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3:33 pm, Sep 18, 2007

Alameda County
Environmental Health

September 13, 2007

Mr. Jerry Wickham
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay parkway, Suite 250
Alameda, CA 94502-6577

Subject: Fuel Leak Case No. RO0000092 and Geotracker Global ID T0600100065 Revised Site Investigation Work Plan – AB&I Foundry, 7825 San Leandro Street, Oakland California 94621

Dear Mr Wickham:

AB&I respectfully submits the attached Revised Site Investigation Work Plan for the AB&I Foundry Site located at 7825 San Leandro Street, Oakland, California.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document is true and correct to the best of my knowledge.

Sincerely,

AB&I

Dave Robinson
Environmental Manager

Attachment: Revised Site Investigation Work Plan – AB&I Foundry, 7825 San Leandro Street, Oakland, California

REVISED SITE INVESTIGATION WORK PLAN

AB&I Foundry
7825 San Leandro Street
Oakland, California

01-ABI-001

Prepared For:

AB&I
7825 San Leandro Street
Oakland, California

Prepared By:

SGI environmental THE SOURCE GROUP, INC.

3451-C Vincent Road
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September 17, 2007

Prepared By:

Nathan Colton
Staff Scientist

Reviewed By:

Kent R. Reynolds
Project Manager

Jon R. Philipp, P.G., C.HG.
Senior Hydrogeologist

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CERTIFICATION

All hydrogeologic and geologic information, conclusions, and recommendations in this document regarding the AB&I Foundry Site have been prepared under the supervision of and reviewed by the certified professional whose signature appears below.

Jon Philipp, P.G., C.HG.
Senior Hydrogeologist
The Source Group, Inc.
California Professional Geologist No. 7945

9/17/07
Date

1.0 INTRODUCTION

This document presents a Revised Site Investigation Work Plan (Revised Work Plan) for the AB&I Foundry (AB&I), located at 7825 San Leandro Street in Oakland, California (the Site, Figure 1). This Revised Work Plan was prepared in response to comments provided by Alameda County Environmental Health (ACEH) in two letters dated September 14, 2006 and May 11, 2007. The ACEH letters requested a work plan to address, among other things, additional definition of the lateral and vertical extent of contamination in the vicinity of former underground storage tanks (USTs) at the Site (ACEH, 2006; 2007). This Revised Work Plan was also prepared in response to comments received by the ACEH in their letter dated August 26, 2007. This Revised Work Plan was prepared in general accordance with the California Regional Water Quality Control Board (CRWQCB) guidance document, entitled: "Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Storage Tank Sites," (CRWQCB, 2004). The Source Group, Inc. (SGI) prepared this Work Plan on behalf of AB&I for submittal to the ACEH.

2.0 BACKGROUND

2.1 Site Description

The Site is located at 7825 San Leandro Street east of the intersection with 77th Avenue, in a light industrial area of Oakland (Figures 1 and 2). The Site is bound by commercial/industrial properties to the north, south, east, and west. Union Pacific Railroad tracks are located immediately adjacent to and west of the Site. Elmhurst Creek is located at the southeast corner of the Site (Figure 2). San Leandro Bay is located approximately one mile west of the Site.

2.2 Site History and Operations

AB&I has been operating at its present location since at least 1930 (BSK, 1993). Business activities include the manufacture of cast pipe and fittings. The facility accepts scrap iron and steel, which it stockpiles on-site, for uses during manufacturing activities. The Site encompasses an area of approximately 11.8 acres. Previously, seven USTs have been located on-site. These USTs included two 8,000-gallon USTs used for storing unleaded gasoline and 1,1,1-TCA, a 550-gallon UST used for storing regular leaded gasoline, a 12,000-gallon UST used for storing diesel, and three 10,000 gallon-USTs used for storing gasoline.

A water supply well is located along southwest perimeter of the Site and is used in conjunction with East Bay Municipal District (EBMUD) water as a source for process (cooling) water associated with plant operations. Review of the water well drillers report indicates that the well was installed in 1977 and is constructed of 14-inch outside diameter steel casing and extends to a depth of approximately 495-feet below ground surface (bgs). The upper 52-feet of the well casing was installed within a 30-inch conductor casing cemented within a 36-inch borehole. The remainder of the well consists of a 26-inch borehole with a cement seal from 150-feet bgs to 180-feet bgs and 14-inch wire wrap screens at 324-feet bgs, 424-feet bgs, 449-feet, and 474-feet bgs. Screen intervals range from 5 to 15 feet. The gravel pack extends from 52-feet to 150-feet bgs and from 180-feet to 495-feet bgs. In July of 2004, Layne Christensen Company conducted a down-hole video of the well. Plugged perforations were noted in the deeper parts of the well along with a significant open area (hole) at a depth of 449-feet bgs. As part of its rehabilitation, the plugged perforations were “wire line scratched” and the open hole located at 449-feet bgs was repaired. The well pump was also rebuilt and the well redeveloped.

Information provided by AB&I indicates that the well is currently used in conjunction with East Bay Municipal Utility District (EBMUD) water as a source of process (cooling) water associated with plant operations. In 1993, approximately 362,752 gallons per day (gpd) of well water and 12,000 gpd of EBMUD water was used for plant operations. Current well water use is approximately 15,000 gpd.

In 1989, a waste water treatment plant was installed to treat solids associated with process water. Excess water was discharged under a National Pollutant Discharge Elimination System (NPDES) permit issued by the California Regional Water Quality Control Board (CRWQB) in 1993. Prior to 1993, water was discharged to Elmhurst Creek in accordance with CRWQCB Order No. 88-090 (RWQCB 1993). In approximately 1995/1996, the treatment system was modified to recycle process water. Following the modifications in 1996, approximately 30,000 to 40,000 gpd of well water and 12,000 gpd of EBMUD water were used for plant operations.

In 2005, the treatment system was modified a second time to increase the volume of recycled water. The majority of water is currently recycled through the plants' waste water treatment system. Excess and non-recycled water is discharged to the sanitary sewer.

2.3 Hydrogeological Setting

The Site is located near the San Francisco Bay within an area identified as the East Bay Plain. The East Bay Plain is situated on the east side of the San Francisco Bay depression. The alluvial sediments of the East Bay Plain consist of a mixture of gravel, sand and clay deposited by coalescing alluvial fans. In the vicinity of the Site, fluvial and near shore deposits have been mapped (Helley et. al., 1979). The fluvial deposits are described as unconsolidated, moderately sorted, fine sand and silt, with clayey silt and occasional thin beds of coarse sand (Muir, 1993). The near-shore deposits are described as a well-sorted, fine to medium grained sand and silt, with lenses of sandy clay and clay. Regional groundwater flow in the vicinity of the Site is interpreted to be towards the southwest toward San Francisco Bay.

The Site is underlain by a mixture of sandy/silty clay to a depth of at least 20-feet below ground surface (bgs). Borings logs completed by BSK Associates (BSK) in August 2006 indicate that sandy/silty clay and silty clay extend from the surface to a depth of 15-feet bgs (BSK, 2007) with the top 3-feet consisting of silty sand and gravel characterized as fill material. From 15 to 20-feet bgs sandy clay was observed.

Groundwater has been encountered in borings and excavations at depths ranging from 8 to 12-feet bgs at the Site. Based on groundwater monitoring data from on-site monitoring wells, from the period between 1993 to 1997, as reported by BSK, groundwater flows to the northeast and northwest (BSK, 2007). Groundwater hydraulic gradients have ranged from 0.002 to 0.012 feet per foot (ft/ft; BSK, 2007).

2.4 Previous Investigations

Various investigations have been conducted at the Site since 1991. Four of the five investigations consisted of UST closure reports that were written as part of UST removals conducted at the Site between August 1991 and June 1992. The UST removal program included the removal of the four USTs located on the Site. In addition to the four USTs removed in the early 1990s, three, 10,000-gallon USTs were removed in 1982/1983. The USTs removed included:

- Three 10,000-gallon USTs used for storing gasoline (removed 1982/1983);
- 8,000-gallon UST used for storing unleaded gasoline (removed 8/8/91);
- 550-gallon UST used for storing regular, leaded gasoline (removed 8/26/91);
- 8,000-gallon UST initially used for storing mineral spirits and later for storing 1,1,1-trichloroethane (removed 10/4/91); and
- 12,000-gallon UST used for storing diesel fuel (removed 6/3/92).

All of the tank removals, with the exception of the three former 10,000-gallon gasoline USTs were accompanied by a UST closure report. Information on the history of the three 10,000-gallon gasoline USTs was obtained from a review of historical aerial photographs from 1969, 1975, 1977, and 1983 obtained from Pacific Aerial Surveys, located in Oakland, California and from discussions with Mr. Dave Robinson (AB&I's Environmental Manager).

Previous investigations conducted at the Site suggested that the three 10,000-gallon gasoline USTs were located within the building footprint of the Finished Goods Storage Area. A review of the aerial photographs and discussions with Mr. Dave Robinson indicate that the three 10,000-gallon USTs were not located within the vicinity of the Finished Goods Storage Area but were located adjacent to, and northeast of the Finished Goods Storage Area (Figure 2). A review of the aerial photographs and information provided by Mr. Dave Robinson revealed the following:

In the 1969 aerial photograph, two dispenser islands are located northeast of the Finished Goods Storage Area. Mr. Dave Robinson indicated that based on interviews with Mr. Frank Cole (former AB&I employee) the filling station was used for commercial purposes by the Olympic Oil Company and included two fuel dispensers and three 10,000-gallon gasoline USTs. In 1972, AB&I purchased the property containing the filling station. In 1977, the two fueling dispenser islands were removed and replaced by a single dispenser. All three USTs and the dispenser were reportedly removed in and around 1982/1983 (no longer depicted in the 1983 aerial photograph) by AB&I. The final disposition of the tanks is unknown. Mr. Frank Cole indicated that based on his recollection, the excavation was backfilled using soil generated from the removal of the USTs and imported soil. No confirmatory or UST closure samples are known to have been collected.

Information on the remaining USTs was obtained from closure reports prepared following the removal of the former USTs. A review of the closure reports revealed the following:

In general, analytical results for the soil and groundwater samples collected from locations adjacent to the USTs during their removal reportedly showed detectable concentrations of total petroleum hydrocarbons as gasoline (TPHg), as diesel (TPHd), 1,1-dichloroethane (1,1-DCA), chloroethane, and 1,1,1 trichloroethane (1,1,1-TCA). Affected soil at each former tank location was excavated until confirmation samples indicated the chemicals of concern were at relatively low concentrations based on

photoionization detector (PID) screening results, or to where an obstruction made further excavation impracticable and/or hazardous. During excavation activities at the former 1,1,1-TCA storage tank, a 3-inch layer of tar was observed 3.5-feet bgs.

In 1993, BSK installed four groundwater monitoring wells (MW-1 through MW-4) to comply with a request by the ACEH for a preliminary assessment of the areas surrounding each of the removed USTs (Figure 2). Between 1993 and 1997, sampling results indicated the presence of petroleum hydrocarbons and chlorinated volatile organic compounds (VOCs) in groundwater in the vicinity of the former USTs.

On July 14, 2006, groundwater samples were collected from each of the existing monitoring wells (MW-1, MW-3, and MW-4) and submitted for chemical analysis for polyaromatic hydrocarbons (PAHs) using EPA Method 8270C, TPHg and TPHd using EPA Method 8015M as well as benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA Method 8020. The three samples were also analyzed for VOCs, including fuel oxygenates using EPA Method 8260B. Well MW-2 was found to be damaged beyond repair, and therefore was not sampled.

