Groundworks Environmental, Inc.

TRANSMITTAL

October 19, 1993
Project CS1602

93 OCT 20 AM 7:56

To:

Alameda County Dept. of Environmental Health,
Hazardous Materials Division
Attn. Larry Seto
80 Swan Way, Room 200
Oakland, CA 94621

Please find enclosed:

1 copy: Workplan - "Results of soil sampling and workplan for remedial activities, Alameda facility".

Comments:

The attached workplan has been revised to address your comments as requested in your October 4, 1993, letter to Cargill Salt. Please call if you have any further questions.

Sent by: Courier

From:

Mark Wheeler

TRANACH2.DOC

Crawford Consulting, Inc
111 N. Market St. #634
San Jose CA 95113-
1100

Groundworks Environmental, Inc.
1022 North Second Street, San Jose CA 95112
(408) 292-5592

GROUNDWORKS
ENVIRONMENTAL, INC.

October 19, 1993
Project CS1602

Ms. Barbara Ransom
Cargill Salt
7220 Central Avenue
Newark, California 94560-4206

Re: Results of soil sampling and workplan for remedial activities, Alameda facility

Dear Ms. Ransom;

This letter presents results of soil sampling and a workplan for remedial activities for the Cargill Salt Dispensing Systems Division facility located at 2016 Clement Avenue in Alameda, California (Alameda facility). Results of a soil sampling and analysis investigation conducted in July 1993 at the Alameda facility indicate impact to soils in one area of the site by volatile organic compounds, metals, and petroleum hydrocarbons (oil and grease). At the request of Cargill Salt, Groundworks Environmental, Inc. (Groundworks) has prepared the enclosed workplan for remedial activities at the Alameda facility, including assessment of potential impact to groundwater and excavation and disposal of impacted soils.

The proposed workplan involves two phases. During the first phase, the extent of impact to soils by organic compounds will be further defined, potential impact to groundwater will be assessed, and metals-impacted surficial soils will be excavated for disposal. During the second phase, soils impacted by organic compounds will be excavated for disposal. The results of the first phase will be used in defining the area and depth for soil excavation.

The site background and results of the July 1993 soil sampling investigation are summarized below, and are followed by the proposed scope of work.

Site Background

The Alameda facility is located on a rectangular lot (approximately 150 feet by 92 feet), in an industrial and residential neighborhood. The facility building occupies approximately one-third the area of the site and is separated from the vacant side of the

lot by an asphalt driveway, as shown on Figure 1. The facility lot is bordered by a sheet-metal shop and residential lot to the northwest, an apartment complex to the southwest, and a residential lot to the southeast.

A small foundry was operated in the back room of the facility building from approximately 1951 to 1978. The foundry produced salt-dispensing units for use by clients of Leslie Salt. Casting of the salt-dispensing units is now done off site, and the facility is currently used for milling and repair of salt-dispensing units.

According to site personnel, the foundry was used mainly for casting of aluminum and brass pieces and was not equipped to cast iron. Site personnel have also indicated that solvents were used to clean casting and milling equipment.

Constituents of concern that might be associated with waste products from facility operations include casting sands with elevated concentrations of metals, and solvents, machine oils, and grease used in the casting and milling operations. Cargill Salt is investigating the possibility that waste products from facility operations might have been discarded on or in the ground on the vacant side of the facility lot.

Results of Soil Sampling and Analysis

Soil samples were collected from shallow borings advanced with hand-augering equipment on July 13, 1993. The soil boring locations are shown on Figure 1, and sample collection data and field observations are shown on Table 1. A total of 10 shallow borings were hand augered and 21 soil samples were collected. Each boring was monitored during hand-augering for volatile organic vapors using a photoionization detector (PID).

The locations of the soil borings were chosen to provide a grid of six samples from the rear portion of the vacant side of the lot. This sampling grid consisted of soil borings ASB-1, -2, -3, -4, -6, and -7. Boring ASB-5 was aborted after an obstruction (possibly a storm drain) was encountered. Borings ASB-1 and ASB-2 were targeted for areas where surficial soils appeared disturbed or discolored. An additional three borings (ASB-8, -9, and -10) were located to explore the extent of volatile organic vapors detected with the PID at boring ASB-1.

Based on field observations and the results of field monitoring for volatile organic vapors using the PID (Table 1), five soil samples were selected for analysis of total metals and six samples were selected for analysis of volatile and semivolatile organic compounds and oil and grease. Metals selected for analysis included those commonly alloyed with brass and aluminum (i.e., copper, lead, nickel and zinc) and those commonly associated with petroleum hydrocarbon oils as residual metals in the refining process or as additives (i.e., barium, cadmium, chromium, lead, nickel, vanadium and zinc).

