

Conor Pacific

what about SB SSW of A68-1
Groundworks July 1995 rpt show
a SB was advanced ~ 2 feet upgrd
w/ much lower PCE in GW (22ppb)

June 18, 2001
Project No. CRA102

Ms. eva chu
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Workplan for Off-Site Characterization, Cargill Salt Alameda Facility

Dear Ms. chu:

This workplan describes a Scope of Work in response to a request from Alameda County Health Care Services (ACHCS) for further characterization of the groundwater conditions at the Cargill Salt facility at 2016 Clement Avenue in Alameda, California (Figure 1).¹ The goals of this workplan are to define the approximate limits of the volatile organic compounds (VOCs), primarily tetrachloroethene (PCE), in the off-site groundwater and to obtain information on the upper most water-bearing zone in order to evaluate remedial alternatives. We propose to collect soil and groundwater samples for analysis from the residential property west of the Cargill facility and from beneath the sidewalks along Clement Avenue.

SCOPE OF WORK

Figure 2 shows the locations where groundwater samples have been collected from the Cargill Salt facility and nearby vicinity. The groundwater sampling data show the approximate limits of the PCE concentrations in the first-encountered groundwater. The locations of the plume contours are estimated using data shown on Figure 2 as well as data from the plume transect sampling conducted in August 1999.² As shown on Figure 2, the highest PCE concentrations are along the western boundary of the facility and the inferred downgradient limit of the plume is beneath Clement Avenue.

This characterization involves collecting soil and groundwater samples to evaluate the off-site extent of VOCs in the soil and groundwater. Soil samples will be collected in the neighboring residential area to determine whether there are residual PCE concentrations in the soil that would have the potential to continue to impact the groundwater in this area. Groundwater samples will be collected to define the lateral edge and downgradient extent of the VOC plume in groundwater.

Canada

Vancouver
Victoria
Calgary
Edmonton
Saskatoon
Mississauga

Toronto

Ottawa

Halifax

St. John's

U.S.

Richmond

Mountain View

¹ Alameda County Health Care Services, *Offsite Investigation at 2016 Clement Avenue, Alameda, CA*; April 19, 2001.

² Crawford Consulting, Inc. and Conor Pacific/EFW, *Groundwater Characterization and Monitoring Well Installation, Cargill Salt - Alameda Facility*; January 31, 2000.

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Soil samples will also be collected from the water-bearing zone to evaluate the chemical transport properties and slug tests will be conducted in the on-site monitoring wells to determine the transmissivity of the water-bearing zone. The following tasks describe this Scope of Work in detail.

Task 1 – Prefield Activities

We will obtain the necessary drilling permit from the Zone 7 Water Agency of the Alameda County Flood Control and Water Conservation District. We will also obtain access to the public right-of-way areas adjacent to Clement Avenue and the residential property where we propose to collect groundwater samples. We will then contract with a utility-locating firm to identify underground utilities. A Health and Safety Plan, included as Attachment A, outlines the safety procedures for the activities described in this workplan.

Task 2 – Collect Groundwater and Soil Samples

Conor Pacific proposes to collect groundwater samples at eleven locations, as shown on Figure 3. Six sampling locations are proposed on the residential property. The groundwater samples will be collected at depths of approximately 10 feet with hand-auger sampling equipment. Two soil samples will be collected from each of the two borings on the southern portion of the residential property that are closest to the Cargill Salt facility. Auger cuttings will be screened in the field using an organic vapor analyzer to select soil samples. It is anticipated that one soil sample will be collected one to two feet above the soil-groundwater interface and one sample will be collected at or below the interface. These soil samples will be analyzed to determine whether VOCs are present in the shallow soils.