As discovered during the July/August 2006 monitoring event conducted by BSK, monitoring well MW-2 was damaged beyond repair and was subsequently abandoned on August 13, 2006 (BSK, 2007). On August 12, 13, and 18, 2006, six new groundwater monitoring wells (MW-2R, and MW-5 through MW-9) were installed. The wells were constructed with schedule 40, 2-inch diameter, polyvinyl chloride (PVC) casing. Between the period of August 17 and August 23, 2006, water levels were measured and groundwater samples were collected from the three existing and six new monitoring wells. One groundwater sample from each of the previously existing wells (MW-1, MW-3, and MW-4) was analyzed for PAHs. Groundwater samples from the six newly installed wells (MW-2R, MW-5, MW-6, MW-7, MW-8 and MW-9) were submitted for chemical analysis for TPHg and TPHd, BTEX, VOCs including fuel oxygenates, and PAHs. In addition, soil samples were collected at various depth intervals during the installation of monitoring wells MW-5, MW-6, MW-7, and MW-8 and were analyzed for metals using EPA Method 6020 and VOCs using EPA Method 8260B.

Results of the July/August 2006 sampling event for all nine wells indicated that five of the nine wells had concentrations of at least one compound that exceeded their respective maximum contaminant level (MCL) or environmental screening level (ESL; BSK, 2007). The five wells with exceedences included wells MW-3, MW-8, MW-9, MW-2R, and MW-4. All five wells had concentrations of TPHg above CRWQQB ESLs. Benzene was detected at concentrations above its respective CRWQCB ESL in well MW-9. Chlorinated VOCs were detected in wells MW-8, MW-3, and MW-2R at concentrations that exceeded their respective MCLs. Well MW-8 had exceedences for four VOCs (1,1-DCA, 1,1-DCE, 1,1,1-TCA and vinyl chloride), well MW-3 had exceedences for two VOCs (1,1-DCA and 1,1-DCE), and well MW-2R had exceedences for chloroethane. The remaining four wells (MW-1, MW-4, MW-5, and MW-6) had detectable concentrations of petroleum compounds and/or VOCs. However, none of the concentrations exceeded their respective MCLs or CRWQCB ESLs.

On September 14, 2006, ACEH issued a letter to AB&I requesting a work plan to:

- define the extent soil and groundwater contamination in the vicinity of the former 550 gallon gasoline UST and the 8,000-gallon 1,1,1-TCA UST;
- evaluate elevated concentrations of lead reported in Site groundwater;
- sample Site groundwater monitoring wells; and
- evaluate the hydraulic gradient and flow direction.

On July 9, 2007, SGI submitted a work plan to address comments provided by ACEH in their letter dated September 14, 2006 and summarized above (SGI 2007).

On July 26, 2007, ACEH issued a letter requesting a revised work plan to:

- Provide additional details regarding characterization of soil and groundwater in the vicinity of the former 550-gallon gasoline UST. Specifically, ACEH requested that the central boring in the UST area be advanced to a minimum of 30-feet bgs to characterize the vertical extent of petroleum-impacted soil. In addition, five borings locations were recommended by ACEH in order to characterize the horizontal and vertical extent of petroleum impacted soil and groundwater at the former UST location.
- Include the advancement of additional borings along transects downgradient of the former 8,000 gallon 1,1,1-TCA UST to better define the extent and direction of plume migration.
- Conduct an additional investigation in the area of the former 10,000-gallon diesel UST and monitoring well MW-7.
- Provide additional details regarding the removal of the three former 10,000-gallon USTs in the Finished Goods Area.
- Provide clarification of sampling methods and analyses for the proposed sampling location in the southeast corner of the Shipping Yard Area.
- Expand the discussion regarding which soil samples will be analyzed for metals.
- Provide additional information on the construction details and estimated historical and current daily volume of water extracted from the on-site water supply well in addition to a description of future plans for the operation of the well.
- Conduct quarterly groundwater sampling and reporting of existing monitoring wells.
- Provide a more detailed site map that illustrates the location of all proposed sampling locations.

3.0 PROJECT OBJECTIVES AND SCOPE OF WORK

3.1 Project Objectives

The primary objective of the project is to obtain permanent Site closure following the removal of seven underground storage tanks (USTs) and a no further action (NFA) letter from the ACEH. To meet this objective, the extent of chemicals in soil and groundwater will be evaluated and the chemical concentrations will be compared to the CRWQCB Environmental Screening Levels (ESLs), along with other applicable screening levels.

Current environmental laws and regulations were developed to protect public health and the environment from adverse impacts resulting from exposure to hazardous substances. With regard to the subsurface conditions at the Site, the most applicable and primary environmental laws and regulations that pertain to evaluating health impacts are those relating to the protection of water quality. Specifically, the ACEH request is made pursuant to California Water Code, Section 13267 which requires an investigation of water quality when a waste discharge or pollutant release to the groundwater has been reported.

Since AB&I desires permanent closure and a NFA letter regarding activities associated with the prior UST removals, applicable regulations pertaining to permanent UST closure are defined in California Code of Regulations (CCRs), Title 23, Part 2672 (23 CCR 2672) and Title 23, Article 11. In order to receive a NFA, AB&I must demonstrate to the regulatory agency that appropriate corrective action has been taken pursuant to 23 CCR 2672.

One current method adopted and accepted by the agencies for granting an NFA is the use of the CRWQCB risk-based screening approach. The CRWQCB risk-based screening approach was developed to provide a consistent decision-making process for the assessment of subsurface contamination based on the protection of human health and the environment.

Review of the available Site data suggests that the Site may be a candidate for “risk-based closure.” The CRWQCB tiered risk assessment approach will be used to support permanent closure of the former USTs and the issuance of a NFA letter to the extent supported by the data from this investigation. Detected chemical concentrations in soil gas, soil, and groundwater will be compared to corresponding CRWQCB ESLs or other applicable screening levels. The presence of a chemical in soil or groundwater at concentrations below its corresponding ESL can be assumed to not pose a significant threat to human health and the environment. If a chemical is present at concentrations above its corresponding ESL, then additional evaluation or further action may be necessary.

3.2 Scope of Work

As discussed above, the primary objective of the project is to obtain permanent closure of the prior tank removals and a NFA letter from the ACEH. To meet this objective, the extent of chemicals in soil and groundwater will be evaluated and the chemical concentrations will be compared to the CRWQCB ESLs, along with other applicable screening levels. The following tasks will be conducted to meet the project objectives:

1. Pre-field activities including permitting and utility survey;
2. Soil and groundwater investigation including drilling and sampling 31 soil borings and up to 12 soil gas samples, and sampling existing groundwater monitoring wells;
3. Preparation of a report presenting the results of the Site investigation including a risk-based evaluation; and
4. Based upon the results of this Site investigation, additional groundwater monitoring or other appropriate action may be taken if an unacceptable level of risk is indicated.

4.0 FIELD SAMPLING PLAN

4.1 Sampling Objectives

The objective of this investigation is to fill in data gaps associated with previous investigations conducted at the Site and to further delineate the extent of petroleum hydrocarbon and VOC contamination in soil and groundwater underlying the Site. The investigation will address concerns outlined by ACEH in their letters to AB&I, dated September 14, 2006 and July 26, 2007 (ACEH, 2006, 2007). The investigation will also address data gaps identified by SGI during the review of Site information. Specifically, the concerns outlined by the ACEH and noted by SGI that will be addressed during this investigation include:

- **The risk of indoor vapor intrusion from VOC-impacted groundwater**
  VOCs can be emitted from contaminated soil or groundwater and migrate into overlying buildings, impacting the quality of indoor air. While actual impacts to indoor air can vary widely from building to building, and even within buildings, it is generally possible to estimate "worst case" scenarios in a screening level risk evaluation. Based on groundwater VOC exceedences for a number of compounds, and the shallow nature of groundwater underlying the Site (i.e., 4 to 8-feet bgs), vapor intrusion into indoor air is a potential concern at the Site. Therefore, a soil gas survey will be conducted to evaluate potential indoor air impacts. Proposed soil gas sample locations are shown on Figure 3.
- **The extent of soil and groundwater contamination surrounding former 550-gallon UST**
  The tank removal report indicated that contaminated soils were left in place on the south and west walls of the excavation due to the presence of nearby structures (Levine and Fricke, 1992). In addition, no samples were collected in the vicinity of the former fuel dispenser or associated piping. In order to address these concerns, up to five borings will be advanced within and around the perimeter of the former UST tank. One of the five borings will be advanced in the center of the tank excavation to a depth of 30-feet bgs, and one will be advanced in the vicinity of the fuel dispenser island to a depth of 15-feet bgs. The remaining three borings will be advanced along the perimeter of the excavated area to a depth of 15-feet bgs. Soil samples will be retained for laboratory analyses at 5-foot intervals and at all lithologic changes. A total of two groundwater samples will be collected in the vicinity of the former UST and fuel dispenser island. In addition, up to three soil gas samples will be collected within and adjacent to the former UST. Proposed sample locations are shown on Figure 3.
- **The extent of soil and groundwater contamination surrounding former 8,000-gallon 1,1,1-TCA UST**
  The tank removal report for the 1,1,1-TCA UST indicated that contaminated soils were left in place due to the difficulty in removing a concrete surface structure (AB&I, 1992a). Odor, sheen, and discolored soils were observed in the MW-2 soil boring, from 10.5 to 12-feet bgs, which is adjacent to the former 1,1,1-TCA UST. In addition, VOCs have been detected in groundwater

collected from monitoring wells MW-8 and MW-3 located approximately 65 and 250 feet, respectively, down-gradient of the former 1,1,1-TCA UST. To address these concerns, up to four borings will be advanced in the vicinity of the former UST. In addition, up to seven borings will be advanced downgradient of the UST to better define the extent and direction of plume migration. Soil samples will be collected from each boring. Soil samples collected from the seven borings located downgradient of the 1,1,1-TCA UST will be selected for laboratory analysis on the basis of staining or odors observed during the field investigation. A grab groundwater sample will be collected from one boring advanced in the vicinity of the UST and from all borings advanced downgradient of the UST. In addition, up to four soil gas samples will be collected in the vicinity and downgradient (northwest) of the former UST. Proposed sample locations are shown on Figure 3.

- **The extent and characteristics of a three-inch layer of tar observed during removal of the 1,1,1-TCA UST**

  During removal of the 1,1,1-TCA UST, a three-inch layer of tar was observed. AB&I noted that most of the three-inch tar layer was removed except for a portion located along the northern portion of the excavation that was inaccessible due to the presence of the main office building foundation (AB&I, 1991). To address these concerns, one of the four borings advanced in the vicinity of the 1,1,1-TCA UST will be angled in order to collect a soil sample beneath the main office building. If encountered, a sample of the tar material will be collected and analyzed for PAHs in addition to TPHd and TPH as motor oil (TPHmo). Proposed sample locations are shown on Figure 3.

- **The extent of soil and groundwater contamination surrounding three former 10,000-gallon USTs**

  Previous investigations suggested that the three former 10,000-gallon USTs were formerly located in the footprint of the Finished Goods Storage Area. Well MW-9 was installed to investigate the presence and extent impacted soil and groundwater in this area. A review of historical aerial photographs, as well as information obtained from Mr. Dave Robinson, indicate that the former USTs and associated piping were not located within the footprint of the Finished Good Storage Area but were located northeast of the Finished Goods Storage Area (Figures 2 and 3). No information was available regarding the soil and groundwater conditions in the vicinity of the USTs, and no confirmatory soil or groundwater samples are known to have been collected during the removal of the USTs. Therefore, to evaluate the possible presence and extent of gasoline-affected soil and groundwater, up to five borings will be advanced within and along the perimeter of the estimated location of the former USTs and associated dispenser islands (Figure 3). Soil samples will be collected from all five borings and groundwater samples will be collected from one boring located within the area of the former USTs. In addition, up to five soil gas samples will be collected in the vicinity and downgradient (northwest) of the former USTs. Proposed sample locations are shown on Figure 3.