The results of the laboratory analyses are summarized on Tables 2 and 3. Two volatile organic compounds, 1,1-dichloroethene and tetrachloroethene, were detected in one soil boring (ASB-1) at concentrations of 25,000 and 740,000 micrograms per Kilogram (μg/Kg), respectively. Tetrachloroethene was detected at a lower concentration (25 μg/Kg) in boring ASB-10, located 5.5 feet from boring ASB-1. No volatile organic compounds were detected in the samples from the other borings, and no semivolatile organic compounds were detected in any of the samples analyzed. Petroleum hydrocarbons (oil and grease) were detected at 1,100 milligrams per kilogram (mg/Kg) in boring ASB-1 but were not detected in any of the other samples analyzed.

Shallow soil samples from three borings (ASB-1, ASB-2, and ASB-9) exhibited higher total metals concentrations than the samples from two other borings (ASB-6 and ASB-8). As described in the field observations for these five shallow soil samples (see Table 1), the shallow soil samples from ASB-1, ASB-2, and ASB-9 contained light-colored or reddish-colored sands that might be casting sands. Discoloration was not observed for the shallow soil samples at ASB-6 and ASB-8. Thus, the higher metals concentrations detected for ASB-1, ASB-2, and ASB-9 appear to be associated with these light-colored and reddish-colored sands.

Total cadmium was detected in the shallow soil sample from ASB-1 at a concentration that exceeds the total threshold limit concentration (TTLC). Total cadmium in boring ASB-2 and total lead in borings ASB-1, ASB-2, and ASB-9 were detected at concentrations that exceed 10 times the soluble threshold limit concentration (STLC), indicating that if an extraction for soluble metals was performed with the Waste Extraction Test (WET), the soluble metals might exceed the STLC (the WET includes a 10-fold sample dilution).

After receiving these results for the total metals analyses, the shallow soil samples from borings ASB-2 and ASB-9 were analyzed for soluble metals using the WET method; the ASB-2 sample was analyzed for cadmium and lead, and the ASB-9 sample was analyzed for lead. The ASB-1 sample was not analyzed for soluble metals because cadmium had been detected in this sample at a concentration over the TTLC. The results of the WET analyses are shown on Table 3. Lead was detected at concentrations over the STLC in both the ASB-2 and ASB-9 samples. The concentration of cadmium from the ASB-2 sample was below the STLC.

During sample collection, groundwater was noted in several of the hand-augered borings at a depth of approximately 5 feet (see Table 1). Because of the proximity of shallow groundwater to impacted soils at the site, there is potential for impact to shallow groundwater by the constituents detected in the soil samples.

Proposed Scope of Work

The purpose of the proposed scope of work is to excavate and dispose of soil impacted by volatile organic compounds, metals, and petroleum hydrocarbons, and to assess potential impact to groundwater by these compounds.

During the first phase of the proposed work, the extent of impact to soils by organic compounds will be further defined, potential impact to groundwater will be assessed, and metals-impacted surficial soils will be excavated for disposal. During the second phase, soils impacted by organic compounds will be excavated for disposal. The results of the first phase will be used in defining the area and depth for soil excavation.

Phase I Activities

Excavate Soils Impacted by Metals

Surficial soil at the locations of borings ASB-1, ASB-2, and ASB-9 will be excavated for disposal. At these locations, chemical impact by metals appears to be associated with light-colored and reddish-colored sands that might represent discarded casting sands. These light-colored and reddish-colored sands will be excavated using a hand shovel or a backhoe. It is estimated that removal of 1 to 2 cubic feet of soil at each of these locations will be sufficient to remove these sands. One soil sample will be collected at the base of each of these three shallow excavations and submitted for total metals analysis for confirmation that the metals-impacted soils have been removed. The excavated soil will be placed in drums for temporary on-site storage pending chemical profiling and disposal by a licensed contractor. The excavations will be filled with a sand-cement slurry.

Define Lateral Extent of Organic Impact to Soils

The extent of impact to soils by organic compounds will be further defined by hand-augering three to four shallow borings (less than 5 feet deep) around boring ASB-1 and testing soils from the borings for volatile organic vapors with a PID. One of the borings will be made between ASB-1 and the rear property line to determine if the area of soil impact extends to the property line. Upon completion, the borings will be filled with a sand-cement slurry. Soil cuttings will be placed on plastic sheeting, covered with plastic, and stored temporarily on site pending analytical testing and disposal.

Assess Potential Impact to Groundwater

Potential impact to groundwater will be assessed using a two-step approach. For Step 1, potential impact to groundwater will be assessed by hand augering a boring (AGB-1) at the location of soil boring ASB-1 and collecting a groundwater grab sample for laboratory analysis. If impact to groundwater by volatile organic compounds is

detected at AGB-1, Step 2 will be performed to assess (1) the extent of impact across the site and (2) the groundwater flow direction at the site. An additional five locations (AGB-2 through AGB-6) are proposed if Step 2 is needed (see Figure 2).

