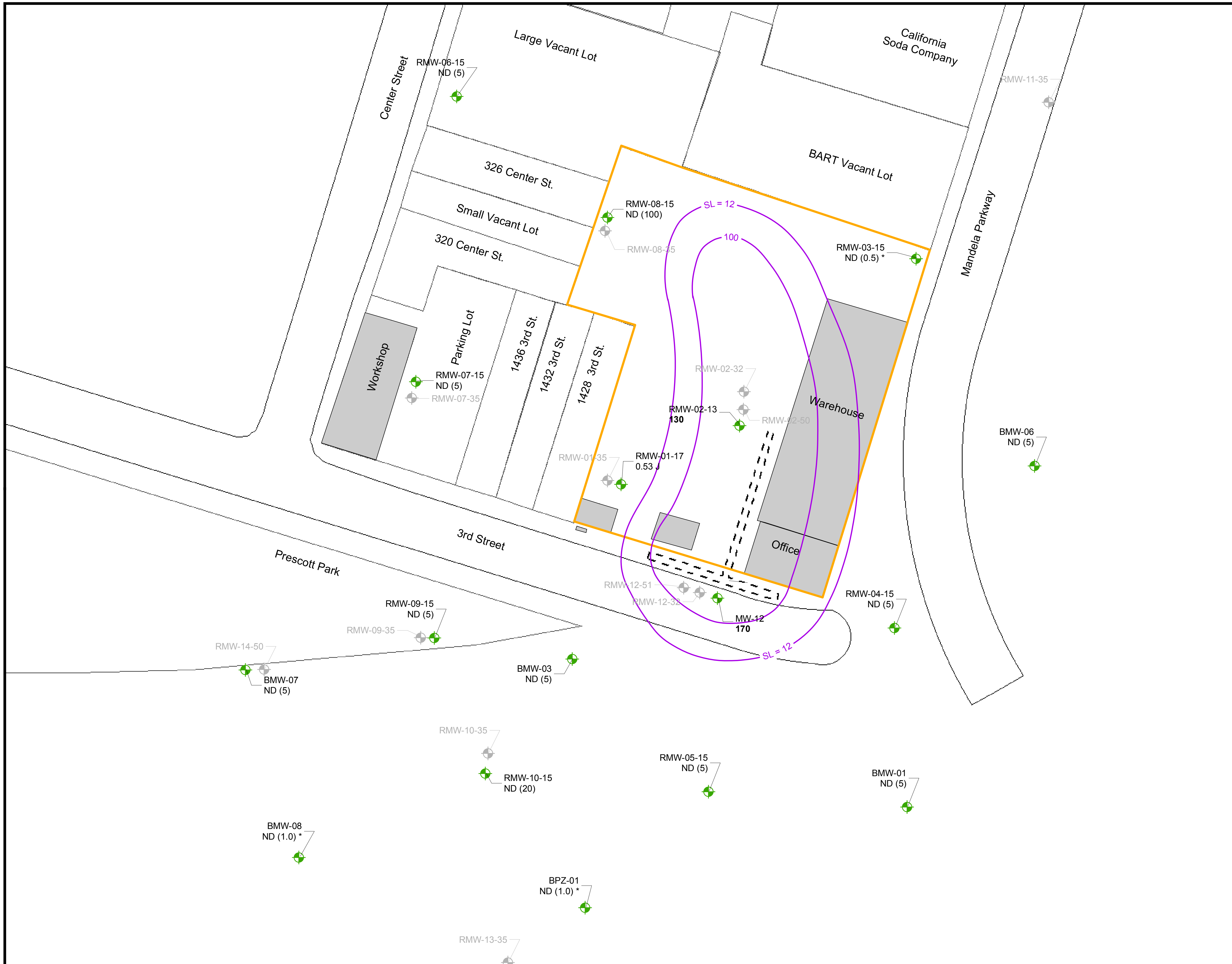

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Shallow Monitoring Well with ID and concentration
- Mid-Depth and Deep Monitoring Well
- 1,2,4-Trimethylbenzene Isoconcentration Contour (µg/L) Shallow

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for 1,2,4-Trimethylbenzene in groundwater is 12 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 22A
1,2,4-TRIMETHYLBENZENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

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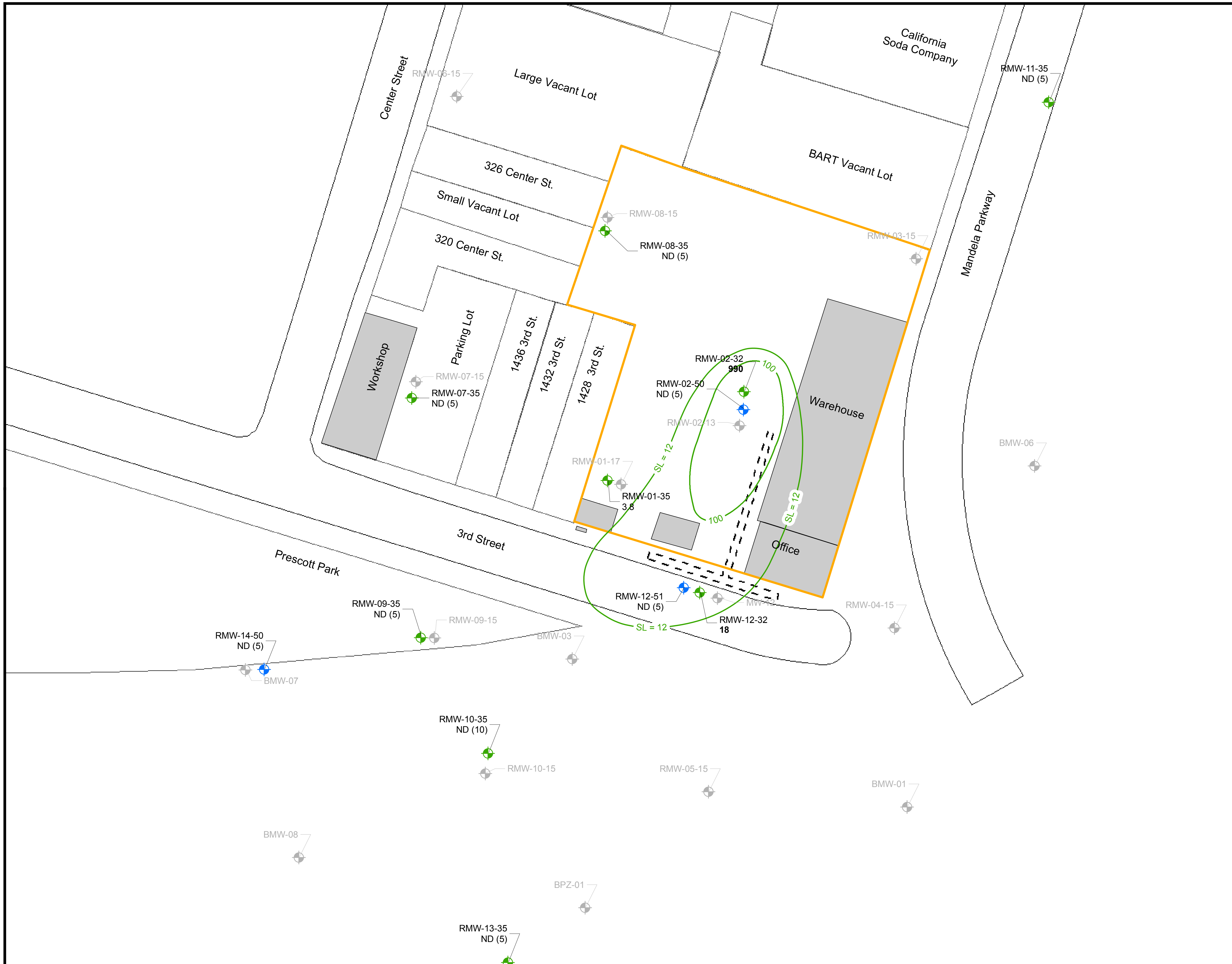

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- 1,2,4-Trimethylbenzene Isoconcentration Contour (µg/L) Mid-depth

Deeper zone not contoured - all results ND

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for 1,2,4-Trimethylbenzene in groundwater is 12 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 22B
1,2,4-TRIMETHYLBENZENE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

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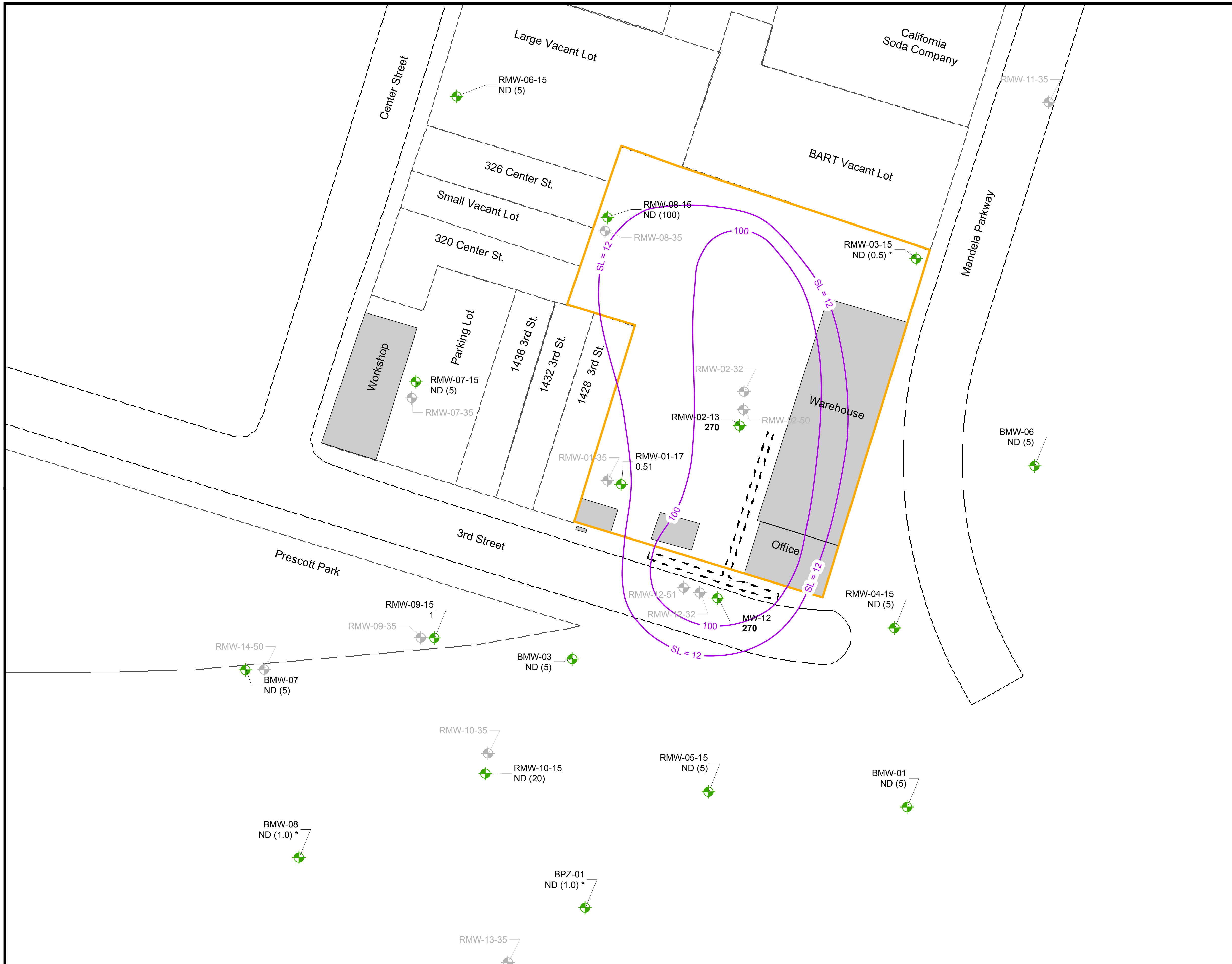

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Shallow Monitoring Well with ID and concentration
- Mid-Depth and Deep Monitoring Well
- 1,3,5-Trimethylbenzene Isoconcentration Contour (µg/L) Shallow

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for 1,3,5-Trimethylbenzene in groundwater is 12 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 23A
1,3,5-TRIMETHYLBENZENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
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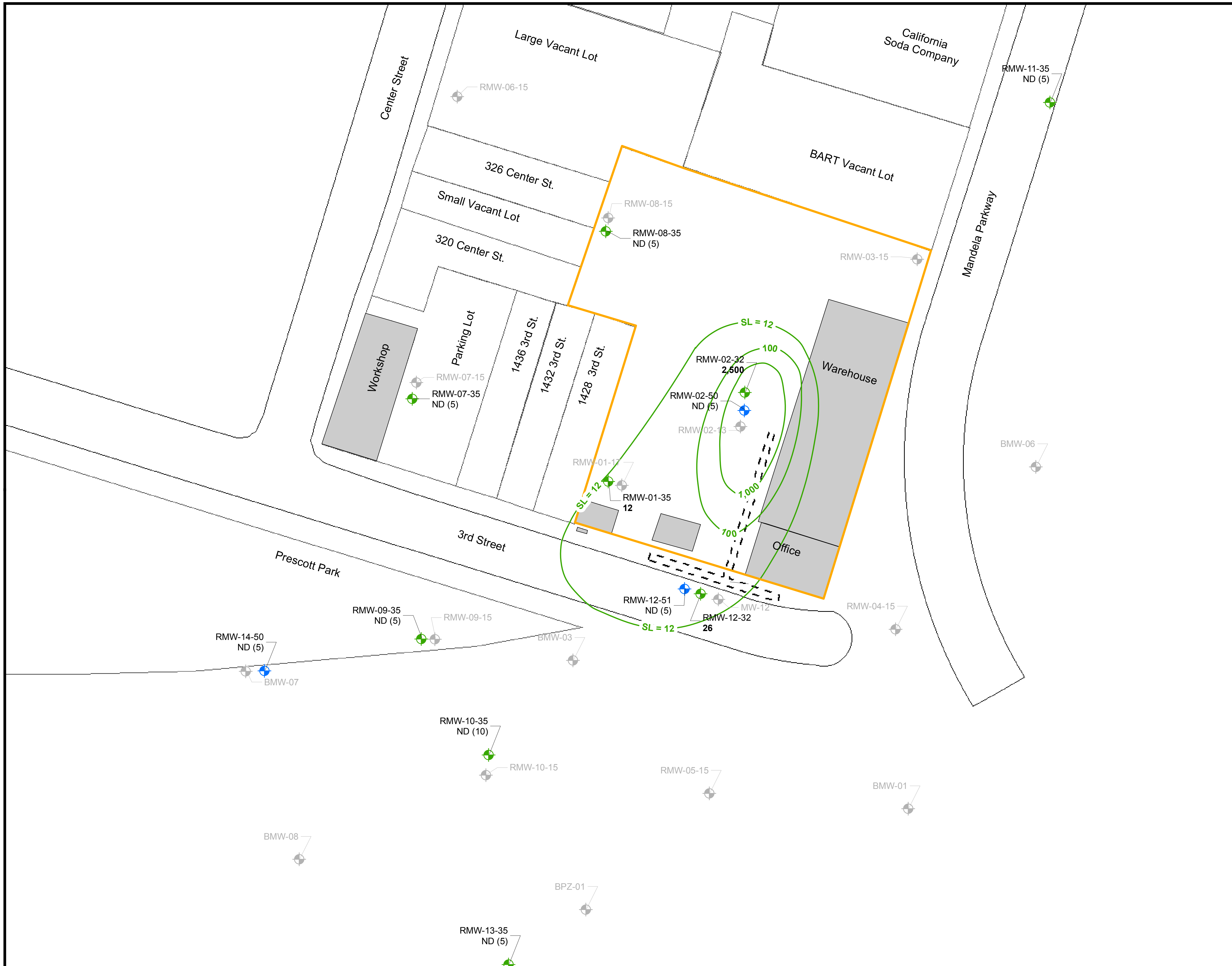

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- 1,3,5-Trimethylbenzene Isoconcentration Contour (µg/L) Mid-depth

Deeper zone not contoured - all results ND

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for 1,3,5-Trimethylbenzene in groundwater is 12 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 23B
1,3,5-TRIMETHYLBENZENE IN MID/DEEP GROUNDWATER
THIRD QUARTER 2006

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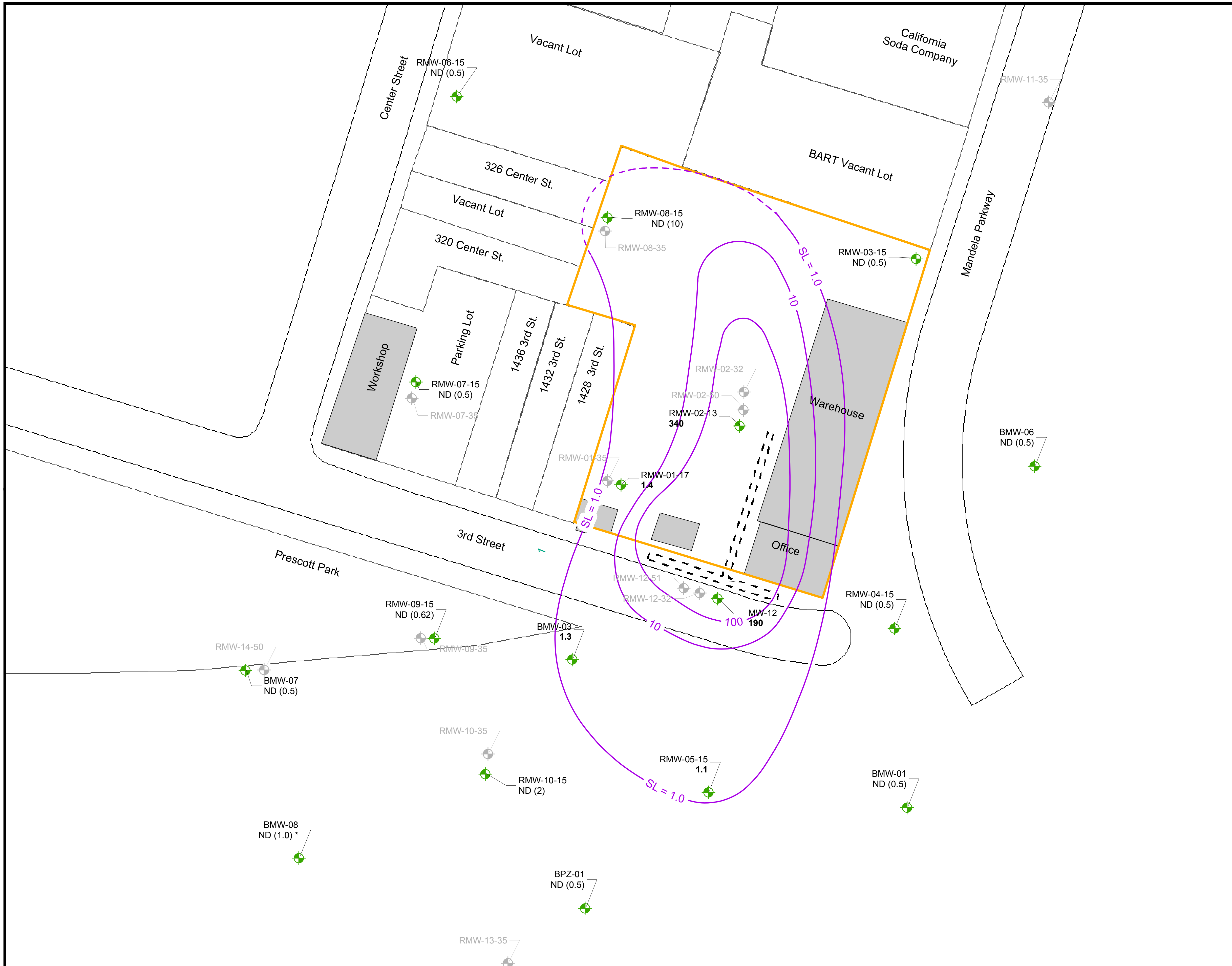

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Shallow Monitoring Well with ID and concentration
- Mid-Depth and Deep Monitoring Well
- Benzene Isoconcentration Contour (µg/L) Shallow (dashed where inferred)

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Benzene in groundwater is 1.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 24A
BENZENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
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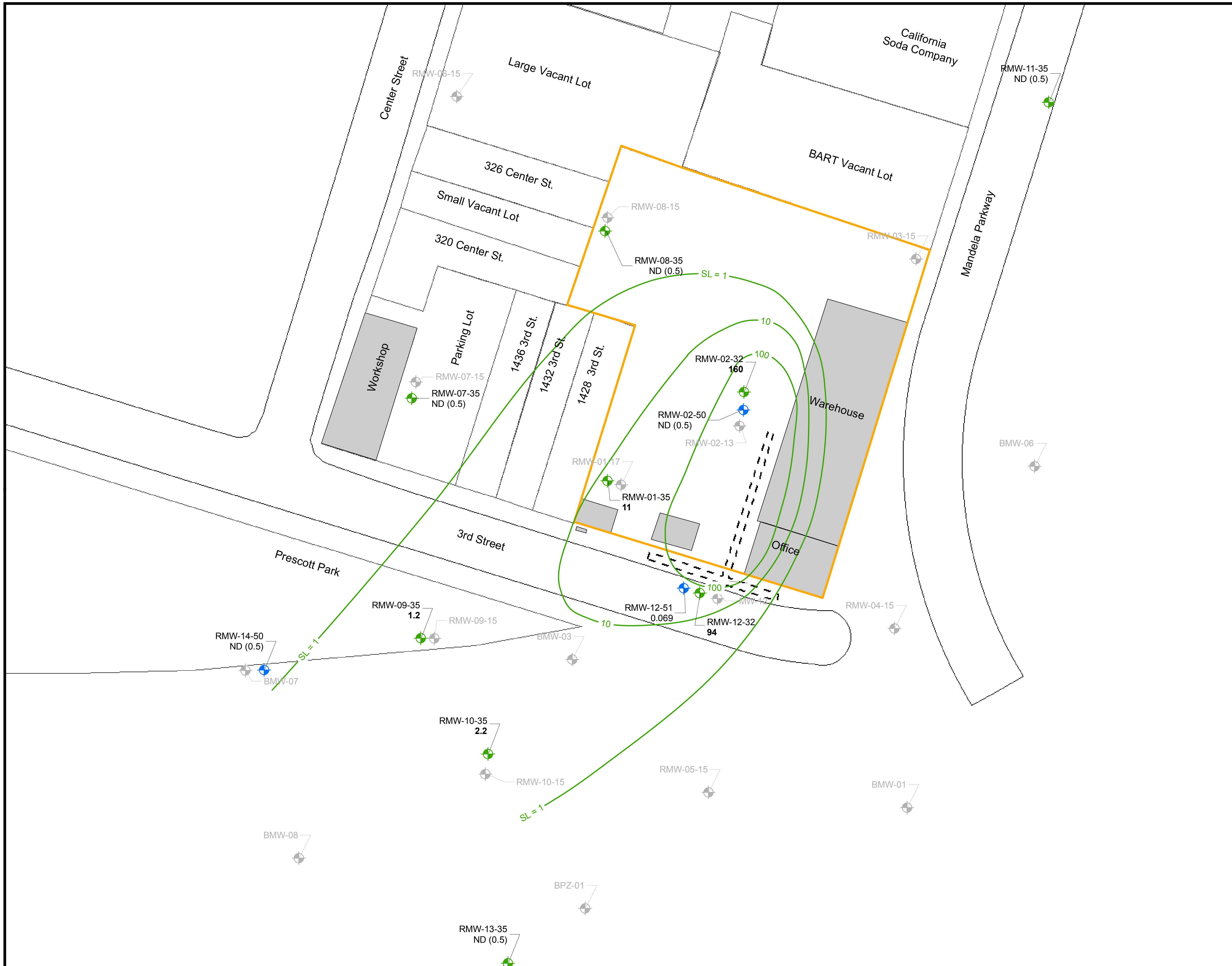

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- Benzene Isoconcentration Contour (µg/L) Mid-depth

Deeper zone not contoured - all results below screening level

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Benzene in groundwater is 1.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 24B
BENZENE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
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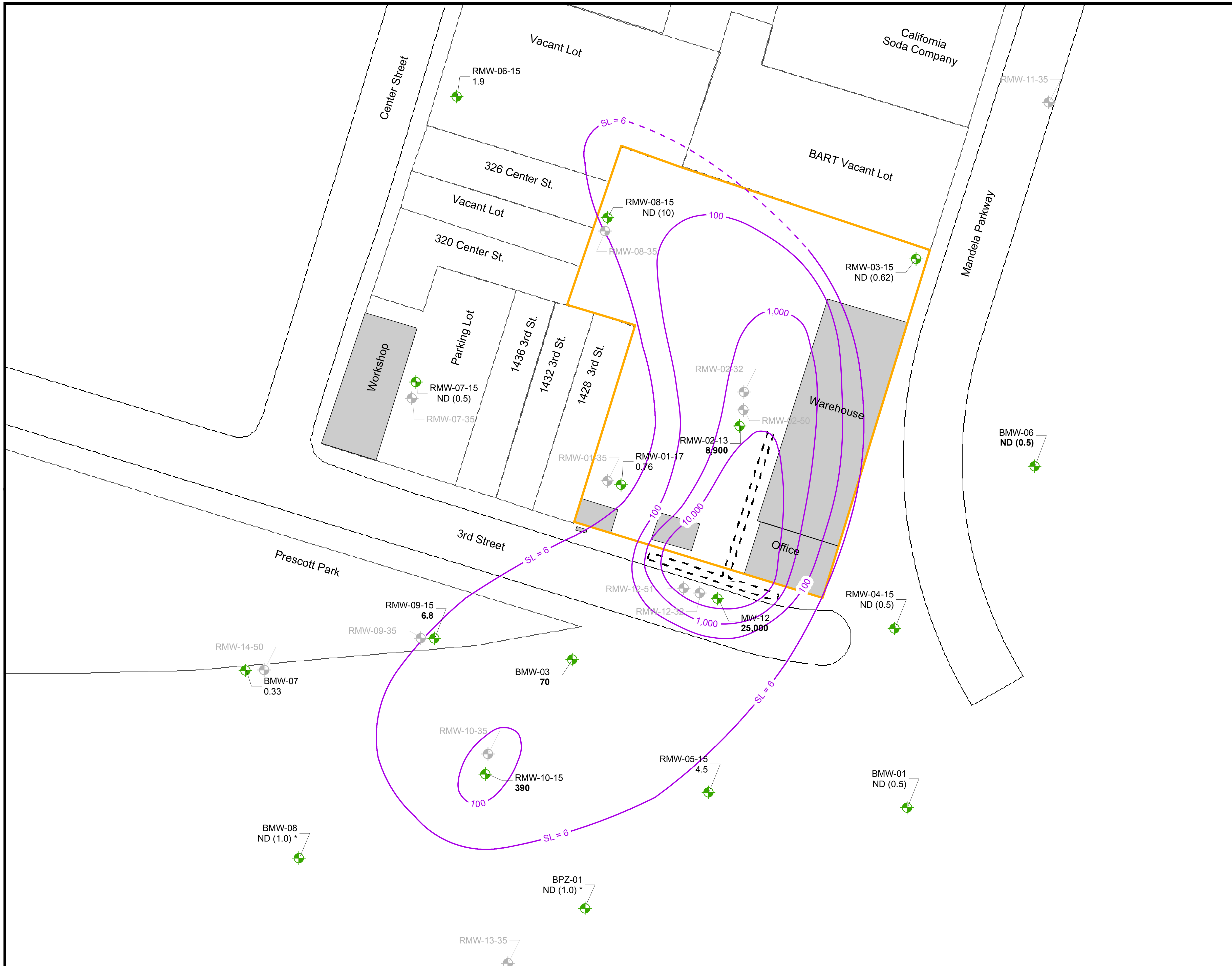

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

Former AMCO Chemical Facility Boundary

Former Extraction Trench

Buildings

Shallow Monitoring Well with ID and concentration

Mid-Depth and Deep Monitoring Well

cis-1,2-Dichloroethene Isoconcentration Contour (µg/L) Shallow (dashed where inferred)

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for cis-1,2-Dichloroethene in groundwater is 6.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 25A
cis-1,2-DICHLOROETHENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
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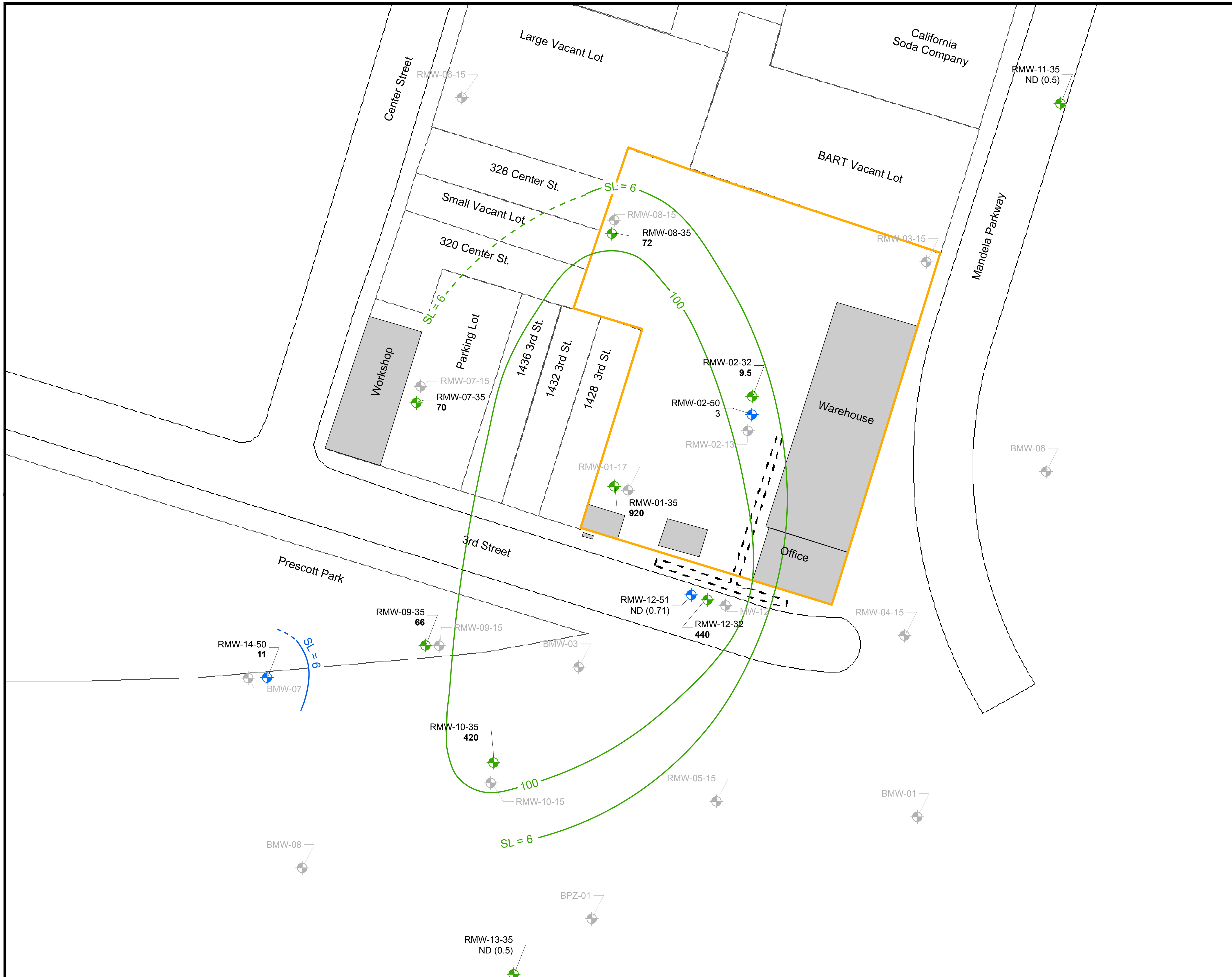

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- cis-1,2-Dichloroethene Isoconcentration Contour (µg/L) Mid-depth (dashed where inferred)
- cis-1,2-Dichloroethene Isoconcentration Contour (µg/L) Deeper Interval (dashed where inferred)

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for cis-1,2-Dichloroethene in groundwater is 6.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 25B
cis-1,2-DICHLOROETHENE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

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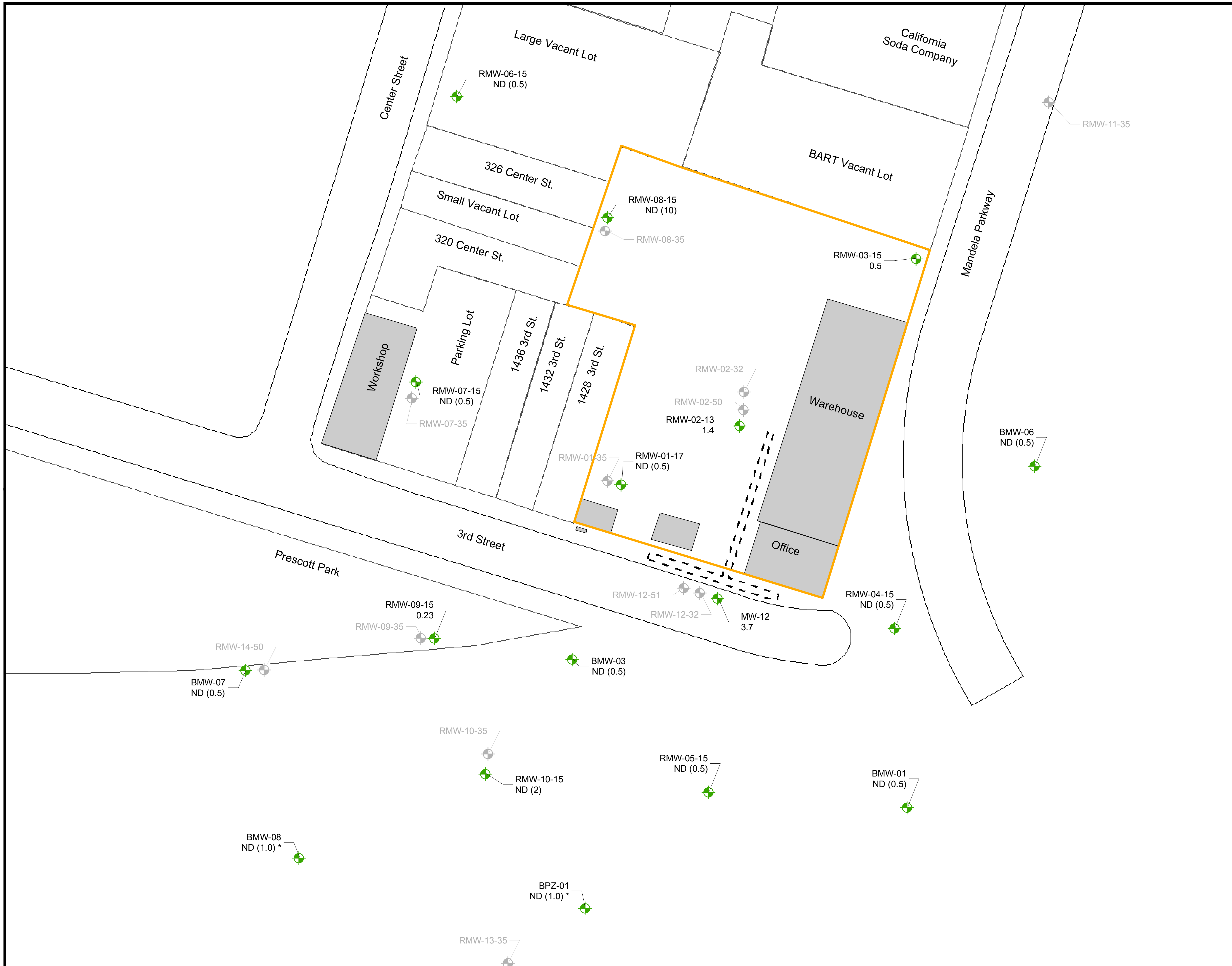

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Shallow Monitoring Well with ID and concentration
- Mid-Depth and Deep Monitoring Well

Results not contoured -
All detections below screening level

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Tetrachloroethene in groundwater is 5.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Data collected during groundwater survey is used to fill data gaps for contouring.
6) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 26A
TETRACHLOROETHENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
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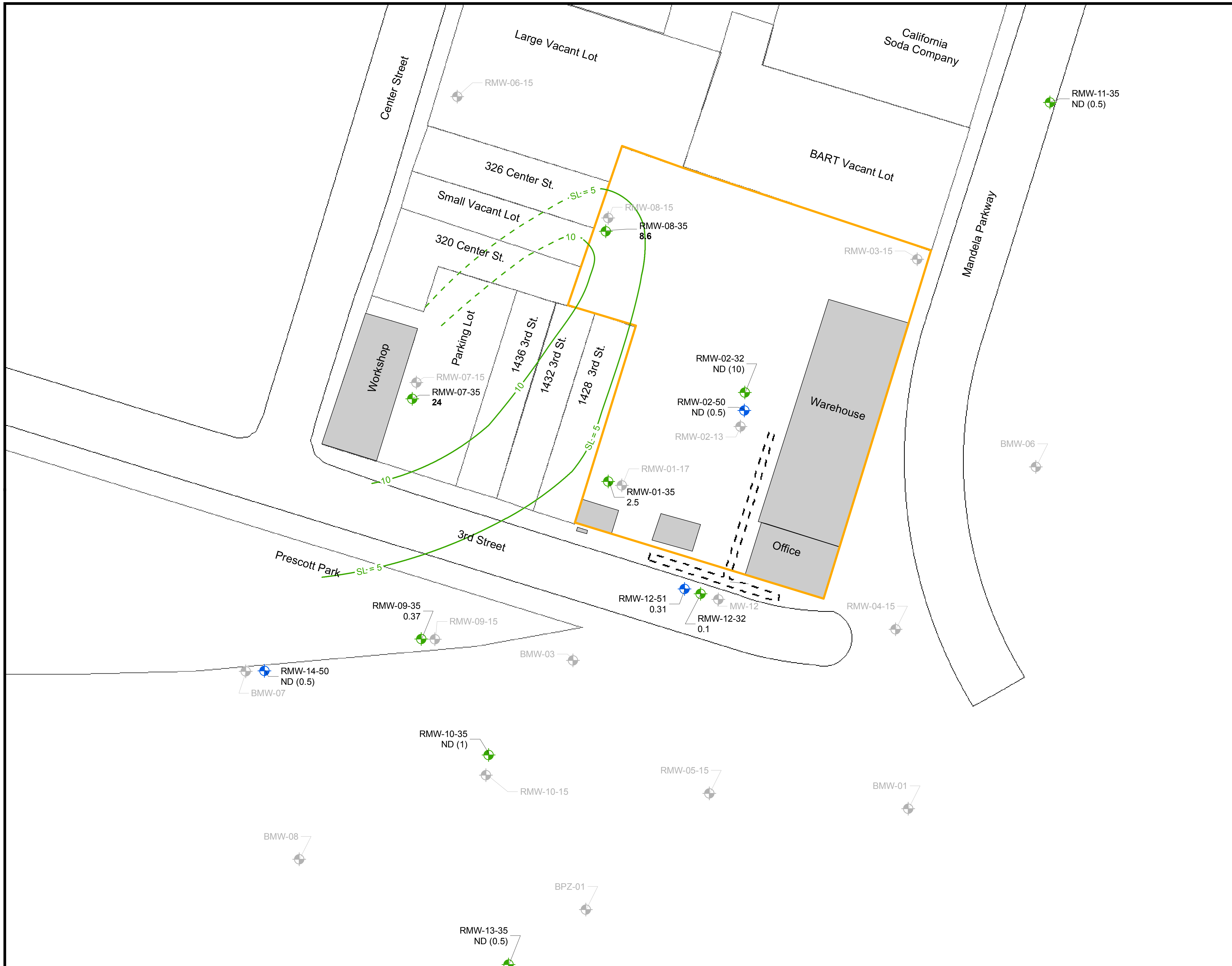