- **The extent of soil and groundwater contamination in the vicinity of well MW-9**
  Elevated concentrations of TPHg, TPHd and BTEX were reported in groundwater samples collected from well MW-9 during the most recent sampling event (August 2006). In order to assess the presence of residual petroleum hydrocarbons in this area, up to three borings will be advanced in the vicinity of well MW-9. Groundwater samples will be collected from each boring. In addition, one soil gas sample will be collected. Proposed sample locations are shown on Figure 3

- **The extent of soil and groundwater contamination surrounding 10,000-gallon Diesel UST**
  During the installation of well MW-7, a strong hydrocarbon odor was observed at a depth of approximately 7 and 10-feet bgs and a faint odor was observed below 14-feet bgs. A groundwater sample collected from well MW-7 in 2006 contained 520 micrograms per liter (µg/L) of TPHd. In order to assess the presence and extent of petroleum hydrocarbons in soil and groundwater near the tank pit, up to four borings will be advanced in the vicinity of the former tank pit and one boring will be advanced downgradient of the tank pit near MW-7. Soil samples will be collected from the four borings near the former UST. Soil samples will be collected and analyzed for TPHd on the basis of soil staining or odors observed during the investigation. Up to four grab groundwater samples will be collected and submitted for laboratory analysis. Proposed sample locations are shown on Figure 3.

- **The extent of lead in groundwater underlying the Site**
  Lead was reported in groundwater samples obtained from well MW-4 during the March 1993 and December 1994 monitoring events at concentrations of 59 and 86 µg/L, respectively, well above the applicable aquatic habitat water quality goal of 2.5 µg/L (ACEH, 2006). As part of this investigation, monitoring wells will be sampled and analyzed for lead (dissolved) to evaluate the presence of lead-affected groundwater. Following the implementation of this Revised Work Plan, monitoring wells will be samples on a quarterly basis.

- **Hydraulic Gradient**
  As discussed in section 2.3, regional groundwater flow in the vicinity of the Site is interpreted to be towards the southwest toward San Francisco Bay. Groundwater at the Site has been previously reported to flow to the northeast and northwest (BSK, 2007). For the most recent monitoring event conducted in August 2006, water levels were measured on one occasion over a period of five days (August 17-23, 2006) and therefore do not represent a single "snapshot in time." Additional water level monitoring (during a single one day event) of all existing and recently installed wells will be conducted as part of this investigation to verify the groundwater flow direction and gradient at the Site. In addition, other influences on groundwater flow such as Elmhurst Creek will also be evaluated.

- **Potential impacts to soil and groundwater from off-site sources**
  To evaluate potential off-site sources of contaminants, an additional groundwater sample will be collected in the southeast corner of the shipping yard located on-site.

All sample locations are approximate and may be modified in the field to accommodate site-specific conditions (e.g. buildings, paved surfaces, and utilities). However, every attempt will be made to select sample locations in a manner that addresses the objectives outlined above. Proposed sampling locations are shown on Figure 3. Proposed sample analyses are outlined in Table 1.

4.2 Soil and Groundwater Investigation Activities

4.2.1 Prefield Activities

An application to advance borings will be prepared and submitted along with appropriate fees to Alameda County Public Works Agency.

A Site visit will be performed to mark the locations of the proposed borings at the Site. Following the Site visit, a subsurface utility locating company will be retained to determine the location of underground utilities in the area of the proposed borings. At least 48 hours prior to the start of sampling activities. Underground Services Alert (USA) will be notified in addition.

4.2.2 Field Activities

4.2.2.1 Soil Gas Investigation

Soil gas samples will be collected to assess potential vapor intrusion into indoor and ambient air. Up to 11 soil gas locations have been selected on Site and will be advanced in the vicinity of the 550 gallon UST area, the 8,000-gallon 1,1,1 TCA UST area, the three 10,000 gallon USTs area, and well MW-9 area (Figure 3). Methodologies used for the soil gas investigation will meet the requirements of the January 2003 Active Soil Gas Investigation Advisory published by the DTSC and Regional Water Quality Control Board (CRWQCB), Los Angeles Region. Soil gas samples will be collected from discrete depths utilizing a hydraulically-driven probe equipped with detachable drive points. Once the drive point reaches the target sample depth, the drive point is retracted to provide a void space where soil gas can accumulate. Prior to sample collection, two to three tubing volumes of air are purged. Soil gas samples are collected through the polyethylene tubing into a syringe, glass bulb wrapped in aluminum foil, or summa^{tm} canister. Soil gas samples are then collected and immediately transferred to an on-site mobile laboratory for analysis. For each soil gas sample location, samples will be collected at a depth of approximately 5-feet bgs. Prior to advancing each probe, the sample rods will be cleaned to prevent cross-contamination from previous sampling events.

The sample containers will be labeled with sample-point identification, date and time of collection. Samples will be taken to an on-site mobile laboratory where they will be logged onto the chain-of-custody form and assigned a laboratory identification number. The samples will be analyzed on-site by a

California state-certified mobile laboratory where they will be analyzed for VOCs. On site analysis of the samples will enable the field team to collect additional samples, if warranted.

After removing the sample rod from the ground, the borehole will be sealed using cement grout. The interior locations and outside locations beneath the concrete pad and will be capped with concrete at the surface.

4.2.2.2 Soil Sampling

To address the investigation objectives outlined in Section 3.1, up to 31 soil borings will be advanced on-site to allow the collection of soil samples for the purpose of chemical analysis, lithologic characterization, and delineation of the extent and magnitude of contamination. Soil samples will be collected using a direct-push technology (DPT) percussion rig equipped with a dual-tube sampling system. Soil boring locations are shown on Figure 3.

Soil samples for lithological characterization will be collected continuously to a maximum depth ranging from the surface to 30-feet bgs in the source (UST) areas to evaluate the vertical extent of impacted soil beneath the former USTs. Borings advanced outside the source areas will be advanced to a maximum depth of 15-feet bgs. All soil samples will be logged according to Unified Soil Classification System (USCS), including color, moisture content, mottling, and presence of staining or odors. In addition, approximately 20 grams of soil from each sample will be screened in the field for VOCs using an organic vapor monitor (OVM) equipped with a PID.

If soil staining or odors are encountered in soil samples collected from the lower 5-feet of the boring, the boring will be advanced an additional 5-feet until soil staining and/or odors are not observed. Soil samples will be collected for laboratory analysis at any interval where visible staining, odor, or elevated PID readings are observed. If visible staining, odor, or elevated PID readings are observed, a sufficient number of samples will be collected to characterize the vertical interval over which the contamination occurs.

Selected samples will sent to a certified laboratory under chain-of-custody (COC) procedures and analyzed for TPHg, TPHd and VOCs using EPA Methods 8015M with silica gel cleanup and 8260B, respectively. In addition to TPH and VOC analyses, representative samples of fill and native soil will be collected from one boring within each former UST area and analyzed for CAM 17 metals. Proposed boring locations and sample analyses are shown on Figure 3 and listed in Table 1, respectively.

4.2.2.3 Grab Groundwater Sampling

To address the investigation objections outlined in section 3.1, up to 20 grab groundwater samples will be collected from first encountered groundwater or observed water-bearing zone(s) near the east and west perimeter of the Site (Figure 3) and each UST area shown in Figure 3. Grab groundwater samples will

be collected using a Hydropunch® sampler (or equivalent sampling method) consisting of an expendable drive point, drive head, protective sheath, and inner stainless-steel screen. A drive rod will be added to the top of the sampler and the entire assembly driven into the subsurface using the percussion of the DPT rig. By adding a series of hollow, hardened-steel drive rods, the sampler will be advanced to the desired depth. Once the desired depth is reached, extension rods will be placed down the center of the drive rods to push out the expendable drive point and to hold the screen in position as the rods are retracted approximately 4 feet. The screen is thus exposed to the aquifer and fills with groundwater. Groundwater samples will be collected by placing a polyethylene tube with a bottom check valve into the screen. The tubing will be gently moved up and down to minimize volatilization, resulting in water flow through the check valve and tubing to the ground surface.

If groundwater flow into the screen is extremely slow, the sampling equipment will be withdrawn and a small diameter temporary polyvinyl chloride (PVC) well screen will be inserted into the borehole. This will allow the DPT rig to move to the next sampling location while enough groundwater to sample enters the temporary well. The groundwater samples will be collected using the polyethylene tube and check valve system described previously. All samples will be analyzed for TPHg, TPHd, and VOCs using EPA Methods 8015M with silica gel cleanup and 8260B, respectively.

4.2.2.4 Monitoring Well Sampling

In addition to grab groundwater samples, all nine monitoring wells will be sampled as part of this investigation. Monitoring wells will be purged and sampled using low-flow (i.e., low stress) procedures. Purging and sampling will be performed using a peristaltic, submersible bladder or electric pump and frequency controller such as the Grundfos Redi-flo 2, or equivalent. Samples collected from monitoring wells will be sampled for dissolved metals (lead) in addition to TPHg, TPHd, and VOCs using EPA Methods 8015M with silica gel cleanup and 8260B, respectively.

Groundwater monitoring well samples will also be collected and analyzed for additional parameters for the purpose of providing evidence documenting the natural attenuation of chlorinated VOCs and petroleum hydrocarbons that remain in Site groundwater.

In addition to TPHg, TPHd, and VOC analyses described above, groundwater samples will be analyzed for geochemical indicator parameters. Geochemical indicator parameters include general environmental parameters, electron acceptor/donor constituents, and by-products of these constituents that may be generated in the subsurface as a consequence of microbiological activity. The following geochemical parameters will be measured in the groundwater samples:

- Dissolved manganese;
- Ferrous iron;
- Nitrate;

- Sulfate;
- Chloride;
- Volatile organic acids; (e.g., acetic, butyric, lactic, propionic, and pyruvic acids);
- Dissolved methane / ethane / ethene; and
- Alkalinity.

Field indicator parameters for the wells will be measured using a water quality meter equipped with a flow-through cell and multi-meter capable of measuring dissolved oxygen (DO), turbidity, oxidative-reductive potential (ORP), conductivity, pH, and temperature. The field meters will be calibrated daily according to the manufacturer's instructions.

The pump tubing will be connected to the input port of a flow-through cell, and a short piece of tubing will be attached to the outflow port. The water level indicator will be reinserted to monitor drawdown during purging.

4.3 Decontamination Procedures

Disposable sampling equipment, such as small tools, hoses, and disposable gloves, will be either decontaminated or disposed of after each use. The decontamination procedure will consist of:

- Wash in a phosphate-free soap and water mixture;
- Rinse thoroughly in distilled water following washing; and
- Final rinse using distilled water.

Decontamination procedures will be conducted using three 5-gallon buckets with their respective wash/rinse solutions. Solutions will be replaced when they become cloudy and disposed of via transferal into 55-gallon waste drums.

4.4 Investigation-Derived Waste Management

Investigation derived waste (IDW) will be placed in labeled and sealed DOT-approved 55-gallon drums for temporary storage at the Site. IDW is anticipated to consist of soil cuttings, decon water, and purge water. IDW will be properly disposed in accordance with the applicable Federal, State, and local regulations.

5.0 QUALITY ASSURANCE PROCEDURES

Quality assurance is the process for evaluating the completeness, correctness, consistency, and compliance of a data package against a standard. Data is evaluated using quality control (QC) procedures employed in the field and in the laboratory. QC procedures in the field will consist of strict protocols for field sampling and decontamination and the collection of field blanks and blind duplicate samples for laboratory analysis. Laboratory QC procedures will include the analysis of matrix spike and matrix spike duplicates, surrogate spikes, method blanks, and laboratory control samples. A description of each type and the results of the analyses are presented below.

5.1 Field QC Samples

QC samples ensure that the sampling and field measurements activities are in control and generate quality data. QC samples for this project will consist of trip blanks, equipment blanks and duplicates/split samples.