Groundwater grab samples for both Step 1 and Step 2 will be collected from hand-augered borings. Each soil boring will be advanced to a depth of 8 to 10 feet using hand-augering equipment. A 1-¼-inch-diameter well point constructed of polyvinyl chloride (PVC) or stainless steel will be placed in the boring and a groundwater sample will be collected from the well point using a small-diameter PVC bailer. Each boring will be backfilled with cement slurry. Soils augered from the borings will either be placed in drums or placed on plastic sheeting and covered with plastic, and stored temporarily on site pending analytical testing and disposal.

For Step 1, the groundwater sample will be submitted for laboratory analysis of volatile organic compounds and oil and grease. For assessing general water quality, the sample will also be analyzed for chloride and total dissolved solids (TDS). If volatile organic compounds are detected in Step 1, the Step 2 groundwater samples will be analyzed for volatile organic compounds and TDS.

If Step 2 is performed, the direction of shallow groundwater flow will be assessed using water-level information from the hand-augered borings. After sampling each boring, the well point will be left in the boring to allow the water level in the boring to stabilize. (Based on water level measurements from the July 1993 sampling event, groundwater levels appear to stabilize quickly in soil borings at the site). At the end of the field day, the depth to water will be measured in each boring. The depth to water will be measured from a reference point (survey stake) placed next to each boring. The elevations of the reference points will be surveyed relative to project datum, the depth-to-water information will be converted to groundwater elevations, and the flow direction will be determined from this information.

The analytical data from Steps 1 and 2 will be evaluated to assess the need for additional groundwater characterization activities.

Phase II Activities

The general plan for Phase II is to excavate and dispose of soil impacted by volatile organic compounds and petroleum hydrocarbons. After defining the lateral extent of organic impact to soils and assessing the potential impact to groundwater in Phase I, the plans for Phase II activities will be re-evaluated and finalized. The area and depth of soils to be excavated and the method of soil containment (containerizing versus stockpiling) will be determined.

Excavate Impacted Soil at ASB-1

Soil impacted by volatile organic compounds and oil and grease at boring ASB-1 will be excavated using a backhoe. As indicated by field observations and the results of chemical analysis to date, the extent of impact to soil appears to be relatively limited near boring ASB-1. It is estimated that the excavation will be approximately 5 feet wide and 6 feet deep and that approximately 5.5 cubic yards of soil will be excavated from the location of boring ASB-1. This estimate will be re-evaluated based on the results of the Phase I activities.

It is possible that the area of chemical impact to soil at the ASB-1 location extends more than 3 feet towards the rear property line and beneath the utility shed immediately adjacent to this property line. Because the area to be excavated is within 3 feet of the rear property line and the sandy soil material may tend to cave during excavation, precautions will be taken to avoid caving of the excavation sidewall nearest the property line. This may involve placing temporary shoring next to this sidewall during excavation.

The intent of the planned excavation is to remove soils with the highest degree of chemical impact. It may not be possible to remove all impacted soils at this location during the proposed work because of the potential risk of damage to the utility shed at the rear of the property. If the area of chemical impact to soil at the ASB-1 location extends beyond the rear property line, these soils will not be removed during the proposed phase of field work. A soil sample will be collected from each sidewall of the excavation and from the base of the excavation for analysis of VOCs, metals, and oil and grease. The need for further soil excavation will be assessed after analyzing these soil samples.

The excavated soil will be placed in drums, bins, or stockpiles for temporary on-site storage pending chemical profiling and disposal by a licensed contractor. If stockpiled, the soils will be placed on plastic sheeting and covered with plastic. After soil samples have been collected from the sidewalls and base of the excavation, the excavation will be filled with pumpable sand-cement slurry.

Sampling and Analysis

The Step 1 groundwater sample will be submitted for laboratory analysis of the following parameters:

- Volatile organic compounds by EPA Method 8010
- Hydrocarbons (Oil and grease) by EPA Method 5520(F)
- Chloride and TDS (for general water quality assessment)

If Step 2 groundwater sampling is performed, the groundwater samples will be submitted for laboratory analysis of the following parameters:

- Volatile organic compounds by EPA Method 8010
- TDS

The soil samples for chemical analysis will be collected in 2-inch-diameter, 6-inch-long stainless-steel liners inserted in a hand-driven sampling tool. The tool will be driven into soil at the bottom or sides of the excavation. The soil samples will be preserved in the stainless steel liners by covering the ends of the liners with Teflon® film and capping them with plastic end caps. The groundwater sample(s) will be poured from the sample collection bailer into appropriate EPA-approved sample containers. The soil and groundwater samples will be stored in a cooler packed with blue ice for transportation to a state-certified laboratory. Chain of custody documentation will accompany the samples to the laboratory.

The soil samples collected from the shallow excavations at borings ASB-1, ASB-2 and ASB-9 will be submitted for laboratory analysis of the following metals: cadmium, copper, lead, nickel, zinc.