N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Buildings
- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- Tetrachloroethene Isoconcentration Contour (µg/L) Mid-depth (dashed where inferred)

Deeper zone not contoured - all results below screening level

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Tetrachloroethene in groundwater is 5.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 26B
TETRACHLOROETHENE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

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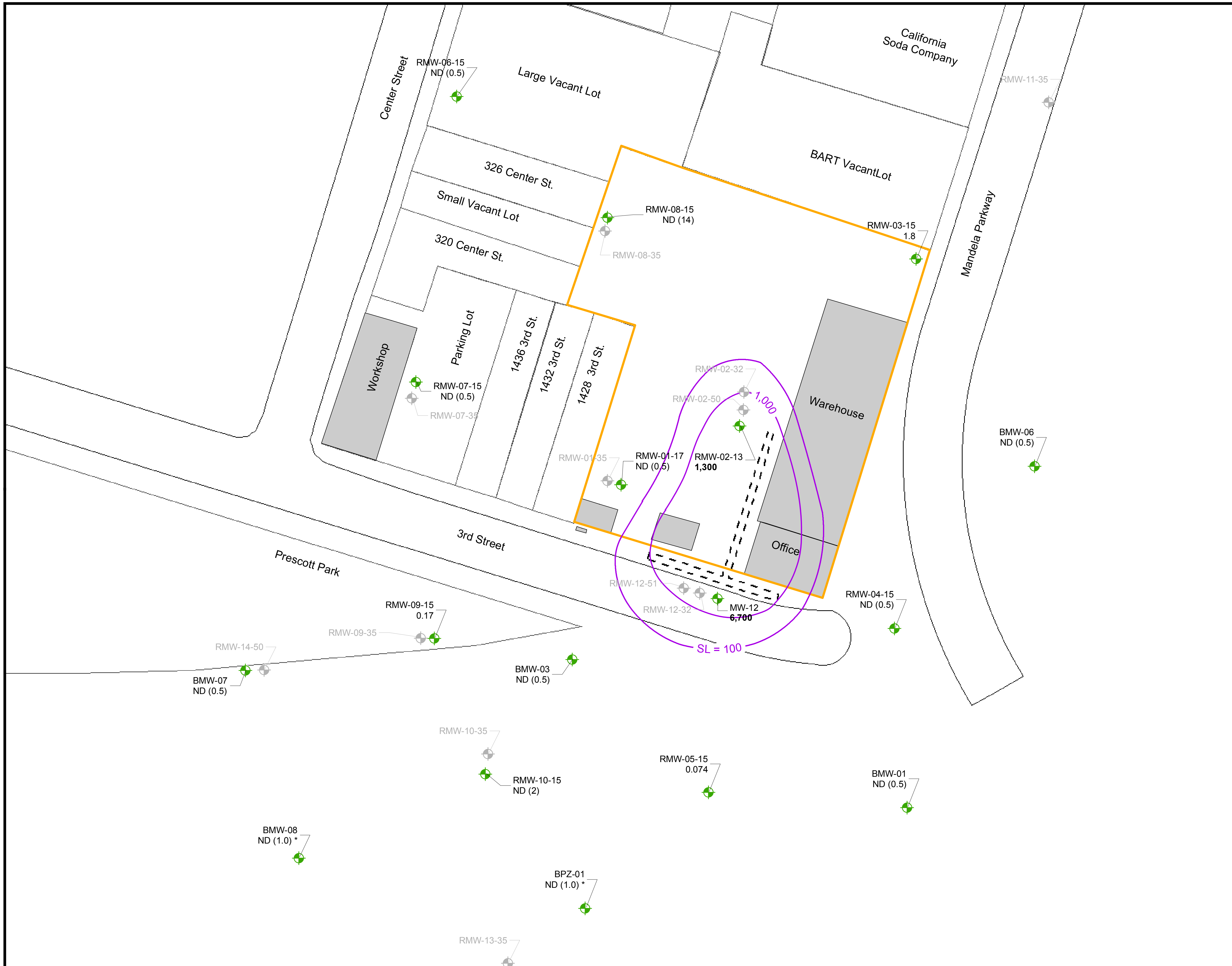

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Toluene in groundwater is 150 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 27A
TOLUENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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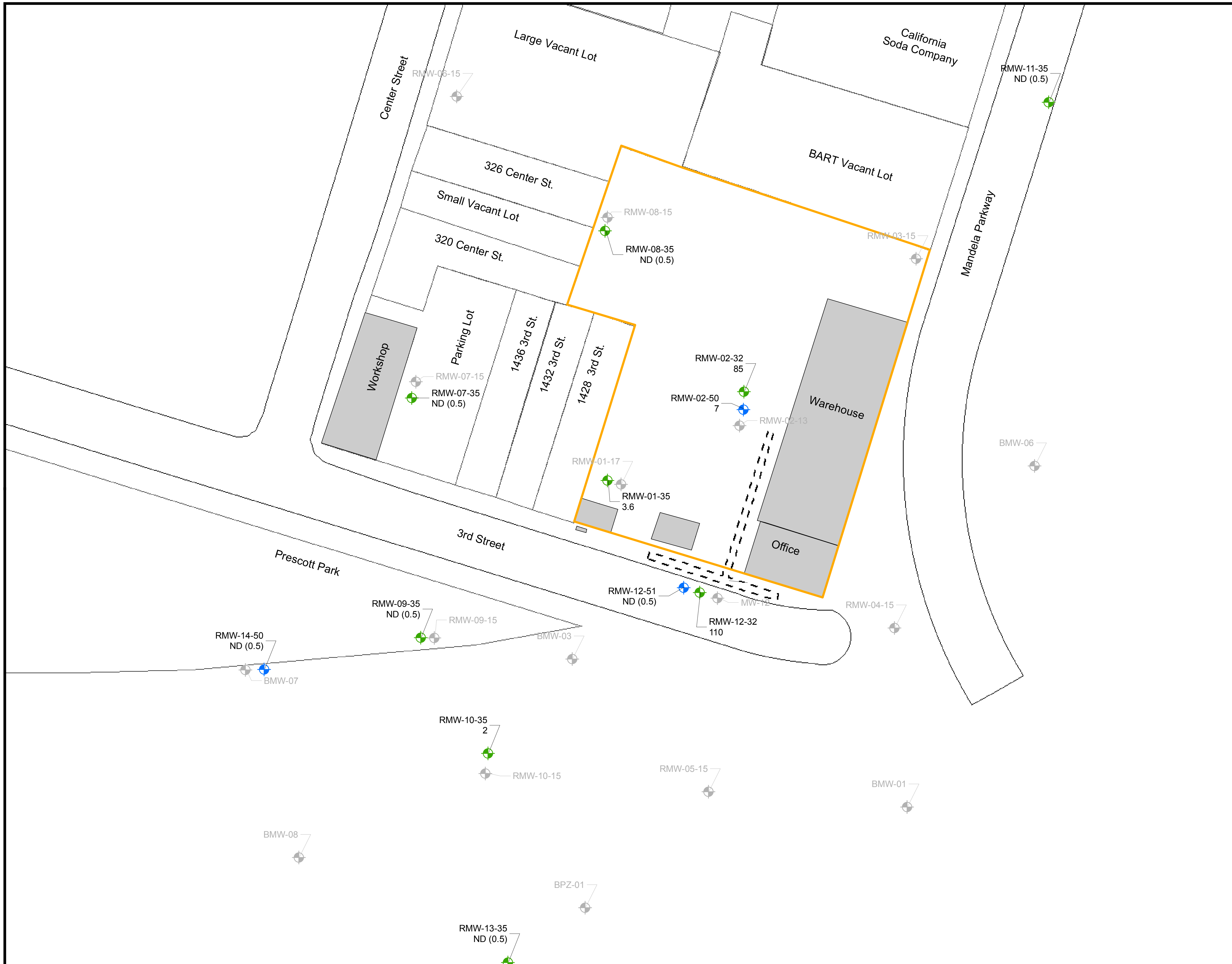

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well

Results not contoured - all detections below screening level

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Toluene in groundwater is 150 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.

FIGURE 27B
TOLUENE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
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OAKLAND, CALIFORNIA

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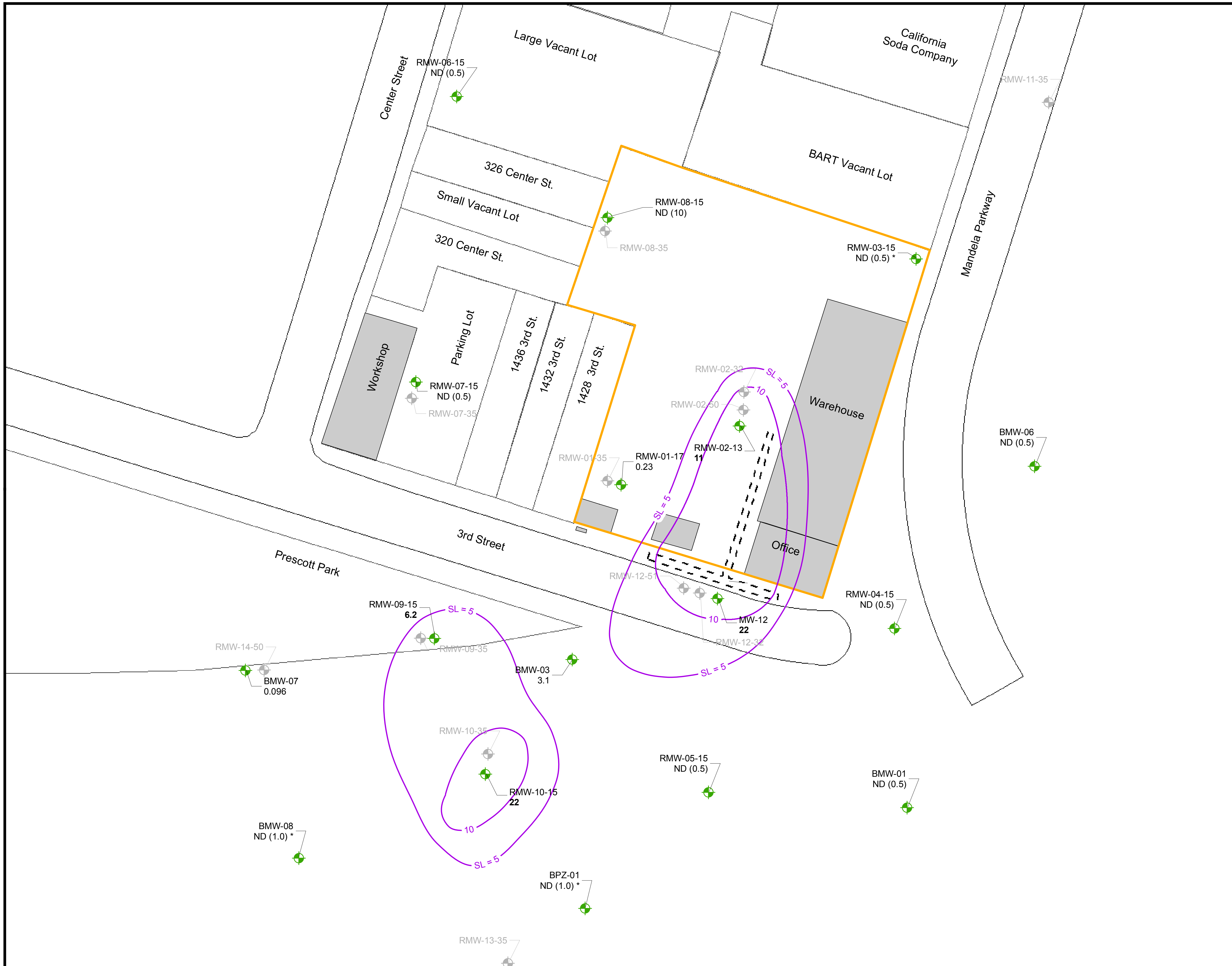

N

60 0 60 Feet

1 inch = 60 feet

CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Shallow Monitoring Well with ID and concentration
- Mid-Depth and Deep Monitoring Well
- Trichloroethene Isoconcentration Contour (µg/L) Shallow

NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Trichloroethene in groundwater is 5.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 28A
TRICHLOROETHENE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

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AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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N

60 0 60 Feet

1 inch = 60 feet

CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- Trichloroethene Isoconcentration Contour (µg/L) Mid-depth (dashed where inferred)
- Trichloroethene Isoconcentration Contour (µg/L) Deeper Interval

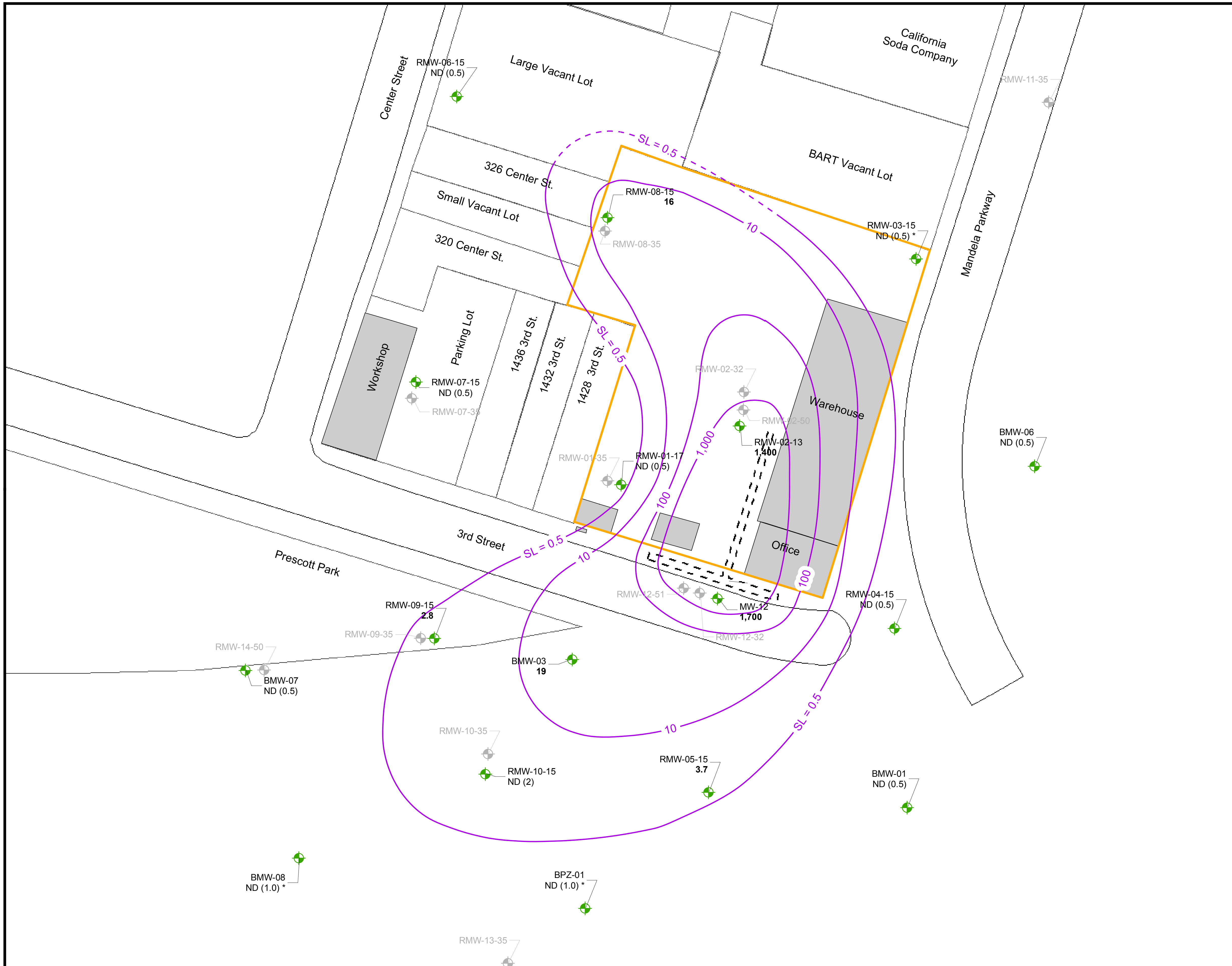
NOTES:

1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Trichloroethene in groundwater is 5.0 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 28B TRICHLOROETHENE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

60 0 60 Feet

1 inch = 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Shallow Monitoring Well with ID and concentration
- Mid-Depth and Deep Monitoring Well
- Vinyl Chloride Isoconcentration Contour (µg/L) Shallow (dashed where inferred)

NOTES:

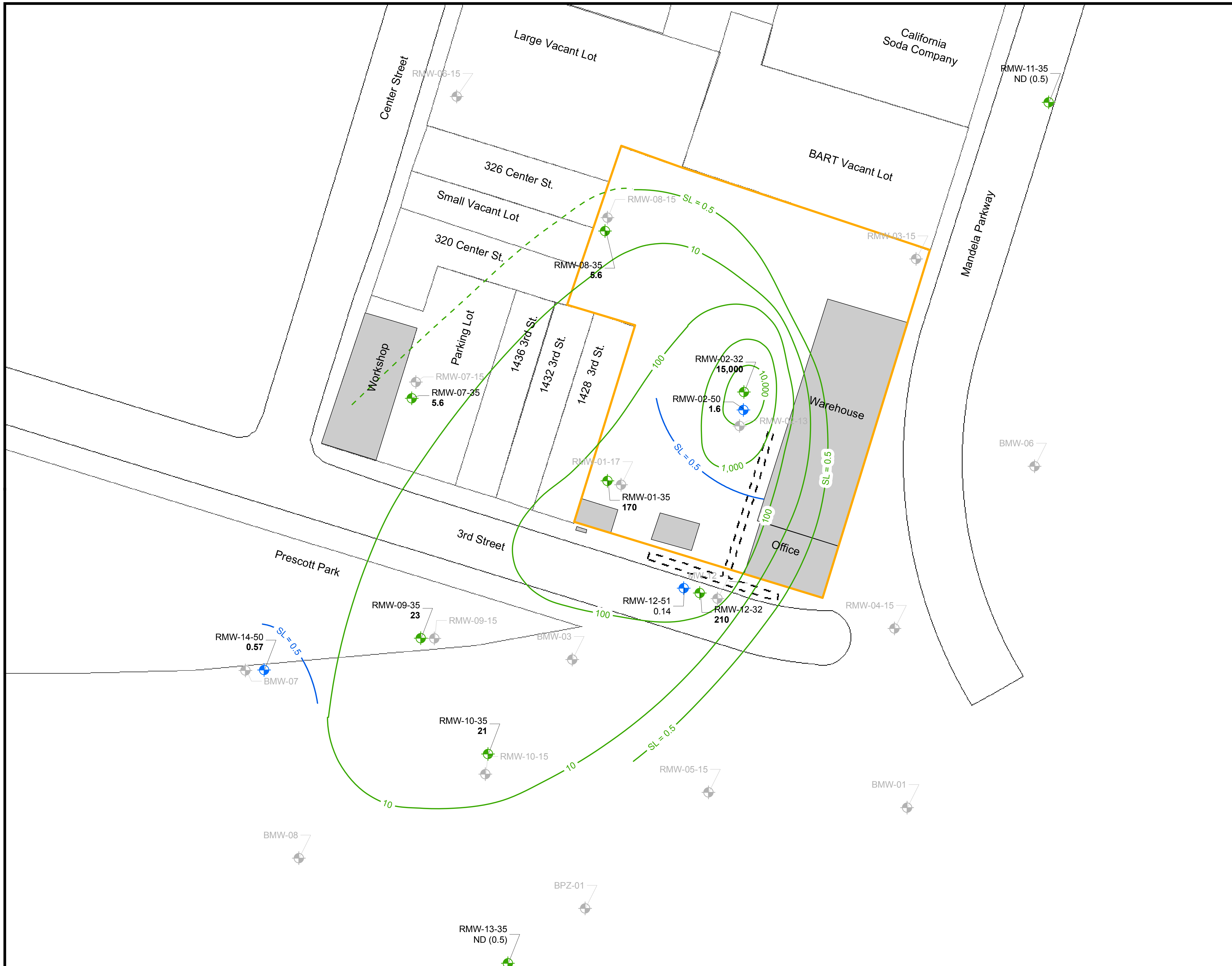
1) All concentrations in micrograms per liter (µg/L).
2) Screening level for Vinyl Chloride in groundwater is 0.5 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.
7) * = Value presented is from June 2006 because September 2006 data was rejected.

FIGURE 29A
VINYL CHLORIDE IN SHALLOW GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\GW\ANALYTE_MAPVC_GW_3Q.MXD MCLAY1 1/5/2011



N

60 0 60 Feet

1 inch = 60 feet

CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Mid-depth Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well
- VC Isoconcentration Contour (µg/L) Mid-depth (dashed where inferred)
- VC Isoconcentration Contour (µg/L) Deeper Interval

NOTES:

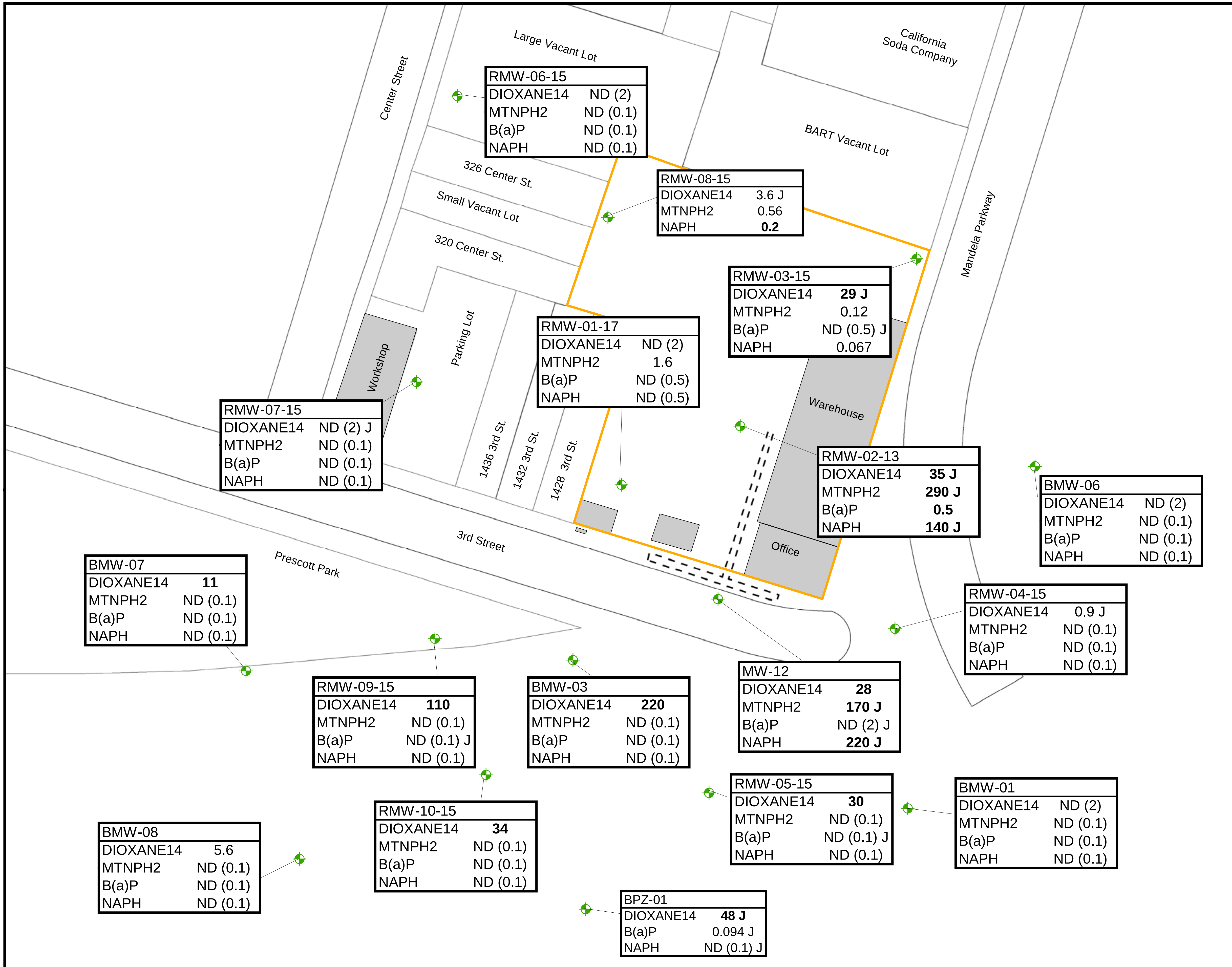
1) All concentrations in micrograms per liter (ug/L).
2) Screening level for Vinyl Chloride in groundwater is 0.5 µg/L.
3) Sampling conducted September 2006.
4) Concentrations bold when above screening level.
5) Lowest contour interval equal to screening level.
6) Data collected during groundwater survey is used to fill data gaps for contouring.

FIGURE 29B
VINYL CHLORIDE IN MID/DEEP GROUNDWATER THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\GW\ANALYTE_MAPVC_GW_3Q_MIDDEEP.MXD MCLAY1 1/5/2011



N

60 0 60 Feet

1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Groundwater Monitoring Well

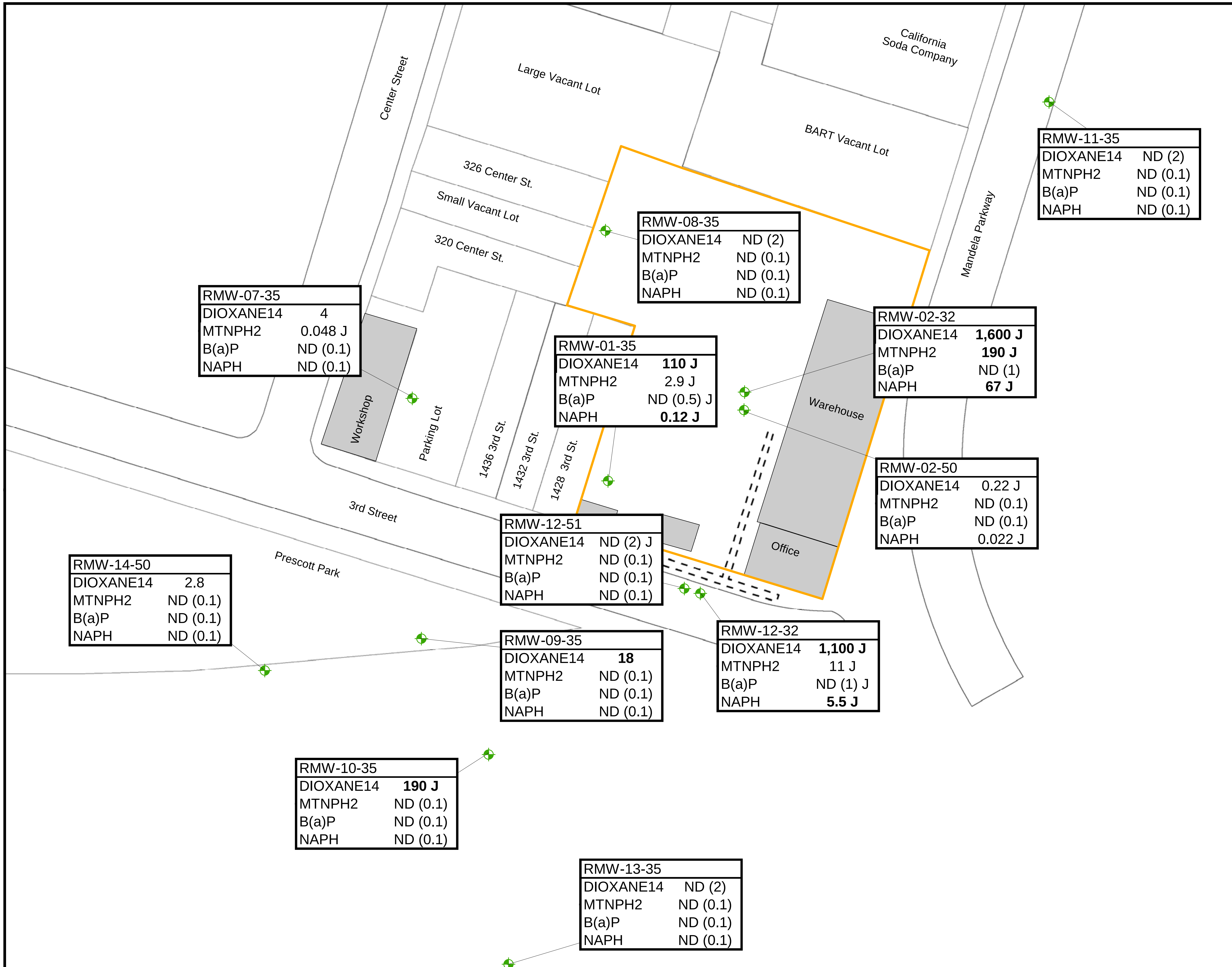
Legend		
Abbreviation	Chemical Name	Screening level
DIOXANE14	1,4-Dioxane (p-dioxane)	6.1
MTNPH2	2-Methylnaphthalene	24.3
B(a)P	Benzo(a)pyrene	0.2
NAPH	Naphthalene	0.093

All results and screening limits in µg/L
J - Estimated
Bold - detected above screening level
ND( ) - not detected at listed reporting limit

Note: Rejected data not shown

FIGURE 30A
KEY SVOCS
IN SHALLOW
GROUNDWATER,
THIRD QUARTER 2006
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

60 0 60 Feet

1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

Former AMCO Chemical Facility Boundary
Former Extraction Trench
Buildings
Groundwater Monitoring Well

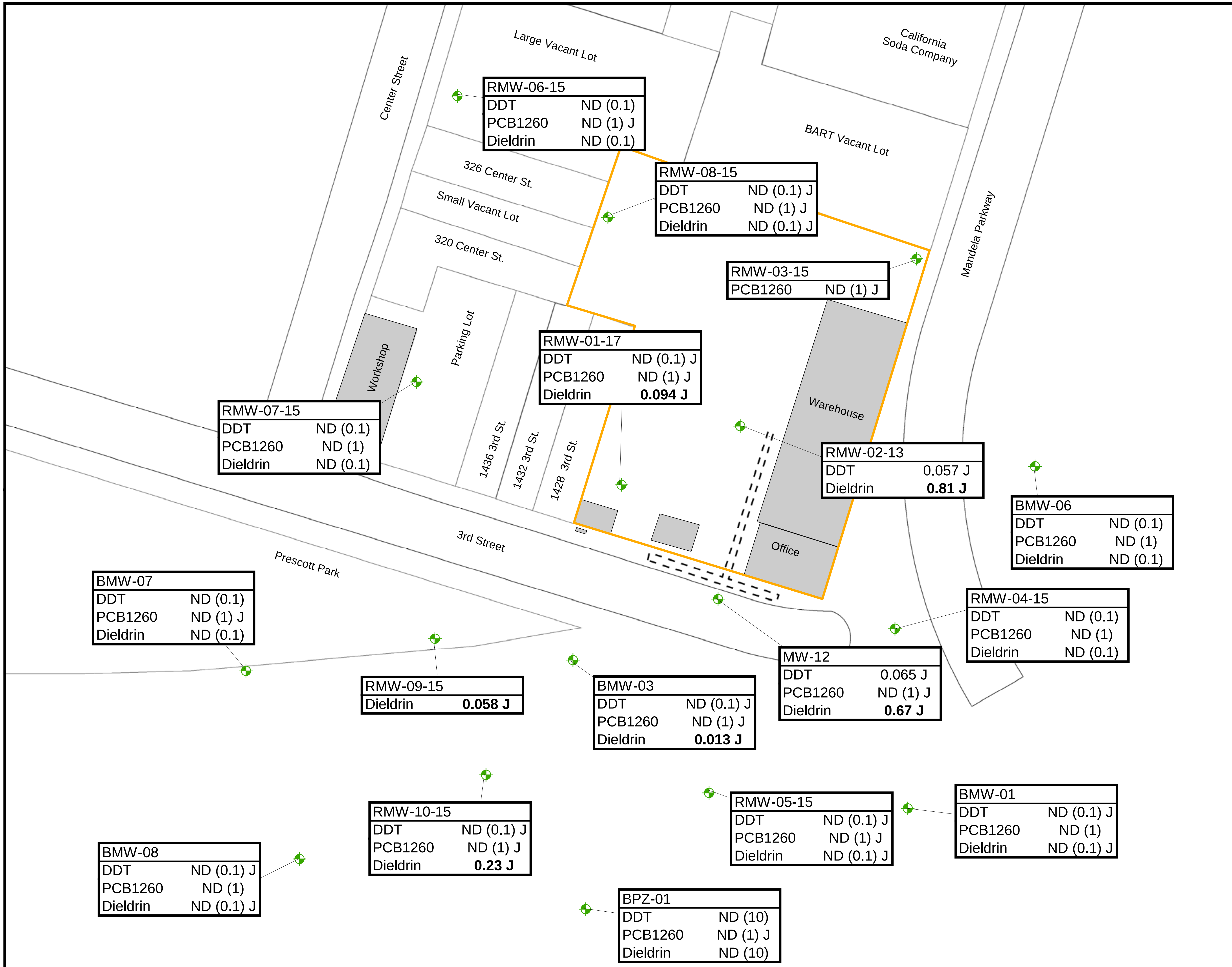
Legend		
Abbreviation	Chemical Name	Screening level
DIOXANE14	1,4-Dioxane (p-dioxane)	6.1
MTNPH2	2-Methylnaphthalene	24.3
B(a)P	Benzo(a)pyrene	0.2
NAPH	Naphthalene	0.093

All results and screening limits in µg/L
J - Estimated
Bold - detected above screening level
ND( ) - not detected at listed reporting limit

FIGURE 30B
KEY SVOCS
IN MID/DEEP
GROUNDWATER,
THIRD QUARTER 2006
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\RMW\KEY_SVOC_MID_DEEP_RMW.MXD KEY_SVOC_MID_DEEP_RMW.PDF 2/27/2008 15:15:51



1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Groundwater Monitoring Well

Legend

Abbreviation	Chemical Name	Screening level
DDT44	4,4'-DDT	0.2
PCB1260	Aroclor-1260	0.5
DIELDRIN	Dieldrin	0.0042

All results and screening limits in µg/L
Bold - detected above screening level
J - estimated
ND( ) - not detected at listed reporting limit

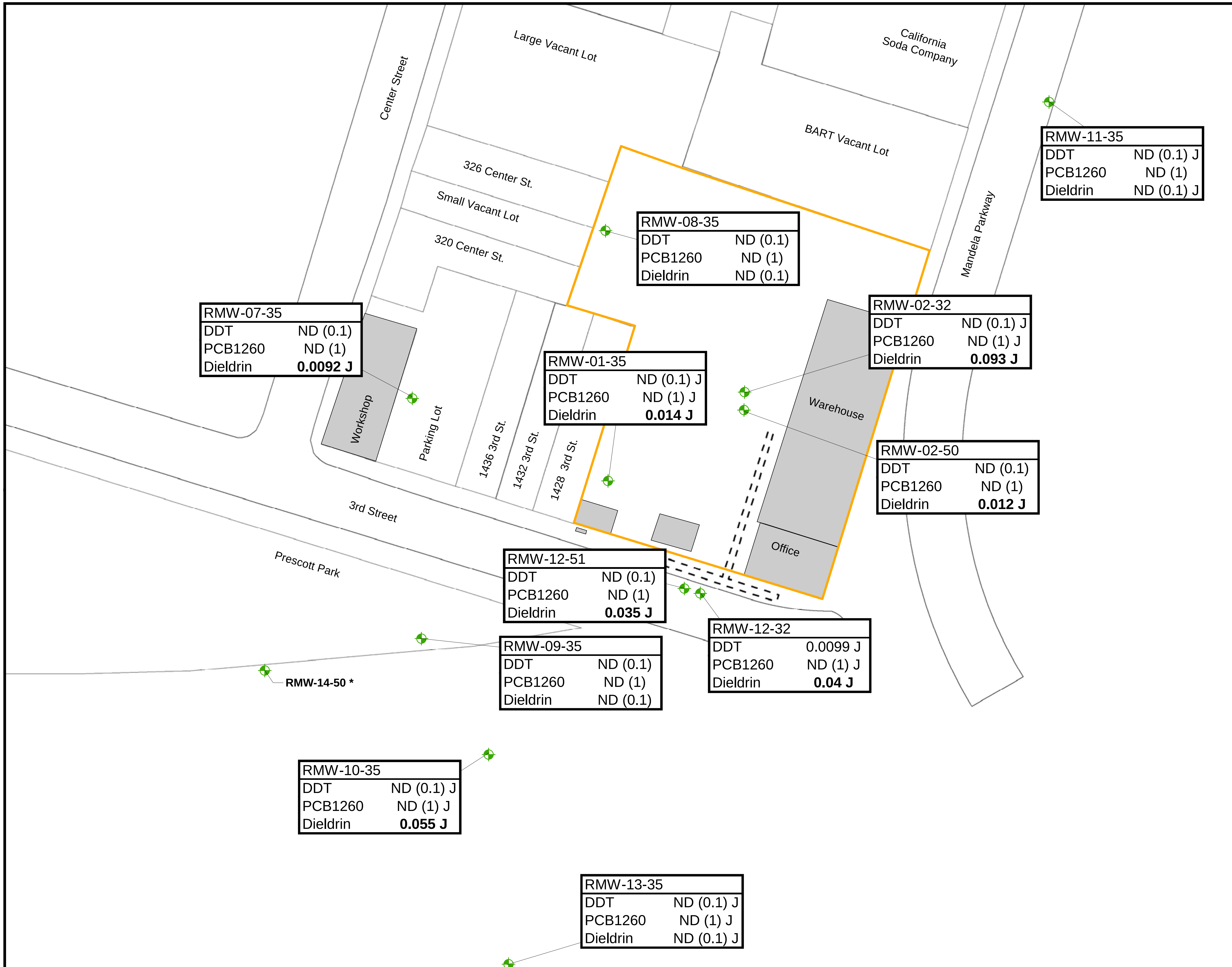
Note: Rejected data not shown.