- One trip blank will be collected per shipping container of samples during the course of the investigation. The trip blank will be submitted to the laboratory for VOC analysis. The trip blank will consist of a sample vial that is filled in the laboratory with ASTM Type II reagent grade water, transported to the site, handled like a sample and returned to the laboratory for analysis.
- Equipment blanks will be collected at a frequency of one per day. An equipment blank will be collected by pouring ASTM Type II reagent grade water through or over the purging or sampling device, transferring the water to a sample bottle, and transporting it to the laboratory for analysis.
- Field duplicates will be collected for every 10 samples collected of soil gas and groundwater. Field duplicates will be collected from one sampling location during a single act of sampling.
- Field measurement (organic vapor screening, pH, conductivity, temperature) QC checks will be collected daily. Five percent of all field measurements will be measured in duplicate.

5.2 Laboratory QC Samples

Laboratory QC samples will consist of method blanks, laboratory control samples, matrix spikes, matrix spike supplicate, and surrogate spikes.

- Method blanks will be analyzed at a minimum frequency of one per batch and the concentration of target compounds in the blank must be less than the practical quantitation limit (PQL).
- Laboratory control samples (LCSs) will be analyzed at a minimum frequency of one per batch. Laboratory control samples consist of blank spikes, which are used to determine the accuracy of the analytical procedure by measuring a known concentration of an analyte of interest.

- Surrogate spikes will be performed for all organic standards, samples and blanks. Each organic standard sample matrix spike, matrix spike duplicate, LCS and blank is spiked with surrogate compounds prior to purging or extraction. Surrogate spike recoveries must fall within the limits established by the analytical method and if a surrogate spike recovery is outside of acceptable ranges, then a corrective action will be taken.
- Matrix spike/matrix spike duplicates (MS/MSD) are conducted to evaluate the matrix effect of the sample on the analytical method. The MS/MSD analyses will be performed at a minimum frequently of one per each group of 20 samples of the sample matrix.

6.0 HEALTH AND SAFETY

6.1 General

Measures will be implemented at the Site to protect project personnel and the general public by reducing the risk to health and safety during the Work Plan implementation. A Site-specific HASP establishes procedures to reduce the risk at the Site.

6.2 Health and Safety Plan (HASP)

The Site-specific HASP for the AB&I Foundry was prepared in accordance with federal (29 CFR 1910.120) and State (C.C.R. Title 8, Section 5192) requirements and is presented as Appendix A of this Work Plan. During future phases of the project, the HASP may be updated, as needed. Changes to the HASP will be tracked and updated versions presented, as appropriate, with future project submittals.

7.0 REPORTING AND SCHEDULE

7.1 Reporting

A report presenting the results of the site investigation will be prepared and submitted to ACEH upon completion of field activities and laboratory analyses. The report will document the methodologies and results for sample collection and laboratory analyses. The report will present the findings of the Site investigation and interpretations as to the type, magnitude, and extent of contamination, if any. Analytical data will be presented in tabular format and annotated on the appropriate figures. Figures will include a Site location map, Site map showing the sample locations, and a Site map showing annotated contaminant concentrations. The report will contain all pertinent documentation such as permits, boring logs, laboratory reports, survey data, and COC forms. The final report will be reviewed in its entirety and signed by a California State-licensed professional geologist or engineer.

If warranted, the report will present recommendations for further investigative actions. Electronic copies of the report and other data will be submitted to ACEH's ftp site and the State Water Resources Control Board's (SWRCB's) Geotracker web site.

7.2 Schedule

The work proposed in this Revised Work Plan will be conducted according to the following tentative schedule:

Date	Activities
September 17, 2007	Submit Revised Work Plan to ACEH
September 28, 2007	ACEH review and approval of Revised Work Plan
September 17 through October 5, 2007	Pre-field activities/Access Permits
October 8 through October 19, 2007	Field work
October 22 through November 21, 2007	Data Analysis and Report Preparation
November 21, 2007	Report Submittal to ACEH

8.0 REFERENCES

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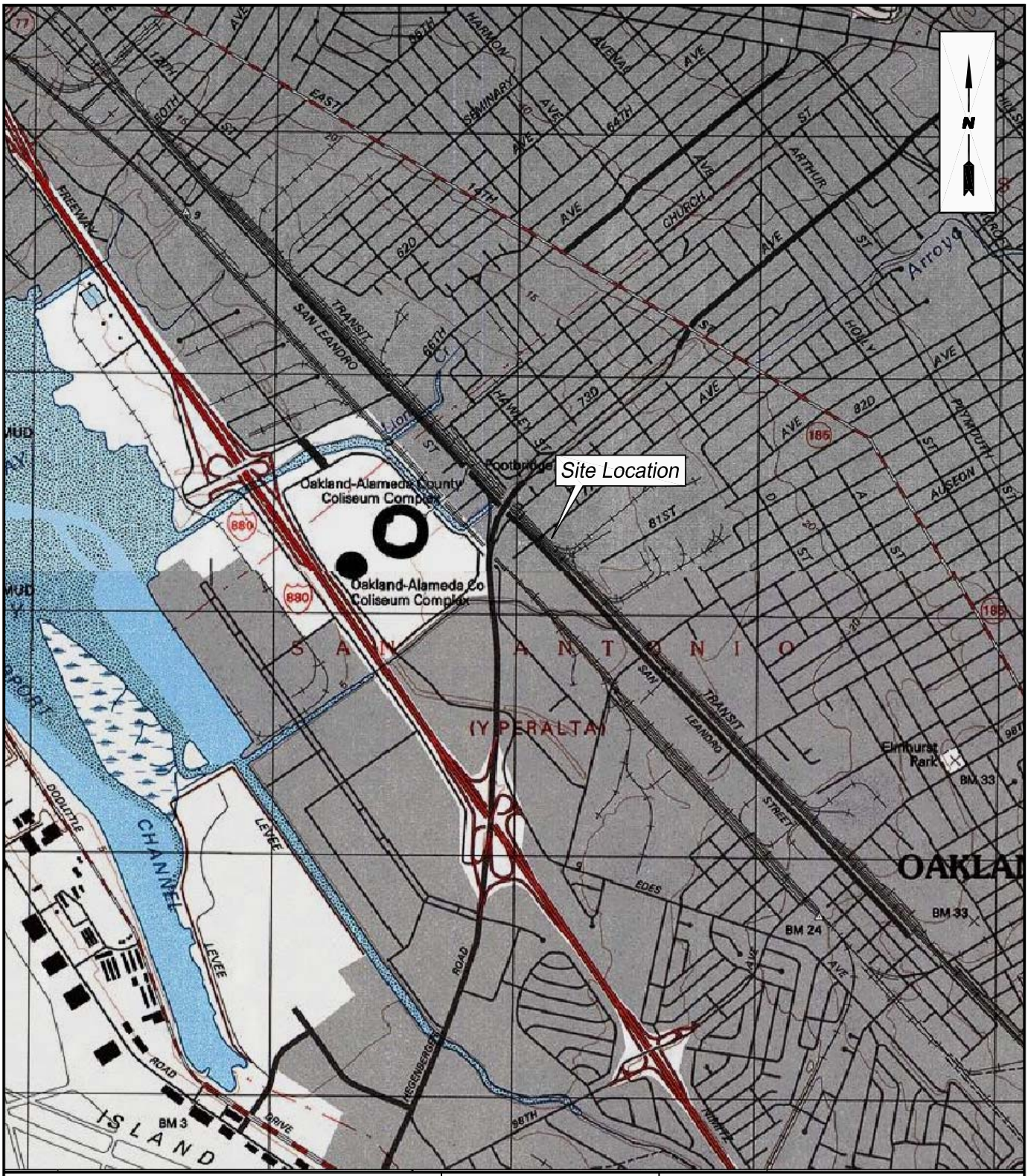
FIGURES



THE SOURCE GROUP, INC.
environmental

3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

SOURCE: U.S.G.S. 7.5' QUAD SHEET
OAKLAND EAST, CALIFORNIA
PHOTOREVISED 1997

SCALE: 0 FEET 2000 SCALE

SITE LOCATION MAP

CLIENT: AB&I FOUNDRY

DATE: 6/27/07

LOCATION: 7825 San Leandro Street
Oakland, California

FIGURE: 1

SAN LEANDRO STREET

Former 8,000-gallon Gasoline UST

Former 550-gallon Gasoline UST

Approximate Limits of Excavation

Former Fuel Dispenser Islands

Former Concrete Pad?

Approximate location of three 10,000-gallon USTs

MW-6

MW-3

MW-5

MW-4

Main Office Building

Finished Goods Storage

MW-9

Fuel Dispenser

Former 8,000-gallon 1,1,1-TCA UST

MW-8

MW-2

MW-2R

Fuel Pump and Piping

Pattern Storage

Shipping Yard

76TH AVENUE

Approximate Limits of Excavation

Production Area

HEAVY EQUIPMENT AREA (INACCESSIBLE)

Pipe Finishing

1,000-gallon Diesel AST

Former 10,000-gallon Diesel UST

MW-7

Approximate Limits of Excavation

SHED

MW-1

Custom Finishing

SCRAP PILE AREA

HEAVY EQUIPMENT AREA (INACCESSIBLE)

Waste Sand Storage

TANK

TANK(2)

Elmhurst Creek

Stormwater Treatment System

Water Supply Well

UNION PACIFIC RAILROAD

Legend

MW-7 Existing Monitoring Well Location

MW-2 Abandoned Monitoring Well

N

0 FEET 80

SCALE

SITE PLAN

AB&I FOUNDRY
7825 SAN LEANDRO STREET
OAKLAND, CALIFORNIA

The Source Group, Inc.
3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

Date: 6/24/07

Figure: 2

Figures v1.dwg

SAN LEANDRO STREET

Former 8,000–gallon Gasoline UST

Former 550–gallon Gasoline UST

Approximate Limits of Excavation

Former Fuel Dispenser Islands

Former Concrete Pad?

Approximate location of three 10,000–gallon USTs

Fuel Dispenser

Main Office Building

Former 8,000–gallon 1,1,1–TCA UST

Finished Goods Storage

Fuel Pump and Piping

Approximate Limits of Excavation

Pattern Storage

Production Area

HEAVY EQUIPMENT AREA (INACCESSIBLE)

Pipe Finishing

Former 10,000–gallon Diesel UST

1,000–gallon Diesel AST

Approximate Limits of Excavation

SHED

Legend

- MW–7 Existing Monitoring Well Location
- MW–2 Abandoned Monitoring Well
- △ Proposed Soil Gas Sample
- ● Proposed Boring with Soil Sample
- ⊕ Proposed Boring with Grab Groundwater Sample
- ⊕ Proposed Boring with Soil and Grab Groundwater Samples

N

0 FEET 45

SCALE

PROPOSED SAMPLE LOCATIONS

AB&I FOUNDRY
7825 SAN LEANDRO STREET
OAKLAND, CALIFORNIA

THE SOURCE GROUP, INC.
3451–C VINCENT ROAD
PLEASANT HILL, CA 94523

Date: 6/24/07

Figure: 3

Figs 2&3.dwg

TABLE

Table 1 Soil Sampling Plan
ABI Foundry
Oakland, California

UST	Number of Borings	Boring Location	Number of Samples per boring [1]	Boring Depth (feet bgs) [2]	Analyses [3]			
					VOCs [4]	TPHg [4]	TPHd [5]	CAM 17 Metals
Well MW-9 Area								
	3	Vicinity of well MW-9	TBD	15	X	X	X	
550-Gallon Gasoline UST								
	1	Center of UST	4	30	X	X		X
	3	Perimeter of UST Excavation	3	15	X	X		
	1	Fuel Dispenser Area	3	15	X	X		
3 10,000-Gallon USTs								
	1	Center of USTs	4	30	X	X	X	X
	4	Perimeter of UST Excavation	4	15	X	X	X	
	1	Downgradient of UST (Shipping Yard)	TBD	15	X	X	X	
10,000-Gallon Diesel UST								
	1	Center of UST	4	30	X		X	X
	3	Perimeter of UST Excavation	4	15	X		X	
	1	Downgradient of UST	1	15	X		X	
8,000-Gallon 1,1,1-TCA UST								
	1	Center of UST	4	30	X	X	X	X
	3	Perimeter of UST Excavation	4	15	X	X	X	
	7	Downgradient of UST	TBD	15	X	X	X	

Legend:
bgs = below ground surface
VOC = volatile organic compounds
UST = Underground Storage Tank
TPHg = Total Petroleum Hydrocarbons as gasoline
TPHd = Total Petroleum Hydrocarbons as diesel
1,1,1-TCA = 1,1,1-Trichloroethane
TBD = Number of samples will be selected based on screening in the field.