Five borings will be drilled along Clement Avenue. Two borings will be drilled on the southern side of the street to further define the western boundary of the plume. Three borings will be drilled along the northern side of the street to further define the downgradient extent of the plume. The borings will be completed by using a direct-push sampling rig, which utilizes two steel drill tubes with a percussion hydraulic hammer and vibrator. The inner tube advances a 3-foot-long, 1.5-inch-diameter sample tube. The outer 2.5-inch-diameter tube acts as temporary casing to prevent sloughing while withdrawing the smaller diameter inner sample tube with soil cores. Soil samples will be collected continuously to a depth of approximately 20 feet. Groundwater samples will be collected from borings from approximately 10 feet below ground surface using a Teflon bailer. The three samples from the northern side of Clement Avenue will be analyzed on a 24-hour priority turn-around to determine where to place a groundwater monitoring well.

Groundwater samples will be collected from each boring with a bailer and samples will be analyzed for VOCs according to U. S. EPA Method 8021B.

Soil samples will be collected from two borings and analyzed for total organic carbon and porosity, grain and bulk density, volumetric air and water content. These analyses are necessary to evaluate the chemical transport properties of the water-bearing zone.

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A geologist under the supervision of a California Registered Geologist will log the soil from all borings according to the Unified Soil Classification System. Borings will be backfilled with bentonite or bentonite-cement slurry.

Task 3 – Slug Tests

Slug tests will be completed at each of the three monitoring wells. These tests will be used to evaluate the transmissivity of the water-bearing zone, which is also necessary for evaluating the chemical transport properties.

Task 4 – Install Monitoring Well

Conor Pacific will evaluate the results from the three proposed sampling locations north of Clement Avenue. It is our opinion that if the analyses show less than 200 parts per billion (ppb) of PCE, plume definition is complete because the extent can be easily extrapolated from the information along Clement Avenue.

If the samples meet this 200 ppb criterion, the location with the highest concentrations will be selected for the installation of a permanent monitoring well.

If the concentrations of the three proposed sampling locations north of Clement Avenue are significantly greater than 200 ppb, a permanent well will not be installed, and we will evaluate locations for subsequent sampling. Any subsequent sampling is beyond the scope of this workplan.

The monitoring well will be constructed within the 2.5-inch-diameter outer sampling tube by using 1-inch-diameter, Schedule 40 flush-threaded PVC casing and 0.020-inch machine slotted screens. The entire saturated interval of the aquifer will be screened. An appropriately sized sand pack will be placed in the annular space around the casing from the bottom of the boring to approximately one foot above the top of the well screen. The sand pack size will be determined based on field observations. At least a 2-foot-thick seal of bentonite pellets will be placed above the sand pack. Above the bentonite, a sanitary seal of neat cement will be placed to within one foot of the ground surface. A watertight vault will be installed at the surface. The well will be capped with a watertight locking expansion well cap. The construction will be recorded on a well construction diagram. All down-hole drilling equipment, casing, and screen will be steam cleaned before use. Rinsate will be collected for appropriate disposal.

At least 48 hours after well installation, the well will be developed using surge and bail techniques. The well will be developed until water is free of sediment, and the temperature, pH, and specific conductance of the water has stabilized. Following development, the well will be purged and sampled. The water generated during development and purging will be contained for appropriate disposal. All sample collection and handling procedures will be conducted consistent with regulatory agency guidelines.

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Following well installation, the top-of-casing elevation of the well will be surveyed to the nearest 0.01-foot relative to mean sea level (MSL).

The groundwater samples from the well will be analyzed for VOCs according to U.S. EPA Method 8260 for low level VOC concentrations. The samples will also be analyzed for dissolved organic carbon, sulfate, nitrate, iron, and manganese. Task 5 – Prepare Report

Handwritten signature/initials

We will prepare a report documenting the findings from Tasks 2 through 4 for submittal to Alameda County Environmental Health Services. The report will describe the sampling methods and locations, results of the analyses, and recommendations.

SCHEDULE

We anticipate that the investigation as described above will require about 11 weeks to complete. The schedule for these activities is contingent on obtaining access to the adjacent residence and the public right-of-way along Clement Avenue.