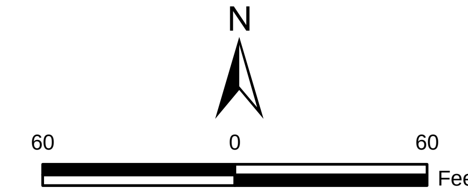
FIGURE 31A
KEY PESTICIDES/PCBS IN SHALLOW GROUNDWATER, THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2007\RI_REPORTING\RMW\KEY_PCB_RMW.MXD KEY_PCB_RMW.PDF 2/27/2008 15:10:37





1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

Former AMCO Chemical Facility Boundary

Former Extraction Trench

Buildings

Groundwater Monitoring Well

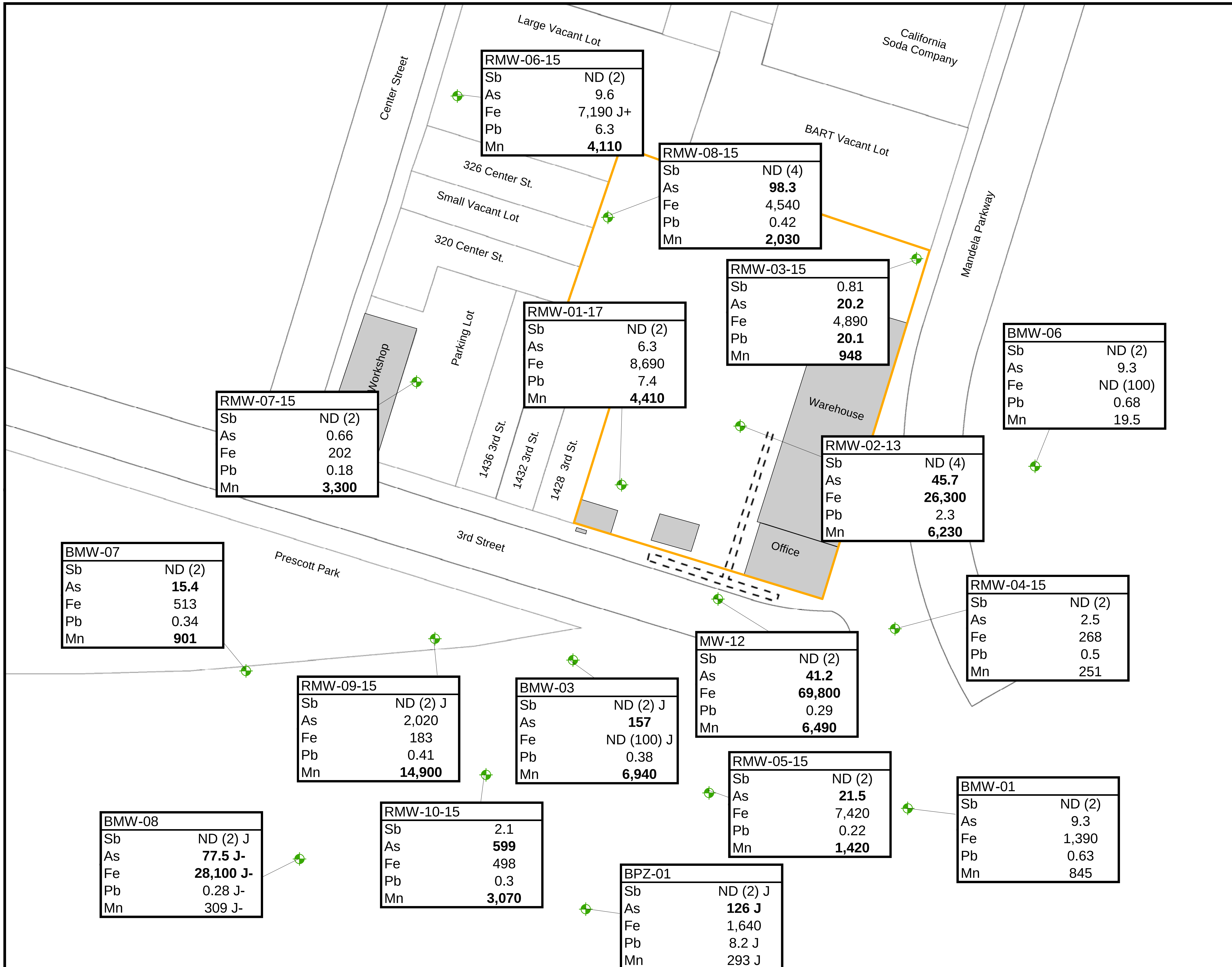
Legend		
Abbreviation	Chemical Name	Screening level
DDT44	4,4'-DDT	0.2
PCB1260	Aroclor-1260	0.5
DIELDRIN	Dieldrin	0.0042

All results and screening limits in µg/L
Bold - detected above screening level
J - Estimated
ND( ) - not detected at listed reporting limit

Note:
* All key pesticides/PCBs for RMW-14-50 were rejected.

FIGURE 31B
KEY PESTICIDES/PCBS IN MID/DEEP GROUNDWATER, THIRD QUARTER 2006
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

60 0 60 Feet

1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

Former AMCO Chemical Facility Boundary

Former Extraction Trench

Buildings

Groundwater Monitoring Well

Legend		
Abbreviation	Chemical Name	Screening level
Sb	Antimony	6
As	Arsenic	10
Fe	Iron	11,000
Pb	Lead	15
Mn	Manganese	880

All results and screening limits in µg/L
Bold - detected above screening level
J - Estimated
ND( ) - not detected at listed reporting limit

FIGURE 32A
KEY METALS IN SHALLOW GROUNDWATER, THIRD QUARTER 2006
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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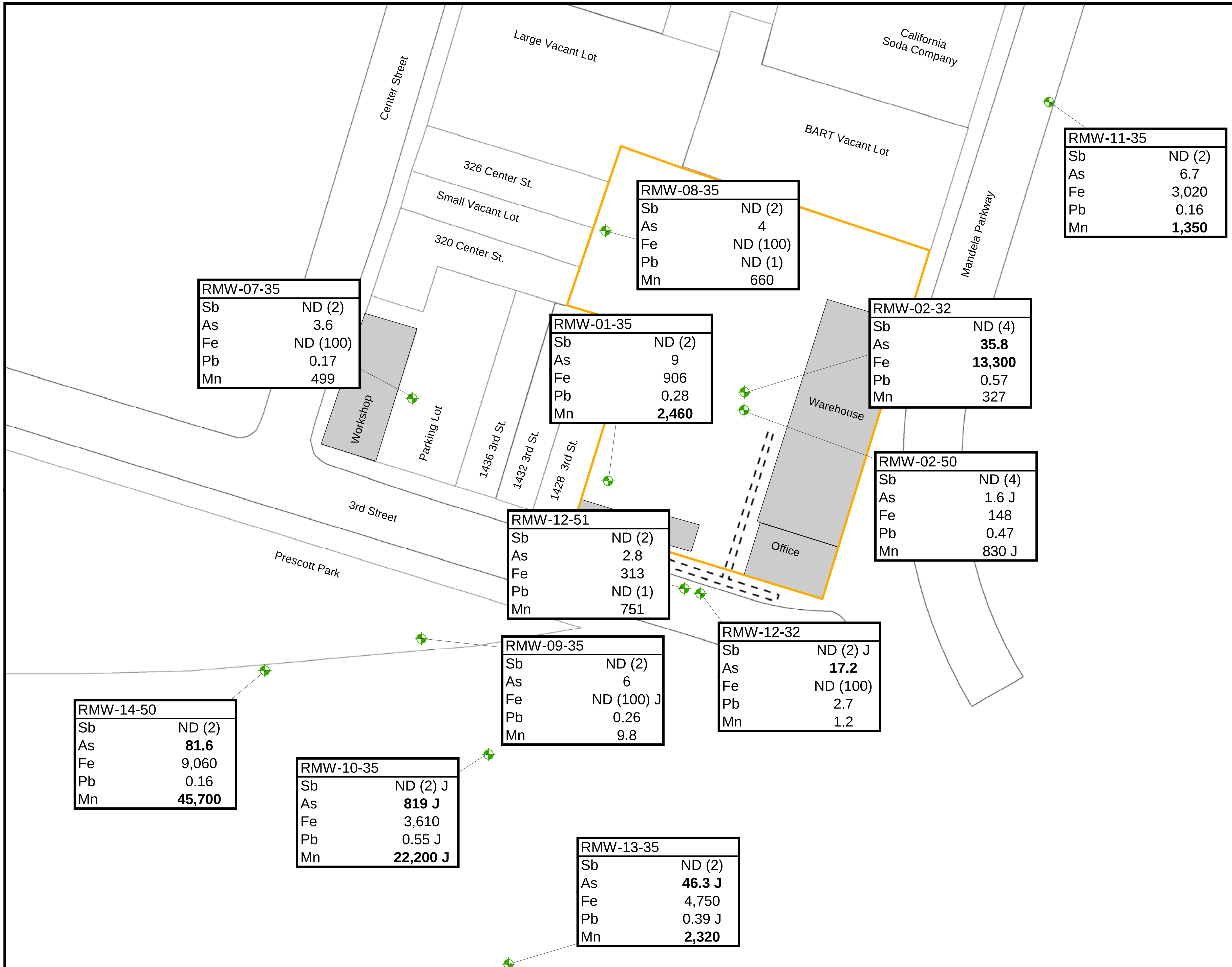


N
60 0 60 Feet
1 inch equals 60 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- Groundwater Monitoring Well

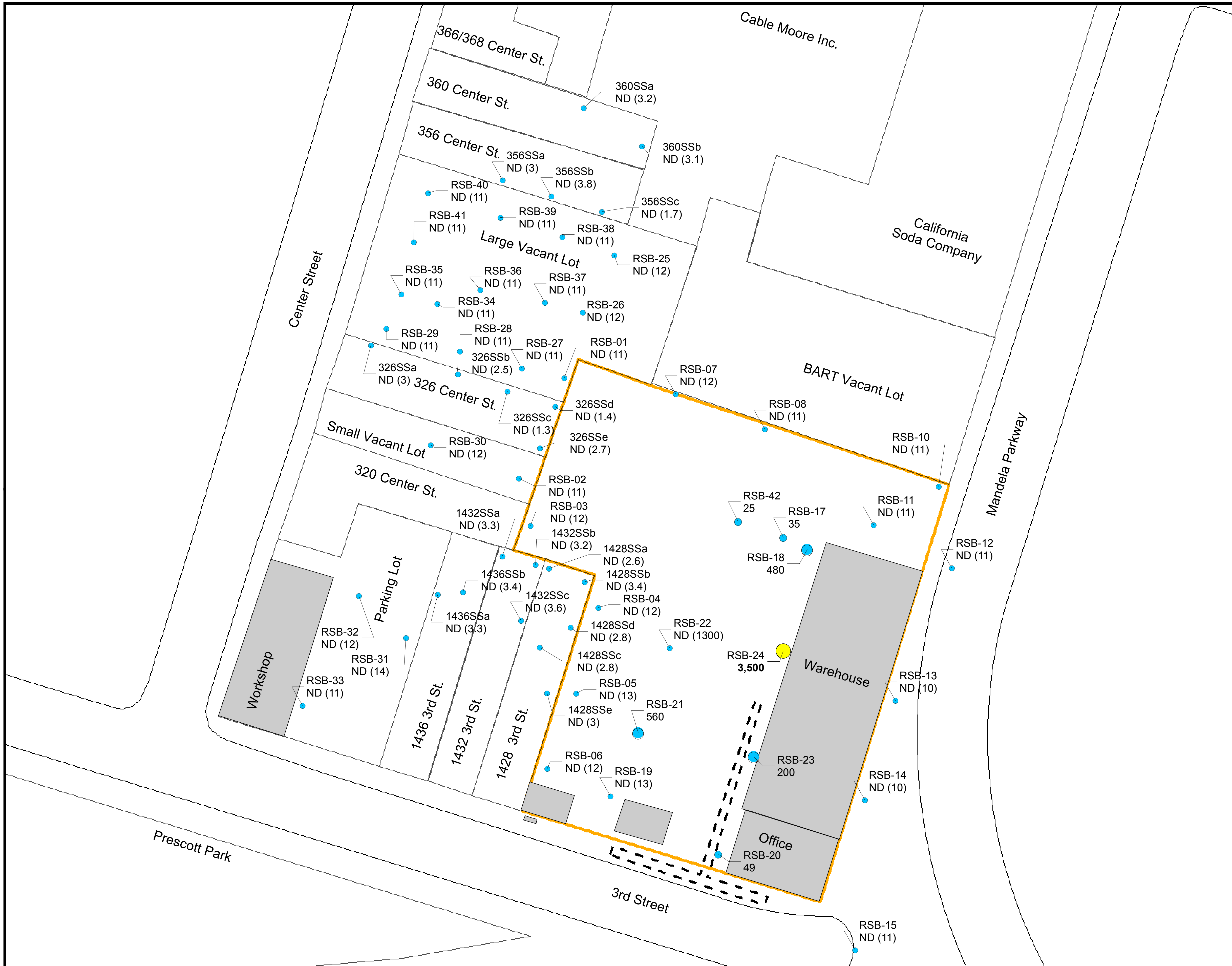
Legend		
Abbreviation	Chemical Name	Screening level
Sb	Antimony	6
As	Arsenic	10
Fe	Iron	11,000
Pb	Lead	15
Mn	Manganese	880

All results and screening limits in µg/L
Bold - detected above screening level
J - Estimated
ND( ) - not detected at listed reporting limit

FIGURE 32B
KEY METALS IN MID/DEEP GROUNDWATER, THIRD QUARTER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Benzene, color scale replaced by blue fill (see Note 3).

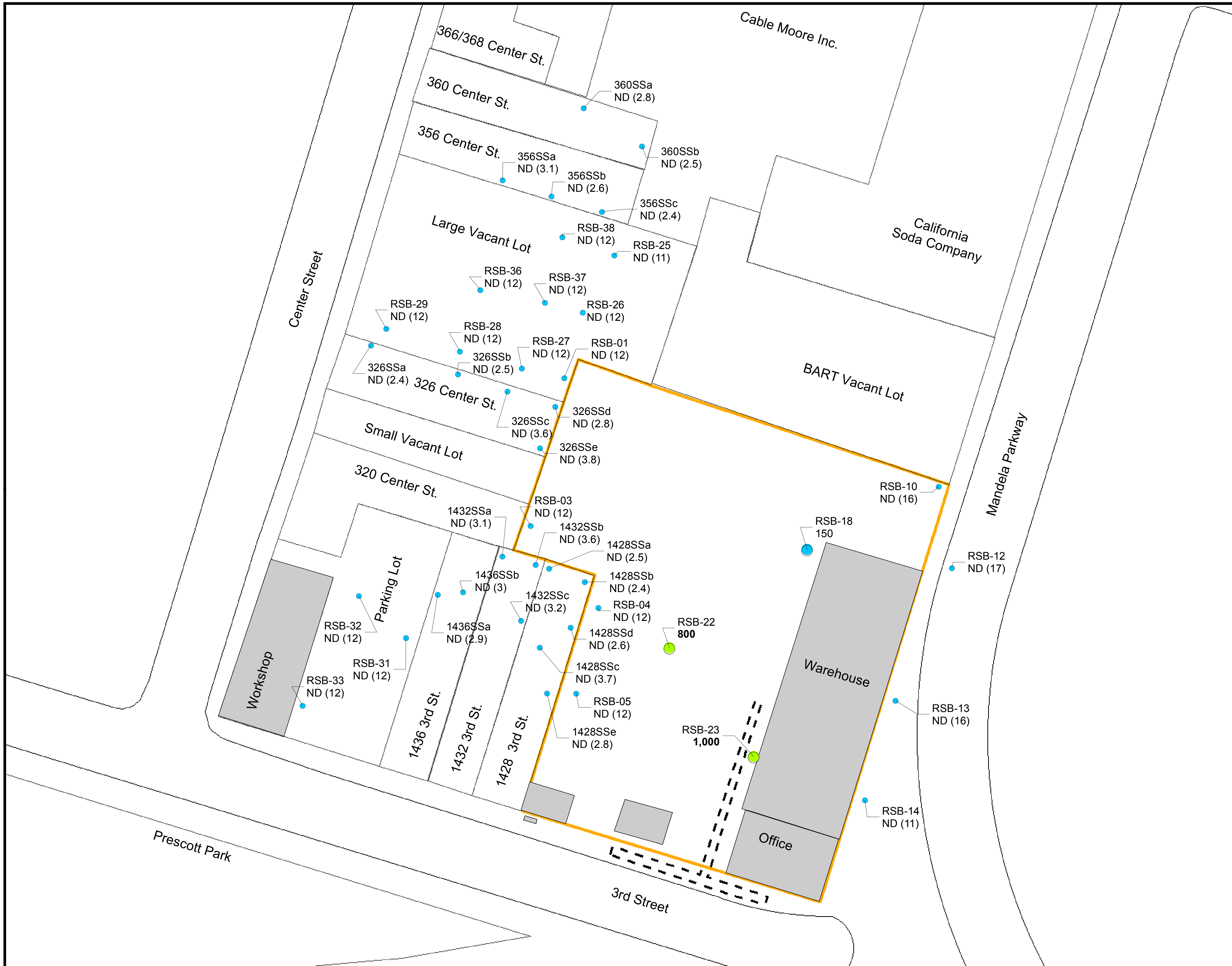
NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Benzene is 640 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 33A BENZENE IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

50 0 50 Feet

1 inch = 50 feet

CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Benzene, color scale replaced by blue fill (see Note 3).

NOTES:

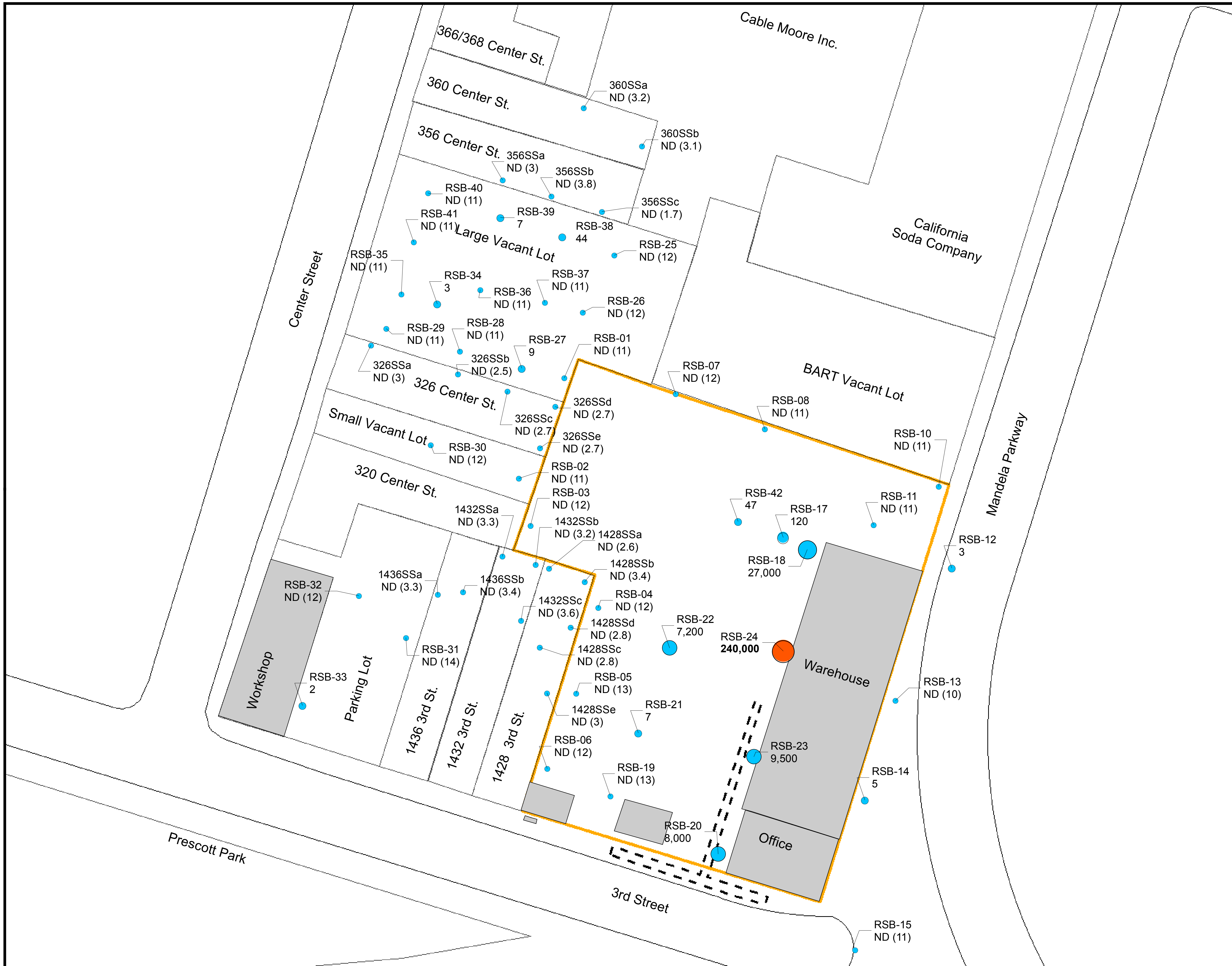
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Benzene is 640 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 33B
BENZENE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPBZ_DEEP_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for cis-1,2-Dichloroethene, color scale replaced by blue fill (see Note 3).

NOTES:

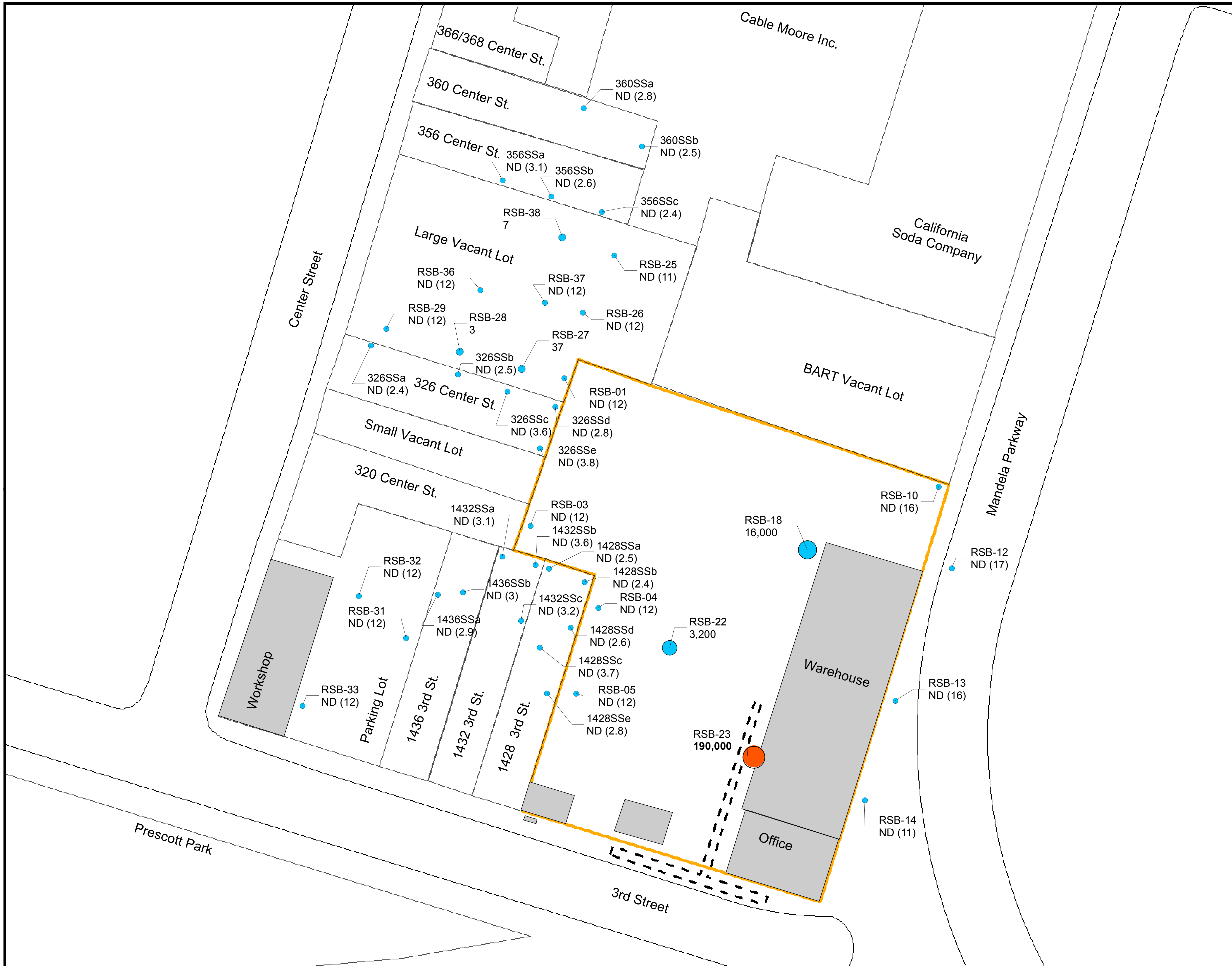
1) Generally, shallow soil represents sample intervals from 1-2 ft below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for cis-1,2-Dichloroethene is 43,000 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 34A
cis-1,2-DICHLOROETHENE IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPDCE_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet

CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for cis-1,2-Dichloroethene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for cis-1,2-Dichloroethene is 43,000 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 34B
cis-1,2-DICHLOROETHENE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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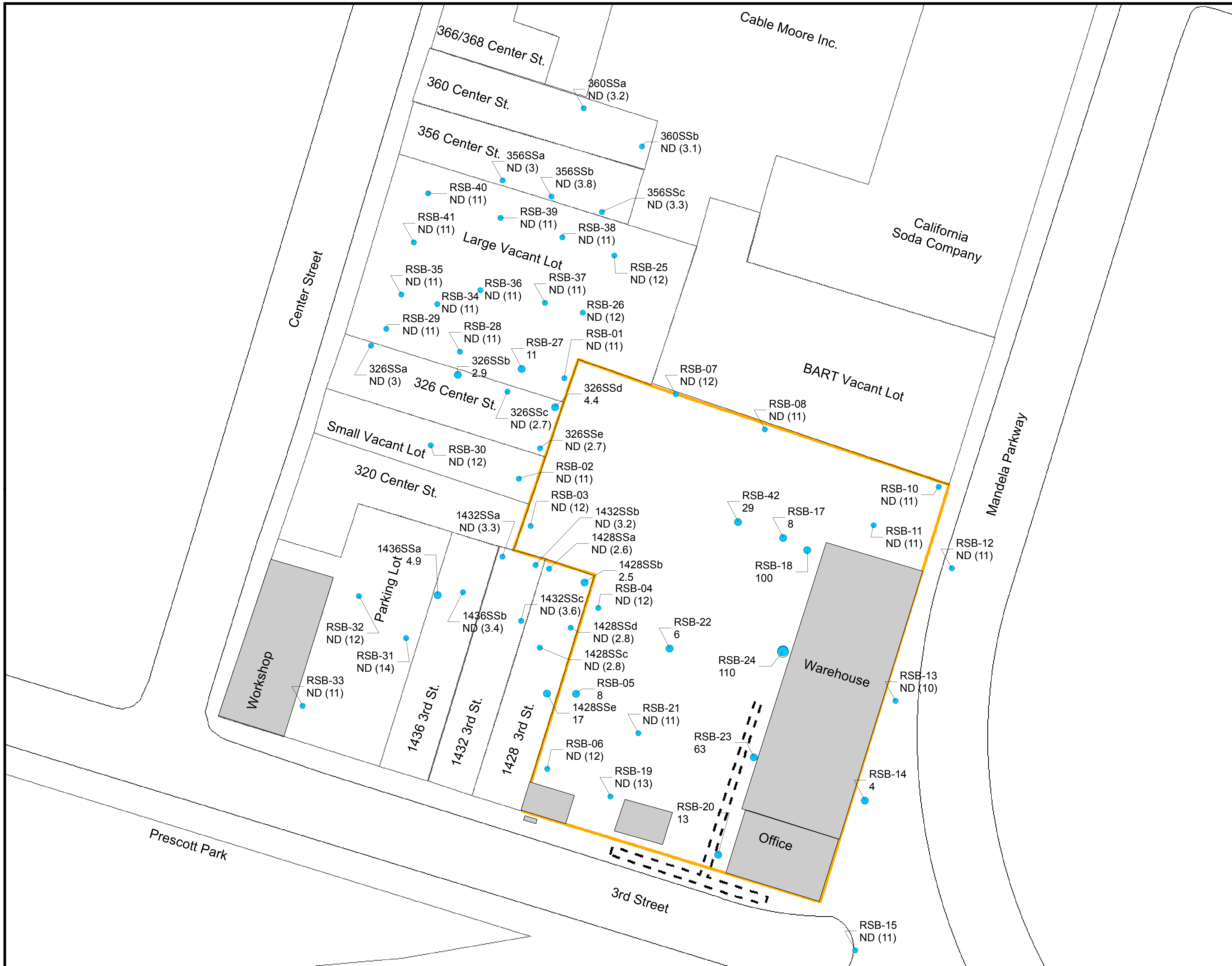


N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Tetrachloroethene, color scale replaced by blue fill (see Note 3).

NOTES:

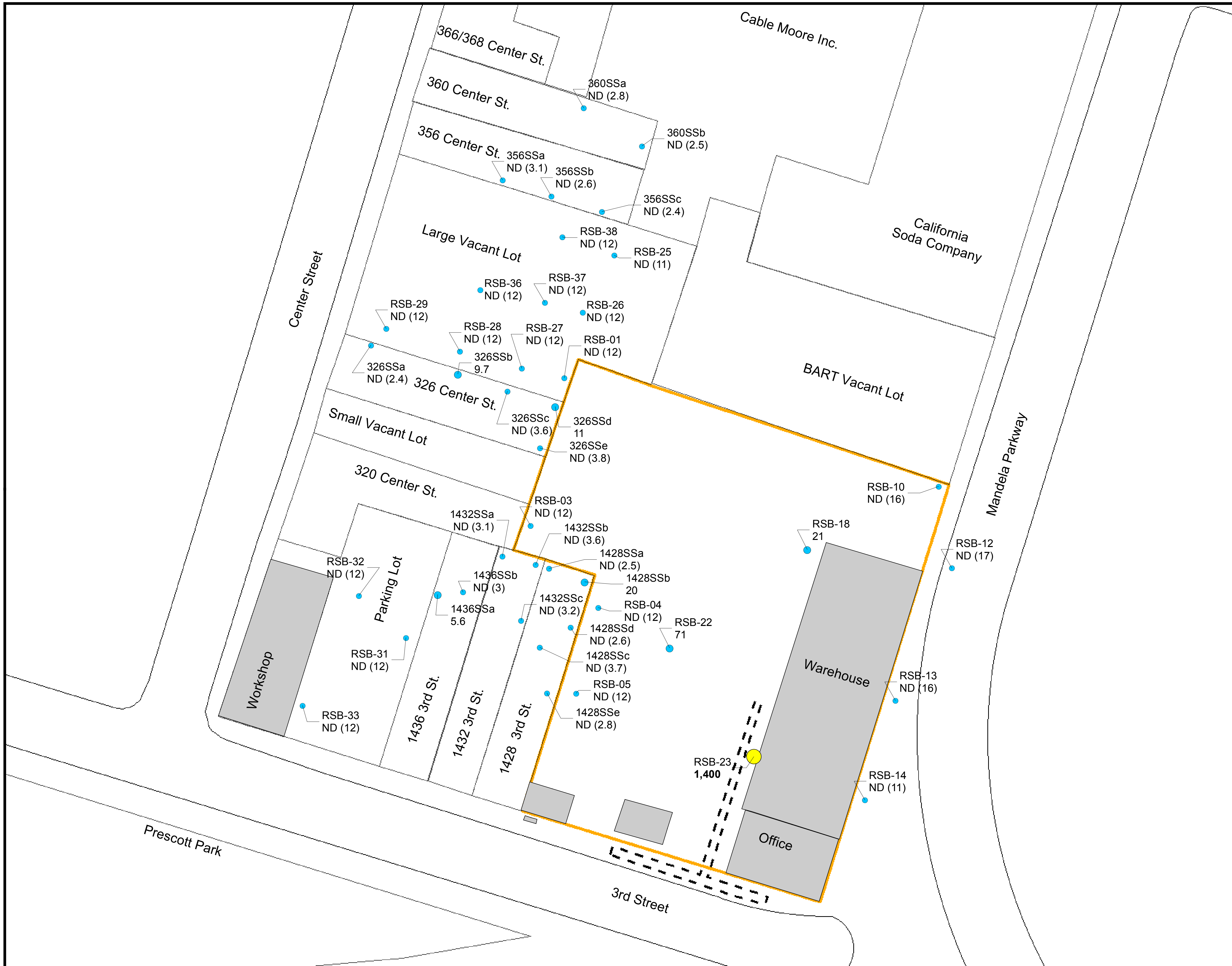
1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Tetrachloroethene is 480 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 35A
TETRACHLOROETHENE IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPPCE_RSB.MXD MCLAY1 1/4/2011



1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Tetrachloroethene, color scale replaced by blue fill (see Note 3).

NOTES:

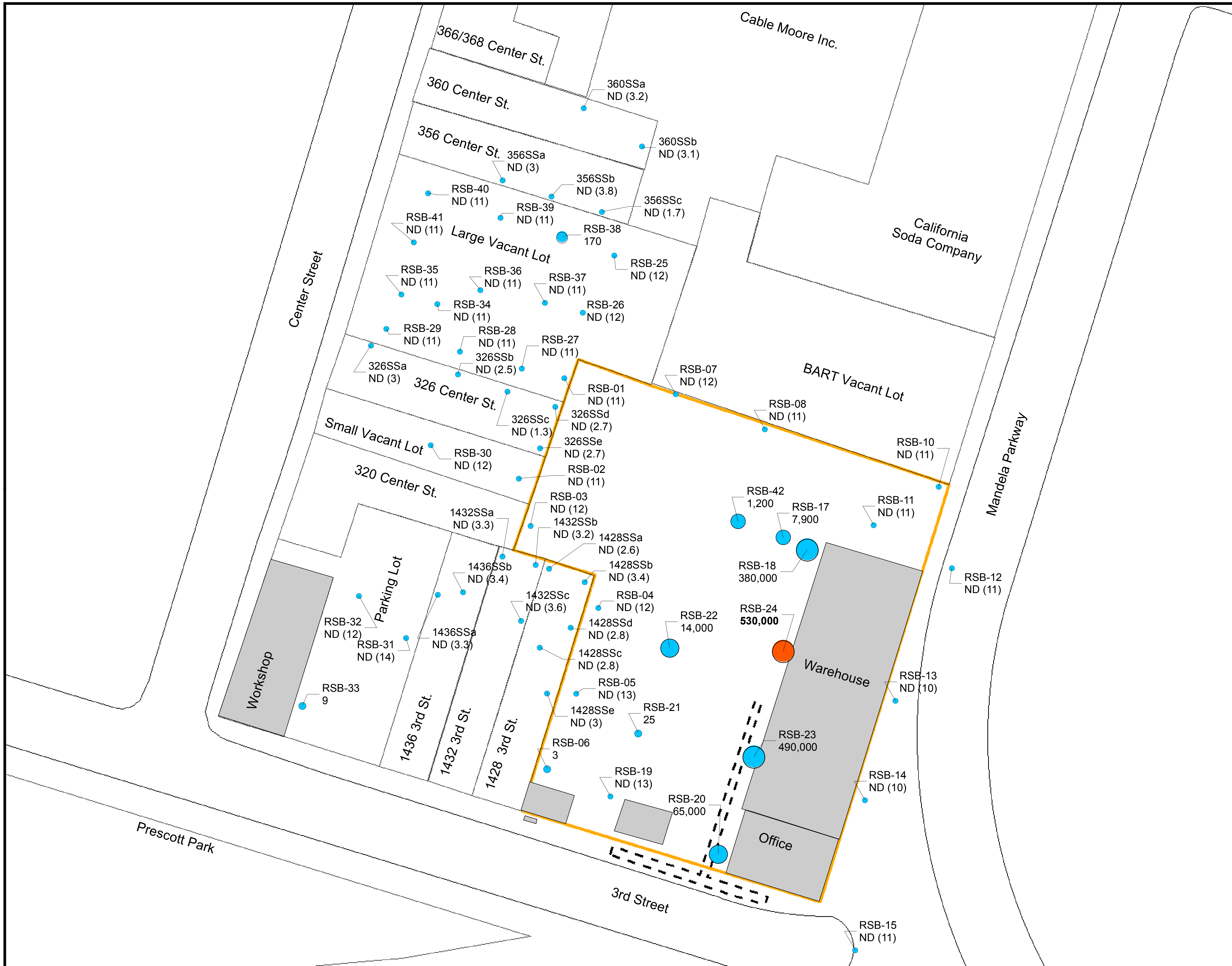
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Tetrachloroethene is 480 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 35B
TETRACHLOROETHENE IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPPCE_DEEP_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Toluene, color scale replaced by blue fill (see Note 3).

NOTES:

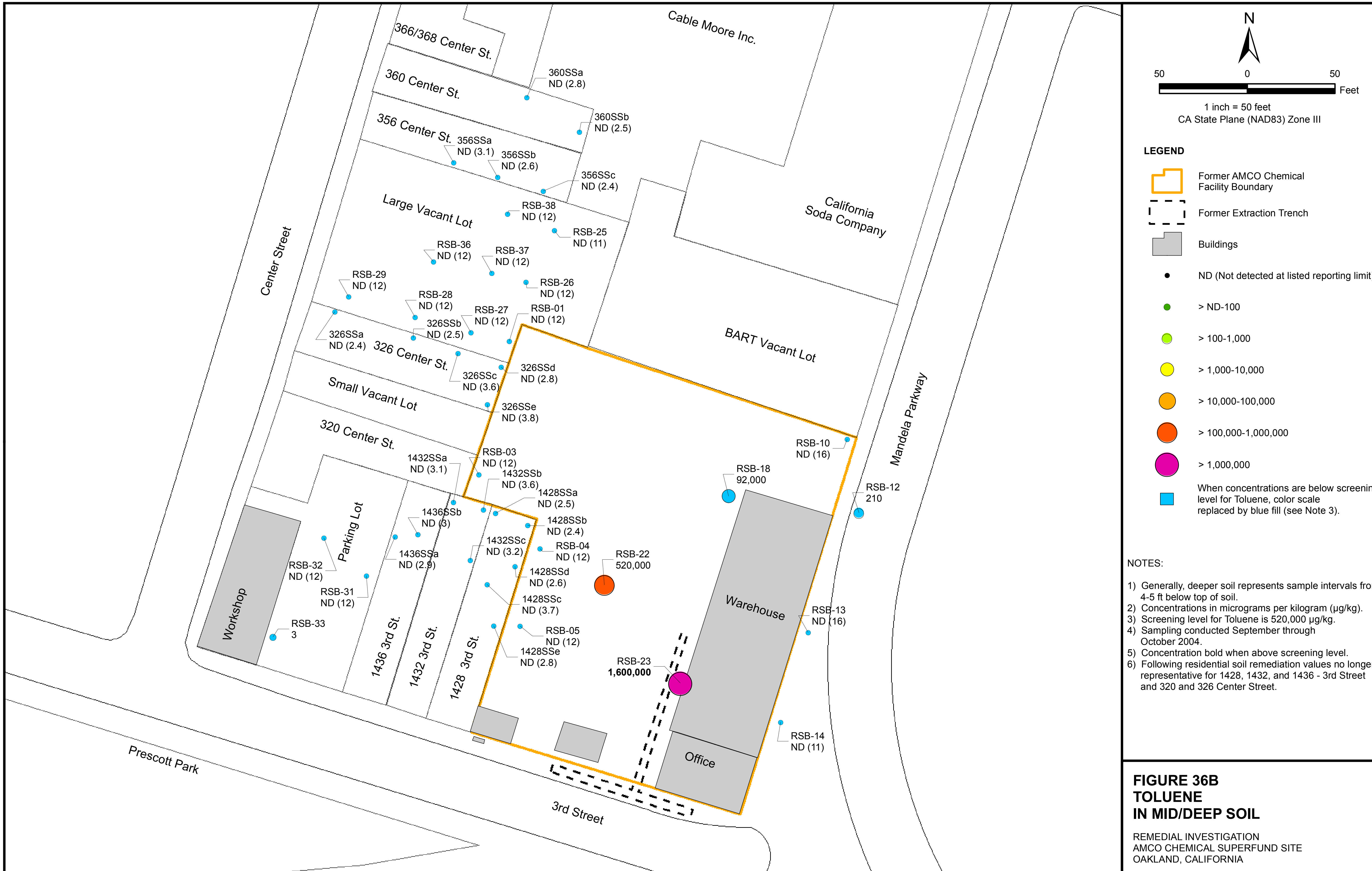
1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Toluene is 520,000 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 36A
TOLUENE
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPBZME_RSB.MXD MCLAY1 1/4/2011



NOTES:

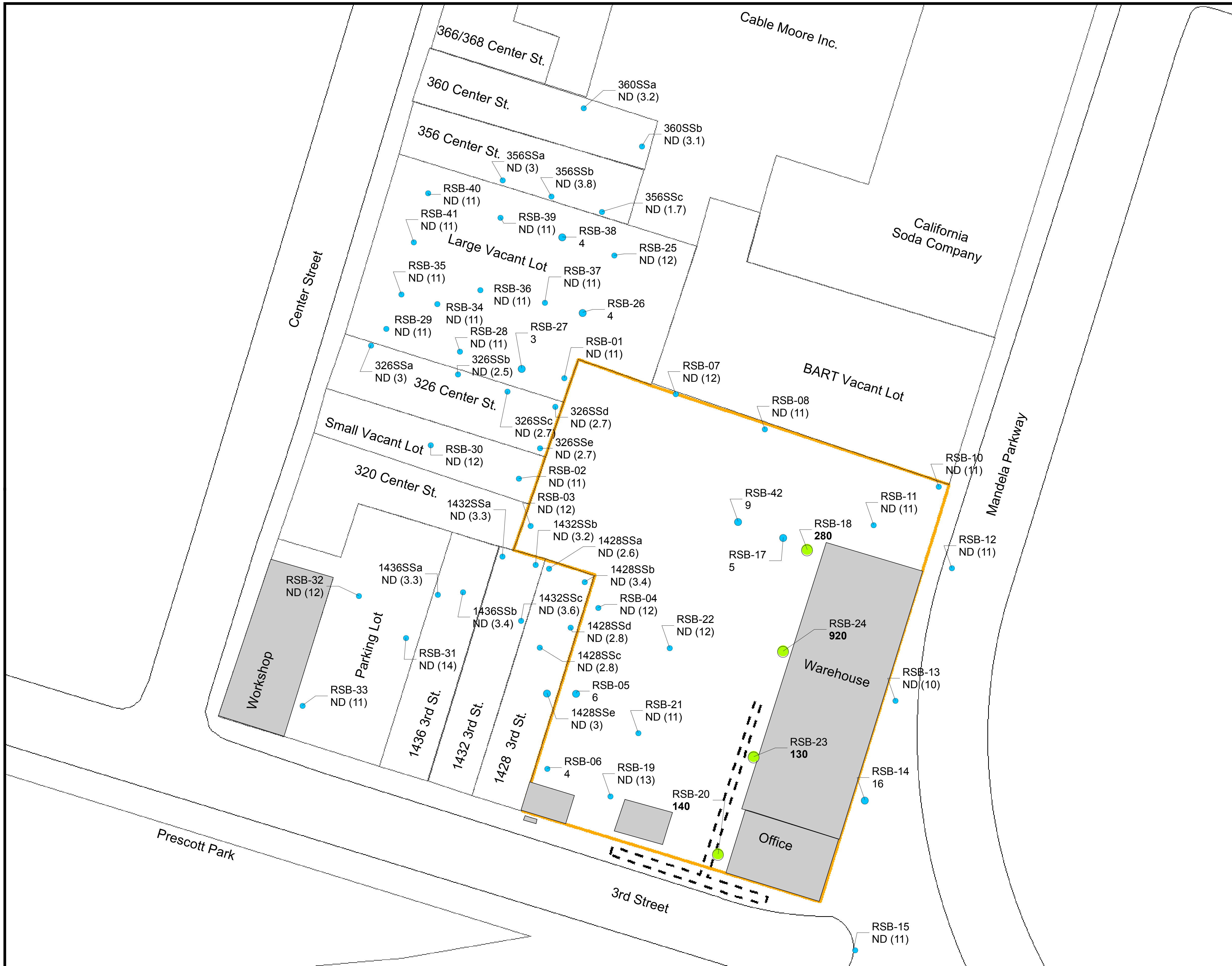
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Toluene is 520,000 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 36B
TOLUENE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPBZME_DEEP_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Trichloroethene, color scale replaced by blue fill (see Note 3).