The soils samples collected from the sidewalls and base of the backhoe excavation at boring ASB-1 will be submitted for laboratory analysis of the following parameters:

- Volatile organic compounds by EPA Method 8010
- Metals (cadmium, copper, lead, nickel, zinc)
- Hydrocarbons (Oil and grease) by EPA Method 5520(F)

Project Team

Groundworks will perform the Phase I field activities. For Phase II activities, soil excavation and disposal services will be provided by a licensed contractor. Groundworks will collect confirmation soil samples from the excavated areas. The chemical analyses will be performed by Columbia Analytical Services, a state-certified laboratory.

Permitting and Utility Clearance

Before beginning the proposed field activities, this workplan will be submitted to the Alameda County Department of Environmental Health (ACDEH) and the field work schedule will be coordinated with the ACDEH. A drilling permit application for the groundwater sampling boring and the PID borings will be filed with the Zone 7 Water Agency of the Alameda County Flood Control and Water Conservation District. The proposed areas of excavation will be checked for underground utilities by a utility locating service.

Health and Safety Plan

A site-specific health and safety plan, has been prepared for the proposed field . It is anticipated that "Level C" personal protective gear will be appropriate for the proposed field activities. Breathing-zone air will be monitored for volatile organics using a PID or a flame-ionization detector (FID). If conditions are encountered that may warrant an upgrade to a higher level of protection, work activities will cease until appropriate arrangements can be made. Cleaning fluids and personnel protective gear will be containerized for proper disposal.

Report Preparation

Groundworks will prepare of report of findings that will include a description of field procedures and observations, an assessment of potential impact to groundwater, and an assessment of the need for further soil or groundwater characterization or remediation.

Please call if you have any questions concerning this letter.

Sincerely yours,

Mark C Wheeler

REGISTERED GEOLOGIST
MARK C. WHEELER
4563
STATE OF CALIFORNIA

Mark C. Wheeler
Project Manager
RG 4563

MCW:jlc

Attachments: Table 1. Soil Sample Collection Data
Table 2. Summary of Analytical Results for Soil Samples - Volatile Organics, Semivolatile Organics, and Oil and Grease
Table 3. Summary of Analytical Results for Soil Samples - Metals
Figure 1. Soil Boring Locations
Figure 2. Proposed Groundwater Sampling Locations
Attachment A. Site Health and Safety Plan

Table 1
Soil Sample Collection Data
Cargill Salt - Alameda Facility

Boring No.	Sample Depth (feet)	Sample Tube Collection Method (1)	Laboratory Analyses Completed (2)	PID readings from borehole (3)	Field Observations
ASB-1	0.25'	S	TM	Background (4)	Targeted light-colored sands (casting sands?) for sampling.
ASB-1	1.0 - 1.5'	HD		2 - 3 ppm	No odor, no discoloration.
ASB-1	5'	BA		>100 ppm	Chemical odor, greenish staining (noticed odor and staining beginning at depth of 3 ft).
ASB-1	5 - 5.5'	HD*	V, SV, OG	>100 ppm	Chemical odor, greenish staining.
ASB-2	0.25'	S	TM, WET-M (Cd, Pb)	Background	Targeted reddish-colored sands (casting sands?) for sampling.
ASB-2	0.5 - 1.0'	HD		Background to 2 ppm	No odor or discoloration.
ASB-2	4.5 - 5.0'	HD	V, SV, OG	Background	No odor or discoloration; Groundwater in borehole at 4.7 ft.
ASB-3	0.75 - 1.25'	HD		Background	No odor or discoloration, possible glass fragments.
ASB-3	4.25 - 4.75'	BA		Background	No odor or discoloration; Augered boring to 5.5 ft, groundwater in borehole at 5.0 ft.
ASB-4	0.75 - 1.25'	HD		Background	No odor or discoloration.
ASB-4	4.25 - 4.75'	BA		Background	No odor or discoloration; Augered boring to 6.0 ft, groundwater in borehole at 4.7 ft.
ASB-5	0.75 - 1.25'	HD		Background	No odor or discoloration, hit storm drain (?) at 1.25', aborted boring.
ASB-6	0.75 - 1.25'	HD	TM	Background	No odor or discoloration.
ASB-6	3.5 - 4.0'	HD*	V, SV, OG	Background	No odor or discoloration; Augered boring to 5.4 ft, groundwater in borehole at 4.9 ft.
ASB-7	0.75 - 1.25'	HD		Background	No odor or discoloration.
ASB-7	3.5 - 4.0'	BA		Background	No odor or discoloration.
ASB-8	0.75 - 1.25'	HD	TM	Background	No odor or discoloration.
ASB-8	4.0 - 4.5'	BA	V, SV, OG	Background	No odor or discoloration.
ASB-9	0.3 - 0.8'	HD	TM, WET-M (Pb)	Background	No odor, reddish discoloration and glass fragments at top of sampled interval (casting sands?).
ASB-9	4.3 - 4.8'	BA	V, SV, OG	Background to 1.6 ppm	No odor or discoloration.
ASB-10	4.5 - 5.0'	BA	V, SV, OG	Background to 0.7 ppm	No odor or discoloration; Augered boring to 5.2 ft, groundwater in borehole at 5.15 ft.

