

**CONVERSE CONSULTANTS
ORANGE COUNTY**



Consulting Engineering
and Applied Sciences

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Facsimile (714) 453-2888

January 26, 1995

Mr. Louis Lodrigueza
Orange County Health Care Agency
Hazardous Materials Management Section
2009 East Edinger Avenue
Santa Ana, California 92705

Subject: **WORK PLAN FOR GROUND WATER WELL INSTALLATION**
Fullerton Business Park North
1551 East Orangethorpe Avenue
Fullerton, California
OCHCA Case No. 94IC29
(Converse Project No. 94-42871-04)

Dear Mr. Lodrigueza:

On behalf of Red Eagle Properties, Converse Consultants Orange County (Converse) is pleased to present this work plan for additional site characterization for the referenced subject property.

Background Information

During removal of two clarifiers from the property in September 1994, soil contamination from tetrachloroethene (PCE) and total recoverable petroleum hydrocarbons (TRPH) was discovered beneath the southern clarifier (see Converse report on clarifier removal dated October 18, 1994).

Initial site characterization indicated that significant contamination was not present at 15 feet beneath the former clarifier. Additional investigation was requested by the California Regional Water Quality Control Board, Santa Ana Region.

The additional investigation consisted of advancing a total of 16 additional borings at the property to varied depths. The highest concentrations of PCE found in the soil occur to the west and northwest of the former clarifier at depths of 20 to 25 feet bgs. It is possible that contamination could have occurred from a source between the existing building and the former clarifier (possibly a former fill pipe).

PCE (less than 60 ppb) was detected in some samples obtained from 40 feet bgs at three of the boring locations (BH-10, BH-11, and BH-12), where analysis of soil samples obtained from shallower depth in these three locations did not reveal PCE soil contamination. The contamination detected at 40 feet could be from migration of the suspected source (fill pipe), or from a different (possibly off-site) source.

Converse recommended the installation of three (3) ground water monitoring wells on the property to determine if ground water has been impacted by the suspected on-site source or an off-site source.

Scope of Work

In order to determine if ground water has been impacted, and to further explore the subsurface geologic conditions at the property, Converse proposes the following Scope of Work:

- 1) Drilling, using Hollow Stem Auger (HSA) technique, of three (3) boreholes to terminal depths of approximately 80 feet below ground surface (bgs), or 20 feet below first water encountered.
- 2) Collecting environmental soil samples at five foot intervals, using a drive sampling technique, for submittal to a state certified laboratory for chemical analysis.
- 3) Logging of subsurface sediments to acquire a more complete understanding of subsurface geological conditions.
- 4) Monitoring of volatile organic compounds (VOCs) using an organic vapor analyzer (OVA) during drilling.
- 5) Performing laboratory chemical analyses of selected discrete soil samples collected during the proposed investigation. The analyses will be conducted in accordance with the U.S. Environmental Protection Agency method 8010 for PCE and 418.1 for total recoverable petroleum hydrocarbons (TRPH).
- 6) Converting the three borings into ground water monitoring wells (4 inch inside diameter), including well installation and development.
- 7) Collecting groundwater samples from each of the three (3) ground water monitoring wells for submittal to a state certified laboratory for analysis.
- 8) Performing laboratory chemical analyses of three (3) groundwater samples in accordance with EPA method 8260 for PCE and 418.1 for TRPH.

- 9) Conducting a survey to plot the location and elevation of the three (3) monitoring wells, in order to provide top of casing elevation data to determine ground water flow direction and gradient.
- 10) Preparing a report describing methods used and summarizing the results of the chemical analysis of the soil and ground water samples collected. The final report will be signed by a California Registered Professional Engineer.

The proposed scope of work will be conducted in accordance with the requirements by the Underground Storage Tank Local Oversight Program, and all state and local guidelines.

The drill cuttings encountered during this investigation will be placed into DOT approved 55-gallon drums for proper, temporary on-site storage. Ultimate disposition of the stored material will depend on the analytical results.

Sampling and Handling Protocol

The proposed exploration program for this study will consist of hollow-stem auger borehole drilling, drive sampling, soil (core) description, and groundwater well development, purging, and sampling.