NOTES:

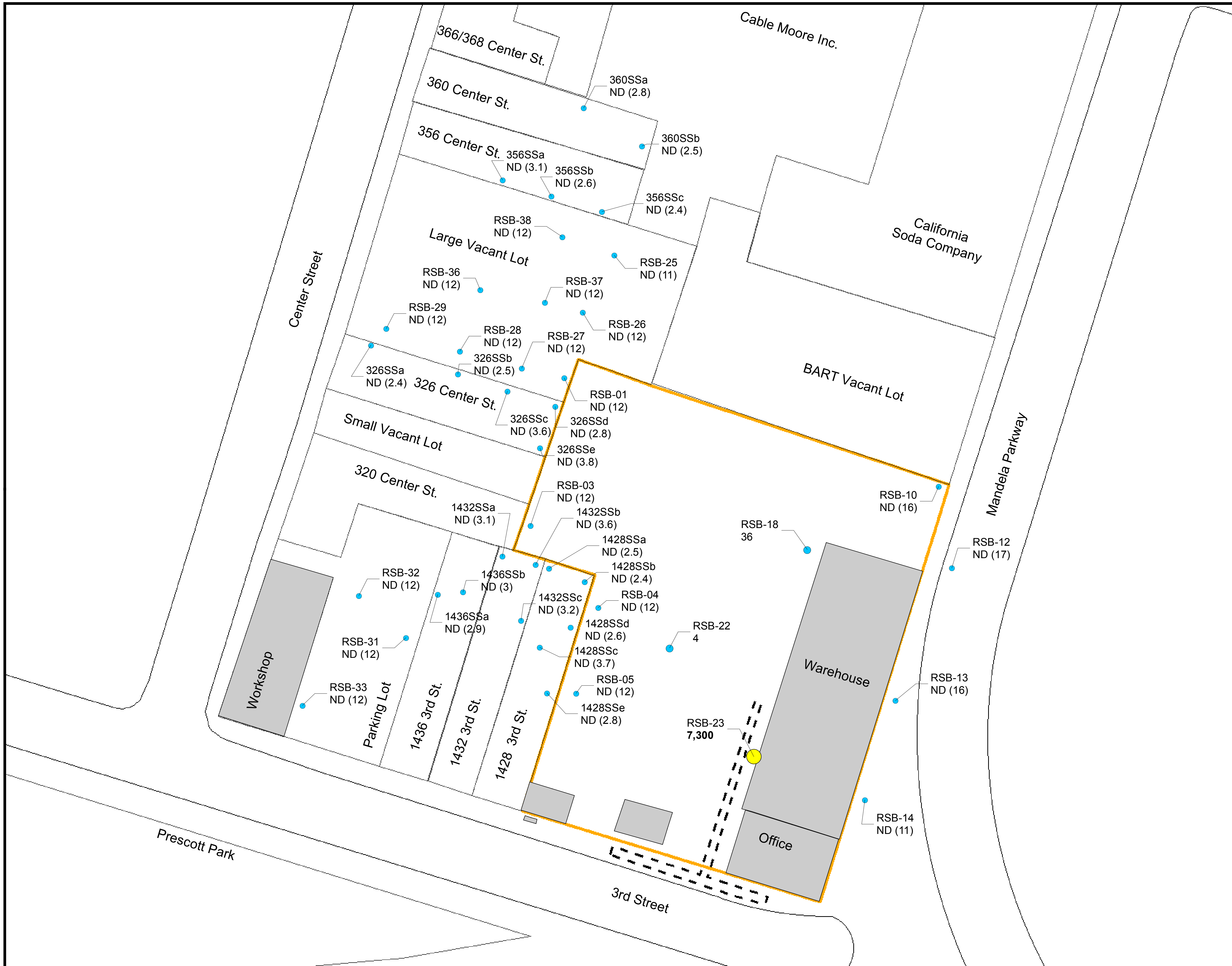
1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Trichloroethene is 53 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 37A
TRICHLOROETHENE
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPTCE_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Trichloroethene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Trichloroethene is 53 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 37B
TRICHLOROETHENE IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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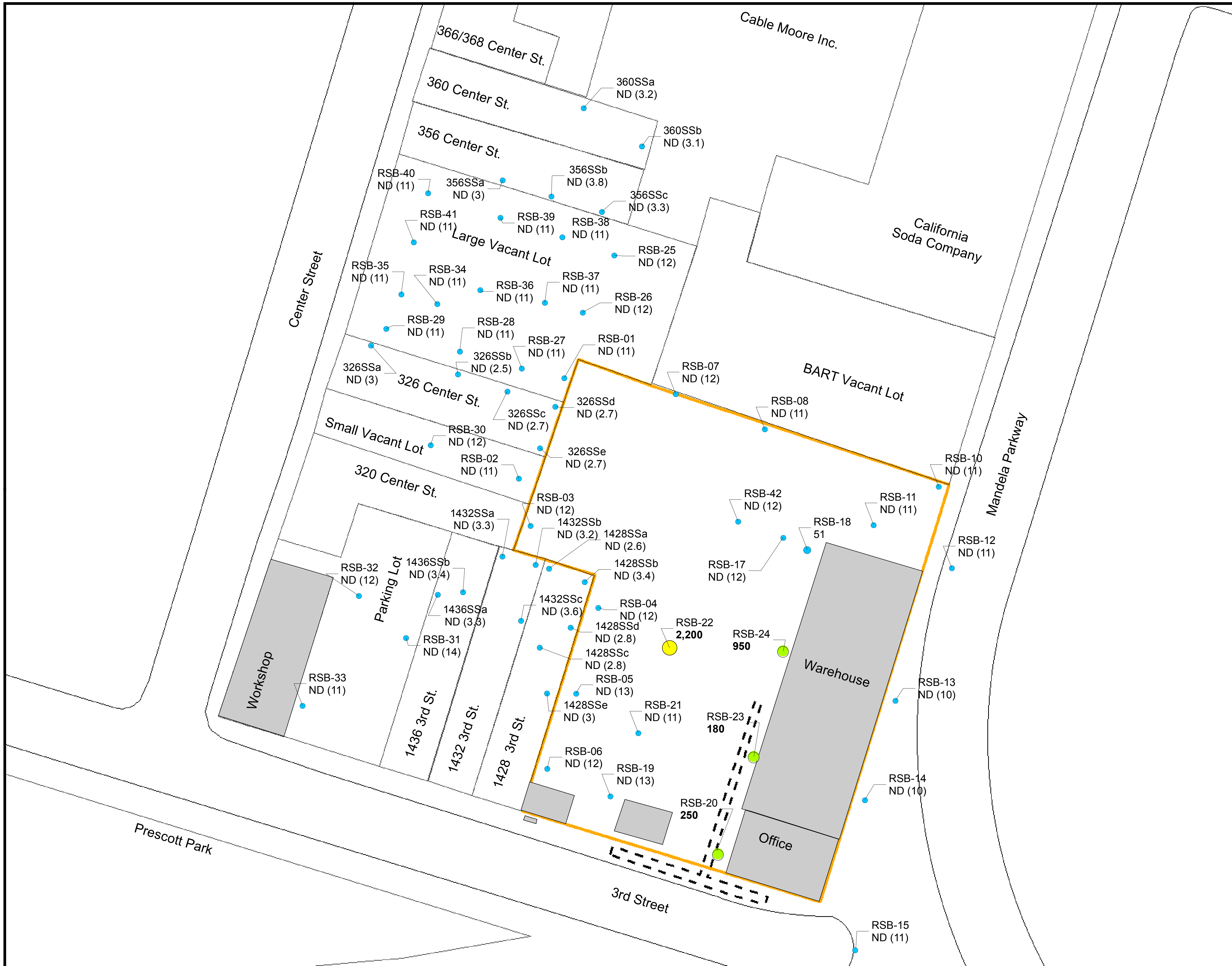

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Vinyl Chloride, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Vinyl Chloride is 79 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 38A
VINYL CHLORIDE IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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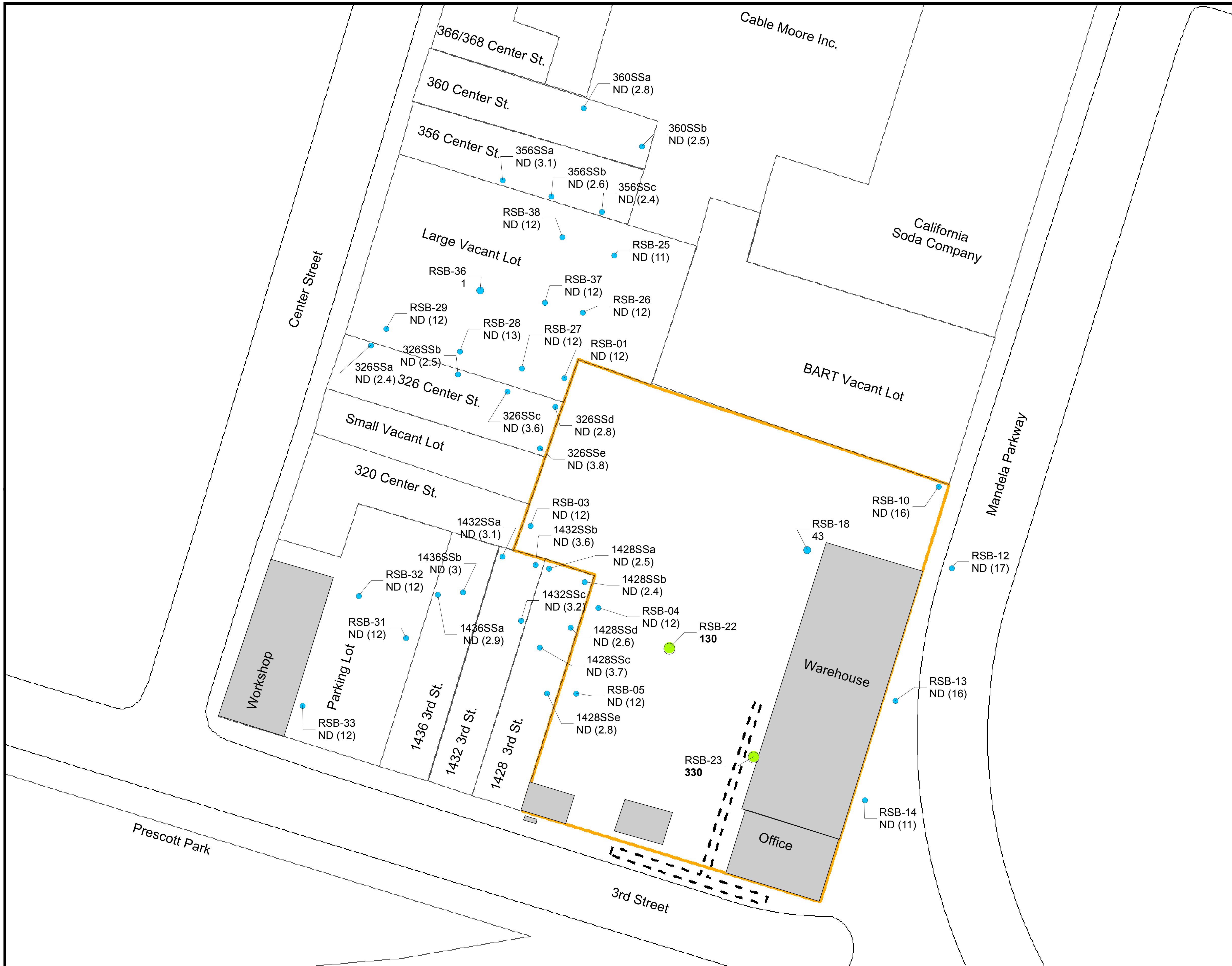

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Vinyl Chloride, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Vinyl Chloride is 79 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 38B
VINYL CHLORIDE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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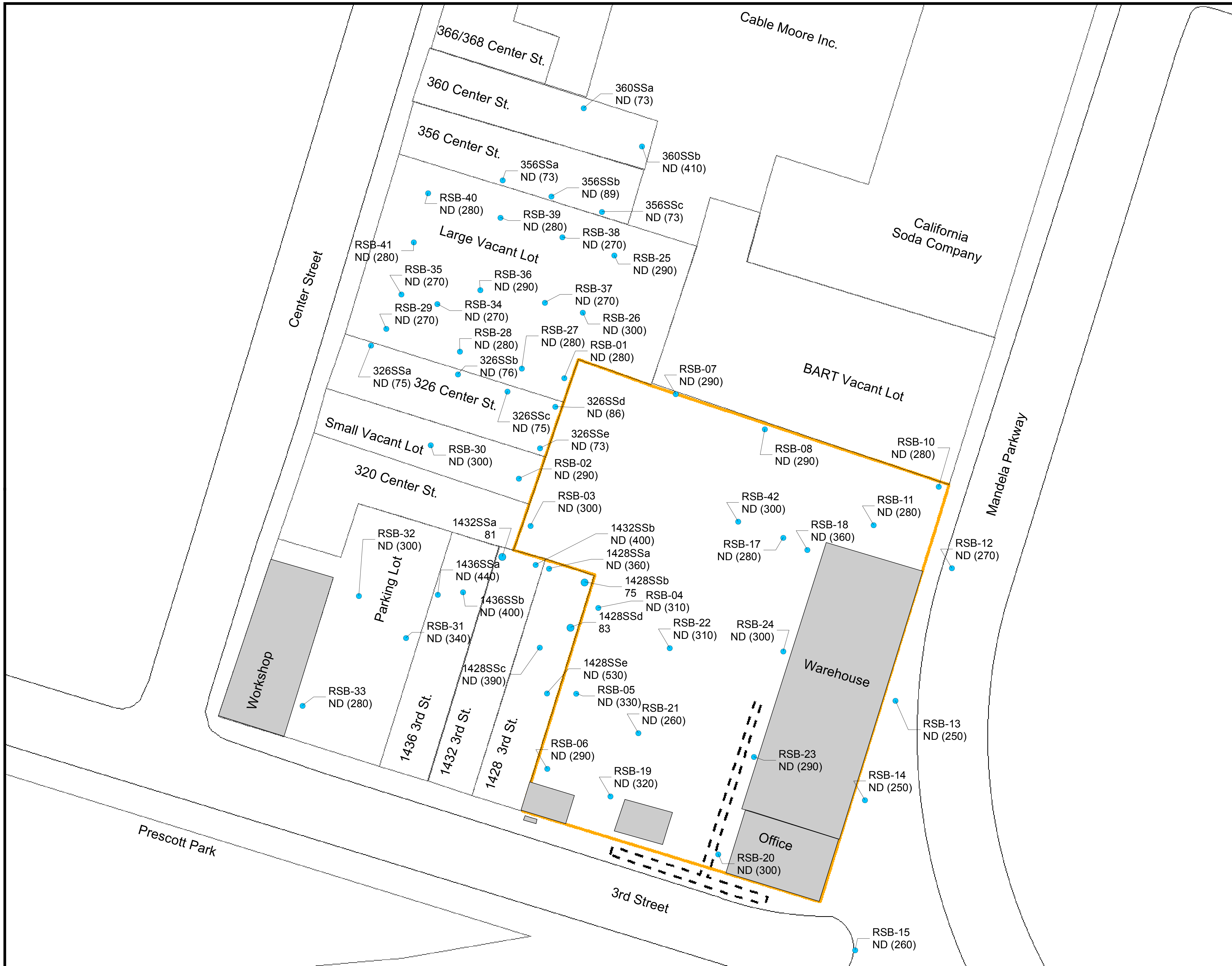
\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPVC_DEEP_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for 1,4-Dioxane, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for 1,4-Dioxane is 44,000 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Rejected data not shown.
7) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 39A
1,4-DIOXANE
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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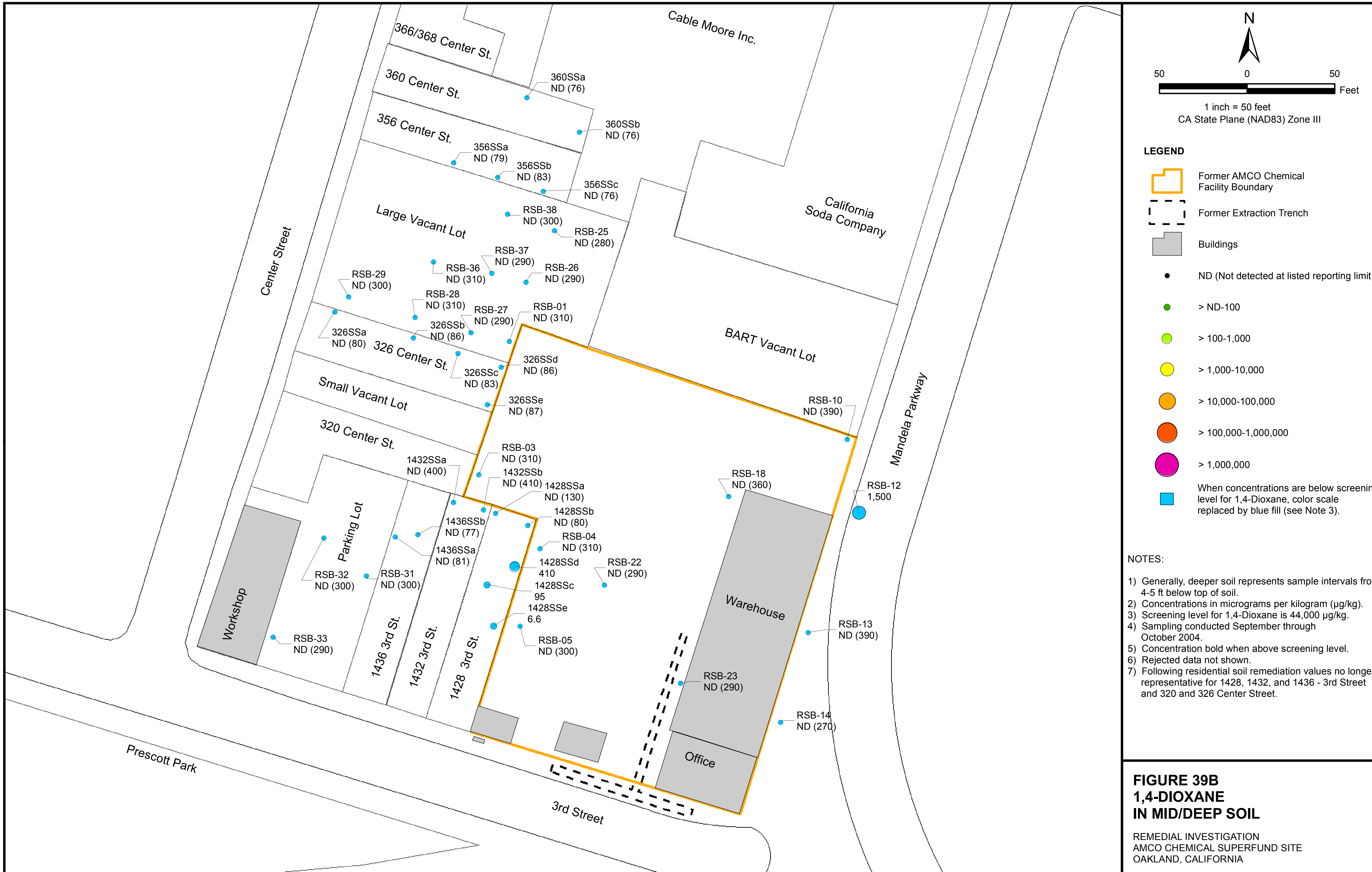

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for 1,4-Dioxane is 44,000 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Rejected data not shown.
7) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 39B
1,4-DIOXANE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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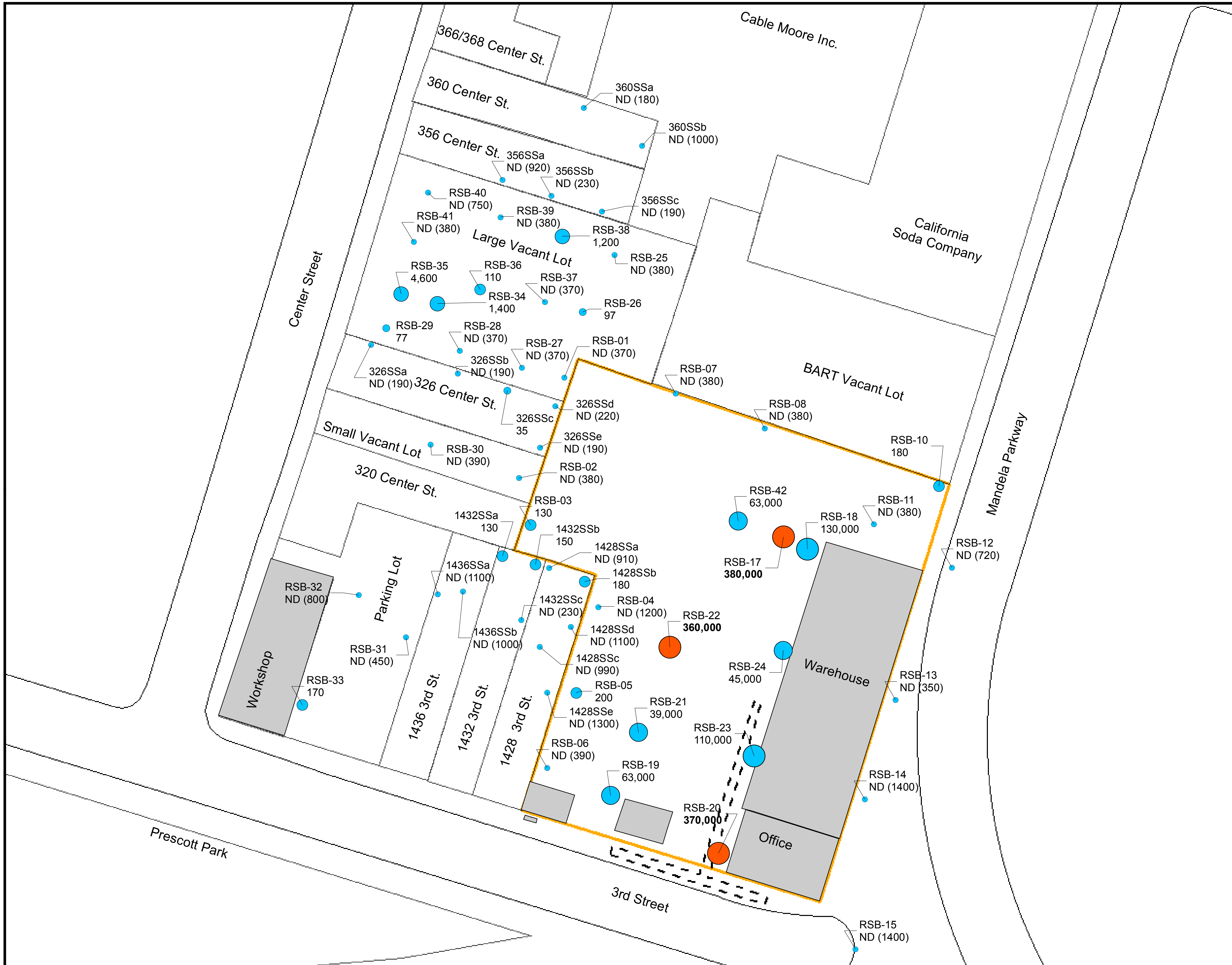

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for 2-Methylnapthalene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for 2-Methylnaphthalene is 150,000 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.

FIGURE 40A
2-METHYLNAPHTHALENE IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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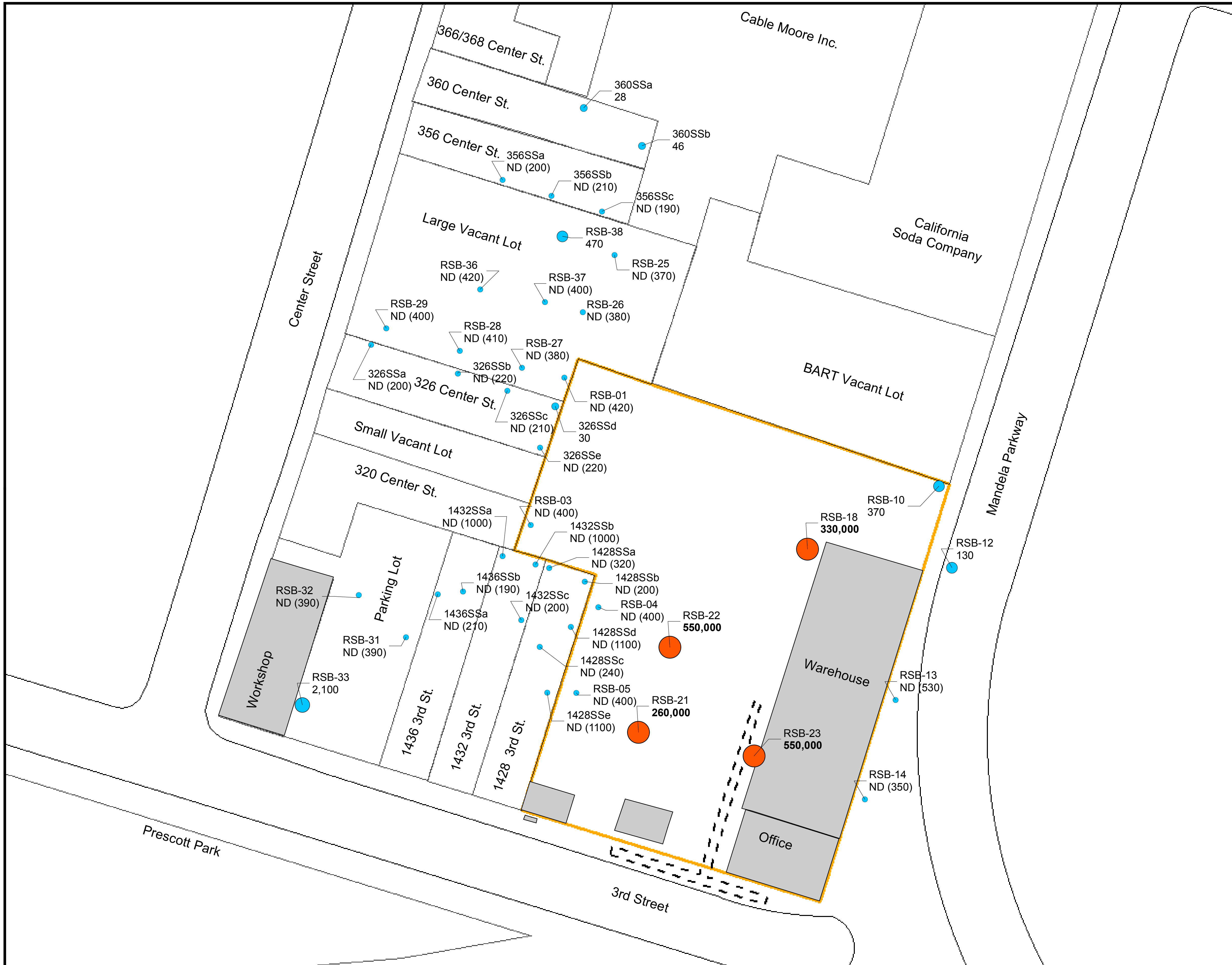

N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for 2-Methylnapthalene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for 2-Methylnaphthalene is 150,000 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.

FIGURE 40B
2-METHYLNAPHTHALENE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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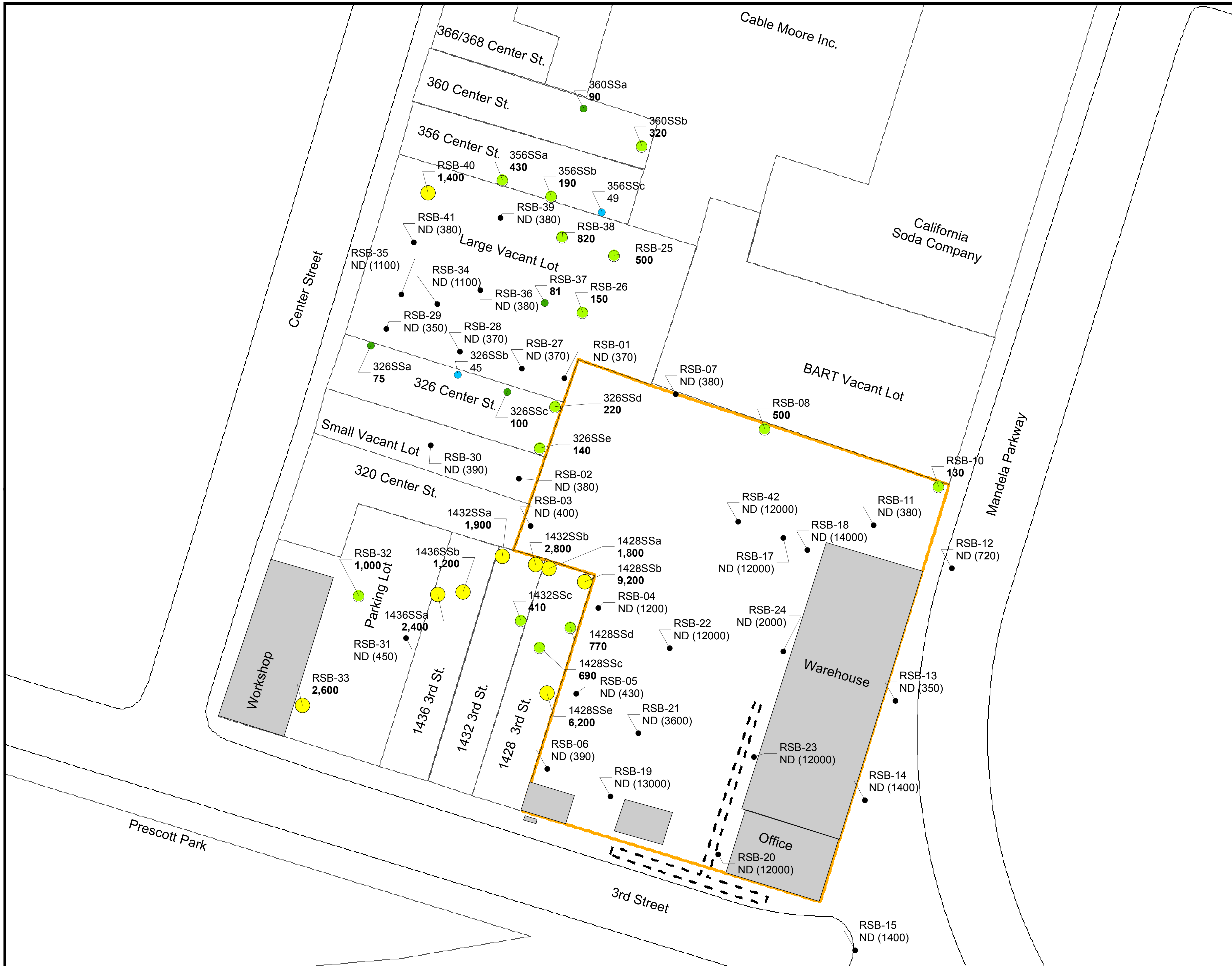

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

Former AMCO Chemical Facility Boundary

Former Extraction Trench

Buildings

ND (Not detected at listed reporting limit)

> ND-100

> 100-1,000

> 1,000-10,000

> 10,000-100,000

> 100,000-1,000,000

> 1,000,000

When concentrations are below screening level for Benzo(a)Pyrene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Benzo(a)Pyrene is 62 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 41A
BENZO(A)PYRENE
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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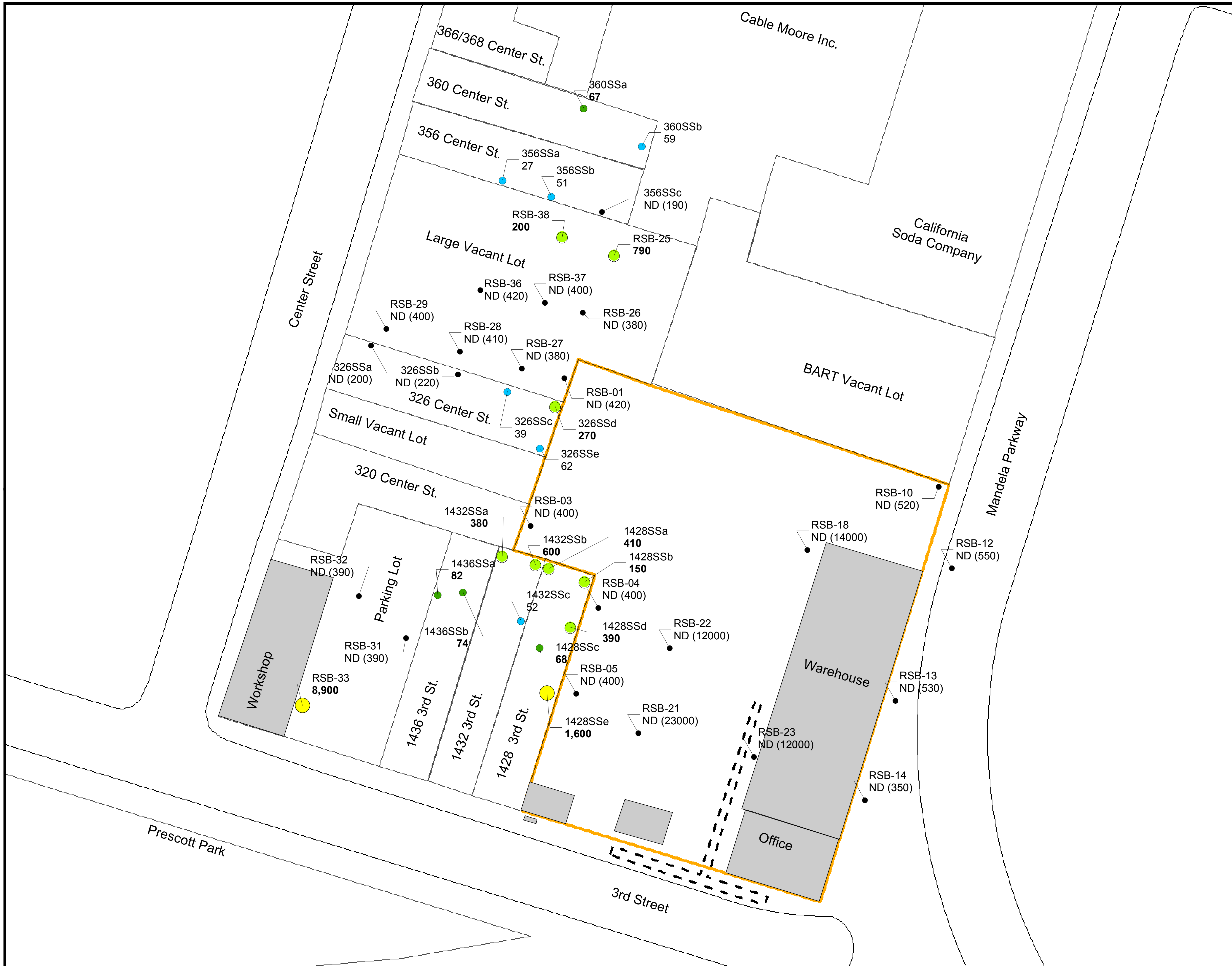

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Benzo(a)Pyrene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Benzo(a)Pyrene is 62 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 41B
BENZO(A)PYRENE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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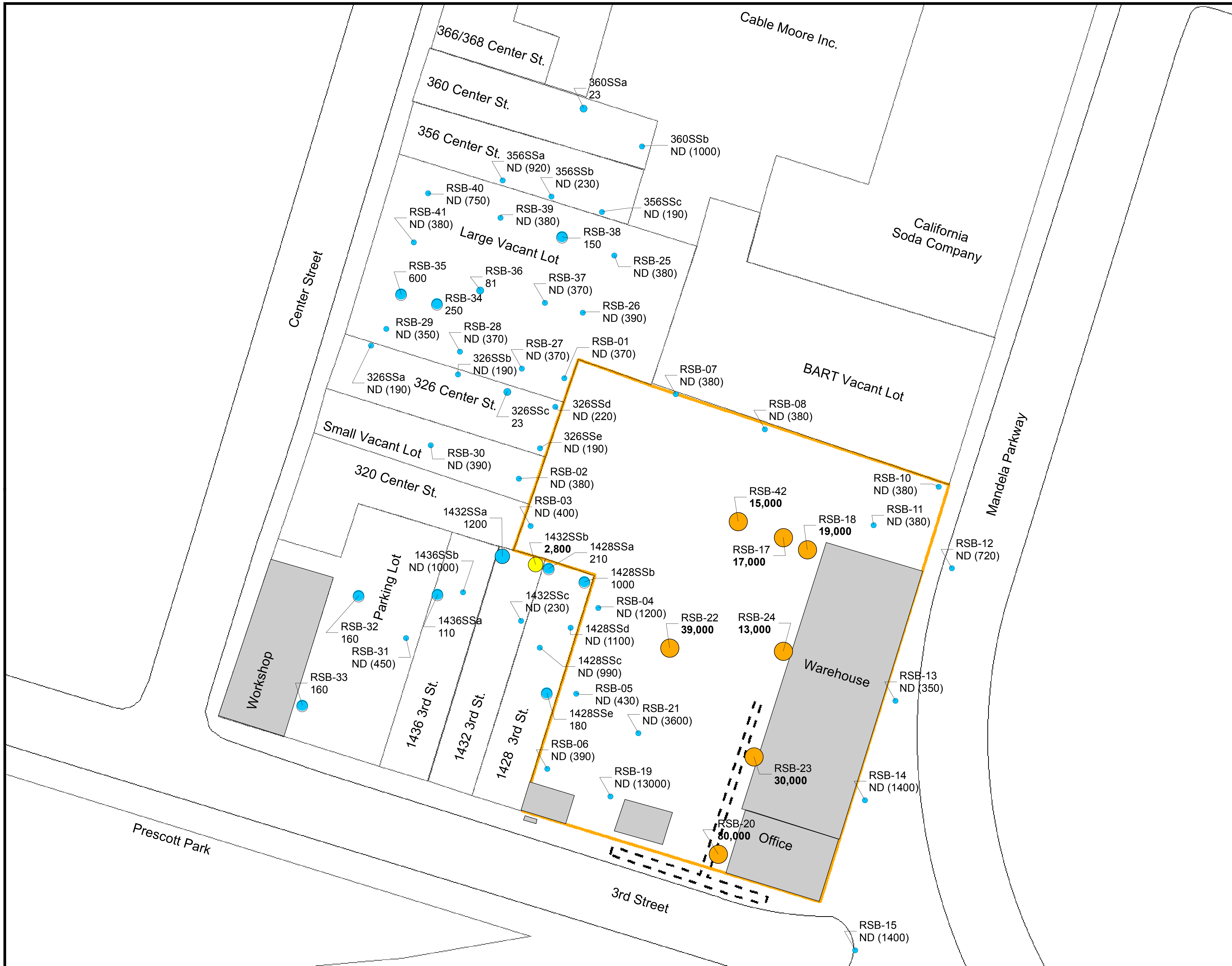