(1) S = Scrape; Soil sample collected by scraping soils into sample tube.
HD = Hammer driven; Soil sample collected with hammer-driven sampler fitted with sample tube.
BA = Bucket auger; Soil sample collected by emptying soils from hand-advanced bucket auger into a plastic bag and filling sample tube from plastic bag.
(2) TM = Total metals (Barium, Cadmium, Chromium, Copper, Lead, Nickel, Vanadium, Zinc)
V = Volatile organic compounds; SV = Semivolatile organic compounds; OG = Oil and grease
WET-M = Soluble metals using WET extraction
(3) PID = Photoionization detector (Thermo Environmental Instruments OVM Model 580 A; Minimum detectable concentration 0.1 parts per million [ppm]).
(4) Background = 0.0 to 0.4 ppm.
* Sample tube in hammer-driven sampler was partially full upon retrieval from borehole, additional soil was added to tube from bucket auger.
Note: All soil samples collected 7/13/93.

Table 2
Summary of Analytical Results for Soil Samples - Volatile Organics, Semivolatile Organics, and Oil and Grease
Cargill Salt - Alameda Facility

Boring No.	ASB-1	ASB-2	ASB-6	ASB-8	ASB-9	ASB-10	Regulatory Criteria				
Sample Depth (feet)	5.0-5.5	4.5-5.0	3.5-4.0	4.0-4.5	4.3-4.8	4.5-5.0	STLC (1)	TTLC (2)	MCCTC (3)	MCL (4)	AL (5)
Volatile Organics *EPA Method 8240 (µg/Kg) (6)*											
1,1-Dichloroethene	**25,000**	nd (7)	nd	nd	nd	nd	ne (8)	ne	700	6	ne
Tetrachloroethene (PCE)	**740,000**	nd	nd	nd	nd	**25**	ne	ne	700	5	ne
All other Method 8240 analytes	nd †	nd	nd	nd	nd	nd	-	-	-	-	-
Semivolatile Organics *EPA Method 8270 (mg/Kg) (9)*											
All Method 8270 analytes	nd	nd	nd	nd	nd	nd	-	-	-	-	-
Hydrocarbons (Oil and Grease) *EPA Method 5520F (mg/Kg)*	**1,100**	nd	nd	nd	nd	nd	‡	‡	‡	‡	‡

(1) STLC = Soluble threshold limit concentration (in micrograms per liter [µg/L])
(2) TTLC = Total threshold limit concentration (in micrograms per kilogram [µg/Kg])
(3) MCCTC = Maximum concentration (in µg/L) of contaminants for the toxicity characteristic for a liquid extract (when using the Toxicity Characteristic Leaching Procedure [TCLP])
(4) MCL = California Primary Drinking Water Standard - Maximum Contaminant Level (in parts per billion [ppb])
(5) AL = Action Level for drinking water, set by California Department of Toxic Substances Control (in ppb)
(6) µg/Kg = micrograms per kilogram (equivalent to ppb)
(7) nd = none detected at or above the method reporting limit
(8) ne = none established or none applicable
(9) mg/Kg = milligrams per kilogram (equivalent to parts per million [ppm])