Task 1 – Prefield Activities	3 weeks
Task 2 – Groundwater and Soil Sampling	1 week
Task 3 – Slug Tests	1 week
Task 4 – Monitoring Well Installation and Sampling	3 weeks
Task 5 – Prepare Report	<u>3 weeks</u>
Total Time	11 weeks

Please call if you have questions concerning this workplan.

Sincerely,
Conor Pacific

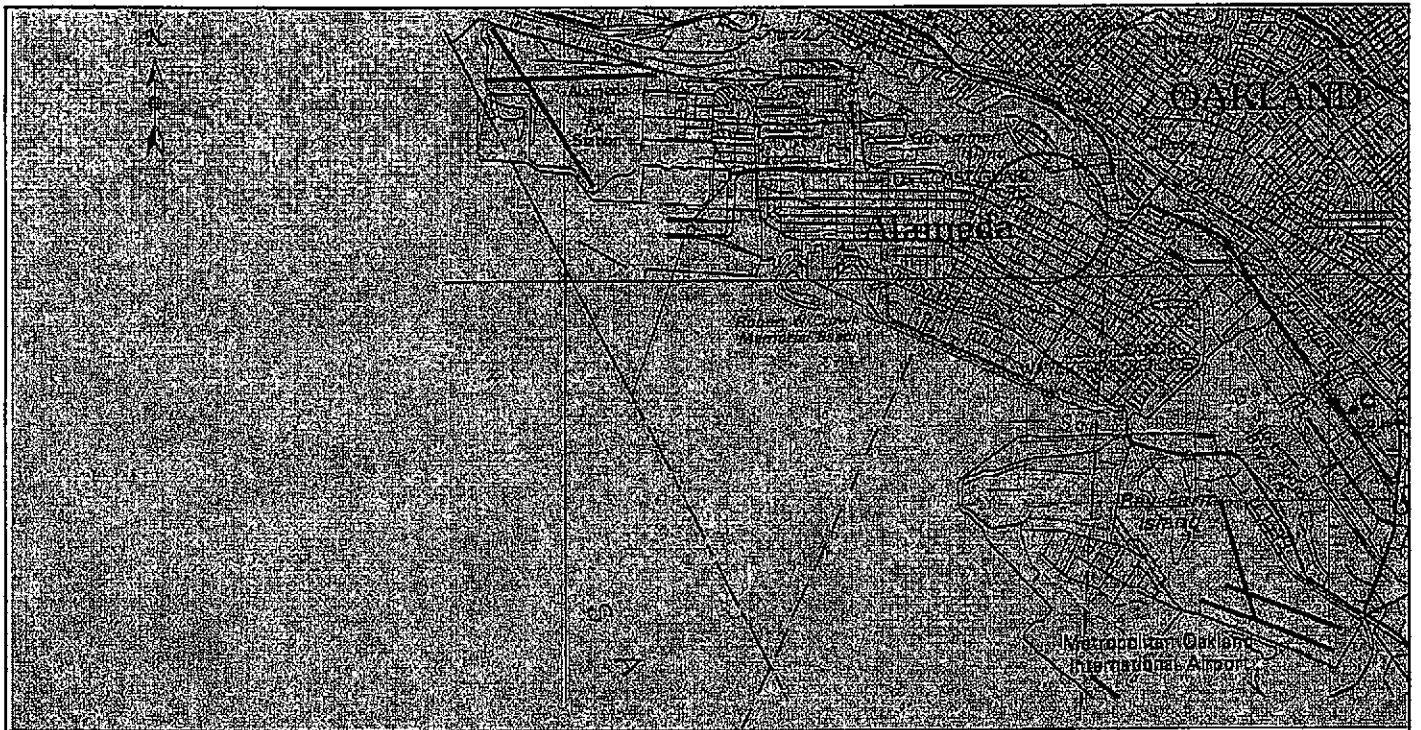


Mark Smolley
Senior Geologist

Attachments:

- Figure 1 - Site Location
- Figure 2 - Previous Sampling Results
- Figure 3 - Proposed Sampling Locations

Attachment A – Site Health and Safety Plan



**CRAWFORD
 CONSULTING
 INC.**

**Cargill Salt Dispensing Systems Division
 2016 Clement Avenue, Alameda, California
 Figure 1. Site Location**



Parking Lot

ACE LIQUIDATORS

EXPLANATION

● Monitoring well

8/99 411 ● Grab groundwater sample

— PCE concentration (ug/L)
Sample date
ND=Not detected

Clement Avenue

Property line
Curb line (Typ.)