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Napthalene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Napthalene is 1,700 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 42A
NAPHTHALENE
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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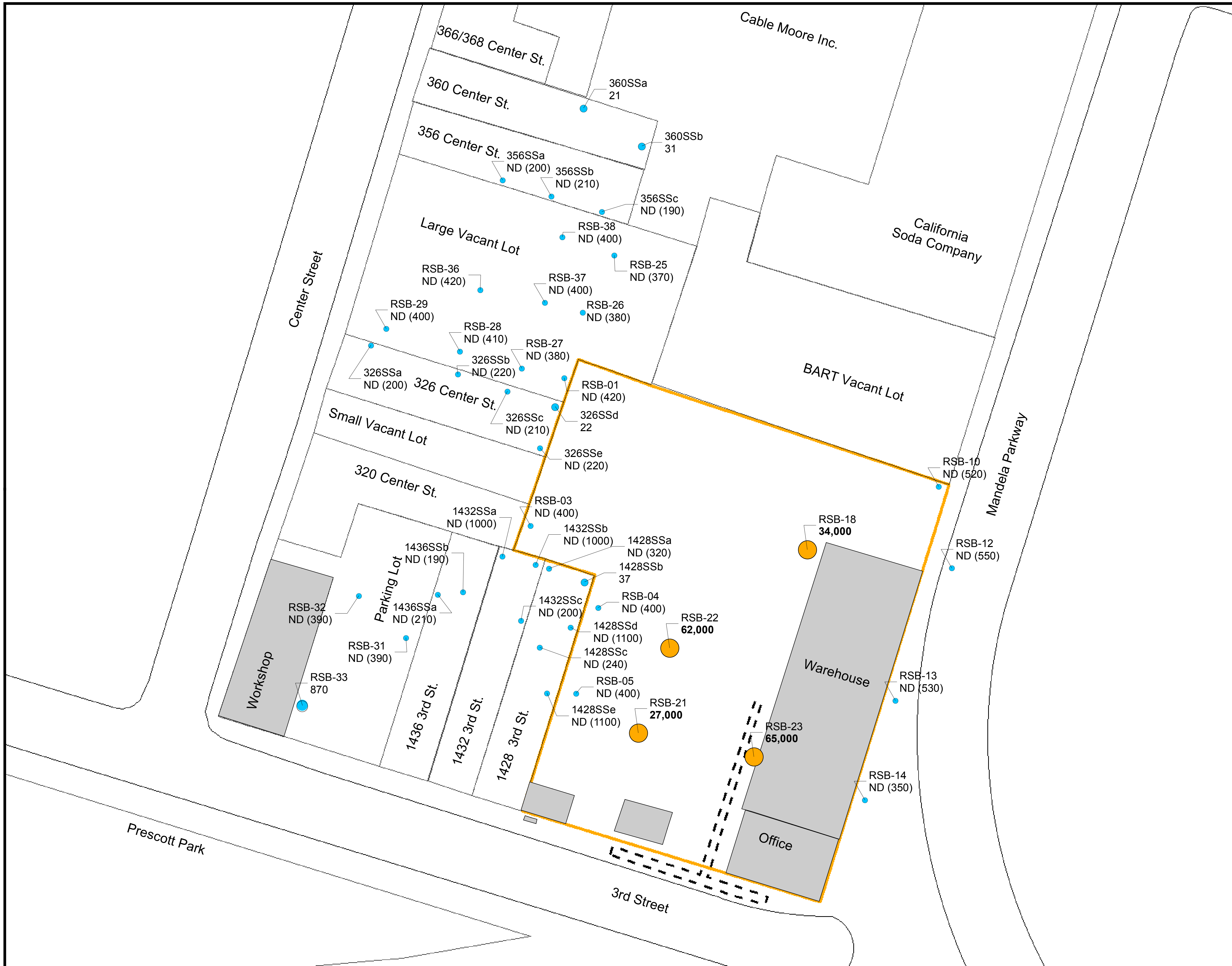

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Napthalene, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (μg/kg).
3) Screening level for Naphthalene is 1,700 μg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 42B
NAPHTHALENE
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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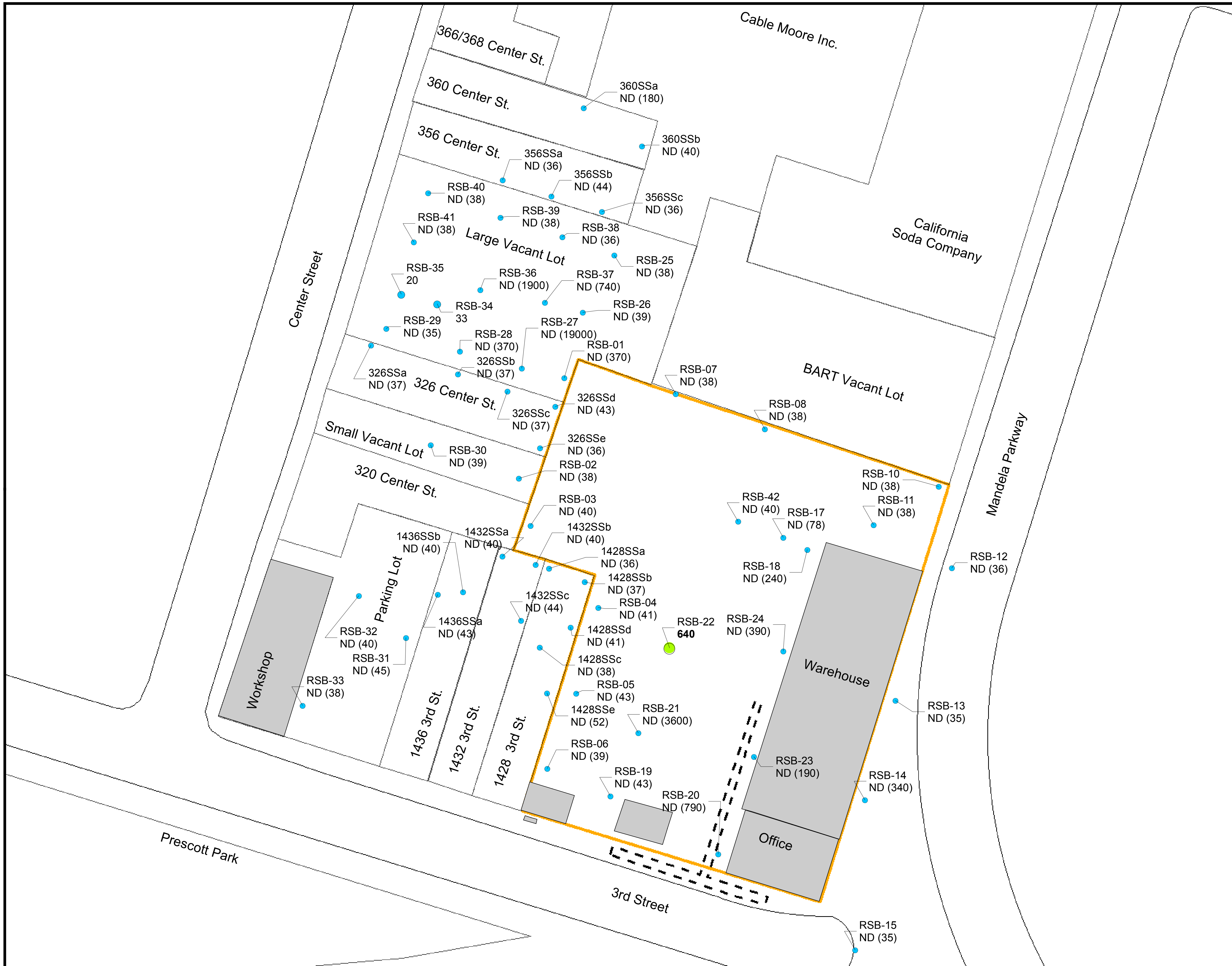

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Aroclor-1260, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Aroclor-1260 is 220 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 43A AROCLOR-1260 IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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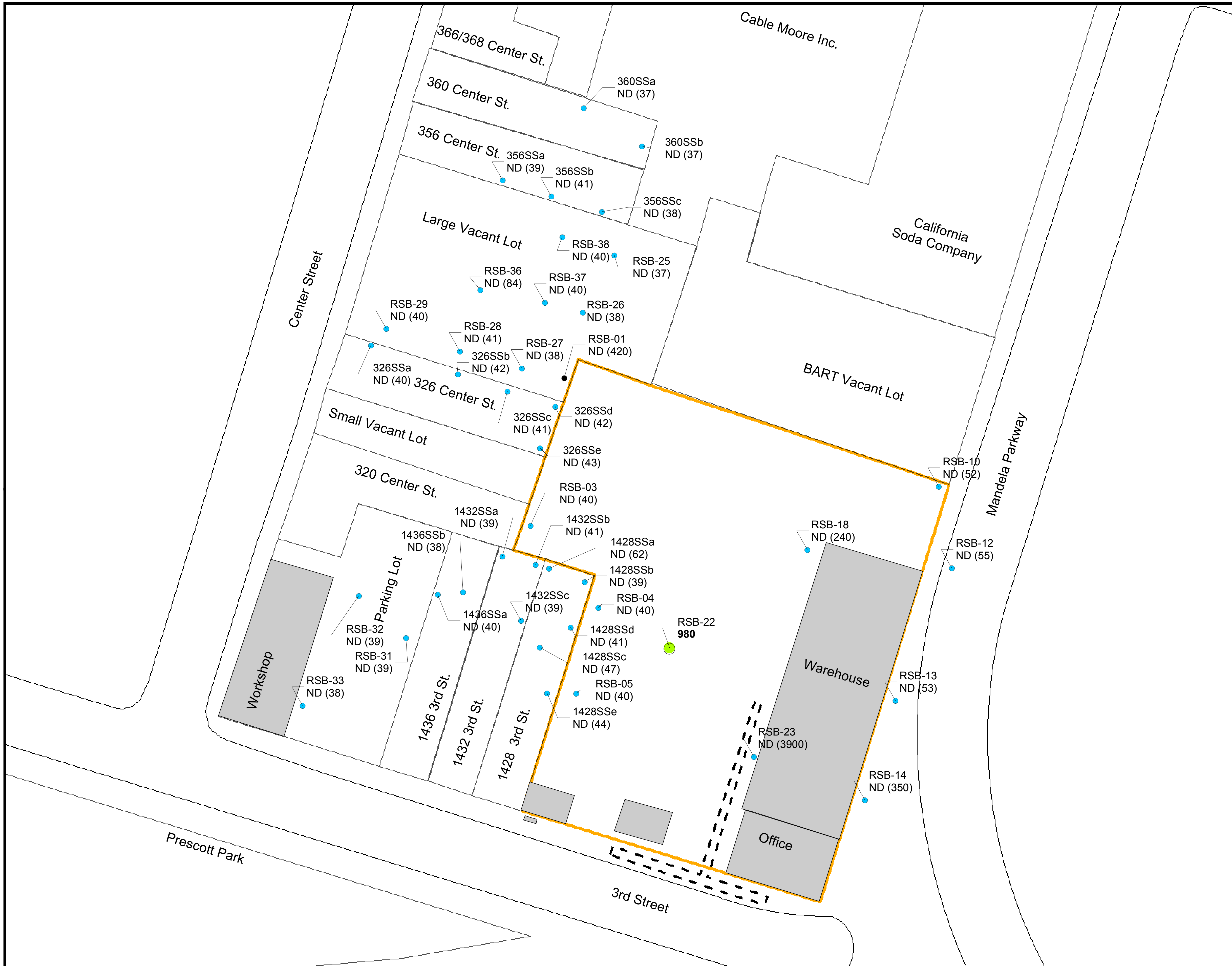

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Aroclor-1260, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Aroclor-1260 is 220 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 43B
AROCLOR-1260
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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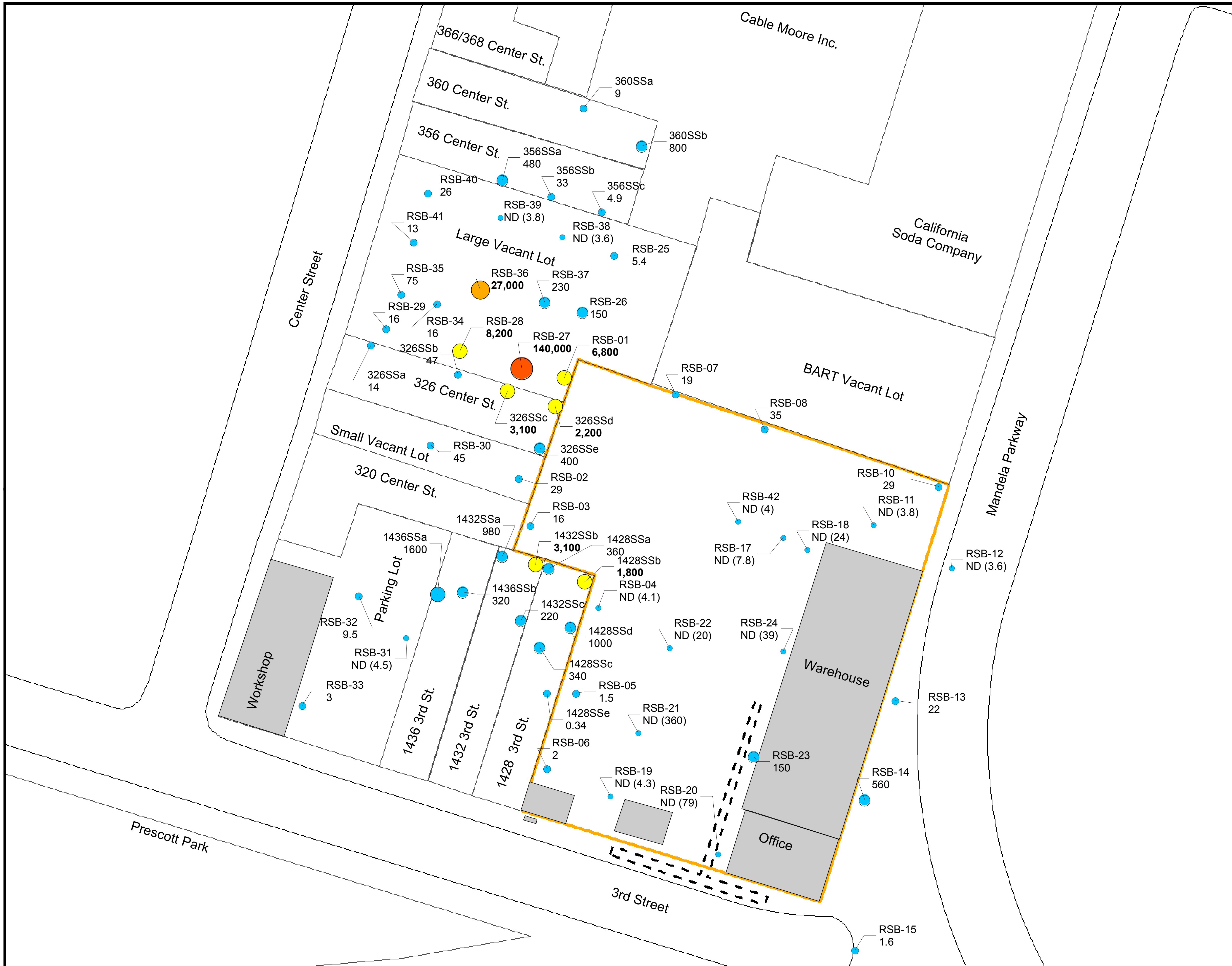

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for 4,4'-DDT, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for 4,4'-DDT is 1,700 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 44A
4,4'-DDT
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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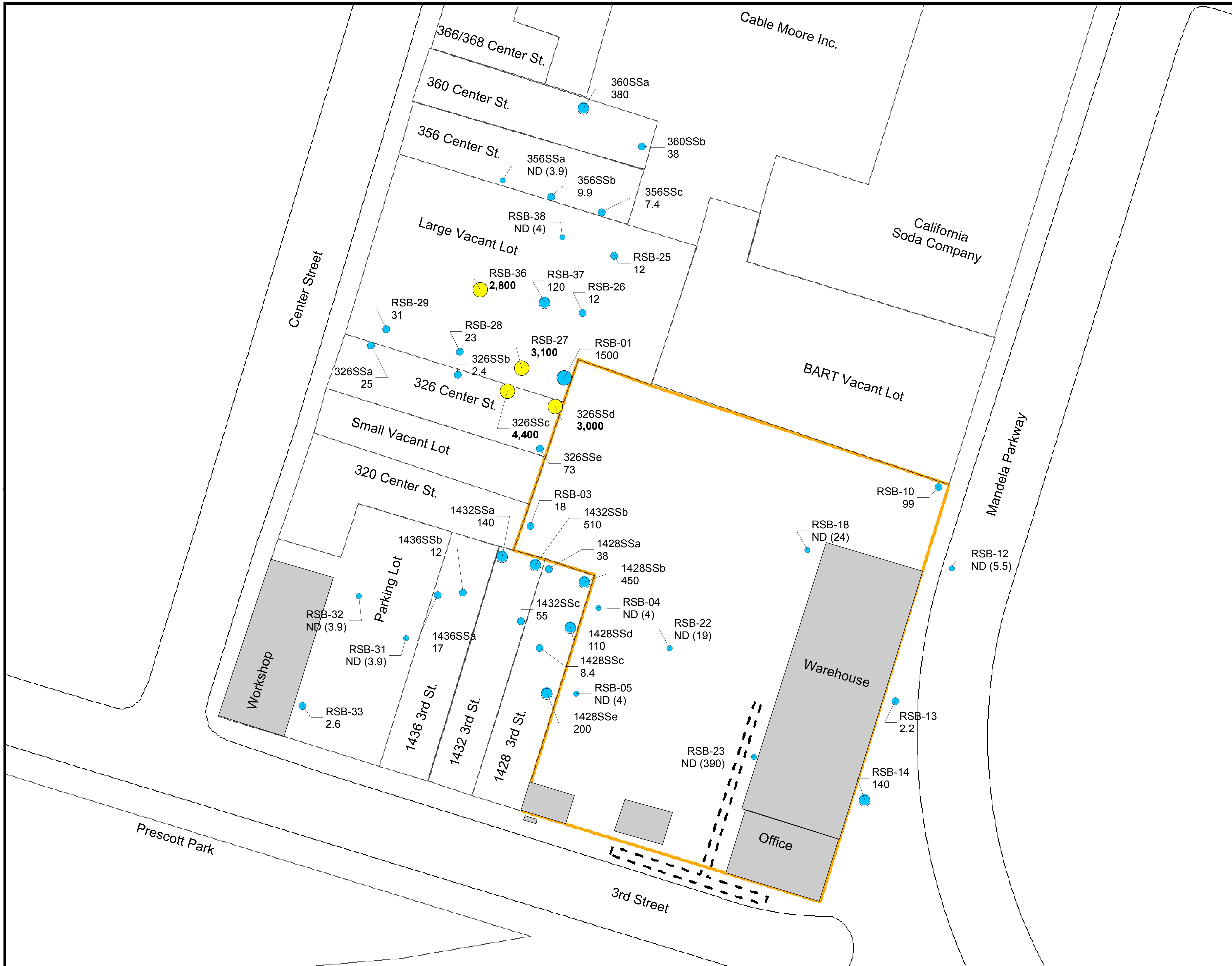

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for 4,4'-DDT, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for 4,4'-DDT is 1,700 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 44B
4,4'-DDT
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPDDT_DEEP_RSB.MXD MCLAY1 1/4/2011

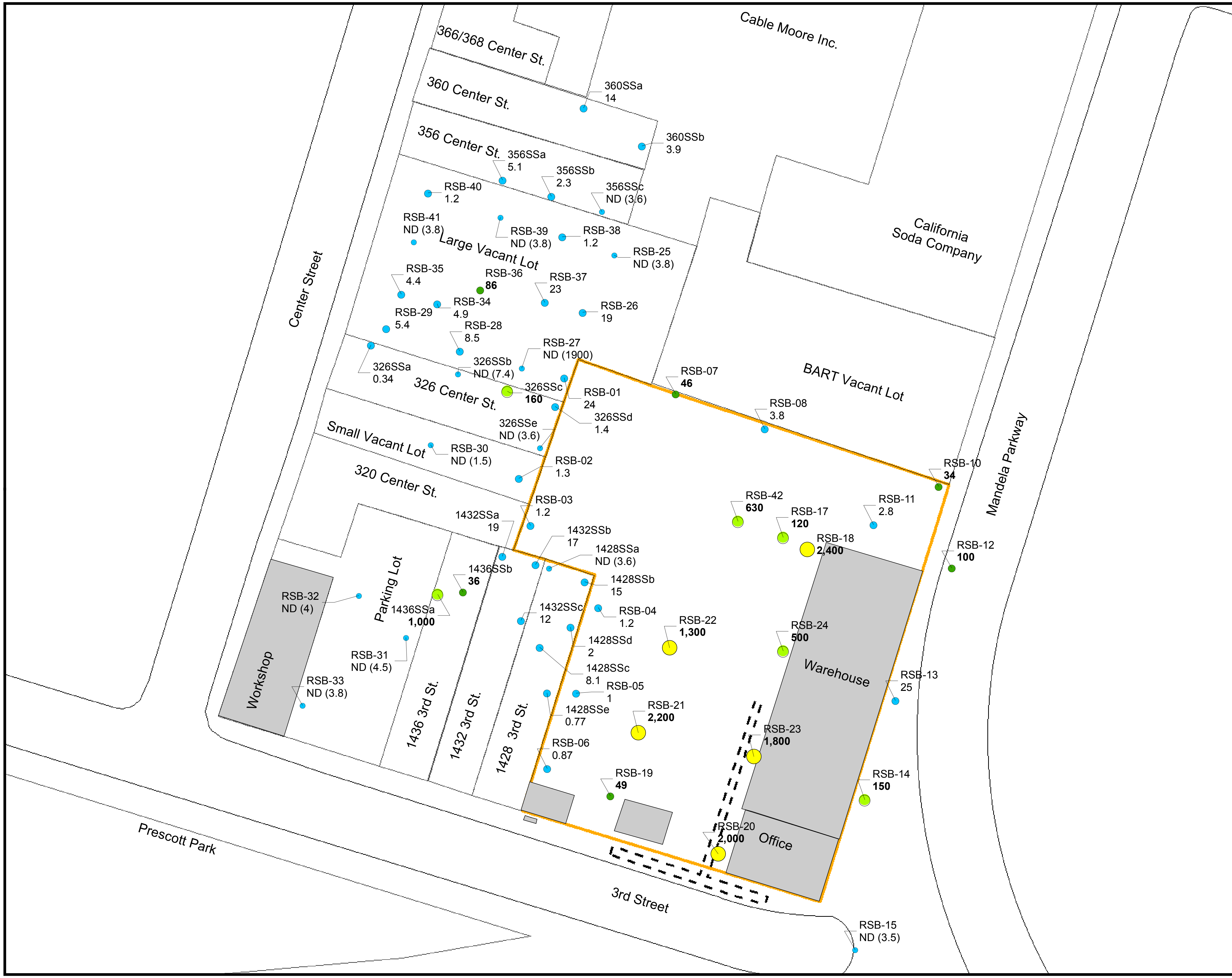

FIGURE 45A
DIELDRIN
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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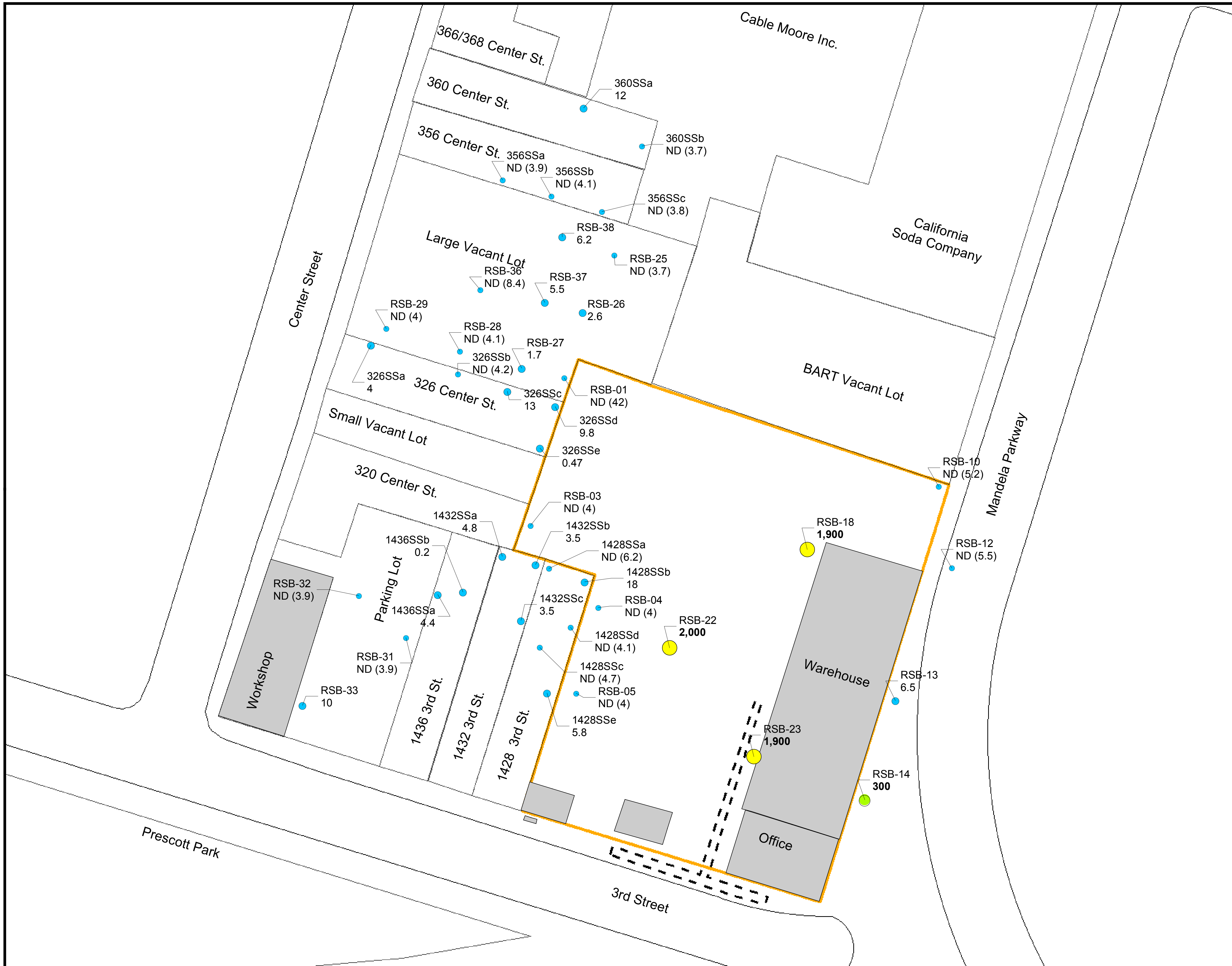


1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Dieldrin, color scale replaced by blue fill (see Note 3).

NOTES:

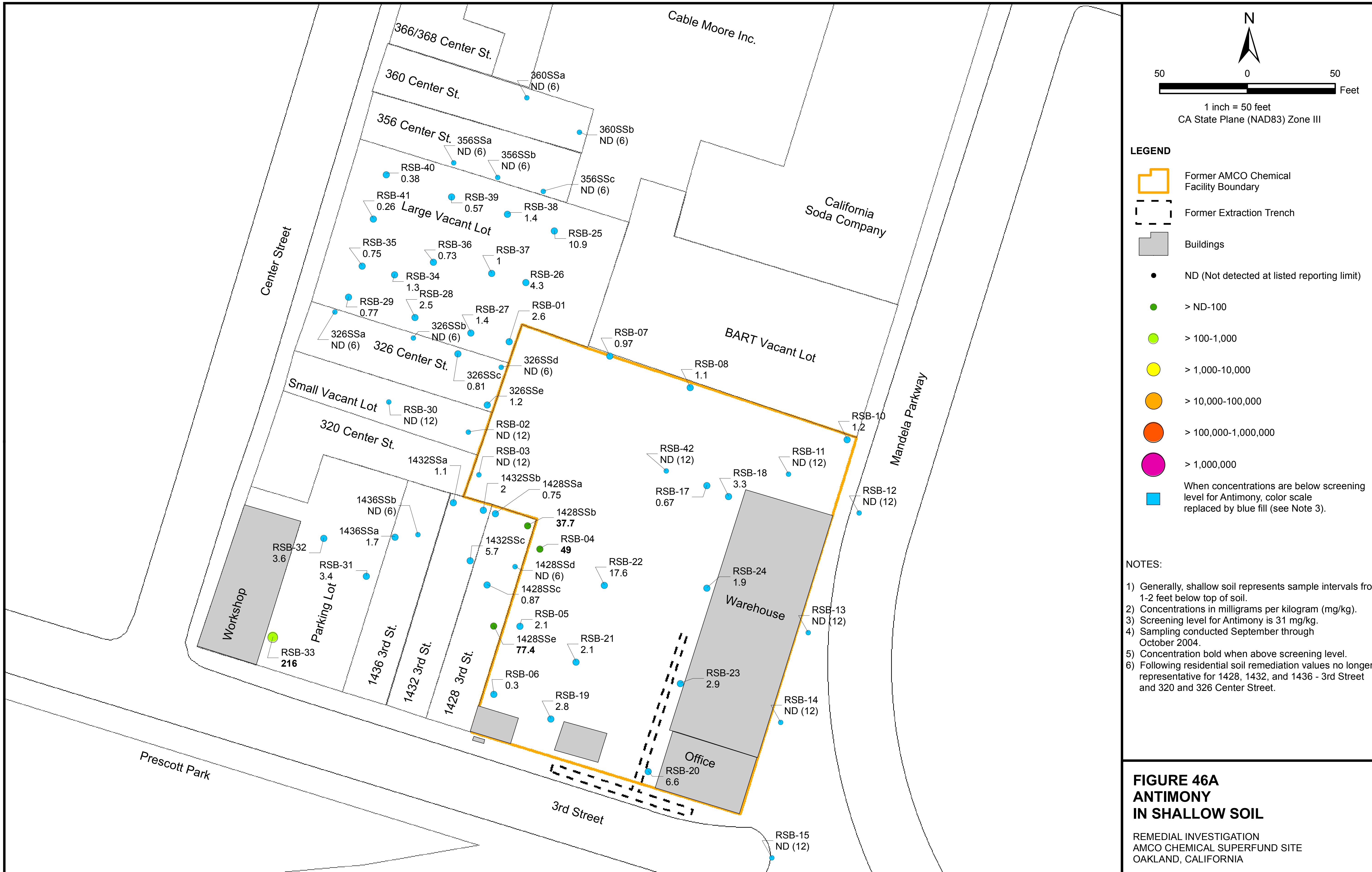
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in micrograms per kilogram (µg/kg).
3) Screening level for Dieldrin is 30 µg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 45B
DIELDRIN
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPDIELDRIN_DEEP_RSB.MXD MCLAY1 1/4/2011



NOTES:

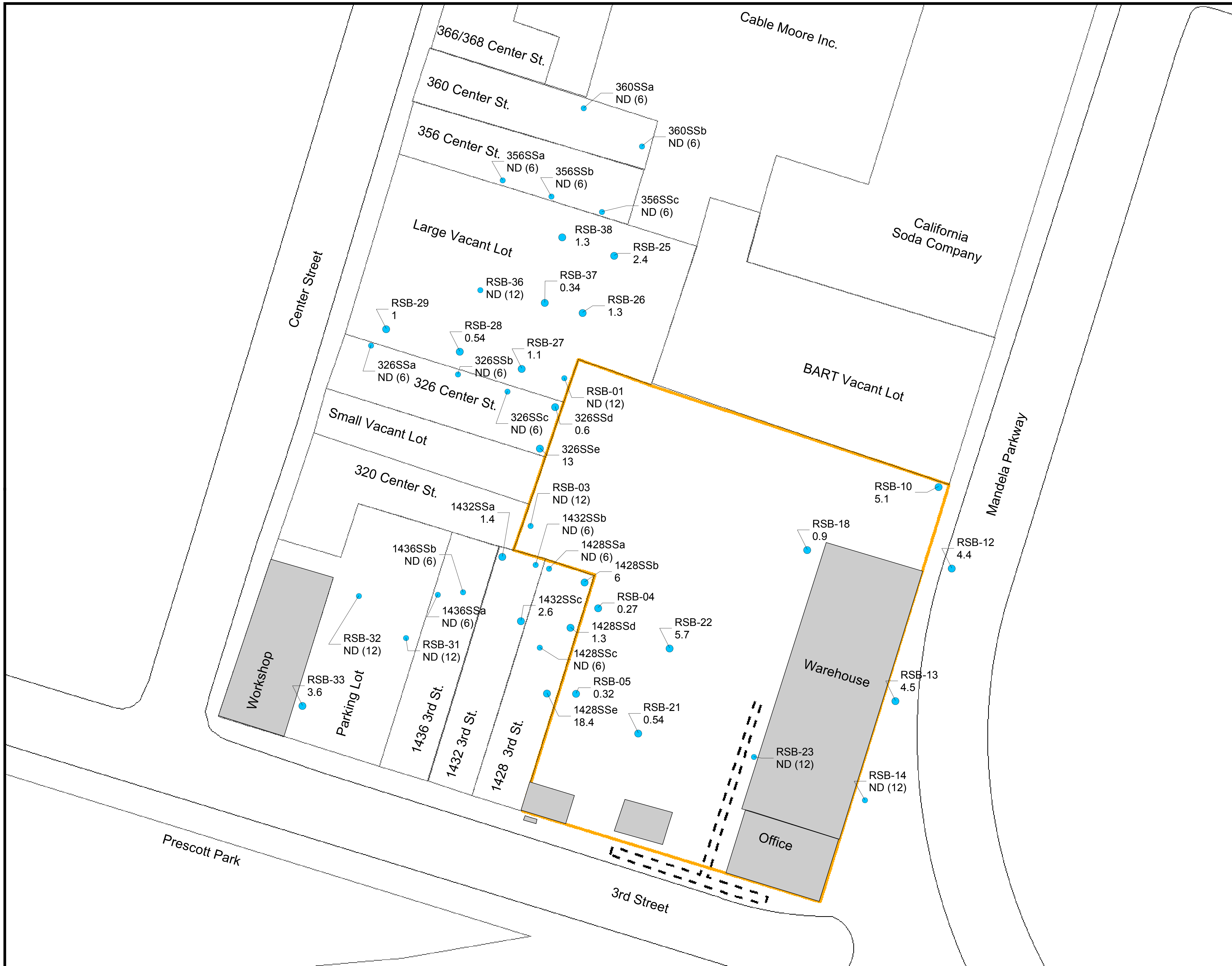
1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Antimony is 31 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 46A
ANTIMONY
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPSB_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Antimony, color scale replaced by blue fill (see Note 3).

NOTES:

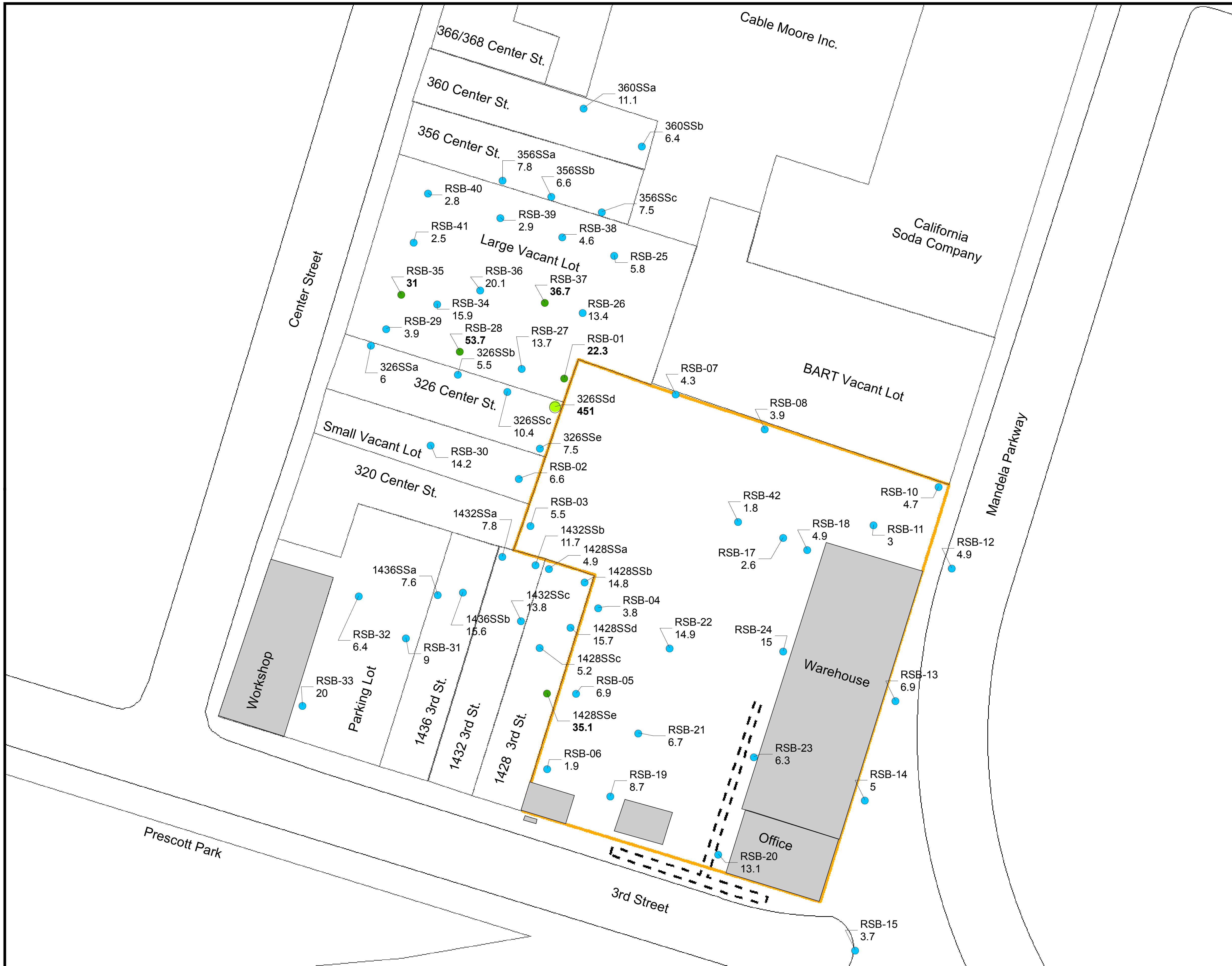
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Antimony is 31 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 46B
ANTIMONY
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPSB_DEEP_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Arsenic, color scale replaced by blue fill (see Note 3).