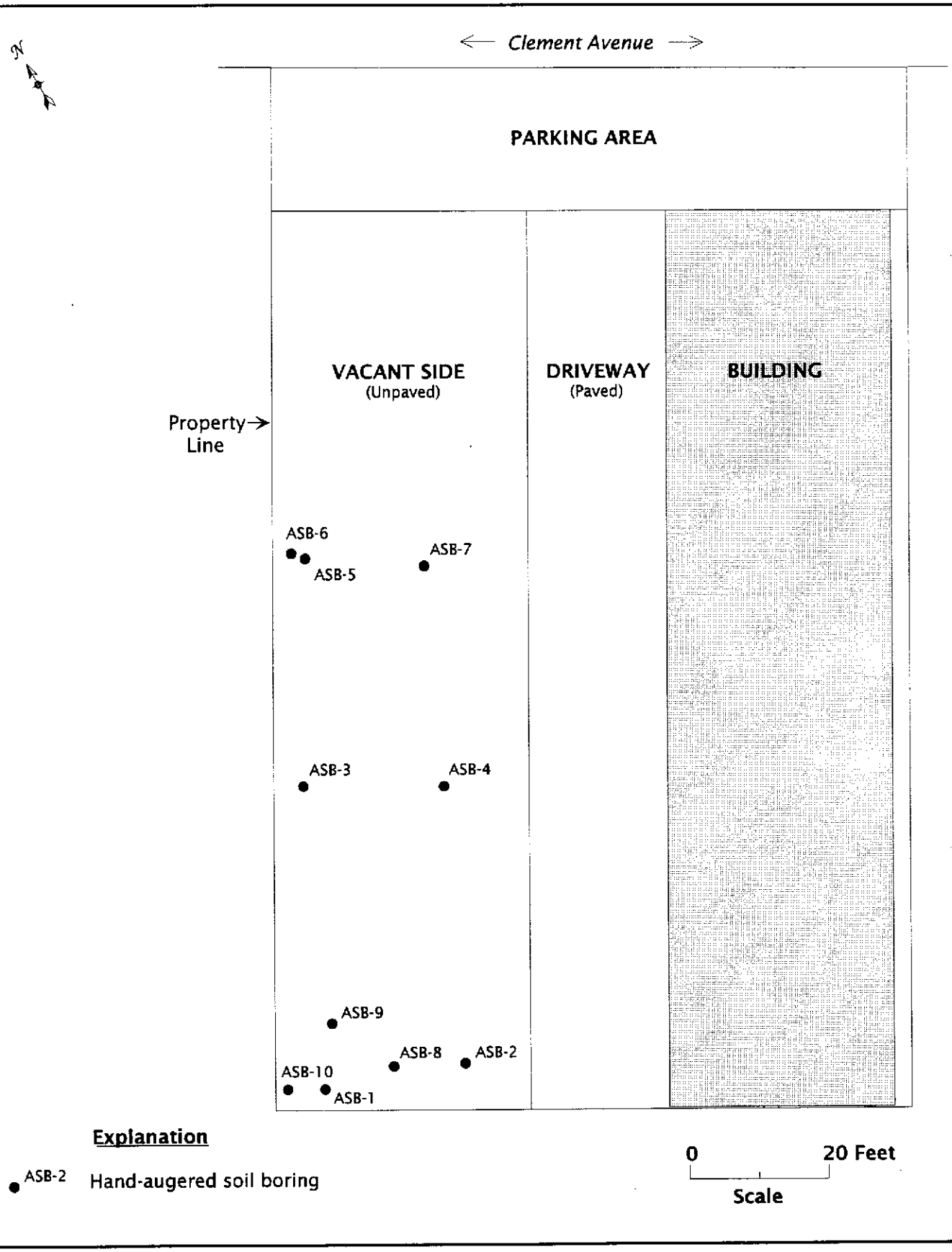
† For sample ASB-1, method reporting limit (MRL) raised to 25,000 µg/Kg or higher for all analytes because high analyte concentrations required sample dilution.
‡ Regulatory criteria for petroleum hydrocarbons are established on a case by case basis.

Table 3
Summary of Analytical Results for Soil Samples - Metals
Cargill Salt - Alameda Facility

Boring No.	ASB-1	ASB-2	ASB-6	ASB-8	ASB-9	Regulatory Criteria	
Sample Depth (feet)	0.25	0.25	0.75-1.25	0.75-1.25	0.3-0.8	STLC (1)	TTLC (2)
Metals, Total *(mg/Kg) (3)*							
Barium	81	200	100	87	210	100	10,000
Cadmium	**280**	***18***	nd (4)	nd	4	1.0	100
Chromium	30	37	35	37	25	5	2,500
Copper	210	53	10	9	40	25	2,500
Lead	***210***	***390***	5	3	***280***	5.0	1,000
Nickel	130	30	19	21	44	20	2,000
Vanadium	11	22	18	20	21	24	2,400
Zinc	1,300	460	25	22	280	250	5,000
Metals, WET Extract *(mg/L) (5)*							
Cadmium	na (6)	0.7	na	na	na	1.0	100
Lead	na	**8.5**	na	na	**6.0**	5.0	1,000

(1) STLC = soluble threshold limit concentration (in milligrams per liter)
(2) TTLC = total threshold limit concentration (in milligrams per kilogram)
(3) mg/kg = milligrams per kilogram
(4) nd = none detected at or above the method reporting limit
(5) mg/L = milligrams per liter
(6) na = not analyzed