AP-3
9/94 4.2

AP-4C
9/94 0.6

11/00 880

8/99 411

11/00 ND

Office

Parking Area

GOLDEN GATE SHEET METAL WORKS

Estimated 10 ppb PCE contour line

Residence

Brick

Shed

Concrete

AGB-3
10/93 890

AGB-1
10/93 11,000

B-6
8/99 1.09

B-4
8/99 73.1

MW-2
11/00 1700

B-2

B-4

B-7

B-12

MW-3

SITE

Driveway

Building

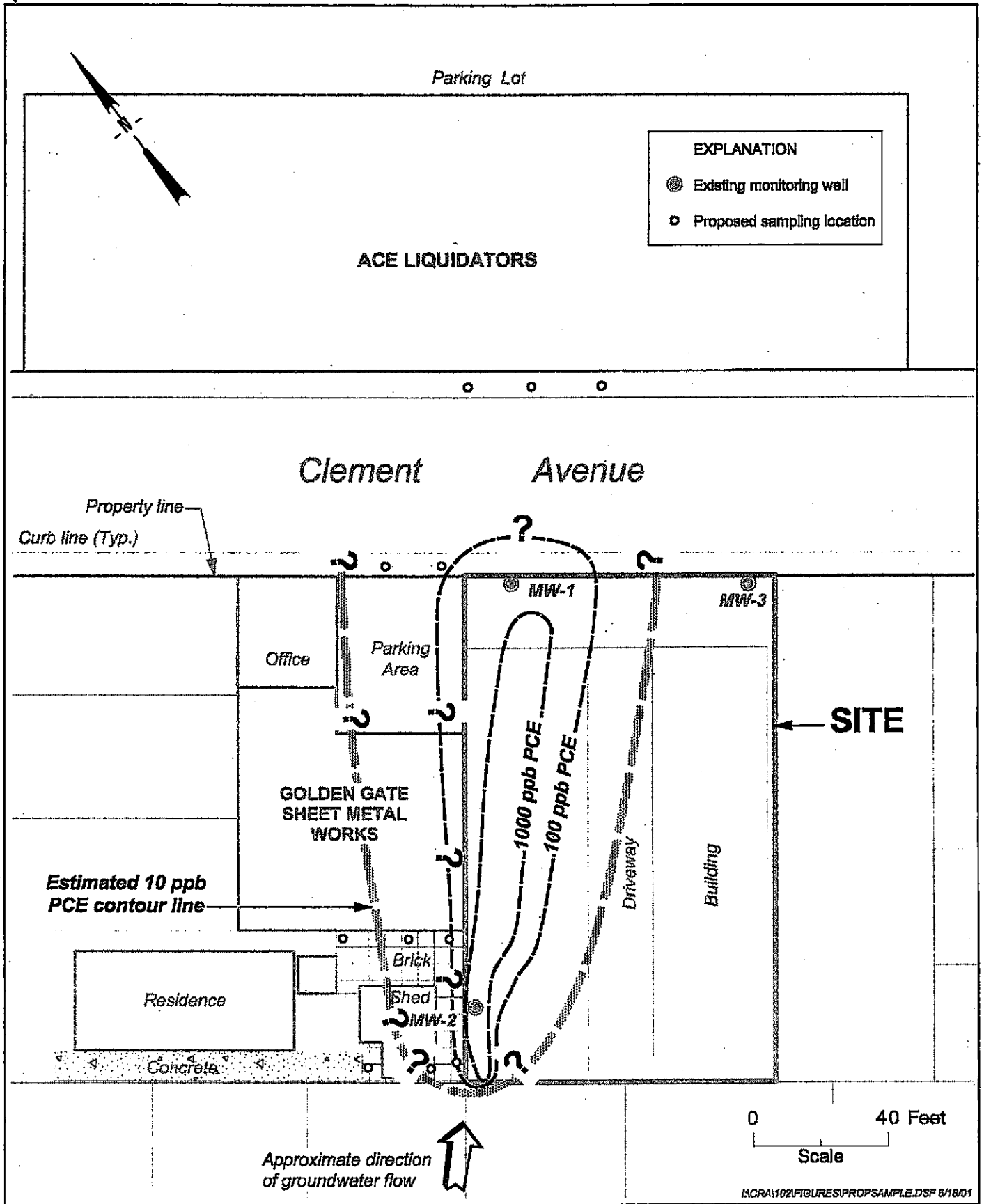
Approximate direction of groundwater flow