NOTES:

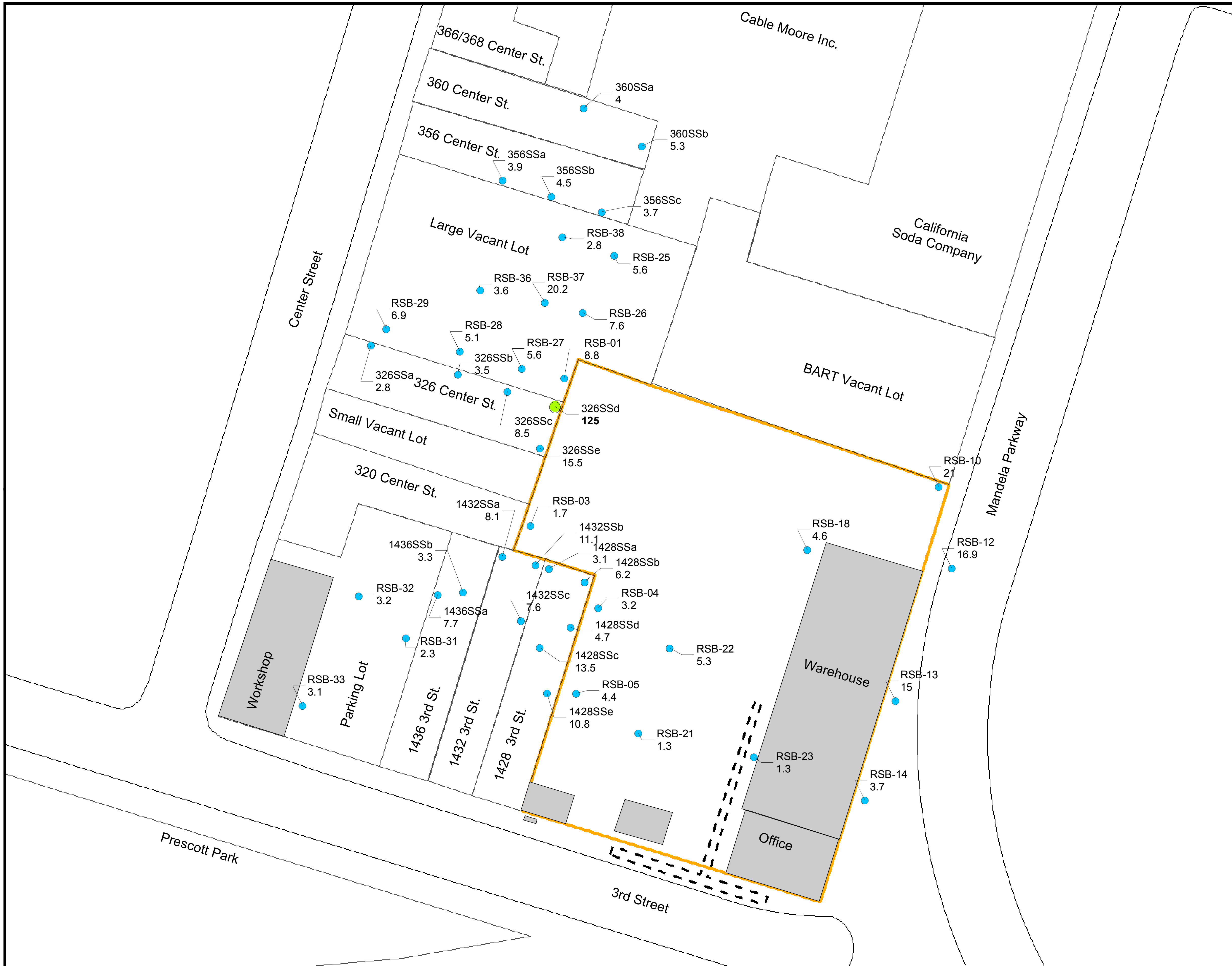
1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Arsenic is 22 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 47A
ARSENIC
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPAS_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Arsenic, color scale replaced by blue fill (see Note 3).

NOTES:

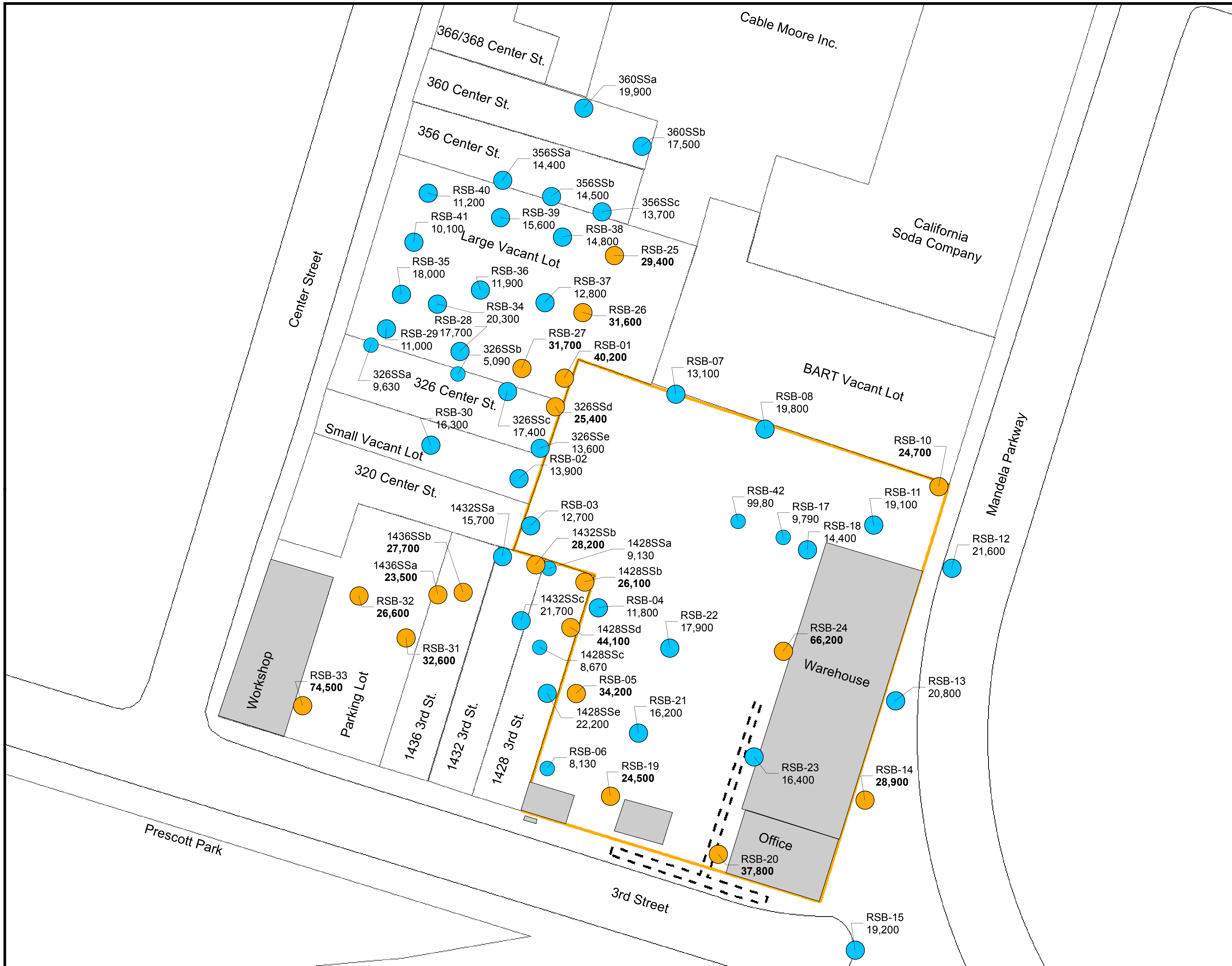
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Arsenic is 22 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 47B
ARSENIC
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPAS_DEEP_RSB.MXD MCLAY1 1/4/2011



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Iron, color scale replaced by blue fill (see Note 3).

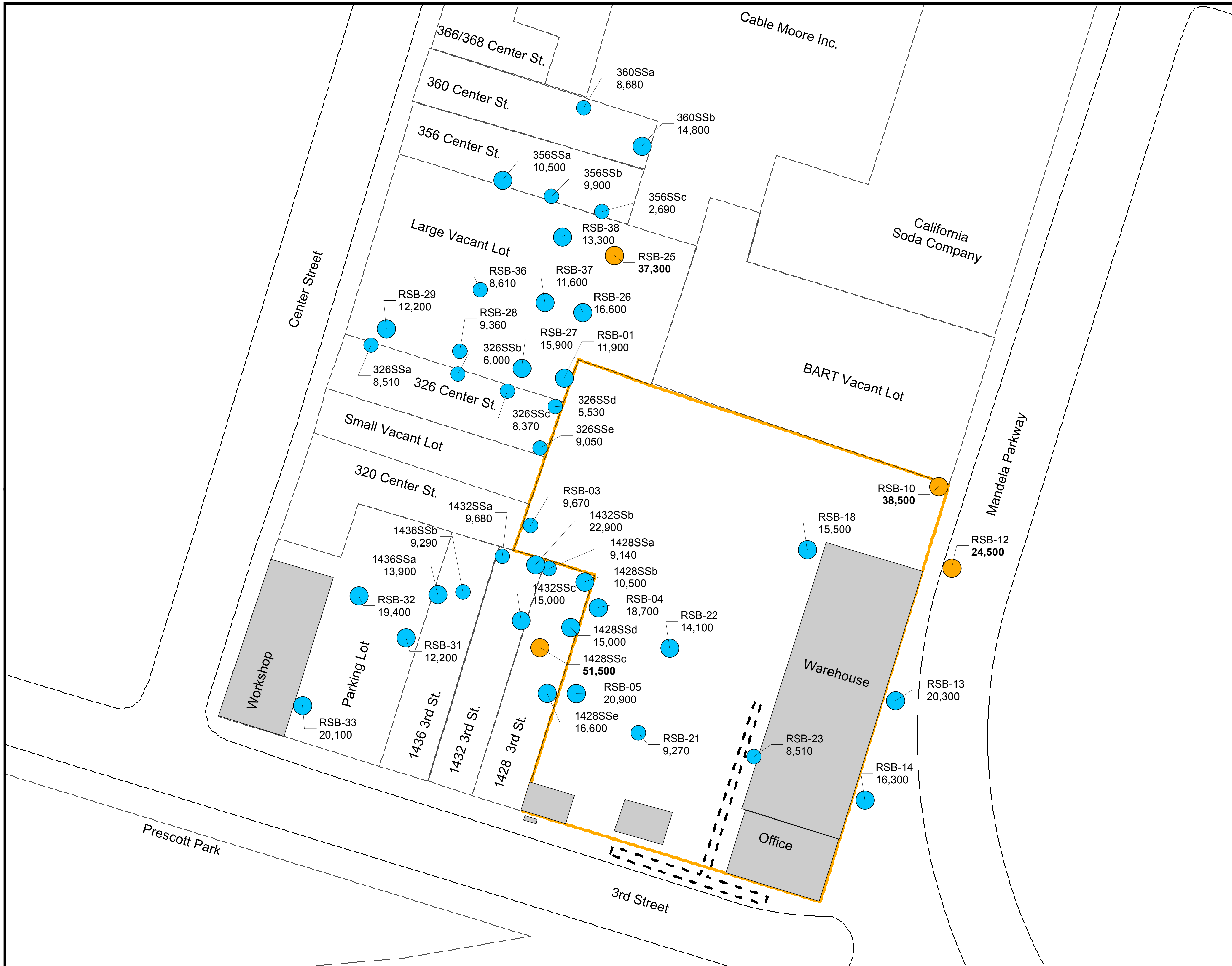
NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Iron is 23,000 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 48A
IRON
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Iron, color scale replaced by blue fill (see Note 3).

NOTES:

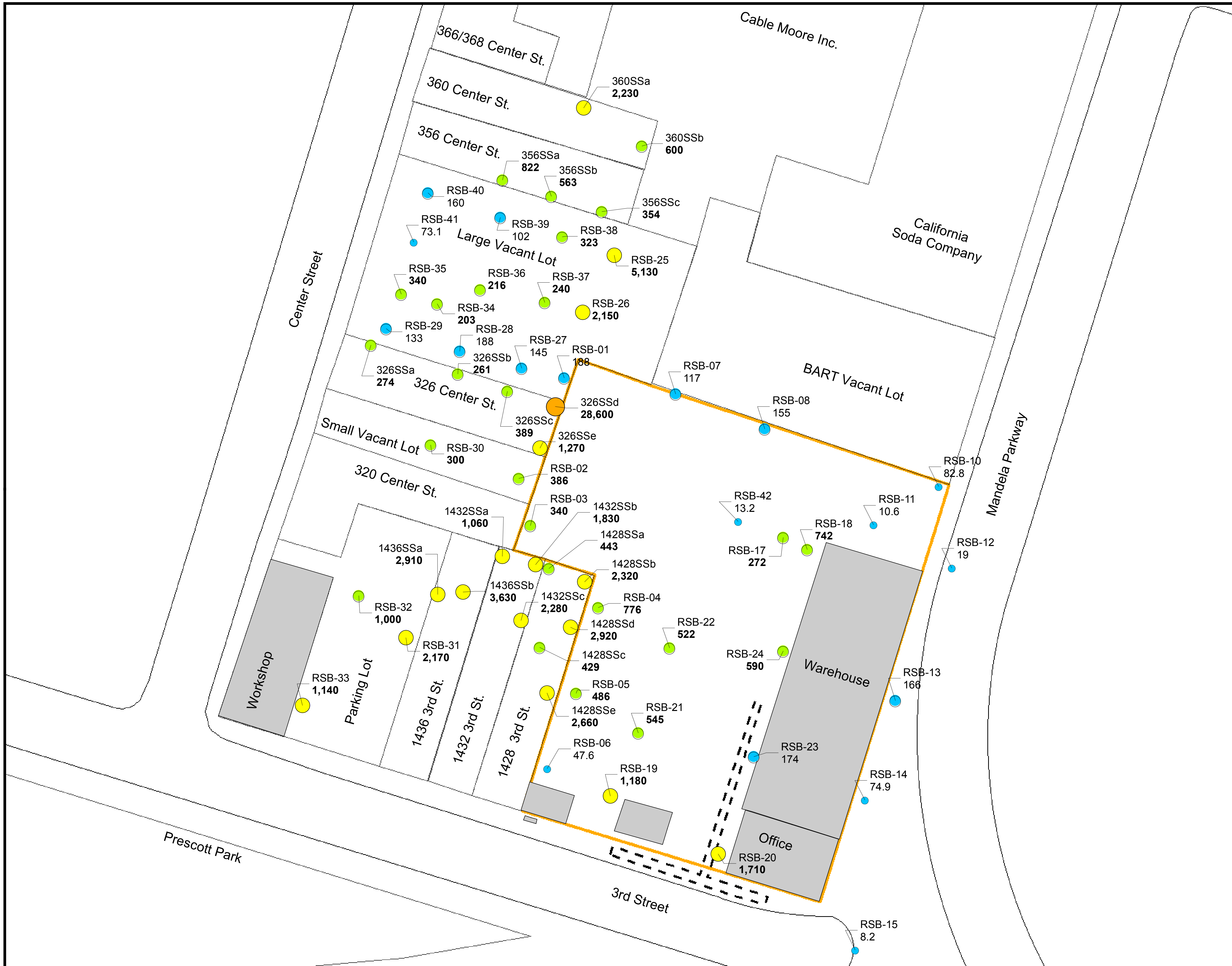
1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Iron is 23,000 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 48B
IRON
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\US_ENVIRONMENTAL_PROTECTION_AGENCY\335389\GIS\AMCO\GIS\MXDS\2011\RI_REPORTING\RSB\ANALYTE_MAPFE_DEEP_RSB.MXD MCLAY1 1/4/2011



LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Lead, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Lead is 194 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 49A
LEAD
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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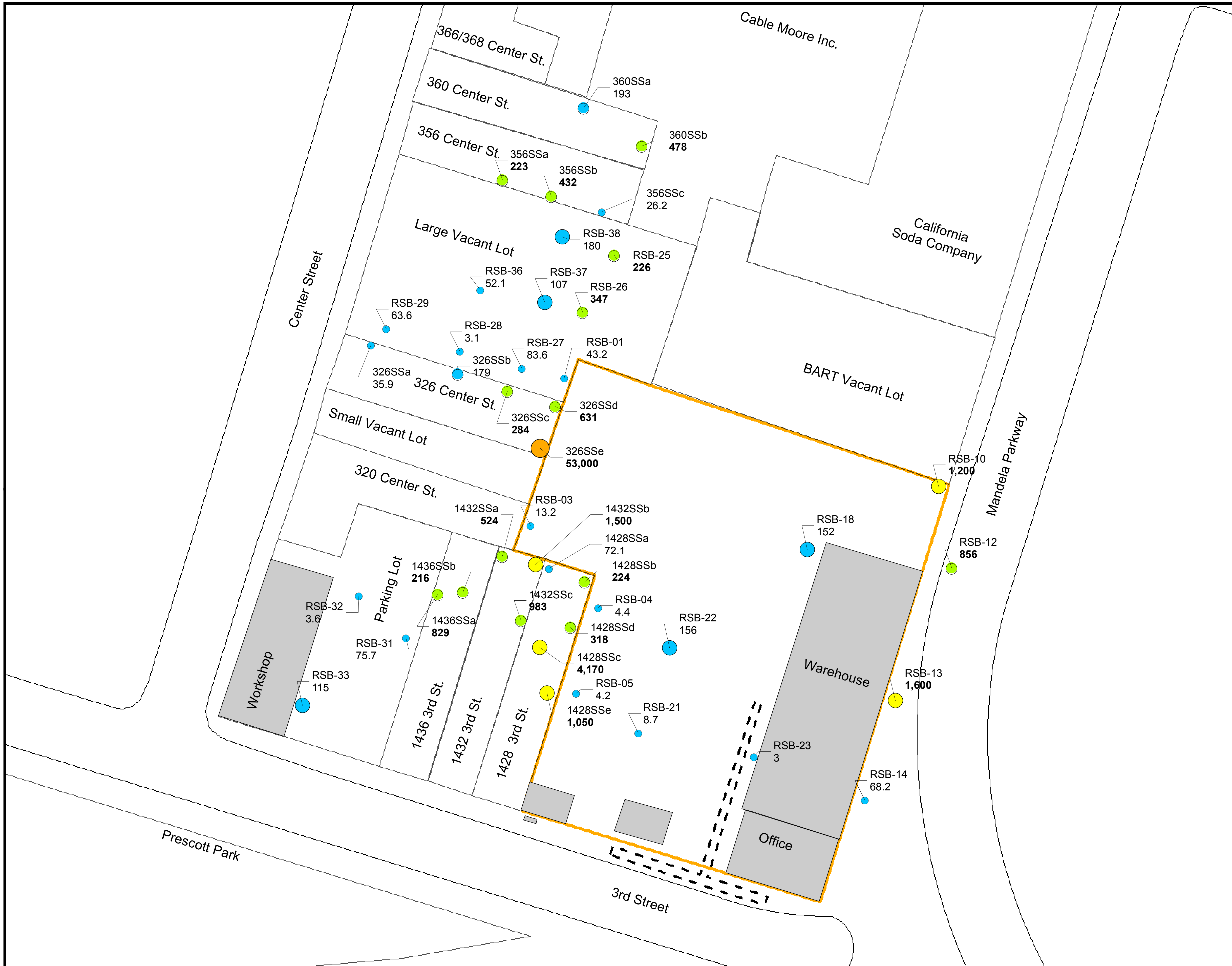

N

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Lead, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Lead is 194 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 49B
LEAD
IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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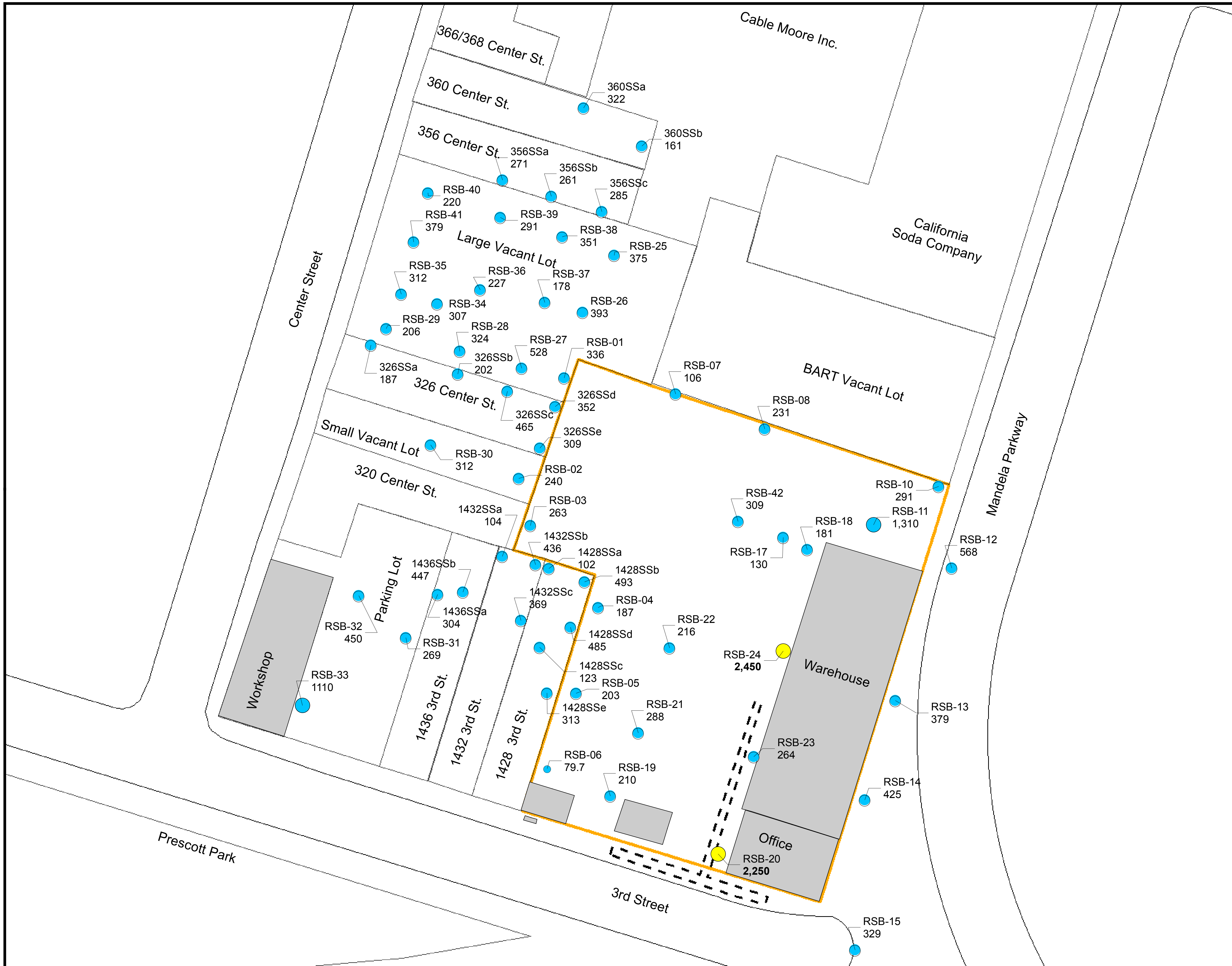

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Manganese, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, shallow soil represents sample intervals from 1-2 feet below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Manganese is 1,800 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 50A
MANGANESE
IN SHALLOW SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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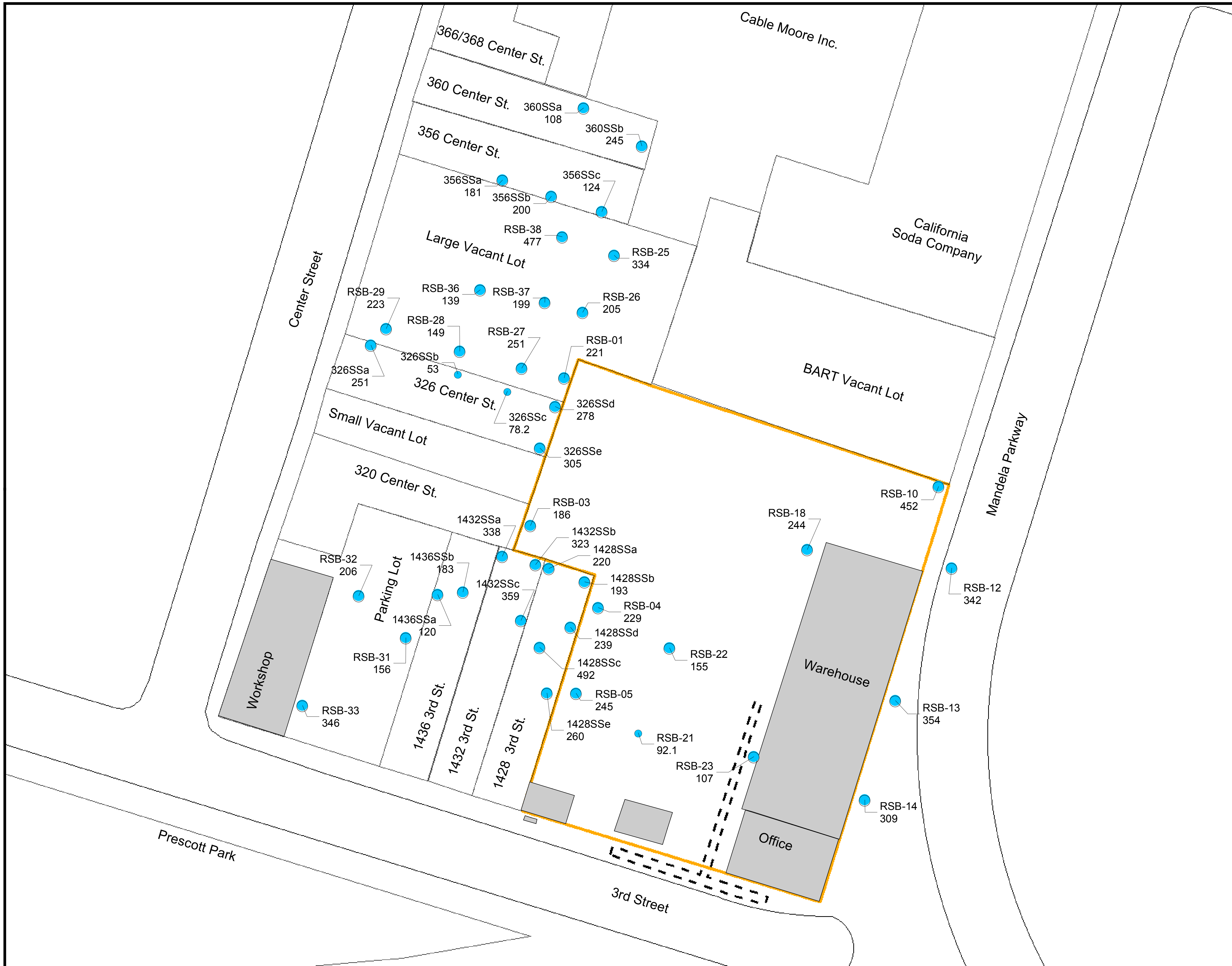

50 0 50 Feet

1 inch = 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Manganese, color scale replaced by blue fill (see Note 3).

NOTES:

1) Generally, deeper soil represents sample intervals from 4-5 ft below top of soil.
2) Concentrations in milligrams per kilogram (mg/kg).
3) Screening level for Manganese is 1,800 mg/kg.
4) Sampling conducted September through October 2004.
5) Concentration bold when above screening level.
6) Following residential soil remediation values no longer representative for 1428, 1432, and 1436 - 3rd Street and 320 and 326 Center Street.

FIGURE 50B MANGANESE IN MID/DEEP SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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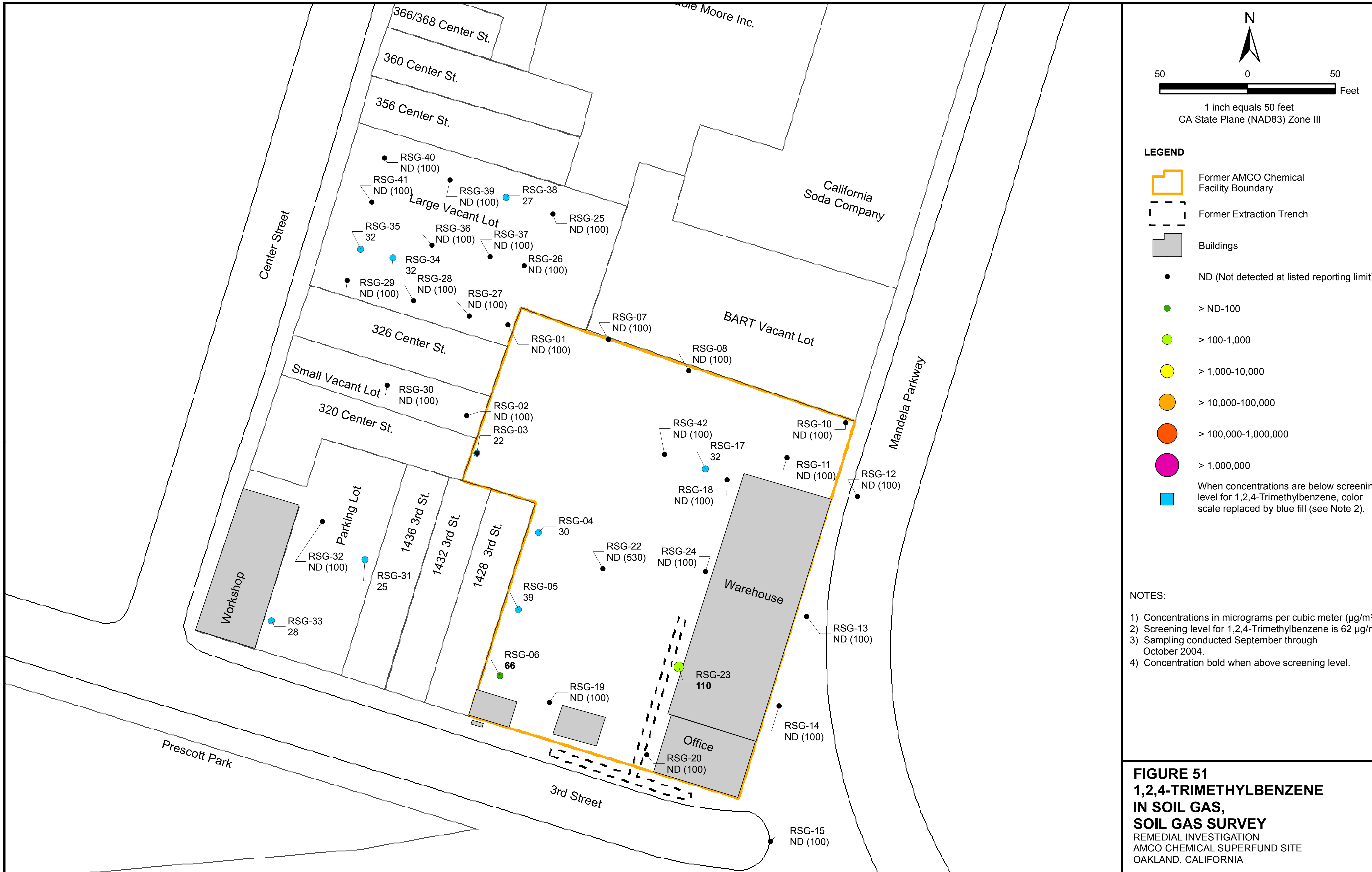

NOTES:

1) Concentrations in micrograms per cubic meter (µg/m³).
2) Screening level for 1,2,4-Trimethylbenzene is 62 µg/m³.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 51
1,2,4-TRIMETHYLBENZENE IN SOIL GAS, SOIL GAS SURVEY
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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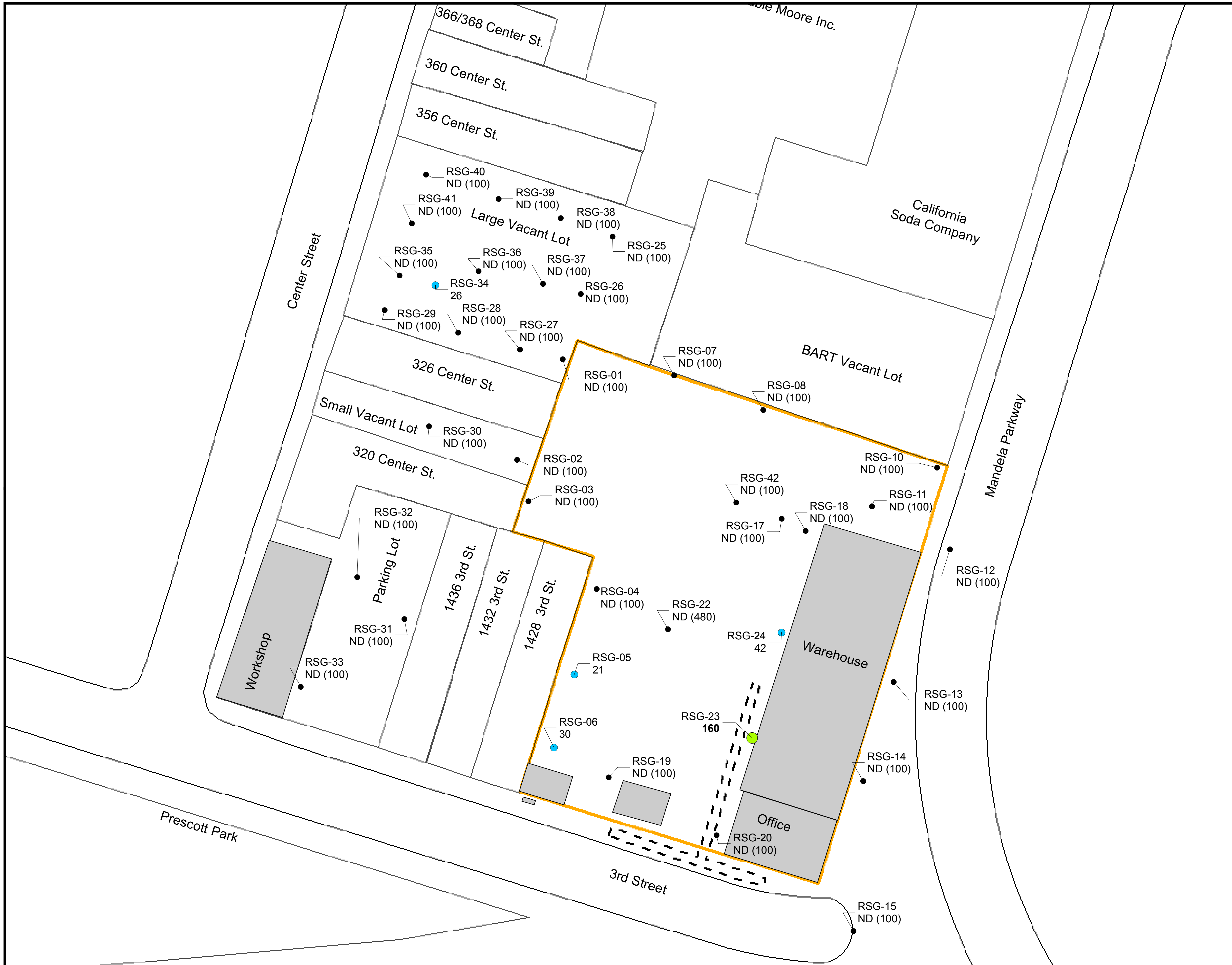

N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for 1,3,5-Trimethylbenzene, color scale replaced by blue fill (see Note 2).

NOTES:

1) Concentrations in micrograms per cubic meter (µg/m³).
2) Screening level for 1,3,5-Trimethylbenzene is 62 µg/m³.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 52
1,3,5-TRIMETHYLBENZENE IN SOIL GAS, SOIL GAS SURVEY
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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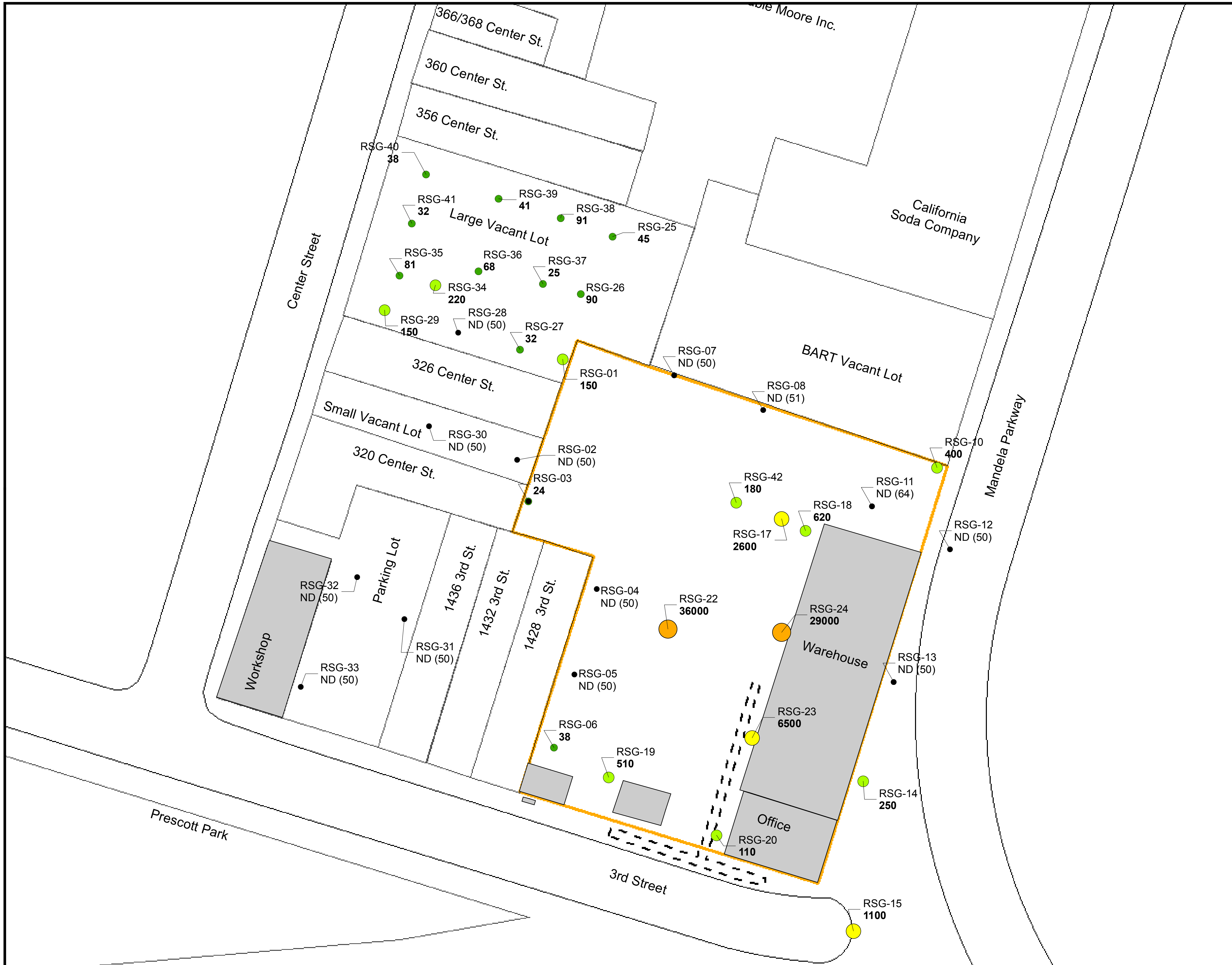


N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Benzene, color scale replaced by blue fill (see Note 2).