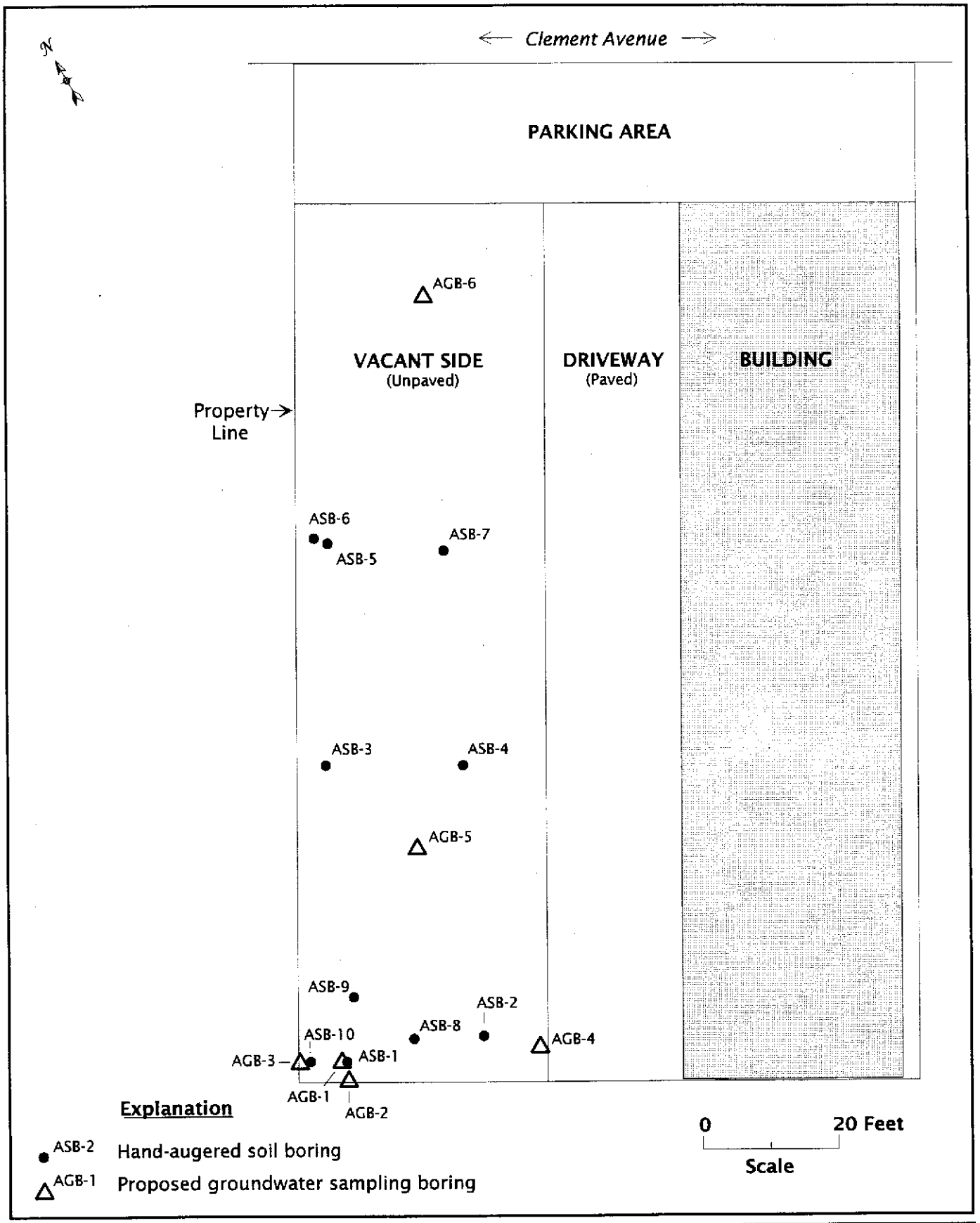
Total metals concentration in bold indicates concentration over TTLC.
Total metals concentration in bold italics indicates concentration 10 times greater than STLC.
WET extract metals concentration in bold indicates concentration over STLC.



GROUNDWORKS ENVIRONMENTAL, INC.

Cargill Salt Dispensing Systems Division
2016 Clement Avenue
Alameda, California

Figure 1. Soil Boring Locations



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Cargill Salt Dispensing Systems Division
2016 Clement Avenue
Alameda, California
Figure 2. Proposed Groundwater Sampling Locations

Attachment A
SITE HEALTH AND SAFETY PLAN
Groundworks Environmental, Inc.

PROJECT INFORMATION

Project Name: Remedial activities
Project Number: CS1602
Project Manager: Mark Wheeler
Field Supervisor: Mark Wheeler
Office Phone No.: 408-292-5592, pager 408-631-0504
Other Groundworks contacts: Rick Cramer @ pager 408-631-0505
Allen Waldman @ pager 408-631-1162

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 Wheeler
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.

SITE SAFETY

Planned Activities:
Phase I activities: Excavation of shallow metals-impacted soils with shovels, hand-driven soil sampling, hand augering shallow borings for bailing groundwater samples, hand-augering soil borings to assess extent of volatile organic compounds (VOCs) with a photoionization detector (PID). Phase I activities to be implemented by Groundworks personnel.

Phase II activities: Excavation of VOC-impacted soil with a backhoe, hand-driven soil sampling. Phase II activities to be implemented by licensed contractor and Groundworks personnel.

Detailed description of activities in attached workplan.