0 40 Feet
Scale

HCRA\102\FIGURES\PREVSAMPLERESULTS.DSF 6/18/01

Conor Pacific

Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
Figure 2. Previous Sampling Results



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Cargill Salt Dispensing Systems Division
2016 Clement Avenue, Alameda, California
Figure 3. Proposed Sampling Locations

Attachment A
SITE HEALTH AND SAFETY PLAN
Cargill Salt Alameda Facility

PROJECT INFORMATION

Project Name: Soil and Groundwater characterization and monitoring well installation
Project Manager: Mark Smolley
Office Phone No.: 650 386-3828 cell 415 271-0977

SITE INFORMATION

Site Owner: Cargill Salt
Site Address: 2016 Clement Avenue
County: Alameda
Directions to Site: Near intersection of Chestnut and Clement, in Alameda
Type of Facility: Machine shop
Site Owner Contact: Barbara Ransom @ 510-790-8182
Site Contact: Joe Esmond and David @ 510-523-6191

EMERGENCY INFORMATION

Emergency Phone No.: 911
Location of Nearest Phone: In facility building
Site Health and Safety Officer: Mark Smolley
Hospital/Clinic: Alameda Hospital
Address: 2070 Clinton Ave.
Alameda CA 94501
Phone: 510-522-3700
Directions: From site, right onto Clement, right on Willow (about 5 blocks from site), follow Willow about 11 blocks to intersection of Willow and Clinton Ave. Hospital on far right corner of intersection.

Attachment A
SITE HEALTH AND SAFETY PLAN
Cargill Salt Alameda Facility
(Continued)

SITE SAFETY EVALUATION

Planned Activities:

Soil and groundwater sampling, monitoring well installation as described in the site work plan. Chemical hazards at the site will be assessed by testing for VOCs in workers' breathing zone using an organic vapor analyzer (OVA). Air monitoring equipment will be calibrated daily.

Chemical Hazards (Substances/Concentrations):

VOCs detected in soils during previous soil sampling: tetrachloroethene (PCE, or "perk") @ 740 ppm, 1,1-dichloroethene @ 25 ppm. Oil and grease detected in soils: 1,100 ppm.

Chemical Exposure Information:

Tetrachloroethene (PCE): Colorless liquid with a mild, chloroform-like odor. PCE is considered an occupational carcinogen by NIOSH.

OSHA TWA = 25 ppm. IDLH = 500 ppm.

Exposure routes: inhalation, ingestion, skin or eye contact.

Exposure symptoms: - irritated eyes, nose, throat; nausea; flush face, neck; dizziness, vertigo, lack of coordination, headache, and somnolence.

If exposed: eyes - immediately wash eyes, lifting lids, get medical attention immediately, do not wear contacts; skin - soap wash promptly; if large amounts are inhaled - respiratory support as needed; if-swallowed: get immediate medical attention.

Respiratory protection: Inhalation exposure will be minimized by allowing the air at the top of the borings to vent away from workers' breathing space (workers should stand up-wind of the sampling locations). If organic vapors are detected at 10 ppm or greater above background measurements in the workers' breathing space using an OVA, the Site Safety Officer may attempt to mitigate the exposure. If organic vapors persist at 10 ppm or greater in workers' breathing space, affected workers will upgrade to level C respiratory protection using half-mask respirators with organic vapor cartridges.