Notes:
[1] Number of samples per boring are approximate. Additional samples may be collected if soil staining or odors are observed in the lower five-feet of the boring.
[2] Total boring depths are approximate. Total depth may be revised if soil staining or odor is observed in the lower 5-feet of the boring.
[3] All analyses will be performed by State of California approved laboratory.
[4] VOCs and TPHg will be analyzed using EPA Method 8260B and 8015M, respectively.
[5] TPHd will be analyzed using EPA Method 8015M with silica gel cleanup.
[6] CAM 17 Metals will be analyzed using EPA Methods 6010B/7471A

APPENDIX A

HEALTH AND SAFETY PLAN

SITE HEALTH AND SAFETY PLAN

AB & I Foundry
7825 San Leandro Street
Oakland, California

Project No. 01-ABI-001

Prepared For:

AB&I Foundry
7825 San Leandro Street
Oakland, California

Prepared By:

SGI environmental THE SOURCE GROUP, INC.
3451-C Vincent Road
Pleasant Hill, California 94523

July 5, 2007

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The Source Group, Inc.

HEALTH AND SAFETY PLAN REVIEW AND APPROVAL

Kent Reynolds Project Manager	Signature:		Date:	July 5, 2007
Mark Labrenz Health & Safety Director	Signature:		Date:	July 5, 2007

1.0 GENERAL

1.1 Introduction

This document addresses site safety issues associated with soil and groundwater investigation activities at the AB&I Foundry site (AB&I, Site) located at 7825 San Leandro Street in Oakland, California (Figure 1). The Site activities are to be performed by The Source Group, Inc. (The Source Group) and its subcontractors. This Site Health and Safety Plan (HASP; the "Plan") have been developed for the use of The Source Group and its affiliates, and is specific to the tasks being conducted by The Source Group. The HASP may be used as a guidance document by properly trained and experienced subcontractors for The Source Group. However, The Source Group does not guarantee the health or safety of any person entering this Site, and understands that each subcontractor will prepare and operate under their own Health and Safety Plan.

Due to the potential hazardous nature of this Site and the activity occurring thereon, it is not possible to discover, evaluate, and provide protection for all possible hazards, which may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury at this Site. The health and safety guidelines in this Plan were prepared specifically for this Site and should not be used on any other site.

1.2 Purpose

The primary purpose of this HASP is to provide The Source Group and subcontract personnel with an understanding of the potential physical and chemical hazards that exist or may arise while the tasks of this project are being performed. Additionally, the information contained herein will define the safety precautions necessary to respond to such hazards should they occur.

1.3 Objective

The primary objective is to ensure the well being of all field personnel and the community surrounding the Site. In order to accomplish this, project staff and approved subcontractors shall acknowledge and adhere to the policies and procedures established herein.

1.4 Site History and Background

AB&I has been operating at its present location since at least 1930. Business activities include the manufacture of cast pipe and fittings. The facility accepts scrap iron and steel, which is stockpiles on-site, and uses during manufacturing activities. The Site encompasses an area of approximately 11.8 acres. At least seven USTs have been located on Site at one time. These USTs included two 8,000-gallon USTs used for storing unleaded gasoline and mineral spirits/1,1,1 Trichloroethane

(1,1,1-TCA), a 550-gallon UST used for storing regular leaded gasoline, a 12,000-gallon UST used for storing diesel, and three 10,000 gallon-USTs.

Five investigations have been conducted at the Site since 1991. Four of the five investigations consisted of UST closure reports that were written as part of the UST removal program conducted at the Site between August 1991 and June 1992. The UST removal program included the removal of the four remaining USTs located on the Site. All four USTs were removed under ACDEH permit. Three 10,000-gallon USTs were removed prior to this UST removal program in 1987 without permits. The USTs removed during the program included:

In general, analytical results for the soil and groundwater samples collected from locations adjacent to the USTs during the tank removal projects reportedly showed detectable concentrations of total petroleum hydrocarbons as gasoline (TPHg), as diesel (TPHd), 1,1-dichloroethane (1,1 DCA), chloroethane, and 1,1,1-TCA. Affected soil at each former tank location was excavated until confirmation samples indicated the chemicals of concern were at relatively low concentrations using a photoionization detector (PID), or to where an obstruction made further excavation impracticable and/or hazardous. During excavation activities at the former 1,1,1-TCA storage tank, a 3-inch layer of tar was observed 3.5 feet below the ground surface.

In 1993 BSK installed four groundwater monitoring wells (MW-1 to MW-4) to comply with a request by the ACDEH for a preliminary assessment of the areas surrounding each removed USTs.

Groundwater monitoring of the wells from the period 1993 to 1997 indicated the presence of petroleum hydrocarbons and chlorinated compounds in the groundwater in the vicinity of the USTs.

On July 14, 2006, one groundwater sample from each of the existing monitoring wells (MW-1, MW-3 and MW-4) was submitted for chemical analysis for TPHg and TPHd using EPA Method 8015M as well as benzene, toluene, ethylbenzene and xylenes (BTEX). Well MW-2 was found to be damaged beyond repair. The three samples were also analyzed for volatile organic compounds (VOCs), including fuel oxygenates using EPA Method 8260M.

As discovered on July 14, 2006, monitoring well MW-2, installed in 1993, was damaged beyond repair and was abandoned on August 13, 2006. On August 12, 13 and 18, 2006, drilling for the installation of six groundwater monitoring wells was preformed utilizing a truck mounted drill rig using hollow stem auger. The six wells were identified as MW-2R, and MW-5 through MW-9. The wells were constructed with schedule 40, 2-inch diameter, polyvinyl chloride (PVC) casing. On 17, 18, and 23 August 2006, the three existing and six new monitoring wells were sampled. One groundwater sample from each of the previously existing wells (MW-1, MW-3, and MW-4) was analyzed for polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270C. Groundwater samples from the six newly installed wells (MW-2R, MW-5, MW-6, MW-7, MW-8 and MW-9) were submitted for chemical analysis for TPHg and TPHd using EPA Method 8015M, BTEX by EPA Method 8020, VOCs including fuel oxygenates by EPA Method 8260M and PAHs using EPA

Method 8270C. In addition, soil samples were collected at various depth intervals during the installation of monitoring wells MW-5, MW-6, MW-7, and MW-8 and analyzed for metals using EPA Method 6020 and VOCs using EPA Method 8260B.

Results of the August 2006 sampling event for all nine wells indicate that five of the nine wells had concentrations of at least one compound that exceeded their respective maximum contaminant level (MCL) or California State Water Board - San Francisco Bay Region's Environmental Screening Limits (ESLs). The five wells with exceedences included wells MW-3, MW-8, MW-9, MW-2R, and MW-4. All five wells had concentrations of TPH gas above ESLs. Benzene was detected at concentrations above its respective ESL in well MW-9. Chlorinated VOCs (CVOCs) were detected in wells MW-8, MW-3, and MW-2R at concentrations that exceeded their respective maximum contaminant level (MCL). Well MW-8 had exceedences for four CVOCs (1,1-DCA, 1,1-DCE, 1,1,1-TCA and vinyl chloride), well MW-3 had exceedences for two CVOCs (1,1-DCA and 1,1-DCE), and well MW-2R had exceedences for chloroethane. The remaining four wells (MW-4, MW-6, MW-5, and MW-1) had detectable concentrations of petroleum hydrocarbons and/or CVOCs. However, none of the concentrations exceeded their respective MCLs or ESLs.

2.0 PROJECT PERSONNEL

The Source Group and its subcontractors will act in accordance with applicable federal, State, regional, and local regulations during all phases of the project. The following management structure will be instituted for the purpose of successfully and safely completing this project.

2.1 Contact Summary

LOCAL EMERGENCY NUMBERS

CONTACT	NAME	TELEPHONE NO.
Hospital	San Leandro Hospital	(510) 357-6500 or 911
Ambulance	Ambulance	911
Police/Sheriff	Oakland Police Dept.	911
Fire	Oakland Fire Dept.	911

PROJECT PERSONNEL NUMBERS

CONTACT	NAME	TELEPHONE NO.
Site Health & Safety Officer	Nathan Colton The Source Group, Inc.	(925) 944-2856 ext. 325 (510) 323-5705
Project Manager and Principal in Charge	Kent Reynolds The Source Group, Inc.	(925) 944-2856 ext. 326 (925) 207-2257
Client Contact	Dave Robinson AB&I	(510) 632-3467 (510) 502-4807

PROJECT PERSONNEL NUMBERS (CONTINUED)

CONTACT	NAME	TELEPHONE NO.
Health & Safety Coordinator	Nathan Colton The Source Group, Inc.	(925) 944-2856 ext. 325 Mobile (520) 323-5705
Health and Safety Director	Mark Labrenz The Source Group, Inc.	(805) 373-9063 ext. 203

3.0 GENERAL HEALTH AND SAFETY REQUIREMENTS

3.1 Regulatory Compliance

All applicable California regulations in CCR Title 8 will be followed.

3.2 Minimum Training Requirements for Site Personnel

- 40-hour Hazardous Waste Operations Training (HAZWOPER) for those workers who regularly engage in hazardous waste operations onsite
- 24-hour HAZWOPER training for those workers that regularly or occasionally participate in activities onsite involving hazardous waste but are not expected to be exposed to levels above permissible exposure/published limits
- 8-hour Annual HAZWOPER Refresher Training
- 8-hour Supervisor HAZWOPER Training for Site Health and Safety Officer
- First Aid and cardiopulmonary resuscitation (CPR) Training for Site Health and Safety Officer

At the time of job assignment, special training will be provided to onsite personnel who may be exposed to unique or special hazards.

3.3 Employee Medical Monitoring

- All of The Source Group and subcontractor personnel involved with this project are required to have annual medical evaluations as specified in 29 CFR 1926.65 and CCR Title 8 Section 5192.
- Additional medical re-evaluations will be considered in the event of potential chemical exposures, symptoms, etc. while working on this Site.
- All of The Source Group and subcontractor personnel involved with this project are required to have annual respirator fit testing.

3.4 Respirator Maintenance, Fitting, and Decontamination

Respirators can be used to prevent dust and chemical exposure during Site activities. If respirators are required personal protective equipment (PPE), they will be cleaned daily according to procedures described below. Cartridges will be replaced when breakthrough is detected at any time while in use. Breakthrough for high efficiency particulate air (HEPA) cartridges will be determined by an increased resistance to breathing. All employees will be fit tested according to CCR Title 8 Section 5144 prior to working at the Site. The following checks

will be performed daily, in addition to the above:

- Exhalation valve – pull off plastic cover and check valve for debris or for tears in the neoprene valve, which could cause leakage.
- Inhalation valves – screw off both cartridges and visually inspect neoprene valves for tears. Make sure that the inhalation valves and cartridge receptacle gaskets are in place.
- Make sure a protective lens cover is in place (full-face respirator).
- Make sure you have the proper HEPA cartridges.
- Make sure that the facepiece harness is not damaged. The serrated portion of the harness can fragment which will prevent proper face seal adjustment.
- Make sure the speaking diaphragm retainer ring is hand tight.