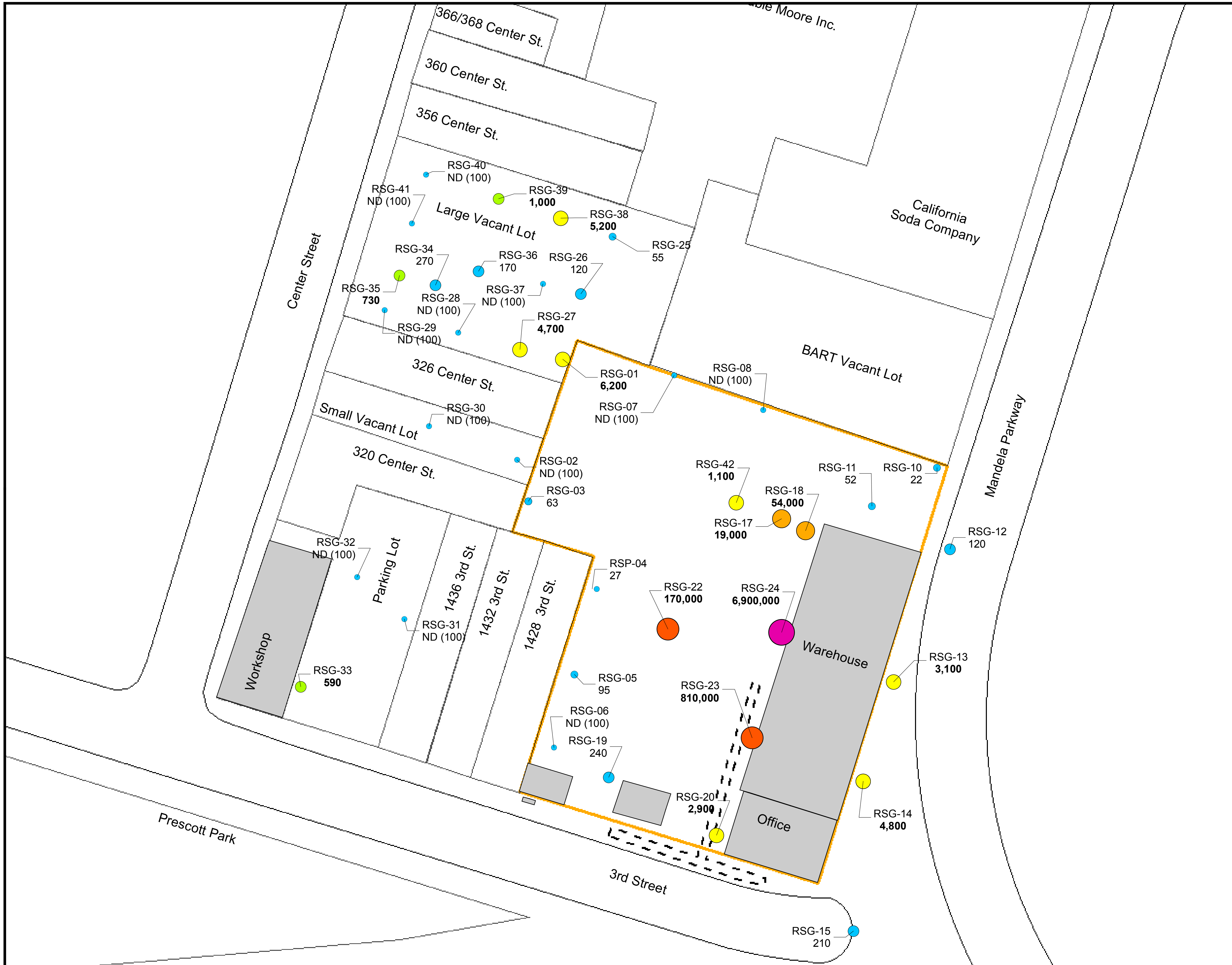
NOTES:

1) Concentrations in micrograms per cubic meter (μg/m³).
2) Screening level for Benzene is 2.5 μg/m³.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 53
BENZENE IN SOIL GAS, SOIL GAS SURVEY

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

Former AMCO Chemical Facility Boundary
Former Extraction Trench
Buildings
ND (Not detected at listed reporting limit)
> ND-100
> 100-1,000
> 1,000-10,000
> 10,000-100,000
> 100,000-1,000,000
> 1,000,000
When concentrations are below screening level for cis-1,2-Dichloroethene, color scale replaced by blue fill (see Note 2).

NOTES:

1) Concentrations in micrograms per cubic meter (μg/m³).
2) Screening level for cis-1,2-Dichloroethene is 370 μg/m³.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 54
cis-1,2-DICHLOROETHENE IN SOIL GAS, SOIL GAS SURVEY

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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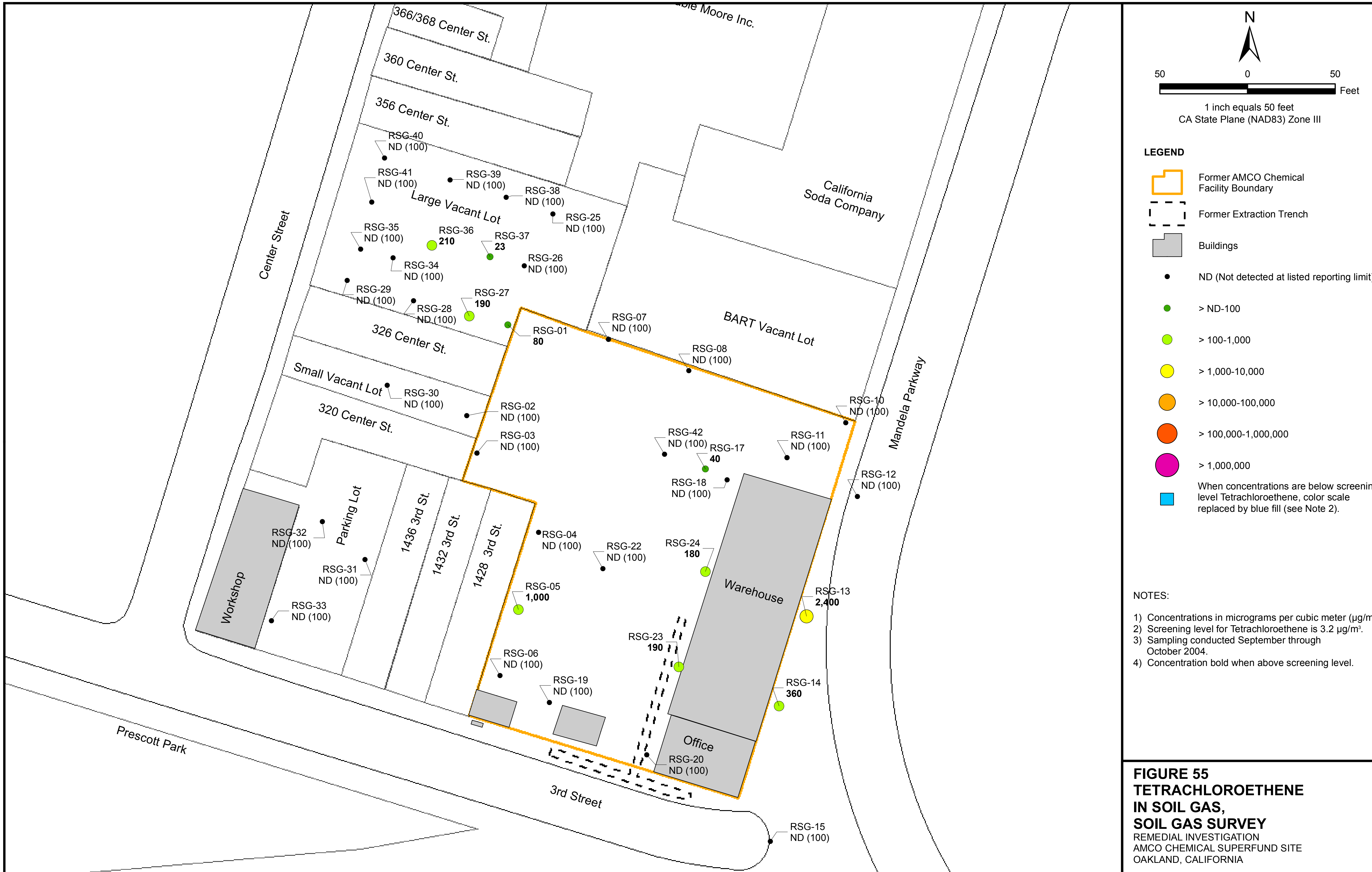

NOTES:

1) Concentrations in micrograms per cubic meter (µg/m³).
2) Screening level for Tetrachloroethene is 3.2 µg/m³.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 55
TETRACHLOROETHENE IN SOIL GAS, SOIL GAS SURVEY
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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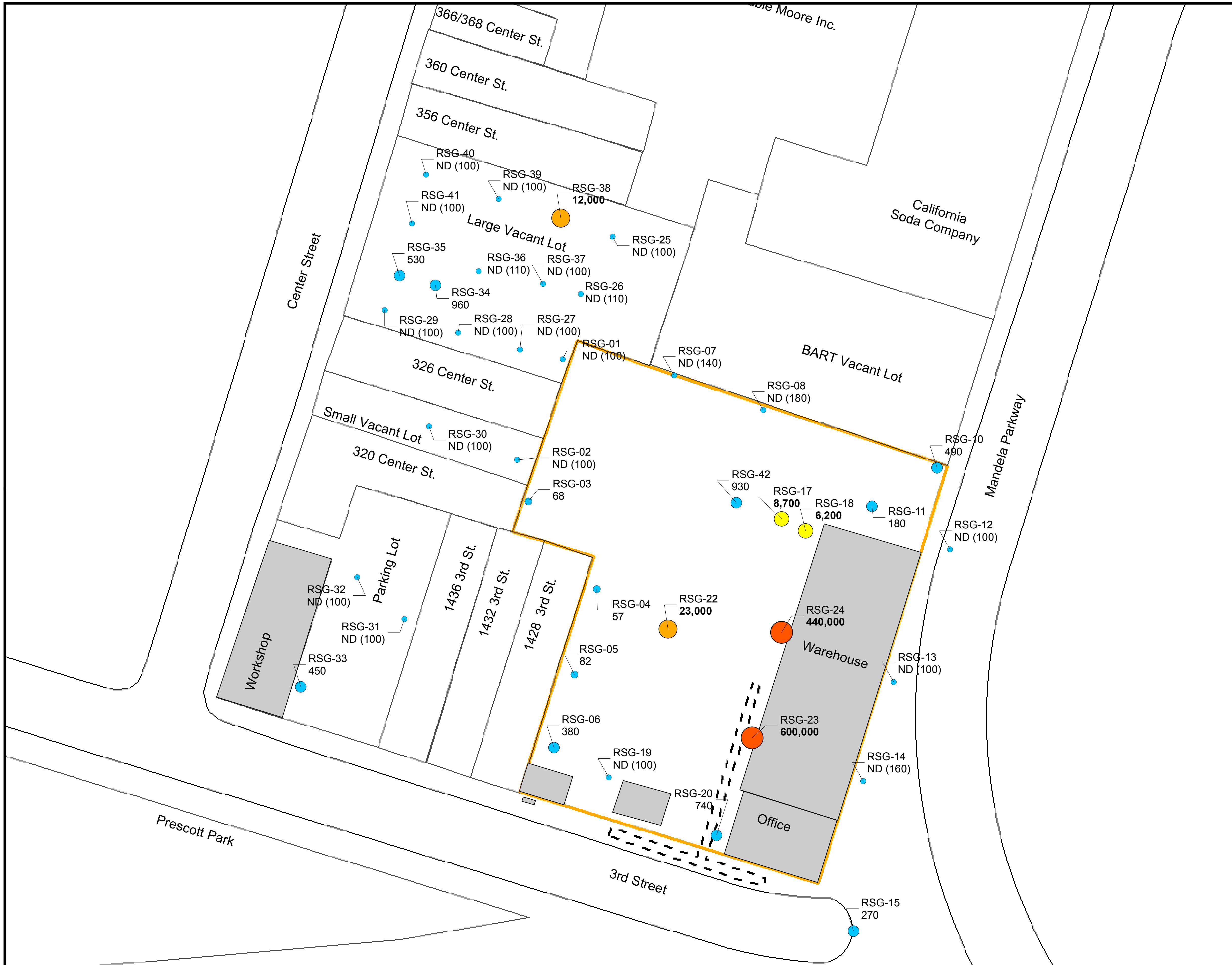


N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Toluene, color scale replaced by blue fill (see Note 2).

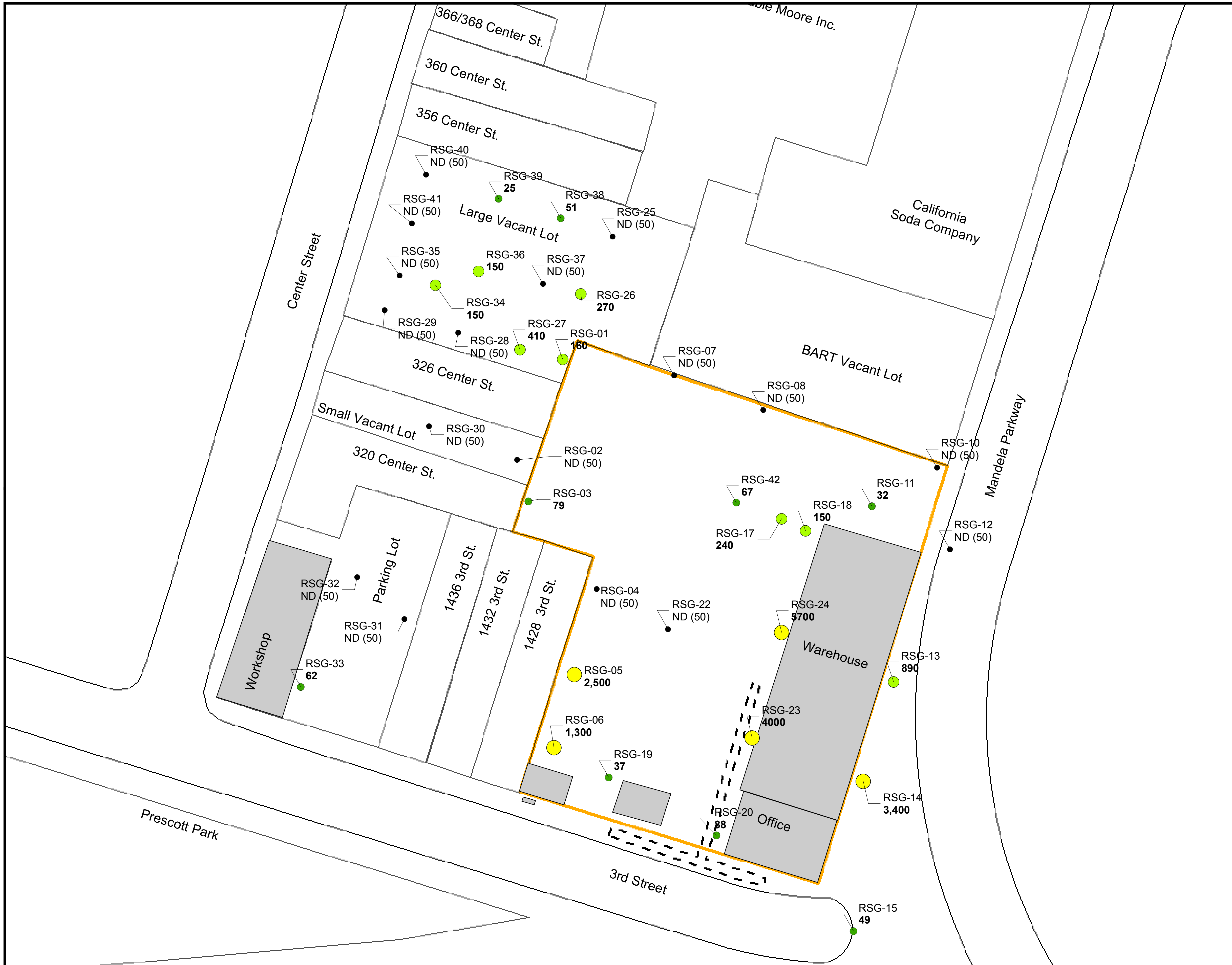
NOTES:

1) Concentrations in micrograms per cubic meter ($\mu g/m^3$).
2) Screening level for Toluene is 4,000 $\mu g/m^3$.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 56
TOLUENE IN SOIL GAS
SOIL GAS SURVEY

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL



N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- ND (Not detected at listed reporting limit)
- > ND-100
- > 100-1,000
- > 1,000-10,000
- > 10,000-100,000
- > 100,000-1,000,000
- > 1,000,000
- When concentrations are below screening level for Trichloroethene, color scale replaced by blue fill (see Note 2).

NOTES:

1) Concentrations in micrograms per cubic meter (µg/m³).
2) Screening level for Trichloroethene is 0.17 µg/m³.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 57
TRICHLOROETHENE IN SOIL GAS, SOIL GAS SURVEY
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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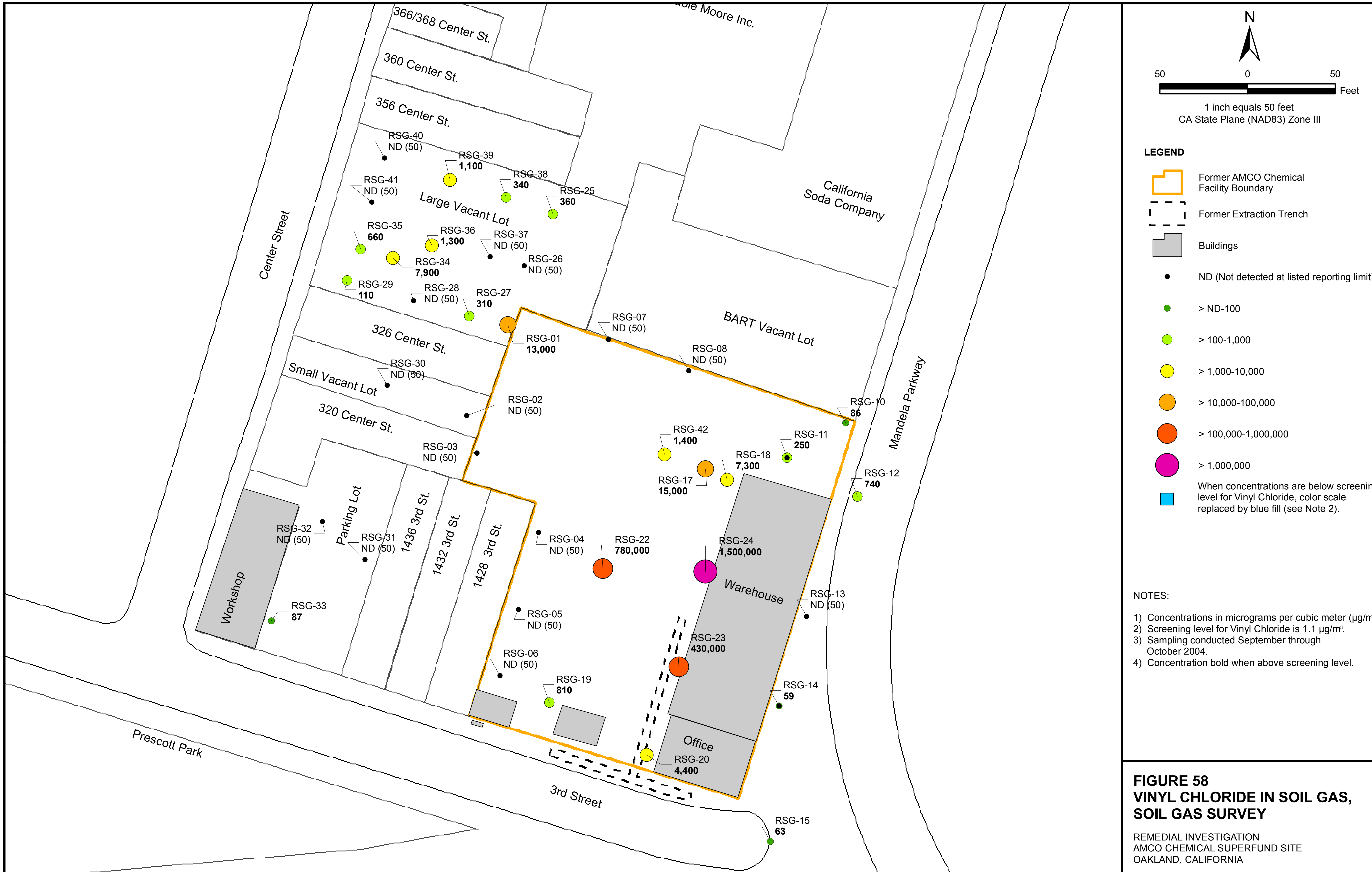

NOTES:

1) Concentrations in micrograms per cubic meter ($\mu g/m^3$).
2) Screening level for Vinyl Chloride is 1.1 $\mu g/m^3$.
3) Sampling conducted September through October 2004.
4) Concentration bold when above screening level.

FIGURE 58
VINYL CHLORIDE IN SOIL GAS, SOIL GAS SURVEY

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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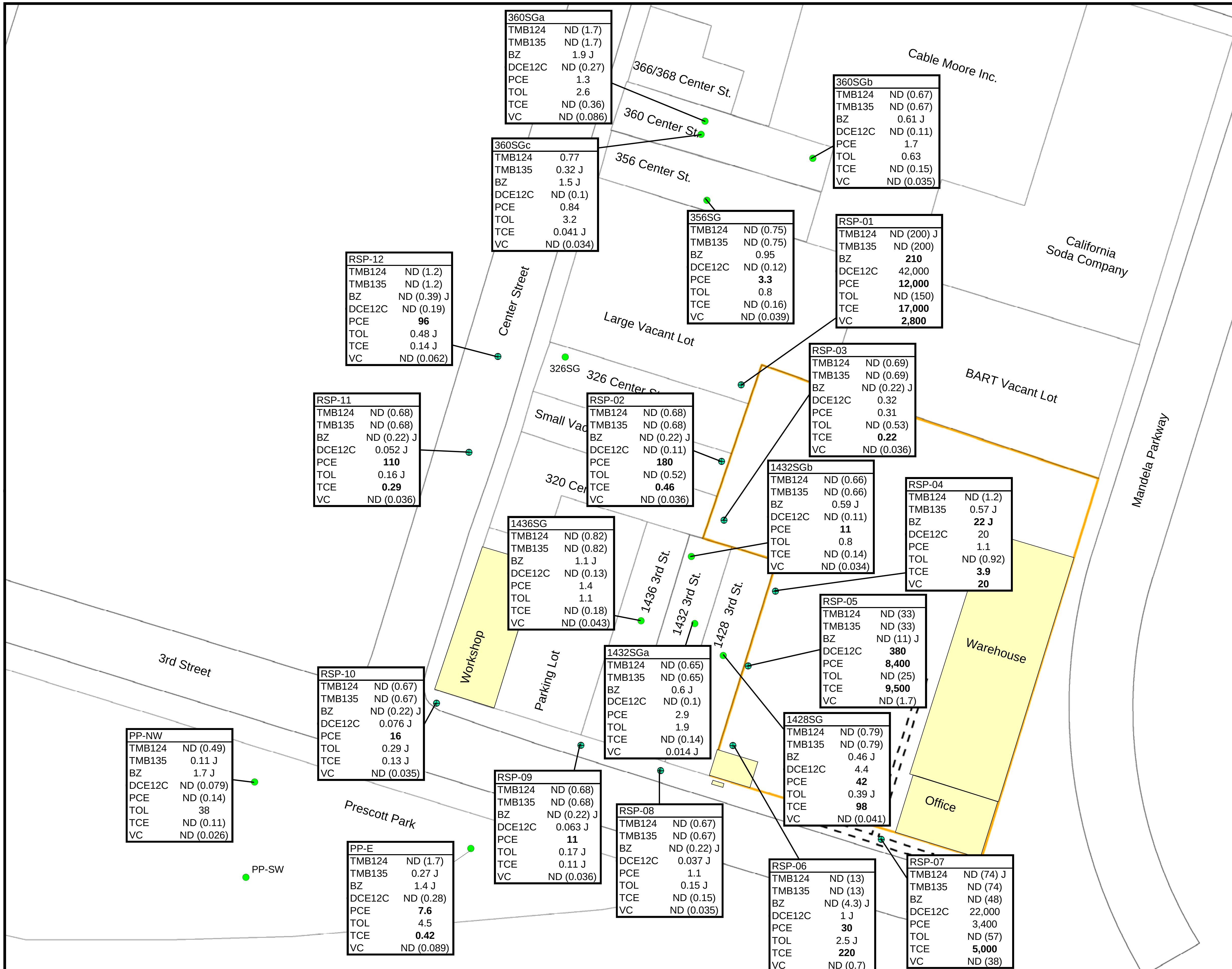

N

50 0 50 Feet

1 inch equals 55.1 feet
CA State Plane (NAD83) Zone III

LEGEND

- Residential Soil Gas Sampling Location
- Permanent Soil Gas Probe Sampling Location
- Buildings
- Former Extraction Trench
- Former AMCO Chemical Facility Boundary

Legend		
Abbreviation	Chemical Name	Screening level
TMB124	1,2,4-Trimethylbenzene	62
TMB135	1,3,5-Trimethylbenzene	62
BZ	Benzene	2.5
DCE12C	cis-1,2-Dichloroethene	370
PCE	Tetrachloroethene	3.2
TOL	Toluene	4000
TCE	Trichloroethene	0.17
VC	Vinyl chloride	1.1

All results and screening limits in µg/m3
J - Estimated
Bold - detected above screening level
ND( ) - not detected at listed reporting limit

NOTES:

1) Residential soil gas samples were collected from temporary, drive-point probes.
2) Soil gas samples from locations RSP-01 through RSP-12 were collected from soil gas probes installed in September 2004.
3) PP-SW and 326SG were not sampled during the November 2006 sampling event.

FIGURE 59
KEY VOCS IN SOIL GAS, NOVEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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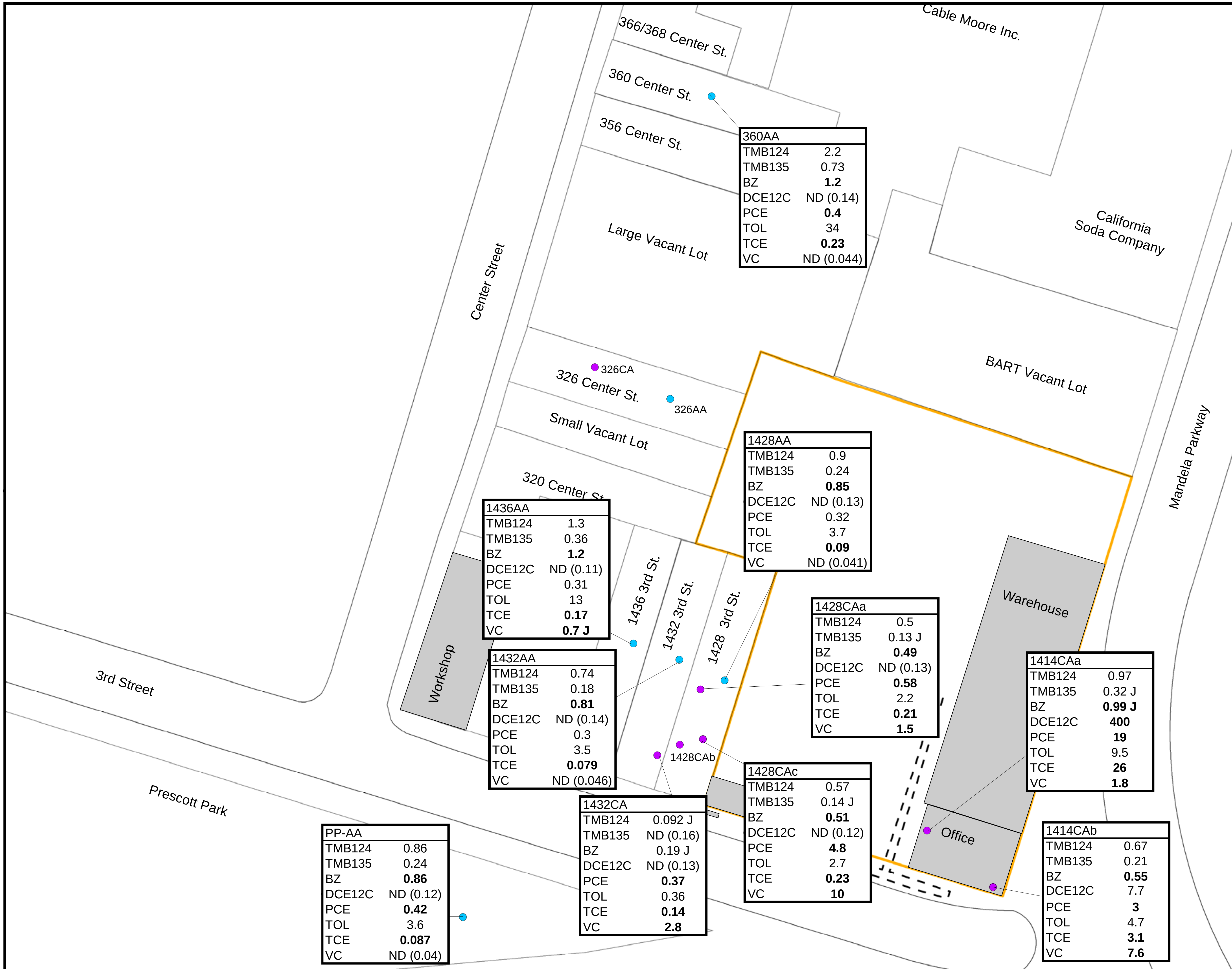

N

50 0 50 Feet

1 inch equals 50 feet
CA State Plane (NAD83) Zone III

LEGEND

Ambient Air Sampling Location

Crawl Space Air Sampling Location

Buildings

Former Extraction Trench

Former AMCO Chemical Facility Boundary

Legend

Abbreviation	Chemical Name	Screening level
TMB124	1,2,4-	6.2
TMB135	1,3,5-	6.2
BZ	Benzene	0.25
DCE12C	cis-1,2-	37
PCE	Tetrachloroethen	0.32
TOL	Toluene	400
TCE	Trichloroethene	0.017
VC	Vinyl chloride	0.11

All results and screening limits in µg/m3
Bold - detected above screening level
J - Estimated
ND( ) - not detected at listed reporting limit

Note:
326AA, 326CA, and 1428CAb were not sampled during Event 3 (November 2006).

FIGURE 60
KEY VOCS IN RESIDENTIAL CRAWLSPACE AIR AND AMBIENT AIR, NOVEMBER 2006
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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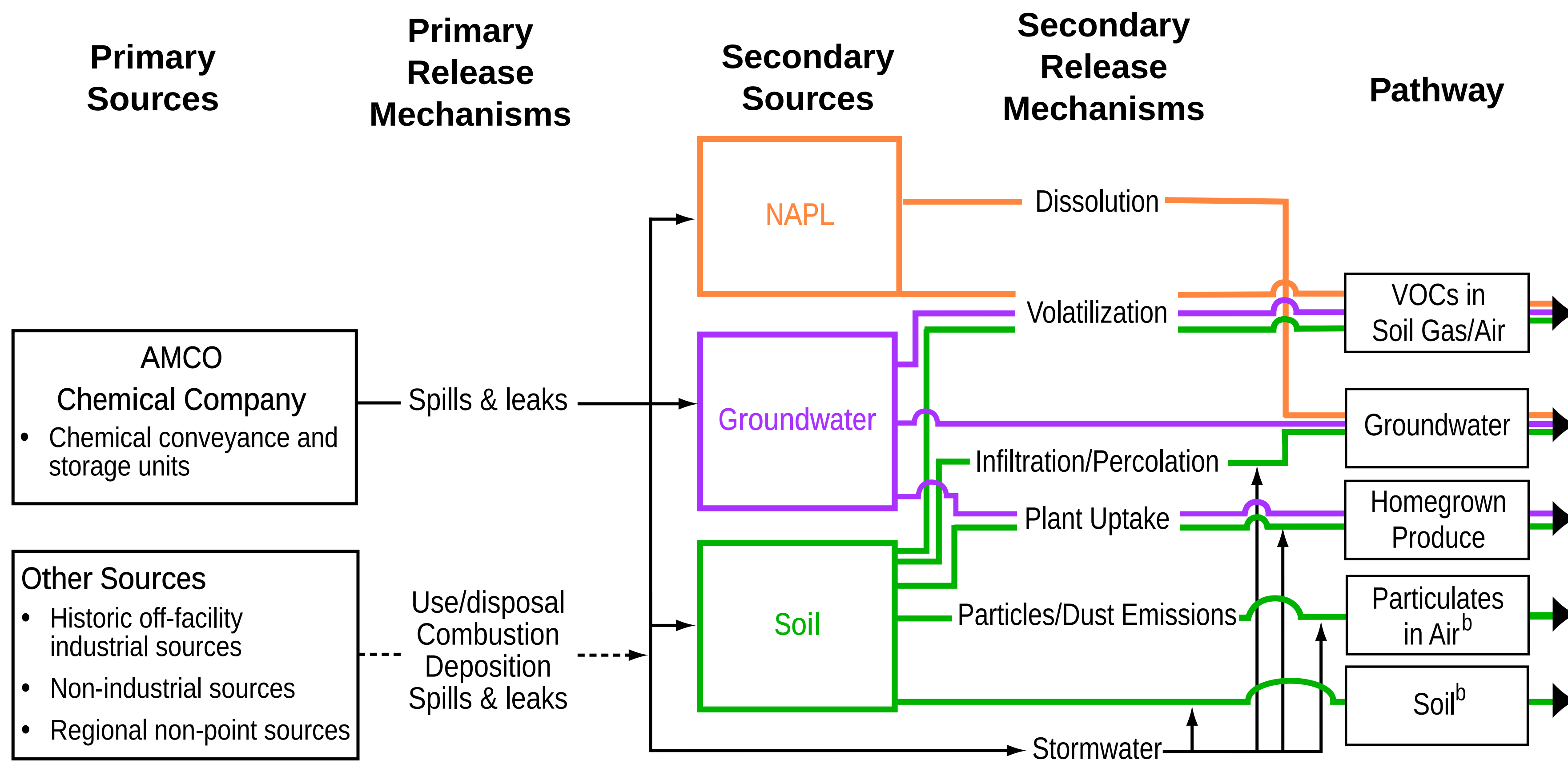


Tertiary Source	Exposure Scenarios: Commercial/ Industrial Worker	Construction Worker	Trench Worker[c]	Future Onsite Resident	Offsite Resident
Inhalation (outdoor air)	●	●	●	●	●
Inhalation (indoor vapor intrusion)	●	IP	IP	●	●
Dermal Contact	IP	○	●	●[a]	●[a]
Ingestion	IP	○	○	●[a]	●[a]
Ingestion	IP	IP	IP	●	●
Inhalation (outdoor air)	●	●	●	●	●
Ingestion	●	●	●	●	●
Dermal Contact	●	●	●	●	●

LEGEND:

● = Potentially complete pathway

○ = Potentially complete pathway but not considered a significant source of risk

IP = Incomplete pathway

NAPL = Non-aqueous Phase Liquid

NOTES:

a Groundwater is designated for Municipal and Domestic Supply Beneficial Use by default; however, there are no domestic water wells within 1 mile of the site, and there are no municipal water wells within 4 miles of the site

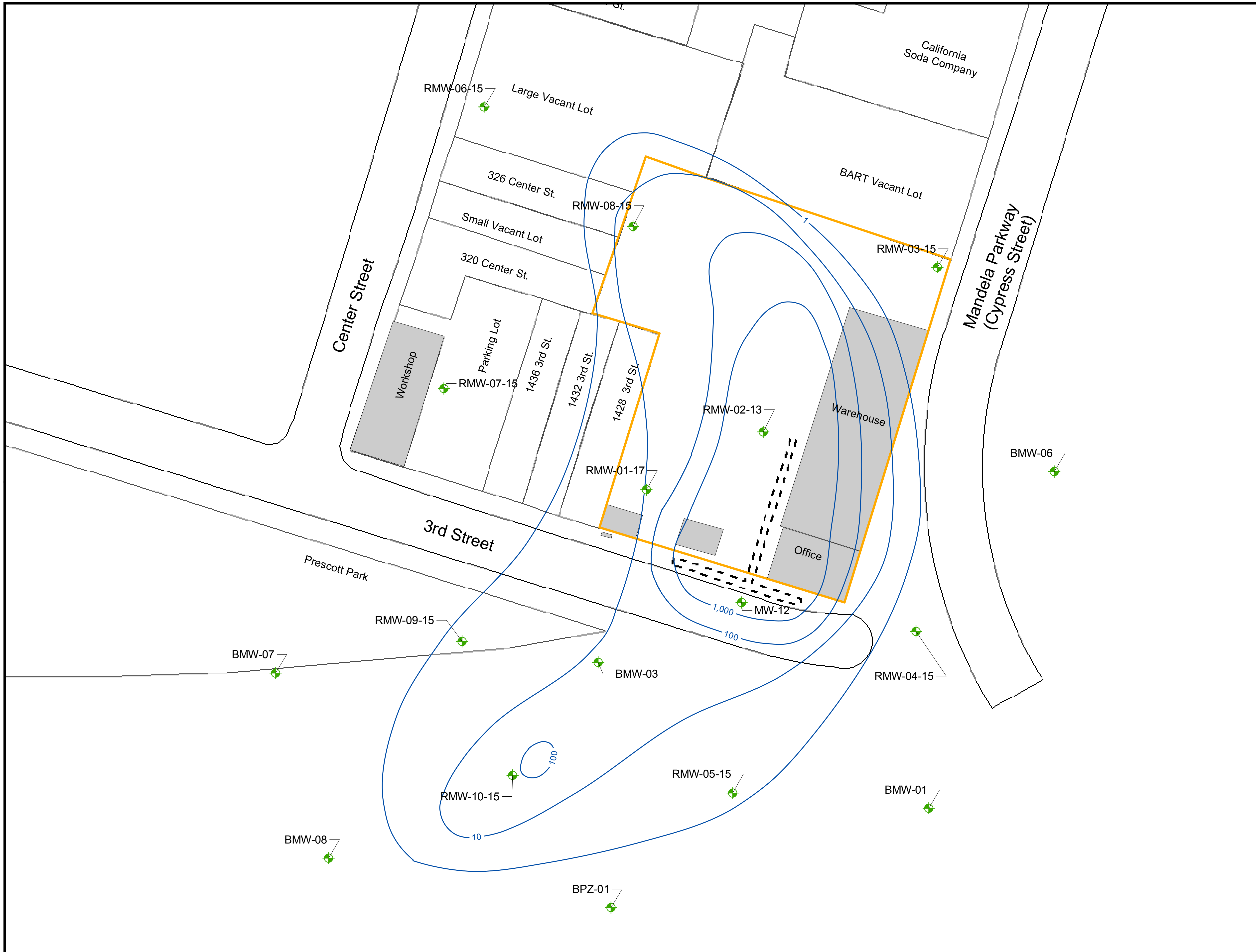
b Assuming no pavement

c Groundwater exposure for a Landscape Worker is accounted for by this pathway

FIGURE 61
CONCEPTUAL SITE MODEL DIAGRAM
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

ES122006002BAO_Fig 1 ConceptSiteModelDiagram.ai 10-04-07 dash



LEGEND

Former AMCO Chemical Facility Boundary

Former Extraction Trench

Buildings

Goundwater Monitoring Well

Exceedance Factor Contour (multiples of greatest single exceedence of screening level)