1,1-Dichloroethene: OSHA TLV = 1 ppm. No IDLH. Odor threshold 190 ppm. Respiratory protection same as for tetrachloroethene.

Physical Hazards

Physical hazards include the presence of drilling equipment and the associated ambient noise, traffic along the roadway in the work area, and potential overhead and underground utilities (including water, electrical, gas, sewer, telephone, and cable) in the work area. Drilling equipment will be operated by trained personnel only. All personnel working near the drill rig will maintain Level D PPE as described below including hearing protection. Appropriate traffic control will be used for any work taking place within 5 feet of the roadway. All drilling locations will be cleared for utilities by a private utility contractor.

SITE HEALTH AND SAFETY PLAN
Cargill Salt Alameda Facility
(Continued)

SITE SAFETY EVALUATION (Continued)

Potential Explosion and Fire Hazards: None known.

Level of Personal Protective Equipment:

The designated level of protection for all site work is Level D, which includes hard hats, eye protection, leather steel-toed boots, and work gloves. Additionally, all personnel handling soil or water samples directly will use vinyl or nitrile gloves. All personnel within 20 feet of the drill rig will wear hearing protection during drilling operations.

Respiratory Protective Equipment:

If organic vapors are detected at 10 ppm or greater above background measurements in the workers' breathing space using the OVA, the SSO may attempt to mitigate the exposure. If organic vapors persist at 10 ppm or greater in workers' breathing space, affected workers will upgrade to level C respiratory protection using half-mask respirators with organic vapor cartridges. Cartridges should be changed after 5 hours of use. Respiratory protection can be downgraded only at the instruction of the SSO, if organic vapors in worker's breathing space remain below 10 ppm for at least five minutes. If organic vapors in workers' breathing space exceed 100 ppm for greater than five minutes, the SSO should remove any individuals from the exposure.

Ambient Air Monitoring Requirements:

In order to monitor for exposure to the chemical hazards described above, the air in workers' breathing space will be monitored at least every half hour or at peak expected exposure times (i.e., breaking rods, opening samples) using a flame-ionization detector (FID), Foxboro Century OVA Model 108.

Field Personnel Training Requirements:

Current OSHA 29 CFR 1910.120 training. Medical surveillance program required.

Decontamination/Disposal:

Setup decontamination station with Alconox wash and rinse for respirators, gloves, boots. Sampling tools to be cleaned in Alconox, rinsed in distilled water, fluids to be containerized. After use, containerize Tyvek suits and gloves and other disposable protective equipment.

Site Control Measures:

Establish exclusion zone. No non-OSHA trained (29 CFR 1910.120) personnel allowed to enter exclusion zone, or handle samples or cleaning fluids.

Attachment A
SITE HEALTH AND SAFETY PLAN
Cargill Salt Alameda Facility
(Continued)

GENERAL SAFETY GUIDELINES FOR FIELD OPERATIONS

Personal Protective Equipment

- Field personnel must use safety equipment specified in Site Safety Evaluation.

Work Practices

- Field personnel conducting or supervising field operations at sites potentially containing chemical or physical health hazards must participate in a medical surveillance program and hazardous waste operations training program.
- Field personnel must be trained in the proper use of field and safety equipment specified for the work site.
- Observe vehicular laws. Wear seat belts. Be familiar with and observe any work-site vehicle restrictions and speed limits.
- Field and safety equipment must be maintained in good operating condition and inspected as appropriate.
- Conduct field operations in upwind position of areas of known or suspected chemical contamination whenever possible.
- First aid supplies and fire extinguishers must be kept in all field vehicles and available at the work site.

THE UNDERSIGNED HAVE READ AND UNDERSTOOD THE ABOVE SITE HEALTH AND SAFETY PLAN.

<u>NAME</u>	<u>COMPANY</u>	<u>DATE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____