3.4.1 Respirator Leak Test

Test the respirator for leakage by using both the positive- and the negative-pressure method. Lightly place your palm over the exhalation valve cover. Exhale gently. The body of the respirator should bulge slightly outward from your face. If any leakage is detected around the face seal, readjust the head harness straps and repeat the test until there is no leakage. If leakage is detected other than in the face seal, the condition must be investigated and corrected before another test is made. The negative-pressure test must also be made. Lightly place your palms or some impervious material, like Saran Wrap® over the cartridges or filter holders. Inhale gently. The face-piece should collapse against the face. The respirator must pass these two tightness tests before the respirator is used. The respirator will not furnish protection unless all inhaled air is drawn through suitable cartridges or filters. Respirators will not provide protection in oxygen-deficient atmospheres.

3.4.2 Decontamination of Respirators

After respirator use, the following steps should be used to clean your respirator:

- Wash with Alconox® solution and brush gently. (This step will remove any soil/solid particulate matter that may have been collected on the respirator during field activities.)
- Rinse with distilled/de-ionized water, making sure the inhalation and exhalation valves are clean and unobstructed.
- Rinse with distilled/de-ionized water.
- Wipe with sanitizing solution. (This step will assure the sterility of the respirator.)
- Allow your respirator to air dry.

- Place the respirator inside a sealed bag or a clean area away from extreme heat or extreme cold.

3.5 Illumination, Sanitation, and Confined Space Entry

3.5.1 Illumination

All general work tasks will occur outside during daylight hours. The illumination requirements in CCR Title 8 will be met.

3.5.2 Sanitation

The sanitation requirements regarding potable and non-potable waters, toilet facilities, and washing facilities will be followed as set forth in CCR Title 8 Sections 3362-3365.

3.5.3 Confined Space Entry

- Confined space entry is not expected for the work covered by this plan.

3.6 Safety Meetings

An initial site safety meeting will be conducted by The Source Group Site Health and Safety Officer or designee in conjunction with subcontractor(s) before work activities begin at the Site. At this meeting, it will be verified that all personnel have been provided with or have reviewed a HASP for the work activities to be performed at the Site. For The Source Group personnel and its subcontractors personnel whose employer(s) have adopted this HASP, the HASP will be reviewed, discussed and questions will be answered. Accordingly, all personnel assigned to this project shall read this HASP and sign the Health and Safety Plan Acknowledgement and Agreement Form (Appendix A) to certify that they have read, understood, and agreed to abide by its provisions. Individuals refusing to sign the Form will not be allowed to work on the Site.

During field operations, site safety meetings will be held prior to the start of work each day. In addition, as new tasks are started, or new hazards are identified, time will be taken to review work procedures to ensure that safe conditions are maintained. The individual site safety meetings will include discussions of site work plans, monitoring procedures, personal protective equipment, site rules, site hazards, emergency response procedures, and the requirements of this HASP. All personnel assigned to this project will sign the Tailgate Safety Meeting Form (Appendix B) to certify that they have understood issues discussed in the meeting and agreed to abide by the HASP. Individuals refusing to sign the Form will not be allowed to work on the Site.

3.7 Personnel Responsibilities

- Prior to beginning onsite work, the Project Manager will ensure the following are completed:
  - Employee training and medical clearance;
  - Subcontractor training and medical clearance; and
  - Utility clearance.

- Prior to beginning onsite work, the Project Manager will ensure the Health and Safety Acknowledgement and Agreement Form (Appendix A) is completed.
- Prior to beginning onsite work each day, the Site Health and Safety Officer will ensure the following forms are completed:
  - Daily Tailgate Safety Meeting Form (Appendix B);
  - Air Monitoring Equipment Calibration/Check Log (Appendix C); and
  - Air Monitoring Log (Appendix C).

- Within 24 hours of the end of fieldwork, the Site Health and Safety Officer will submit the completed HASP to the Health & Safety Coordinator.

- The Site Health and Safety Officer will oversee the overall Plan. He/she has the authority to stop work or prohibit any personnel from working onsite at any time for not complying with any aspect of the Plan.
- The Subcontractor Field Supervisor is responsible for implementing their Plan for his/her own employees.
- Each person on the Site has responsibility for their own health and safety, as well as assisting others in carrying out the Plan. Any person observed to be in violation of the Plan should be assisted in complying with the Plan, or reported to the Site Health and Safety Officer.
- Any Site personnel may shut down field activities if there is a real or perceived immediate danger to life or health.

3.8 Visitors

All visitors will sign into the Site. All visitors will read, understand, and sign the Health and Safety Acknowledgement and Agreement Form (Appendix A), acknowledging they have read and understand the HASP.

4.0 HAZARD ANALYSIS OF SITE TASKS

The potential for unknown hazards cannot be eliminated. Hazards can exist for all exposure routes; such as, inhalation, dermal contact, ingestion, and eye contact. Table 1 presents potential general site hazards and the corresponding procedures for hazard reduction.

Innumerable tasks will be carried out during future Site activities. The activity-specific addendums to this Site HASP will present a table that identifies hazards, standard operating procedures (SOPs), and required PPE for tasks associated with the specific activity.

5.0 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

5.1 Level D

Level D personal protection is required in those areas where respiratory protection is not a requirement. Level D is the minimum acceptable level of required PPE during Site activities.

Level D Requirements:

- Safety glasses;
- Hard hat;
- Ear plugs, if warranted;
- Long-sleeved shirt and pants; and
- Steel-toe boots.

If contact with groundwater or soil is expected: Nitrile 4 or 8 mil gloves

Other: _____

5.2 Level C

Level C personal protection is required in the area where respiratory protection of a lesser degree than the criteria established for Levels A or B is required, and the probability of skin contamination by dermal toxic materials is unlikely.

Level C Requirements:

- All Level D requirements;
- Air purifying respirator (half- or full-face);
- Cartridges (organic vapor/acid gas/HEPA);
- Gloves (Inner – 8 mil PVA or Viton, Outer – 11 mil PVA or Viton);
- Rubber overboots, steel-toed rubber boots, or disposable “booties”; and
- Chemical resistant suit (PE-coated Tyvek).

Other: _____

The Site Health and Safety Officer must notify the Health & Safety Coordinator at the end of work that day if Level “C” is used.

5.3 Level B

Level B personal protection is required in the area where maximum respiratory protection is required; however, there is a low probability of dermal toxicity. The use of Level B is not

anticipated at the Site.

5.4 Level A

Level A personal protection is required in the area where the highest levels of contamination exist and is designated as the area where maximum respiratory, skin, and eye protection are required. The use of Level A is not anticipated at the Site.

6.0 HAZARD ANALYSIS FOR EXPOSURE TO SITE CONTAMINANTS

Soil samples planned to be collected at the Site may be contaminated with TPH and chlorinated hydrocarbons. All soil from the Site should be handled and stored as if it is contaminated until and unless laboratory results indicate otherwise.

Potential effects of any exposure are dependent on several factors; such as, toxicity of a chemical, exposure duration, concentration of chemical producing the exposure, general health of person exposed, and individual use of hazard reduction methods. Table 2 presents exposure limits, physical descriptions, and toxicological effects for contaminants of concern at the Site.

7.0 AIR MONITORING

Whenever work is performed that might generate gases, organic vapors, dusts, fumes, mists, or other airborne hazardous materials, air monitoring will be conducted. Breathing zone air monitoring will be conducted periodically throughout the day while work is being performed under above conditions, and results will be documented (see Appendix C). The following Instruments may be used to monitor air quality:

- Photoionization detector (PID) – It will be used to detect trace concentrations of certain organic gases and a few inorganic gases in the air. The PID detects mixtures of compounds simultaneously. PID readings do not measure concentrations of any individual compound when a mixture of compounds is present. The PID will serve as the primary instrument for personnel exposure monitoring.

  If the PID indicates the presence of hydrocarbons in the breathing zone greater than 5 parts per million (ppm) above baseline then a work will be stopped until a respirator is donned and further monitoring is put into place.

Table 3 presents the action levels for chemical monitoring.

8.0 SITE CONTROL

Only personnel who have completed 40 hours of HAZWOPER training or 8 hour refresher as defined under 29 CFR 1910.120/1926.65 or hazardous waste refresher training within the past twelve months, have passed a respirator fit test within the past twelve months, and are wearing the proper PPE will be allowed in the work area.

8.1 Designation of Work Zones

Specific work zones are identified for projects where contaminated soils are exposed and may release their contaminants to the air, or come in contact with field personnel. To minimize the migration of contaminant from the Site to uncontaminated areas, the following three works zones will be set up:

- Zone 1 – Exclusion Zone
- Zone 2 – Contamination Reduction Zone
- Zone 3 – Support Zone

The Exclusion Zone is the area where contamination occurs or could occur. Initially, the Exclusion Zone should extend a distance of 25 feet from the edge of intrusive activity unless conditions at the Site warrant either a larger or smaller distance as determined by the Site Health and Safety Officer. All persons entering the Exclusion Zone must wear the applicable level of protection. It is anticipated that work zones will be established at each individual area of intrusive work rather than encompass the entire Site.

The Support Zone is the area of the Site where significant exposure to contamination is not expected to occur during non-intrusive activities. The Support Zone is considered to be the "clean area" of the Site.

Between the Exclusion Zone and Support Zone is the Contamination Reduction Zone, which provides a transition between the contaminated and clean areas of the Site. The Contamination Reduction Zone will be located directly outside the Exclusion Zone. All personnel must decontaminate when leaving the Exclusion Zone. A Contamination Reduction Zone (decontamination area) will be established adjacent to each individual area of intrusive work.

9.0 DECONTAMINATION PROCEDURES

1. Personnel:

    - Wash face and hands with soap and water.

2. Sampling Apparatus:

    - Triple rinse in water; soapy water (liquinox)/tap water/de-ionized water.

3. Heavy Equipment (to be done by subcontractor):

    - Rinse with water, remove soil.

4. Level C Decontamination Stations (in order from the Exclusion Zone to Support Zone):

    - Wash and rinse outer garment, boots, and gloves;
    - Remove outer boots and gloves;
    - Change respirator cartridges (if returning to Exclusion Zone);
    - Remove inner gloves and outer garment;
    - Remove respirator; and
    - Clean hands and face.

5. The following equipment will be made available, or equivalent:

    - Emergency eyewash;
    - Soap/detergent solution and water rinse;
    - Soap gel or disposable wipes;
    - Disposable towels;
    - Plastic sheeting; and
    - Cleaning brushes and tubs.

10.0 GENERAL PROCEDURES

- Utility Clearance will be completed prior to beginning any subsurface work.
- Daily Health and Safety Briefings will be held by the Site Health and Safety Officer (Tailgate Safety Meeting Form [Appendix B]).
- Establish Exclusion Zone, and set up Contamination Reduction Zone and Support Zone when upgrading to Level C.
- Perform regular air monitoring with PID outfitted with 11.7 eV detector and personal LEL/O_2 meter in working zone.
- Try to remain upwind when collecting samples, venting wells, etc. It is important to avoid contact with chemicals.
- Potable water must always be available at the work site.
- If toilet facilities are not located within a 5-minute walk from the decontamination facilities, either provide a chemical toilet and hand washing facilities or have a vehicle available (not the emergency vehicle) for transport to nearby facilities.
- Provide dust control by spraying soils with water or a surfactant/water solution.
- Use ground fault circuit interrupters for plug-in electrical devices and extension cords.
- Hearing protection in the form of disposable earplugs will be worn around heavy equipment, machinery, or when two individual five feet or less apart need to shout to be heard.
- Be aware of tripping hazards with extension cords, tools, hoses, augers, etc.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer of materials is prohibited in the work areas.
- Beards or other facial hair that interfere with respirator fit are prohibited for those individuals who may be required to use respiratory protection.