N

0 40 80 Feet

CA State Plane (NAD83) Zone III

FIGURE 62A
DISTRIBUTION OF VOCS IN SHALLOW INTERVAL GROUNDWATER

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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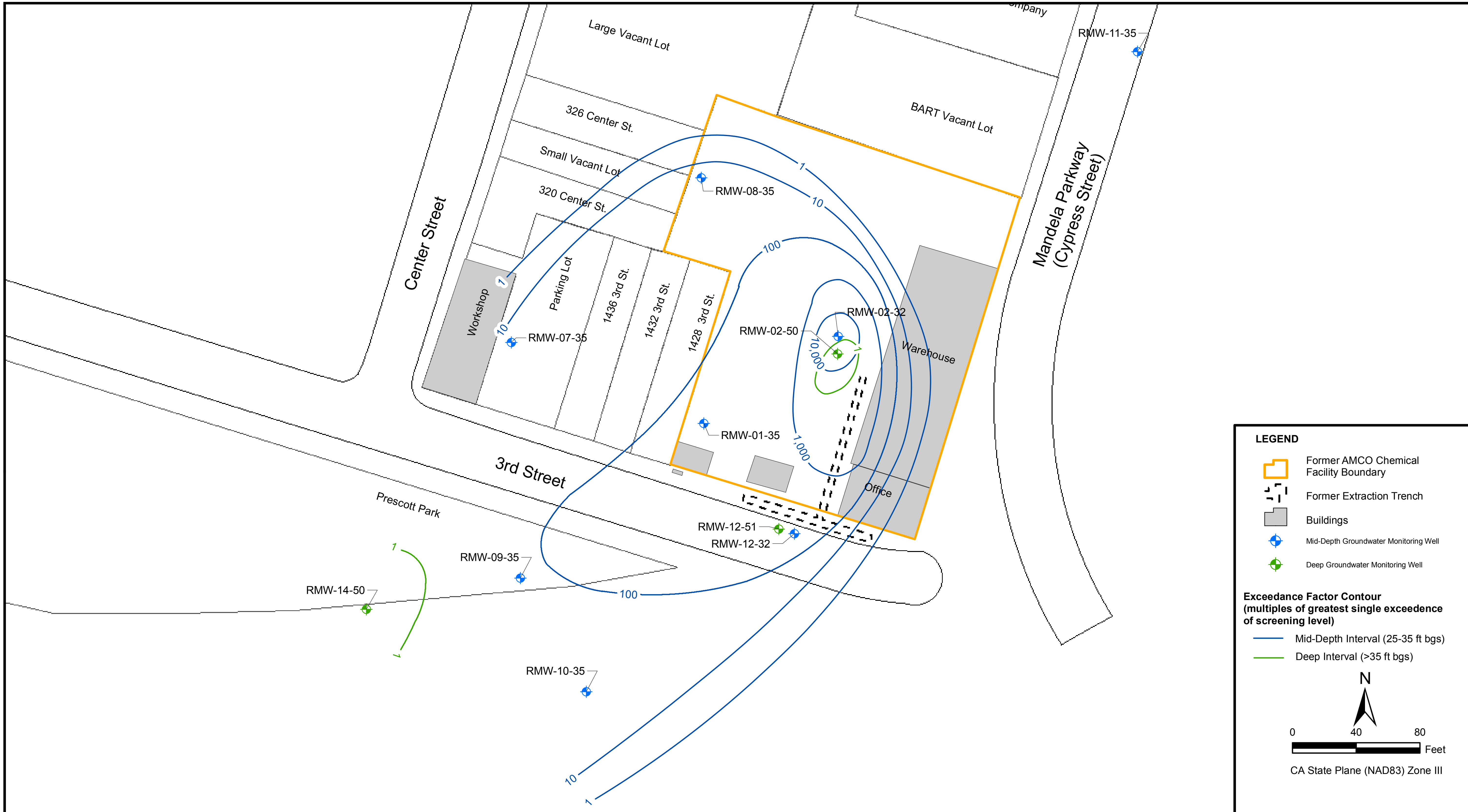

FIGURE 62B
DISTRIBUTION OF VOCS IN MID/DEEP INTERVAL GROUNDWATER
REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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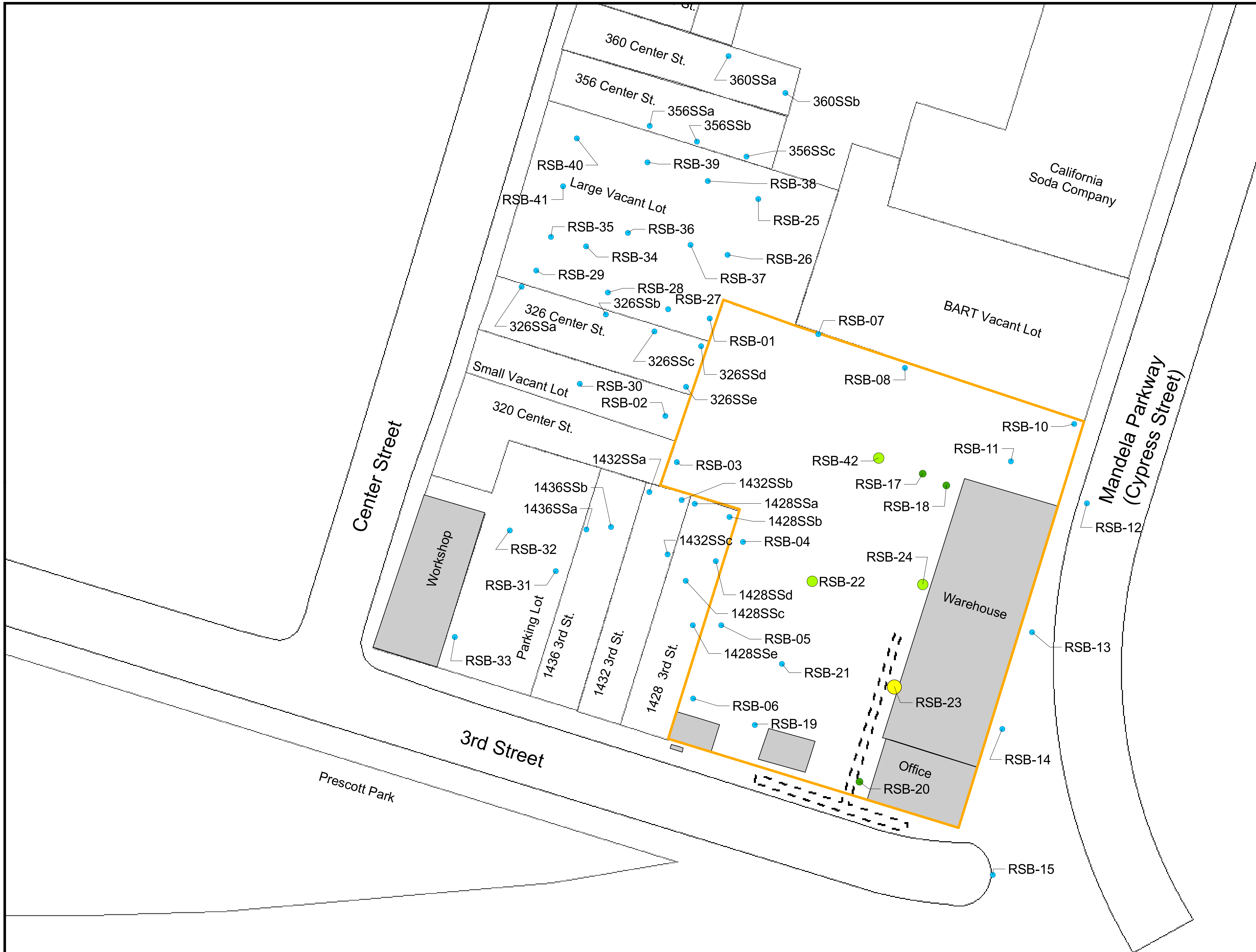

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- No Exceedance (NE)
- NE - 10x SL (Screening Level)
- > 10x - 100x SL
- > 100x - 1,000x SL
- > 1,000x - 10,000x SL
- > 10,000x -100,000x SL
- > 100,000x SL

Note:
1) Represents the greatest exceedance for any compound in the contaminant class at each location.

N

0 40 80 Feet

CA State Plane (NAD83) Zone III

FIGURE 62C
VOCS
IN SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- No Exceedance (NE)
- NE - 10x SL (Screening Level)
- > 10x - 100x SL
- > 100x - 1,000x SL
- > 1,000x - 10,000x SL
- > 10,000 x -100,000x SL
- > 100,000x - 1,000,000x SL
- > 1,000,000x SL

Note:
1) Represents the greatest exceedance for any compound in the contaminant class at each location.

N

0 40 80 Feet

CA State Plane (NAD83) Zone III

FIGURE 62D
VOCS
IN SOIL GAS
SOIL GAS SURVEY

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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FIGURE 62E
VOCS
IN SOIL GAS,
NOVEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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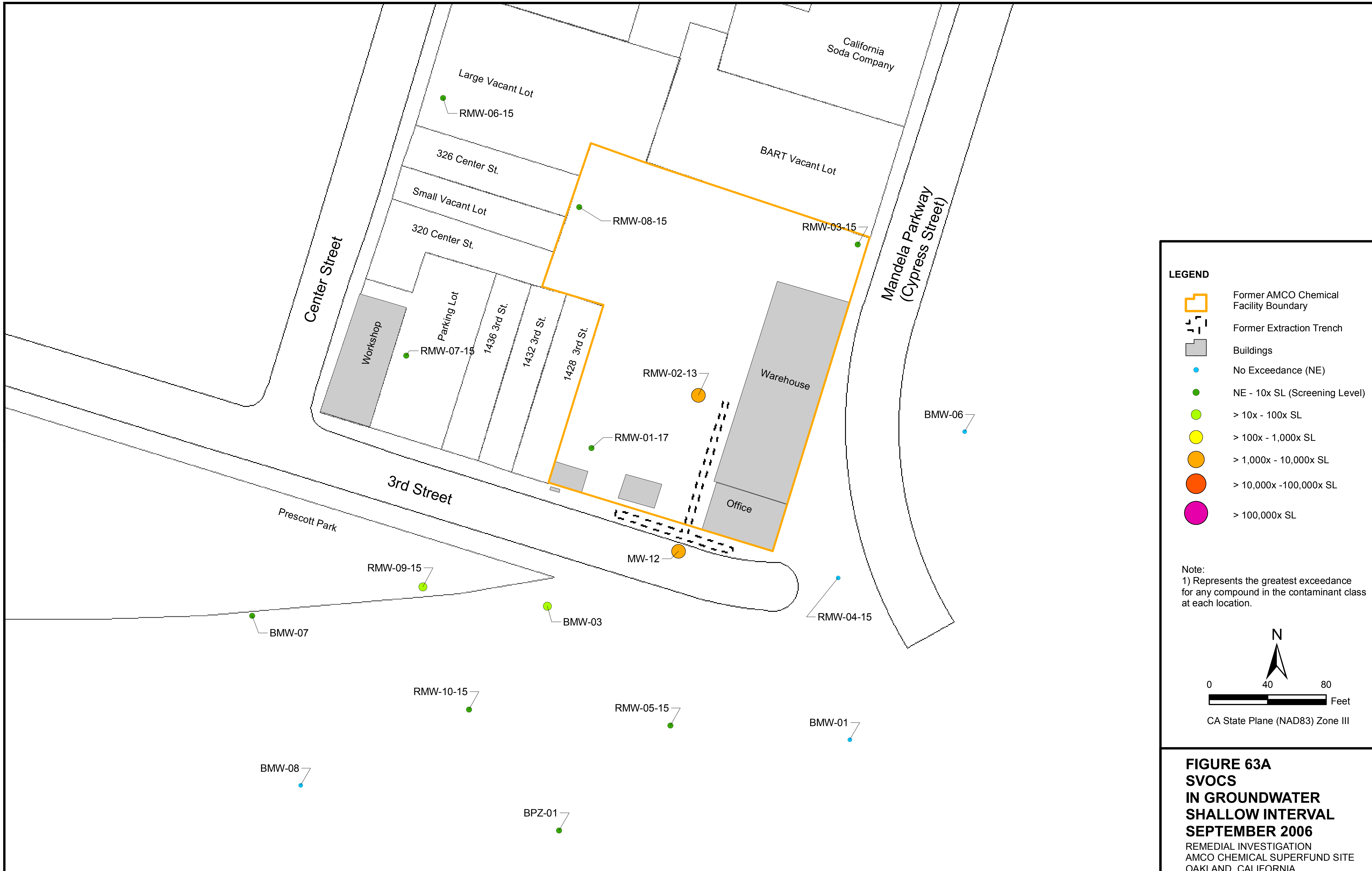

FIGURE 63A
SVOCS
IN GROUNDWATER
SHALLOW INTERVAL
SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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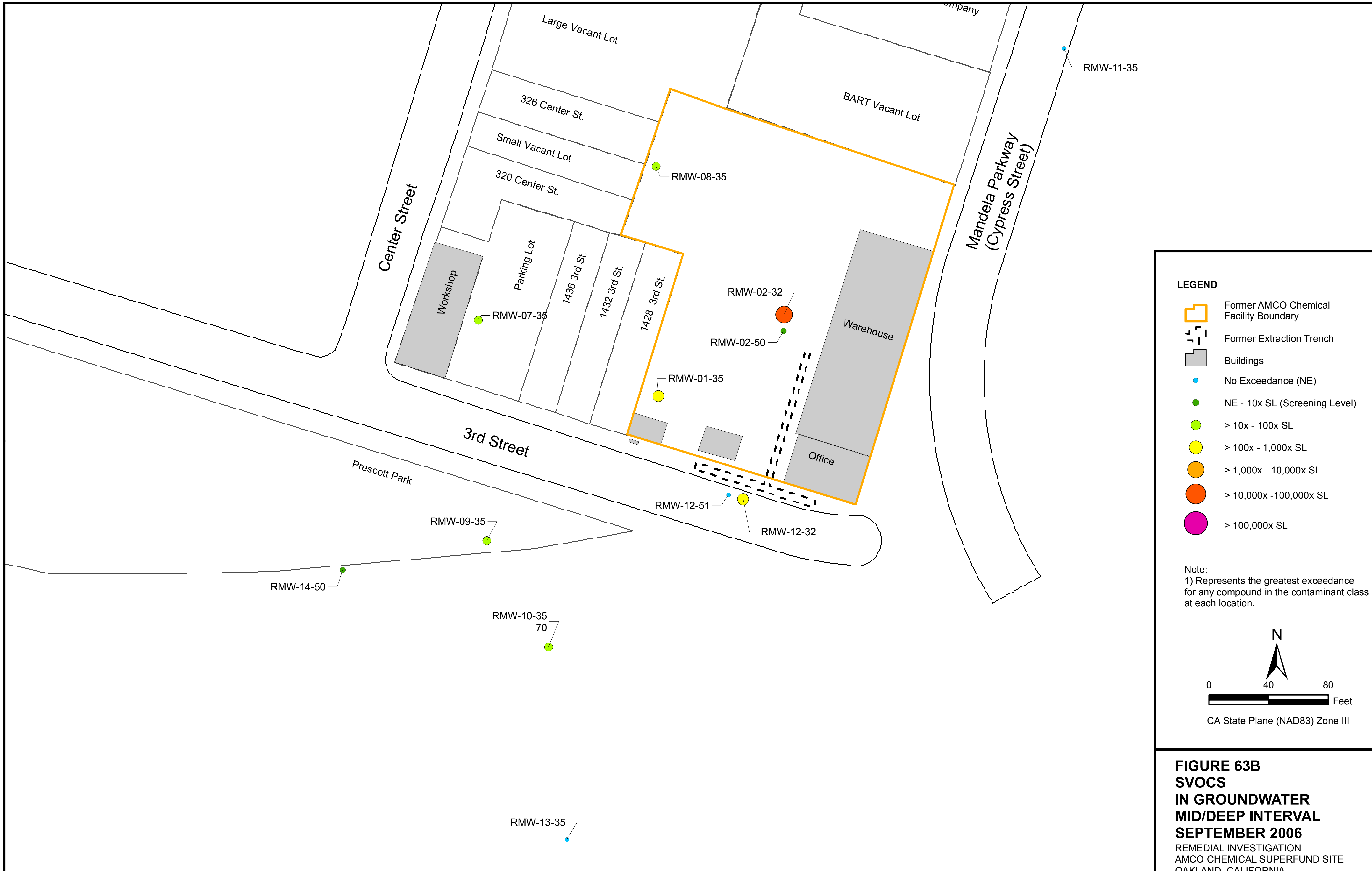

FIGURE 63B
SVOCS
IN GROUNDWATER
MID/DEEP INTERVAL
SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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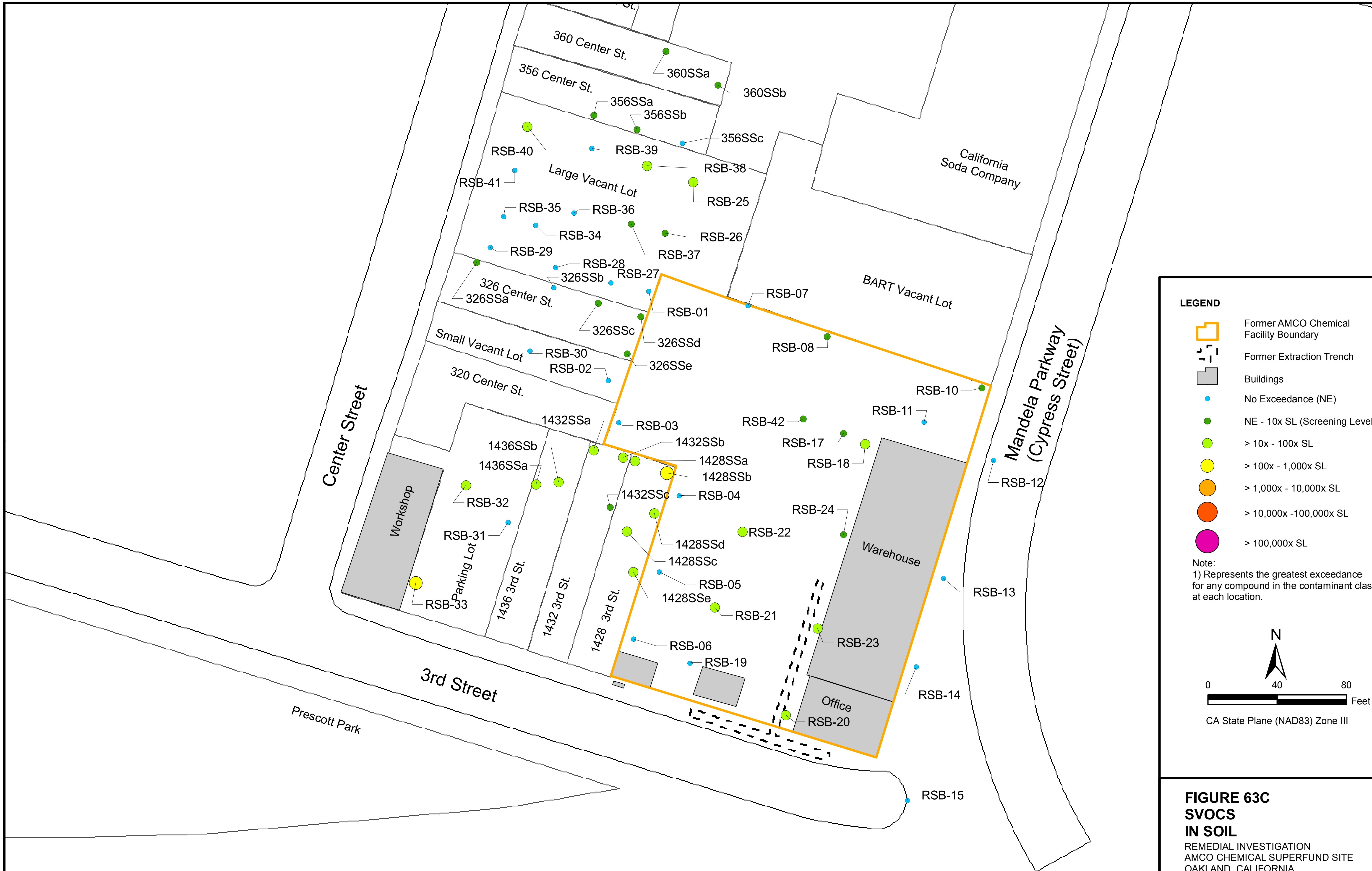

FIGURE 63C
SVOCS
IN SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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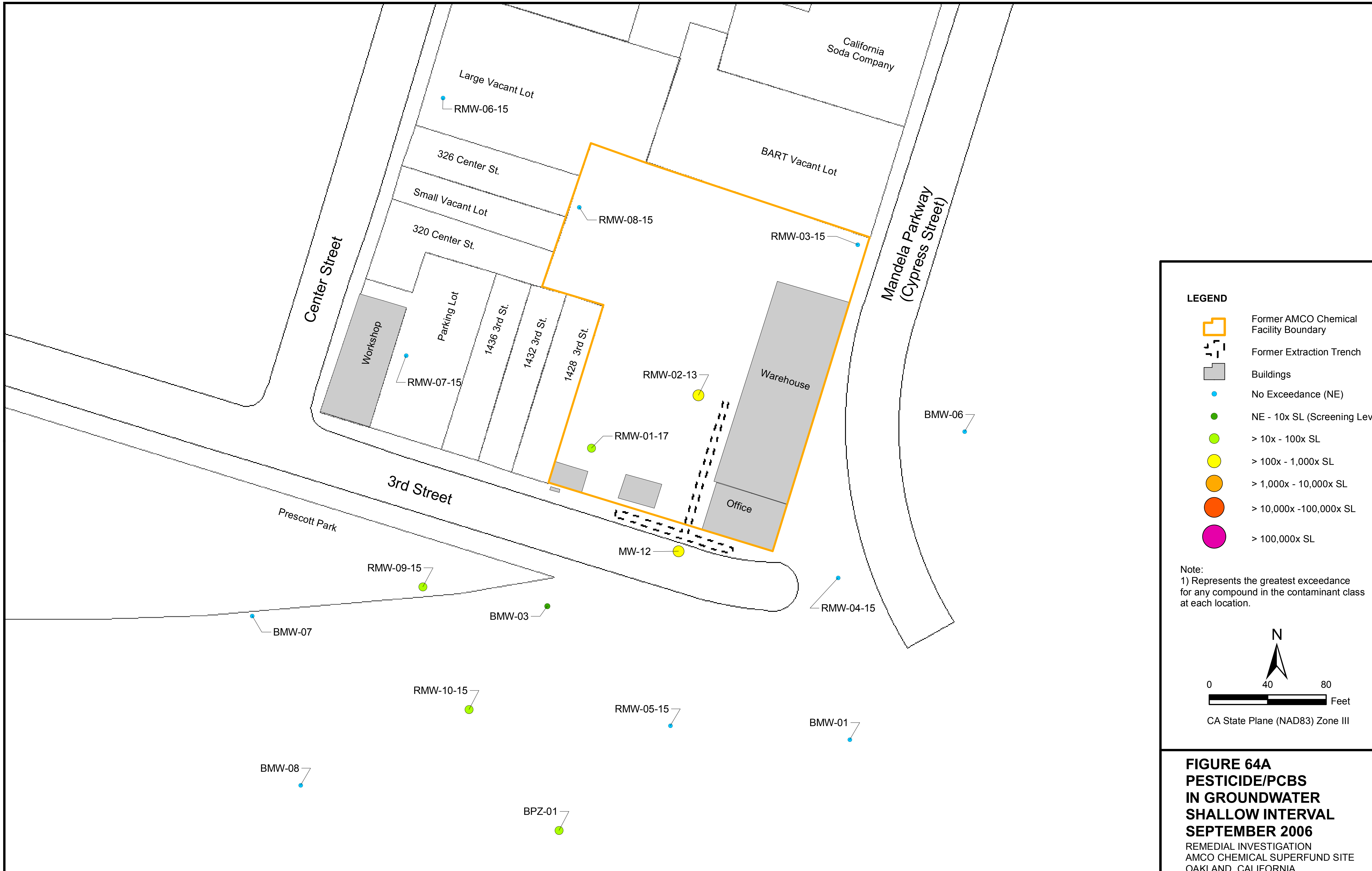

FIGURE 64A
PESTICIDE/PCBS
IN GROUNDWATER
SHALLOW INTERVAL
SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

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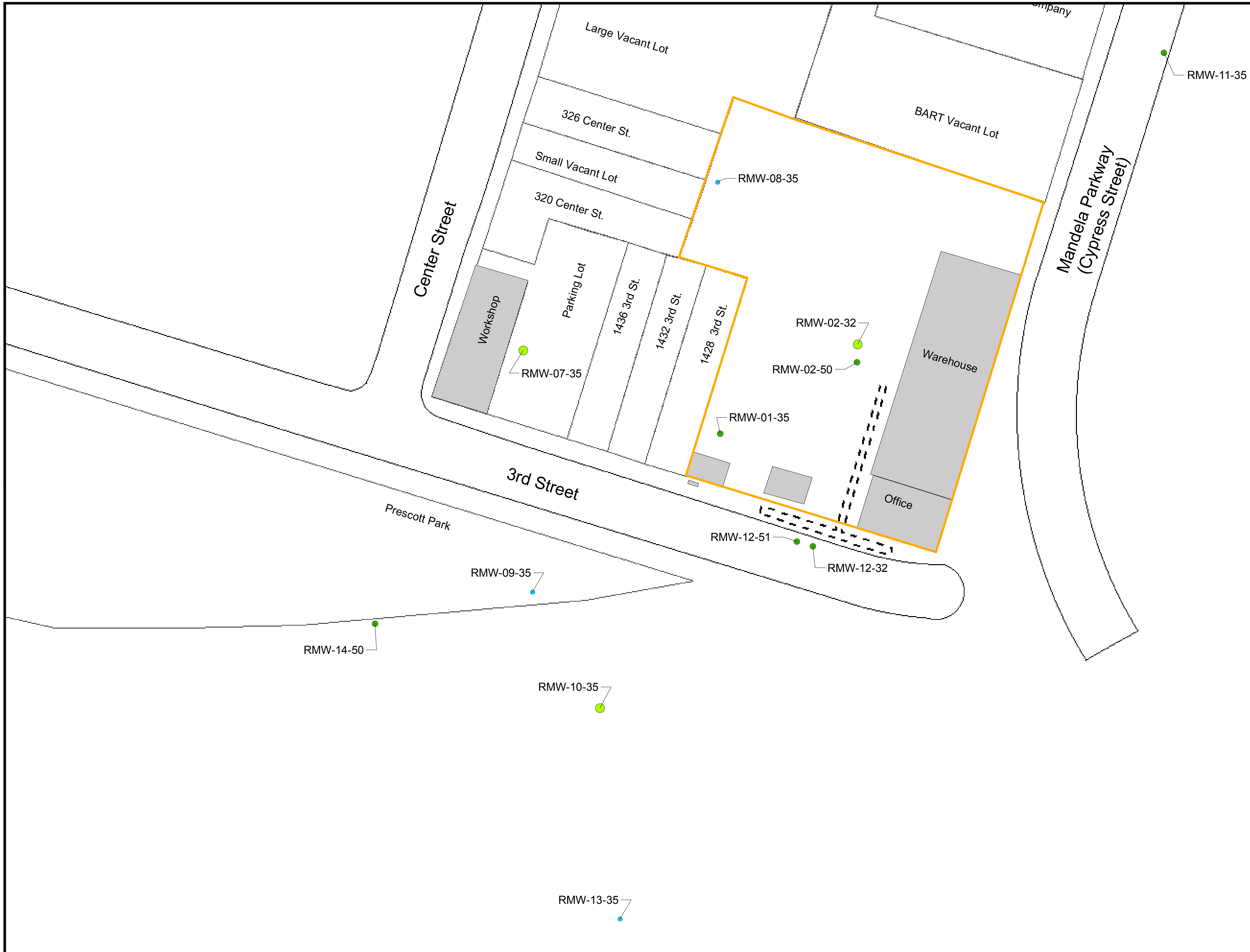

LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- No Exceedance (NE)
- NE - 10x SL (Screening Level)
- > 10x - 100x SL
- > 100x - 1,000x SL
- > 1,000x - 10,000x SL
- > 10,000x -100,000x SL
- > 100,000x SL

Note:
1) Represents the greatest exceedance for any compound in the contaminant class at each location.

N

0 40 80 Feet

CA State Plane (NAD83) Zone III

FIGURE 64B
PESTICIDE/PCBS IN GROUNDWATER MID/DEEP INTERVAL SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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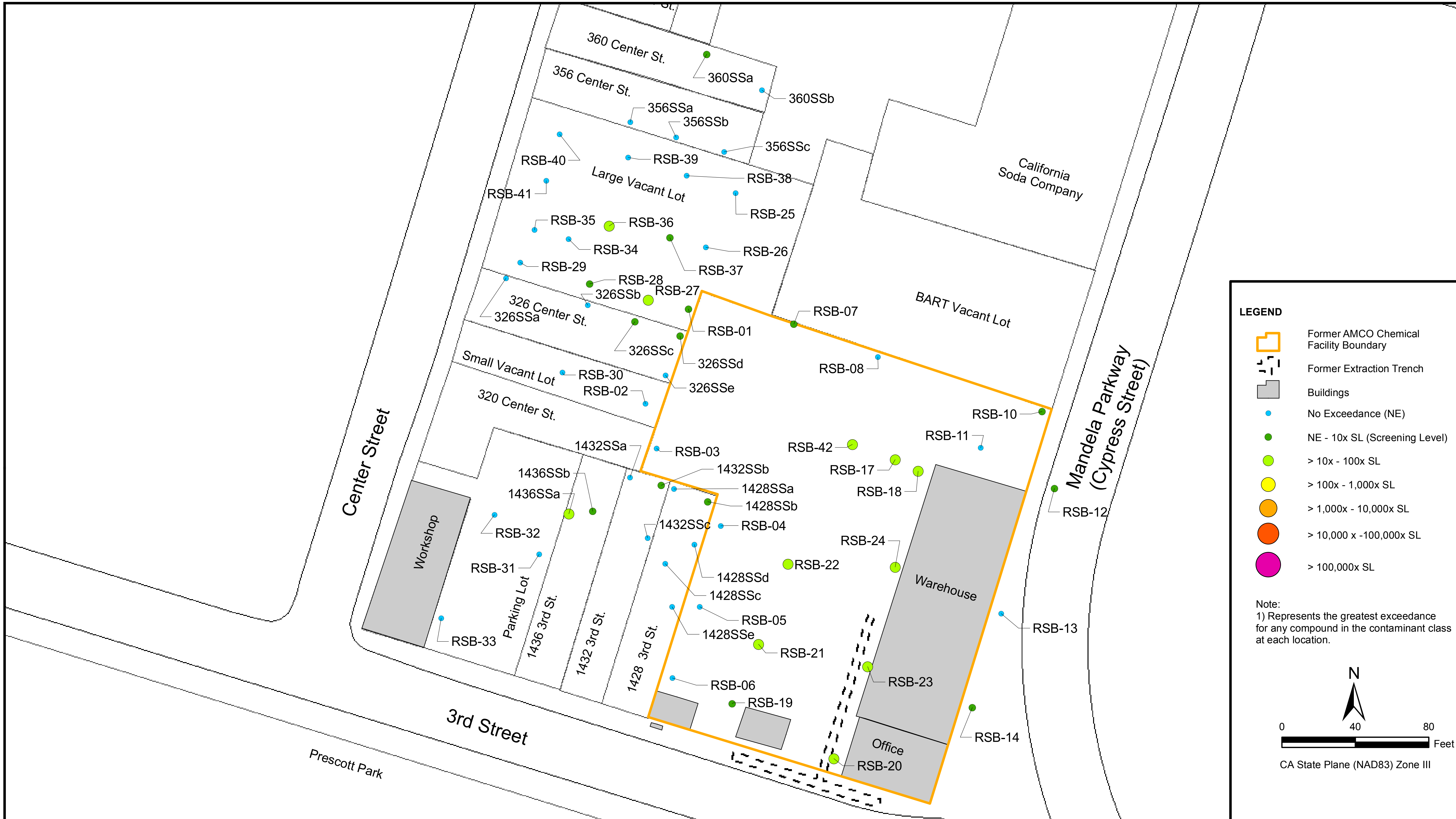

FIGURE 64C
PESTICIDE/PCBS
IN SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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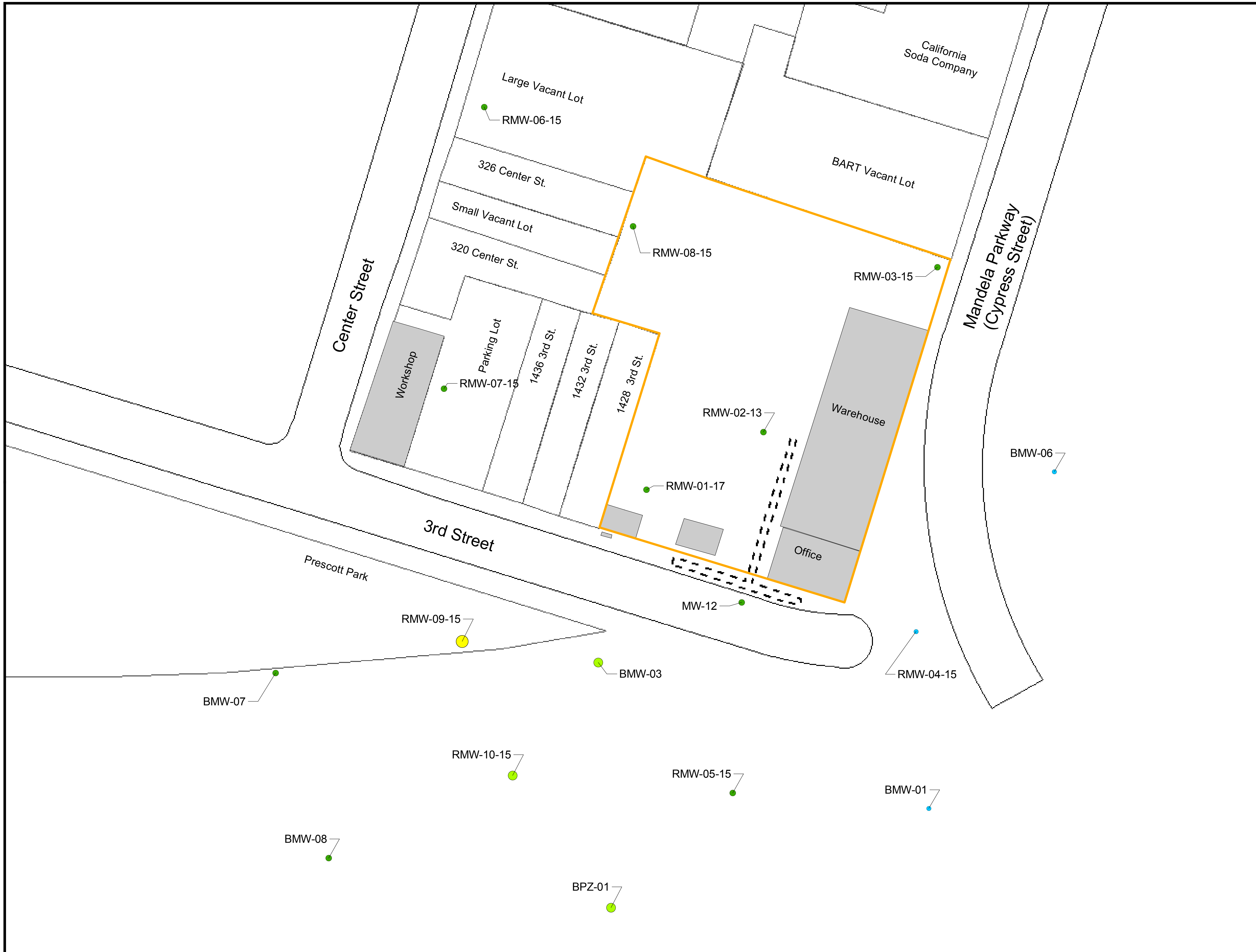

FIGURE 65A
METALS
IN GROUNDWATER
SHALLOW INTERVAL,
SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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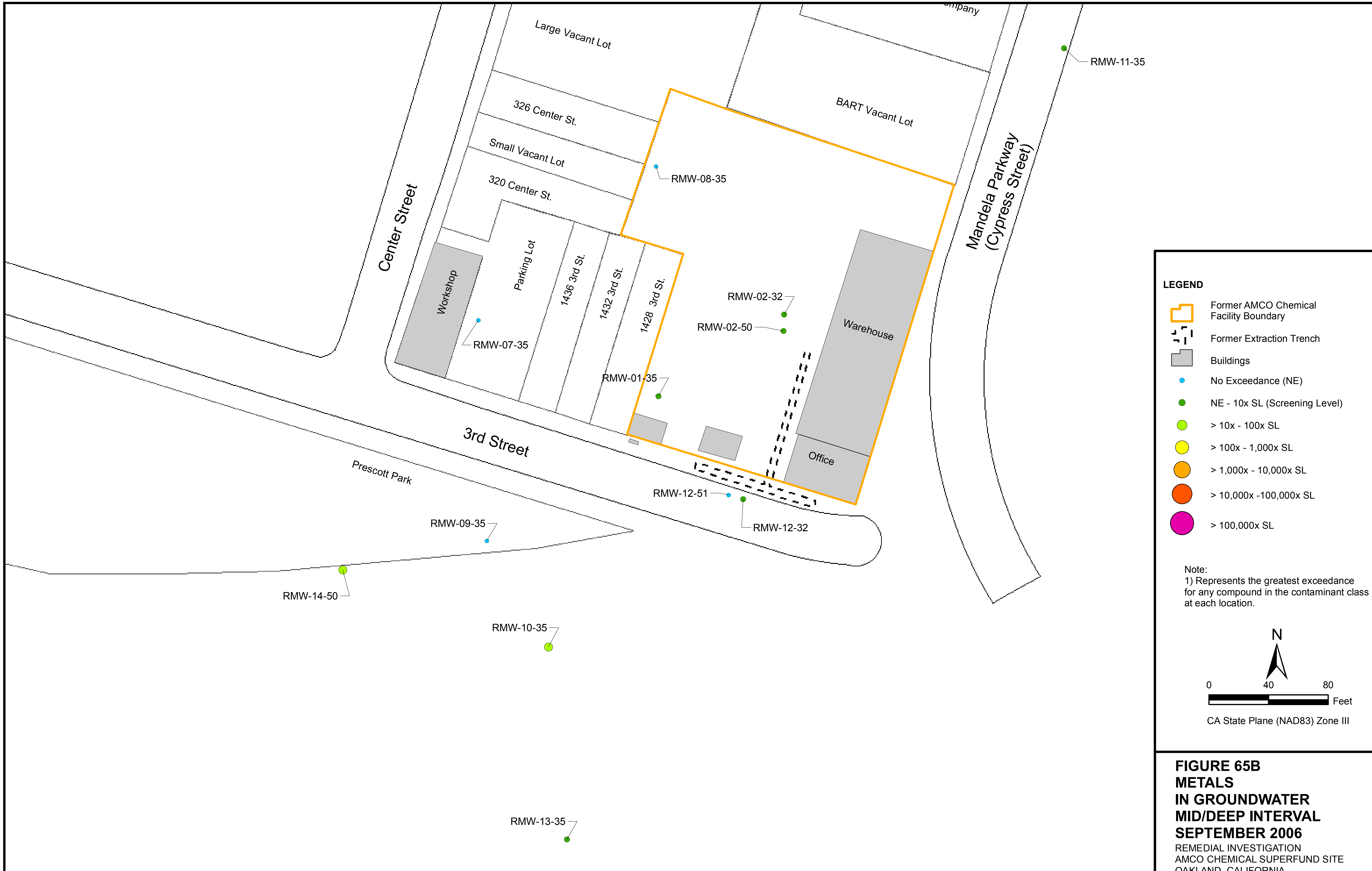

FIGURE 65B
METALS
IN GROUNDWATER
MID/DEEP INTERVAL
SEPTEMBER 2006

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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LEGEND

- Former AMCO Chemical Facility Boundary
- Former Extraction Trench
- Buildings
- No Exceedance (NE)
- NE - 10x SL (Screening Level)
- > 10x - 100x SL
- > 100x - 1,000x SL
- > 1,000x - 10,000x SL
- > 10,000x -100,000x SL
- > 100,000x SL

Note:
1) Represents the greatest exceedance for any compound in the contaminant class at each location.

N

0 40 80 Feet

CA State Plane (NAD83) Zone III

FIGURE 65C
METALS
IN SOIL

REMEDIAL INVESTIGATION
AMCO CHEMICAL SUPERFUND SITE
OAKLAND, CALIFORNIA

CH2MHILL

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