Chemical Hazards (Substances/Concentrations):
VOCs detected in soils during previous soil sampling:
tetrachloroethene (perchloroethene, PCE, or "perk") @ 740 ppm, 1,1-dichloroethene @ 25 ppm.
Oil and grease detected in soils: 1,100 ppm.
Metals detected in colored sands mixed in surficial soils:
Total cadmium @ 280 ppm (above TTLC of 100 ppm), dissolved lead at 8.5 ppm (above STLC of 5.0)
See tables of analytical results in attached workplan.

Chemical Exposure Information:
Tetrachloroethene: Colorless liquid with a mild, chloroform-like odor. Considered by NIOSH as an occupational carcinogen. *Exposure routes:* inhalation, ingestion, skin or eye contact. *Exposure symptoms*: - irritated eyes, nose, throat; nausea; flush face, neck; dizziness, vertigo, incoordination, headache, somnolence. *If exposed:* eyes - immediately wash eyes, lifting lids, get medical attention immediately, do not wear contacts; skin - soap wash promptly; if breath large amounts - respiratory support as needed; swallow - immediate medical attention.
OSHA TWA = 25 ppm. IDLH = 500 ppm.
Respiratory protection: At all times in work zone: minimum half-face air-purifying respirator with organic vapor cartridges. If detected in breathing zone, must upgrade to supplied air full-face respirator.
Goggles advised for reasonable probability of exposure. Non-impervious clothing recommended. Have eye wash available.

1,1-Dichloroethene: OSHA TLV = 1 ppm. No IDLH. Odor threshold 190 ppm.
Respiratory protection same as for tetrachloroethene, must upgrade to supplied air full-face respirator if detected in breathing zone.

SITE SAFETY EVALUATION (Continued)

Lead: *Exposure routes*: inhalation, ingestion, skin or eye contact. *Exposure symptoms*: weakness, lassitude, facial pallor, abdominal pain, irritated eyes. First aid same as for tetrachloroethene.
OSHA TWA = 0.050 mg/m^3. IDLH = 700 mg/m^3.
Respiratory protection: At all times in work zone: minimum half-face air-purifying respirator with high-efficiency dust/mist filters.
Goggles advised for reasonable probability of exposure. Non-impervious clothing recommended.

Cadmium: Considered by NIOSH as an occupational carcinogen. Reduce exposure to lowest feasible concentration. *Exposure routes*: inhalation, ingestion. *Exposure symptoms*: pulmonary edema, dyspnea, cough, tight chest, substernal pain, headache, chills, muscle aches, nausea, vomiting, diarrhea.
OSHA TWA = 0.2 mg/m^3; TLV = 0.05 mg/m^3; IDLH = 50 mg/m^3
Respiratory protection: At all times in work zone: minimum half-face air-purifying respirator with high-efficiency dust/mist filters (adequate to 10x TLV).
Goggles for any possible exposure. First aid same as for tetrachloroethene.

Physical Hazards

Underground:	None known. Site to be checked by utility locator.
Overhead:	None known.
Excavations:	Hand augering during Phase I, Backhoe excavation during Phase II.

Potential Explosion and Fire Hazards: None known.

Level of Personal Protective Equipment: Level C. ***Must stop work if organic vapors detected at any concentration in the breathing zone***. If detected, leave work zone. May return in Level C if no organic vapors detected in breathing zone. Must upgrade to supplied-air, full-face respirators if organic vapors continue to be detected in breathing zone.

Personal Protective Equipment (required):
Half-mask or full-face air-purifying respirator with organic vapor cartridges and high-efficiency dust/mist filters. Chemical-resistant, poly-coated Tyvek suit. Chemical resistant gloves (Ansell Edmont Sol-Vex Nitrile NBR or equivalent) for all field work involving soil disruption and groundwater sampling, for handling samples and cleaning equipment. Chemical resistant boots or disposable chemical booties. Chemical-resistant goggles. Hard hat if working near machinery on site. Have eye wash available.

Ambient Air Monitoring Requirements:
FID or PID - measure breathing zone for organic vapors minimum of every 15 minutes. During Phase II soil excavation work, check breathing zone with detection tube sampling pump fitted with tetrachloroethene detection tube (eg., Sensidyne model).

SITE SAFETY EVALUATION (Continued)

Field Personnel Training Requirements:

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

Decontamination/Disposal:
Setup decon 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.

General Safety Guidelines for Field Operations

Personal Protective Equipment

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

Work Practices

- Groundworks Environmental, Inc. employees conducting or supervising field operations at sites potentially containing chemical or physical health hazards must participate in the company's medical surveillance program and hazardous waste operations training program.
- Employees shall not enter any excavation greater than 4 feet deep or confined space without written approval from the company health and safety officer.
- Employees 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

Site Health and Safety Plan prepared by Mark C. Wheeler.
Attachments: Remedial activities workplan.