11.0 CONTINGENCY PLAN

11.1 Injury or Illness

If an injury or illness occurs, take the following action:

- Get First Aid for the person immediately.
- Notify the Site Health and Safety Officer. The Site Health and Safety Officer is responsible for immediately notifying the Project Manager, and preparing and submitting an Injury/Illness Incident Report (Appendix D) to the Health and Safety Director within 24 hours, as well as notifying the employee's supervisor and Principal-in-Charge. If a subcontractor employee is injured, the Subcontractor Field Supervisor will also complete their own injury/illness investigation and submit a copy of their report to The Source Group Health and Safety Director as well.
- The Site Health and Safety Officer will assume charge during a medical emergency.

11.2 Site Incident

If an incident occurs, take the following action:

- Notify the Site Health and Safety Officer immediately. The Site Health and Safety Officer is responsible for immediately notifying the Project Manager, and preparing and submitting a Site Incident Report (Appendix E) to the Health and Safety Director within 24 hours.

11.3 Local Emergency and Project Telephone Numbers

See Section 2.0.

11.4 Decontamination Procedures During an Emergency

Decontamination of an injured or exposed worker or during a Site emergency should be performed only if decontamination does not interfere with essential treatment or evacuation. If a worker has been injured or exposed and decontamination can be done, then wash, rinse, and/or cut off protective clothing and equipment.

If a worker has been injured or exposed and cannot be decontaminated, then perform the following tasks:

- Wrap the victim in blankets, plastic, or rubber to reduce contamination of other personnel;
- Alert emergency and offsite medical personnel to potential contamination; and
- Have the Site Health and Safety Officer or other personnel familiar with the incident and contaminants at the Site accompany the victim to the hospital. If possible, send a copy of the appropriate Material Safety Data Sheets (MSDSs) with the victim.

11.5 Emergency Medical Treatment and First Aid Procedures

Emergency medical treatment or First Aid may be administered at the Site the Site Health and Safety Officer or other personnel who have been certified in First Aid.

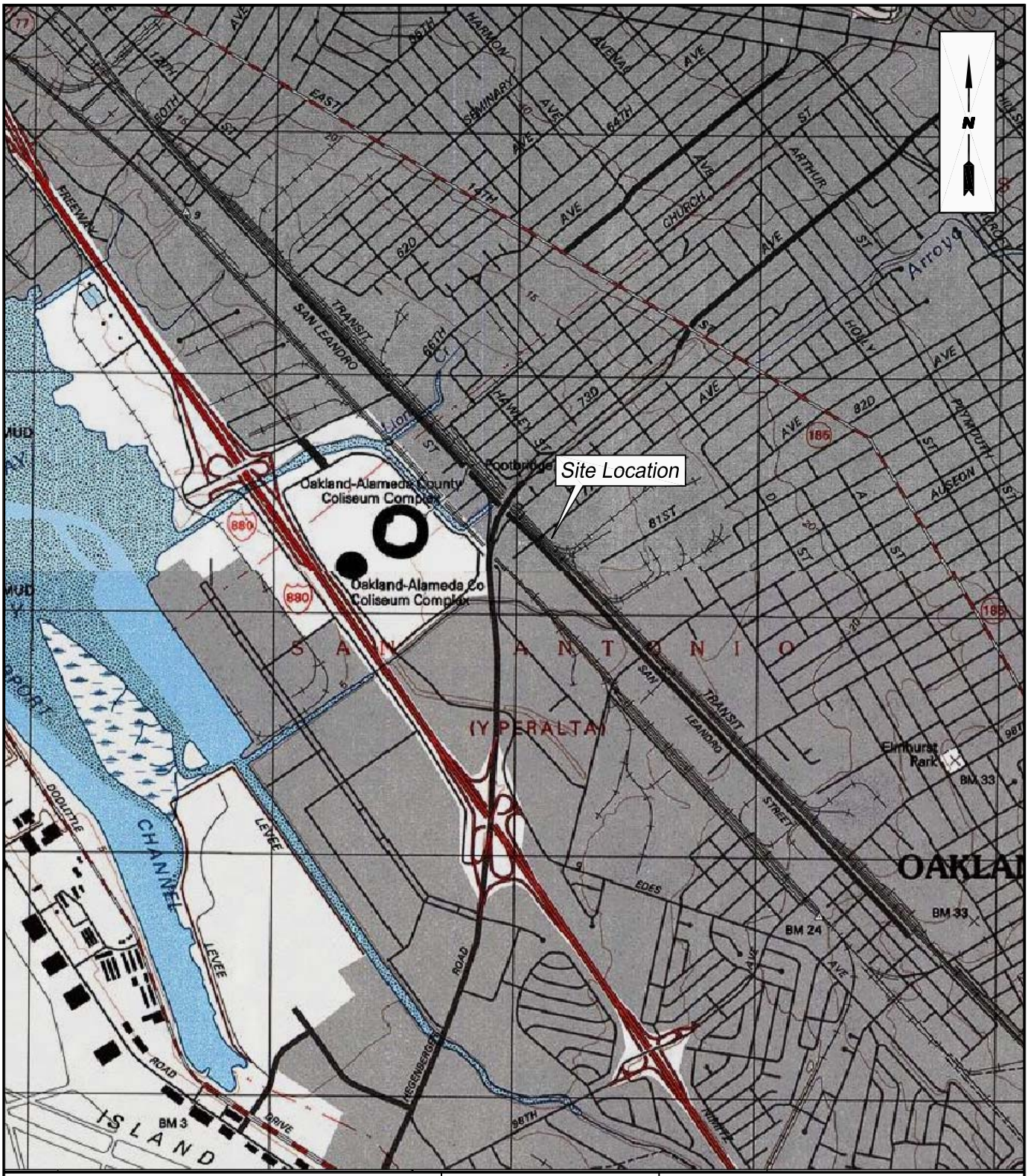
General emergency medical and First Aid procedures are as follows:

- Remove the injured or exposed person(s) from immediate danger.
- Render First Aid as needed; decontaminate affected personnel, if necessary.
- Call an ambulance for transport to local hospital immediately. This procedure should be followed even if there is no apparent serious injury.
- Evacuate other personnel at the Site to safe places until the Site Health and Safety Officer determines that it is safe for work to resume.
- Report the incident to the Health and Safety Director.

11.6 Directions to the Hospital from the Site

The route and directions to the nearest local hospital from the Site are illustrated in Figure 3.

FIGURES



THE SOURCE GROUP, INC.
environmental

3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

SOURCE: U.S.G.S. 7.5' QUAD SHEET
OAKLAND EAST, CALIFORNIA
PHOTOREVISED 1997

SCALE: 0 FEET 2000 SCALE

SITE LOCATION MAP

CLIENT: AB&I FOUNDRY

DATE: 6/27/07

LOCATION: 7825 San Leandro Street
Oakland, California

FIGURE: 1

SAN LEANDRO STREET

Former 8,000-gallon Gasoline UST

Former 550-gallon Gasoline UST

Approximate Limits of Excavation

Former Fuel Dispenser Islands

Former Concrete Pad?

Approximate location of three 10,000-gallon USTs

MW-6

MW-3

MW-5

MW-4

Main Office Building

Finished Goods Storage

MW-9

Fuel Dispenser

Former 8,000-gallon 1,1,1-TCA UST

MW-8

MW-2

MW-2R

Fuel Pump and Piping

Pattern Storage

Shipping Yard

76TH AVENUE

Approximate Limits of Excavation

Production Area

HEAVY EQUIPMENT AREA (INACCESSIBLE)

Pipe Finishing

1,000-gallon Diesel AST

Former 10,000-gallon Diesel UST

MW-7

Approximate Limits of Excavation

SHED

MW-1

Custom Finishing

SCRAP PILE AREA

HEAVY EQUIPMENT AREA (INACCESSIBLE)

Waste Sand Storage

TANK

TANK(2)

Elmhurst Creek

Stormwater Treatment System

Water Supply Well

UNION PACIFIC RAILROAD

Legend

MW-7 Existing Monitoring Well Location

MW-2 Abandoned Monitoring Well

N

0 FEET 80

SCALE

SITE PLAN

AB&I FOUNDRY
7825 SAN LEANDRO STREET
OAKLAND, CALIFORNIA

The Source Group, Inc.
3451-C VINCENT ROAD
PLEASANT HILL, CA 94523

Date: 6/24/07

Figure: 2

Figures v1.dwg

MAPQUEST

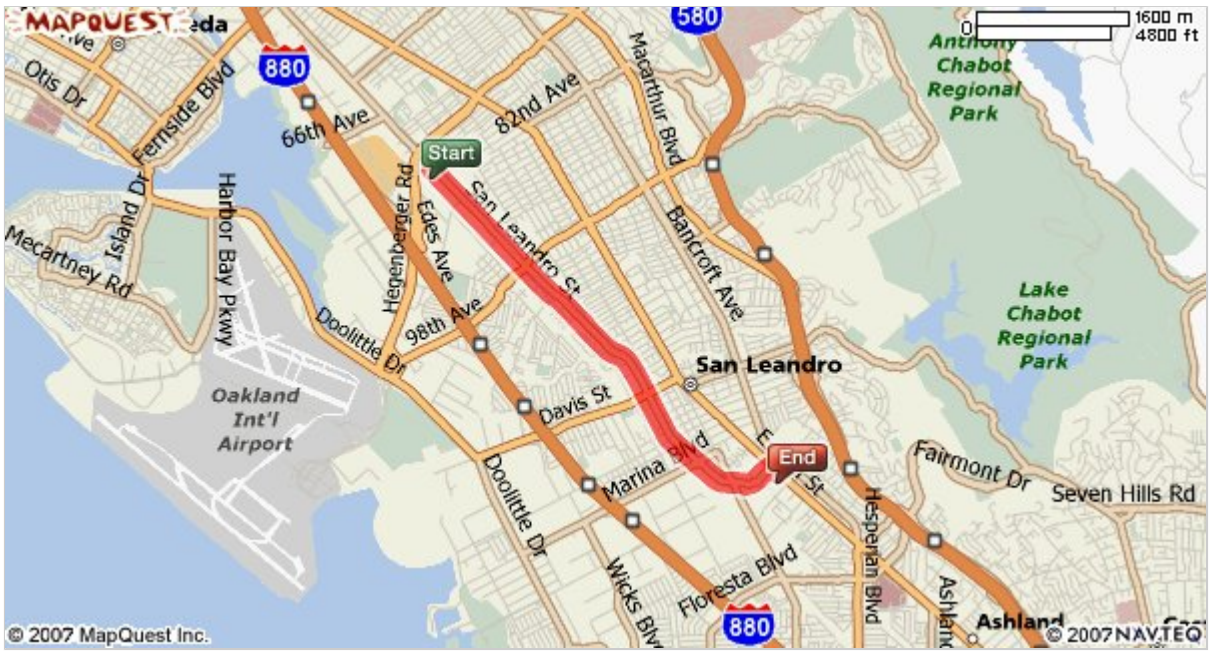
Start: **AB & I Foundry:** 510-632-3467
7825 San Leandro St, Oakland, CA 94621, US

End: **San Leandro Hospital:**
510-357-6500
13855 E 14th St, San Leandro, CA 94578, US

Notes:

Figure 3. Directions to San Leandro Hospital - Phone # 510-357-6500

Directions		Distance
Total Est. Time: 9 minutes	**Total Est. Distance:** 4.08 miles	
START	**1:** Start out going SOUTHEAST on SAN LEANDRO ST toward 81ST AVE.	1.8 miles
	2: SAN LEANDRO ST becomes SAN LEANDRO BLVD.	2.1 miles
	3: Turn RIGHT onto E 14TH ST / CA-185.	<0.1 miles
END	**4:** End at **San Leandro Hospital:** 13855 E 14th St, San Leandro, CA 94578, US	
Total Est. Time: 9 minutes	**Total Est. Distance:** 4.08 miles	



Start:
AB & I Foundry: 510-632-3467
7825 San Leandro St, Oakland, CA 94621, US

End:
San Leandro Hospital: 510-357-6500
13855 E 14th St, San Leandro, CA 94578, US

TABLES

TABLE 1
Hazards, SOPs and PPE for General Site Activities
AB&I Foundry, Oakland, California
July 5, 2007

HAZARDS	STANDARD OPERATING PROCEDURES (SOPs)	PERSONAL PROTECTIVE EQUIPMENT (PPE)
▪ Ingestion of hazardous materials can occur by accidental swallowing of contaminated soils, liquids and/or transfer of the contaminated particles onto ingestible substances (such as food).	▪ Eating, smoking, drinking, and application of cosmetics is prohibited onsite. This minimizes the possibility of exposure to hazardous materials potentially encountered onsite via ingestion.	
▪ Physical hazards; such as, a. Slippery surfaces b. Noise		a. Approved ear plugs or muffs will be made available when operating noise producing equipment.
c. Contaminated surfaces	▪ Contact with contaminated surfaces, or surfaces suspected of being contaminated, without appropriate PPE, should be avoided.	b. Appropriate PPE will be required.
d. Exposure	▪ Heat stress – Provide plenty of liquids to replace loss of body fluids. Appropriate liquids should consist of juices, juice products, and water. Establish a work schedule that will provide sufficient rest periods for cooling down. As the temperature increases, more frequent and longer rest periods are required. ▪ Cold stress – Establish a work schedule that will provide sufficient rest periods for warming-up. As the temperature drops, more frequent and longer rest periods are required. Provide adequate thermal protective clothing.	
e. Head/eye protection		e. ANSI approved hard hats and safety glasses will be worn at all times while onsite, when head or eye hazards are present.
f. Other hazards	▪ Avoid standing near the edge of open vaults.	

TABLE 2
List of Potential Contaminants Onsite
AB&I Foundry, Oakland, California
July 5, 2007

CHEMICAL (OR CLASS)	REL-TWA ----------PEL-TWA	OTHER PERTINENT LIMITS	WARNING PROPERTIES	ROUTES OF EXPOSURE OR IRRITATION	ACUTE HEALTH EFFECTS	CHRONIC HEALTH EFFECTS/ TARGET ORGANS
Cis-1,2-Dichloroethene (1,2-DCE)	200 ppm	IDLH = 1,000 ppm LEL = 5.6% UEL = 12.8%	Colorless liquid with a slightly acrid, chloroform-like odor	Inhalation, ingestion, skin and/or eye contact	Irritation of eyes, respiratory system; CNS depression	Eyes, respiratory system, CNS
	200 ppm					
Tetrachloroethene (PCE)	NA	PEL Ceiling = 200 ppm IDLH = 150 ppm	Colorless liquid with a mild, chloroform-like odor	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation of eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin redness; liver damage	Cancer (in animals: liver); eyes, skin, respiratory system, liver, kidneys, CNS
	100 ppm					

TABLE 2 (Continued)
List of Potential Contaminants Onsite
AB&I Foundry, Oakland, California
July 5, 2007

CHEMICAL (OR CLASS)	REL-TWA ---------- -PEL- TWA	OTHER PERTINENT LIMITS	WARNING PROPERTIES	ROUTES OF EXPOSURE OR IRRITATION	ACUTE HEALTH EFFECTS	CHRONIC HEALTH EFFECTS/ TARGET ORGANS
Gasoline Hydrocarbons (Ethyl benzene, toluene and xylene)	NA	LEL = 1.4% UEL = 7.6%	Clear liquid with a characteristic odor	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation of eyes, skin, mucous membrane; dermatitis; headache, weakness, exhaustion, blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis; possible liver and kidney damage	Cancer (in animals: liver and kidney); eyes, skin, respiratory system, CNS, liver, kidneys
Trichloroethene (TCE)	NA	PEL Ceiling = 200 ppm IDLH = 1,000 ppm LEL = 8.0% UEL = 10.5%	Colorless liquid with a chloroform-like odor	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache; visual disturbance, weakness, exhaustion, dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury	Cancer (in animals: liver and kidney); eyes, skin, respiratory system; heart, liver, kidneys, CNS
Chloroethane	1000 ppm	IDLH = 3,800 ppm	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor.	Inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact	Incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage	Liver, kidneys, respiratory system, cardiovascular system, central nervous system

TABLE 2 (Continued)
List of Potential Contaminants Onsite
AB&I Foundry, Oakland, California
July 5, 2007

CHEMICAL (OR CLASS)	REL-TWA ----------PEL-TWA	OTHER PERTINENT LIMITS	WARNING PROPERTIES	ROUTES OF EXPOSURE OR IRRITATION	ACUTE HEALTH EFFECTS	CHRONIC HEALTH EFFECTS/ TARGET ORGANS
Lead	0.05 mg/m3	IDLH = 100 mg/m3	A heavy, ductile, soft, gray solid. Noncombustible solid in bulk form	Inhalation Ingestion Direct Contact	Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue
Vinyl Chloride	1 ppm		Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations	Inhalation, skin, and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite

REL-TWA = Recommended Exposure Limit-Time Weighted Average (8 hours).
mg/m^3 = milligram per cubic meter.
PEL-TWA = Permissible Exposure Limit -Time Weighted Average (8 hours).
STEL = Short Term Exposure Limit (15 minutes).
IDLH = Immediately Dangerous to Life or Health.
LEL = Lower Explosive Limit in air
UEL = Upper Explosive Limit in air
Ceiling = limit not to be exceeded, even instantaneously.
CNS = Central Nervous System.
ppm = part per million.
NA = Not available.

TABLE 3
Action Levels for Chemical Monitoring
AB&I Foundry, Oakland, California
July 5, 2007

When in Level D PPE

Analyte	Monitoring Device	Action Level	Required Action
VOCs	PID	>5 ppm above background	Continue monitoring, upgrade to Level C PPE

When in Level C PPE

Analyte	Monitoring Device	Action Level	Required Action
VOCs	PID	≥ 50 ppm above background	Stop Work, continue at Level B PPE

APPENDIX A

ACKNOWLEDGMENT AND AGREEMENT FORM

The Source Group, Inc.

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM

(All of The Source Group and subcontractor personnel must sign.)

I acknowledge I have reviewed a copy of the Health and Safety Plan for this project, understand it, and agree to comply with all of its provisions. I also understand I could be prohibited by the Site Health and Safety Officer or other personnel of The Source Group from working on this project for not complying with any aspect of this Health and Safety Plan:

Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date
Name	Signature	Company	Date

APPENDIX B

TAILGATE SAFETY MEETING FORM

The Source Group, Inc.
TAILGATE SAFETY MEETING FORM

The Source Group, Inc.
3451-C Vincent Road
Pleasant Hill, CA 94523
(925) 944 – 2856
Kent Reynolds, Project Manager Ext. 326

AB&I Foundry
7825 San Leandro Street
Oakland, CA

Date_____ Time_____

Specific Location_____

Type of Work_____

Chemicals Used_____

_____

SAFETY TOPICS

Chemical Hazards_____

_____

Physical Hazards_____

_____

Electrical Hazards_____

_____

Other Hazards_____

Print Name	**Signature**

Hospital
13855 E 14th Street
San Leandro, CA
(510) 357-6500

Fire Dept.
911

EMERGENCY DIAL 911

APPENDIX C

AIR MONITORING LOGS

The Source Group, Inc.

AIR MONITORING EQUIPMENT CALIBRATION/CHECK LOG

DATE	INSTRUMENT/ MODEL NO.	SERIAL NO.	BATTERY CHECK OK?	ZERO ADJUST OK?	CALIBRATION GAS (PPM)	READING (PPM)	LEAK CHECK (Colorimetric Tube Pump)	PERFORMED BY	COMMENTS

The Source Group, Inc.

AIR MONITORING LOG*

DATE	TIME	LOCATION	SOURCE/AREA/ BREATHING ZONE	INSTRUMENT	CONCENTRATION/UNITS	SAMPLED BY

*Notify the Health & Safety Coordinator or Health and Safety Director immediately if a PEL, TLV, or other limit is exceeded.

APPENDIX D

INJURY/ILLNESS INCIDENT REPORT

The Source Group, Inc.

INJURY/ILLNESS INCIDENT REPORT (Use additional space as necessary)

DATE OF INCIDENT _____ CASE NO. _____ TIME OF DAY _____

EMPLOYEE NAME _____ DATE OF BIRTH _____

HOME ADDRESS _____ PHONE NO. _____

SEX: MALE ___ FEMALE ___ AGE ___ JOB TITLE _____ SOCIAL SECURITY NO. _____

OFFICE LOCATION _____ DATE OF HIRE _____

WHERE DID INCIDENT OCCUR? (INCLUDE ADDRESS) _____

ON EMPLOYER'S PREMISES? YES ___ NO ___ PROJECT NAME/NO. _____

WHAT WAS EMPLOYEE DOING WHEN INCIDENT OCCURRED? (BE SPECIFIC) _____

_____

HOW DID THE INCIDENT OCCUR? (DESCRIBE FULLY) _____

_____

_____

WHAT STEPS COULD BE TAKEN TO PREVENT SUCH AN INCIDENT? _____

_____

OBJECT OR SUBSTANCE THAT DIRECTLY CAUSED INCIDENT? _____

_____

DESCRIBE THE INJURY OR ILLNESS _____ PART OF BODY AFFECTED _____

NAME AND ADDRESS OF PHYSICIAN _____

IF HOSPITALIZED, NAME AND ADDRESS OF HOSPITAL _____

LOSS OF ONE OR MORE DAYS OF WORK? YES/NO ___ IF YES, DATE LAST WORKED _____

HAS EMPLOYEE RETURNED TO WORK? YES/NO ___ IF YES, DATE RETURNED _____

DID EMPLOYEE DIE? YES/NO ___ IF YES, DATE _____

COMPLETED BY (PRINT) _____ SIGNATURE _____ DATE _____
(Supervisor or Site Health & Safety Officer)

EMPLOYEE SIGNATURE _____ DATE _____

PIC SIGNATURE _____ DATE _____

This report must be completed by the employee's supervisor or Site Health and Safety Officer immediately upon learning of the incident. The completed report must be reviewed and signed by the Principal-in-Charge and transmitted to Health and Safety Director and the Health & Safety Coordinator within 24 hours of the incident, even if employee is not available to review and sign. Employee or employee's doctor must submit a copy of the doctor's report to Health and Safety Director within 24 hours of the initial exam and any subsequent exams. For field injuries, submit a copy of the Health and Safety Plan.

APPENDIX E

SITE INCIDENT REPORT

The Source Group, Inc.

SITE INCIDENT REPORT

(Attach additional documentation as necessary)

Date of Incident: _____ Time of Incident: _____

Location of Incident: _____ Project Name: _____

Project Number: _____

Type of Incident* (check those that apply):

_____ "Near Miss" _____ Vehicle Accident

_____ Underground Property Damage _____ Fire

_____ Above-ground Property Damage _____ Evacuation

_____ Chemical Exposure _____ Regulatory Agency Inspection/Violation

Other (describe): _____

*Submit copy of Health & Safety Plan and Attachments for field-related incidents.

Description of Incident: _____

_____

Cause of Incident: _____

_____

Action Taken: _____

_____

Future Corrective Action: _____

_____

Estimated Amount of Damage: _____

_____

_____

Investigator Name Signature Date

_____

Principal-in-Charge Signature Date

cc: Health & Safety Director, Vice-president of Operations, Corporate Admin., and the Health & Safety Coordinator within 24 hours of incident.(ATTACHMENT 6)