Drilling operations will be conducted such that the boreholes will be open to the atmosphere (air-filled) during drilling. No drilling fluids, including clean water, or additives will be used while drilling boreholes.

Drive soil samples will be collected from specified depth intervals (typically 5-foot). Soil samples will be obtained by driving the sampler (California modified split spoon) into the soil with successive drops of a 140-lb hammer falling a distance of 30 inches. The drive sampler will be 18 inches in length with a 2.5-inch ID and 3-inch OD. When a sampling depth is reached, a sampler containing 6-inch brass sleeves will be driven into the soil. The sampler will then be removed from the borehole, opened and the brass sleeves containing undisturbed soil samples removed.

After the sampler is removed from the borehole, the soil sample for chemical analyses will be inspected to verify that there is no head space in the sample. If gravel extends from the sample or head space is observed in the soil sample, the sample will be considered invalid and an additional attempt will be made to collect a valid sample. If the retrieved sample is considered valid, the brass sleeve will be covered with teflon sheeting and tightly capped, sealed, labeled and placed in a cooler with blue ice to maintain a temperature of 39°F (4°C) during transport and storage prior to chemical analysis. Soil samples will be collected, stored, transported and analyzed in accordance with EPA Sample Collection Codes. The soil samples collected for chemical analyses during this project will be transported to the laboratory within 24 hours of obtaining the samples.

After a soil sample has been collected, the sampling equipment will be washed with a non-phosphate detergent and rinsed twice with distilled water. The augers will be steam cleaned between boring locations.

Design and construction of monitoring wells is generally based on local regulatory agency requirements and in accordance with generally accepted California and Federal (EPA) technical guidance documents.

Monitoring wells will be developed using decontaminated (steam-cleaned) bailers, samplers, hoses and airlift (air displacement) or submersible pumps. After monitoring well development, the wells will be purged in order to evacuate stagnant well water, so that a representative groundwater sample can be collected. Monitoring wells will be purged by removing 3 to 5 well volumes of water by pumping or bailing.

Groundwater samples will be collected from monitoring wells using a decontaminated stainless steel or dedicated Teflon bailer for each monitoring well. Groundwater samples will be placed in EPA approved glass containers and placed in a cooler with blue ice to maintain a temperature of 39°F (4°C) during transport to a laboratory for chemical analysis.

Chain-of-Custody procedures will be maintained for all samples collected. This form will be completed by the sample collector before releasing the sample for transportation to the laboratory. The chain-of-custody form will be routed with the samples through transportation and analysis. Completed chain-of-custody forms will be returned to Converse Consultants along with the results from the analytical laboratory. These forms will be retained by Converse in our central project files.

In addition, Converse will observe the soil sampling procedures as described in Appendix B of the Guidelines for Report Submittals, Underground Storage Tank Local Oversight Program, County of Los Angeles, Department of Public Works, Waste Management Division, (Guidelines), dated March 1991. These guidelines are considered an industry standard in southern California.

Laboratory Analysis

Laboratory chemical analyses on soil samples collected during drilling will be performed by a state approved laboratory. The proposed laboratory chemical analyses will be conducted on discrete soil samples in accordance with EPA Methods 8010 for PCE and 418.1 for TRPH. Groundwater samples will be analyzed in accordance with EPA method 8260 for PCE and 418.1 for TRPH.

*+ also see...
60 for purgable
hydrocarbon*

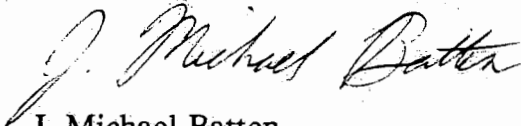
Closure

Converse is prepared to begin the field work immediately upon approval of this work plan. The final report will be completed and available within approximately 15 working days after the completion of the field activities.

We trust that this work plan meets your current requirements. If you have any questions, please contact us at (714) 453-2880.

Sincerely,

CONVERSE CONSULTANTS ORANGE COUNTY



J. Michael Batten
Sr. Staff Geologist

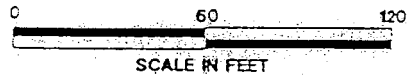
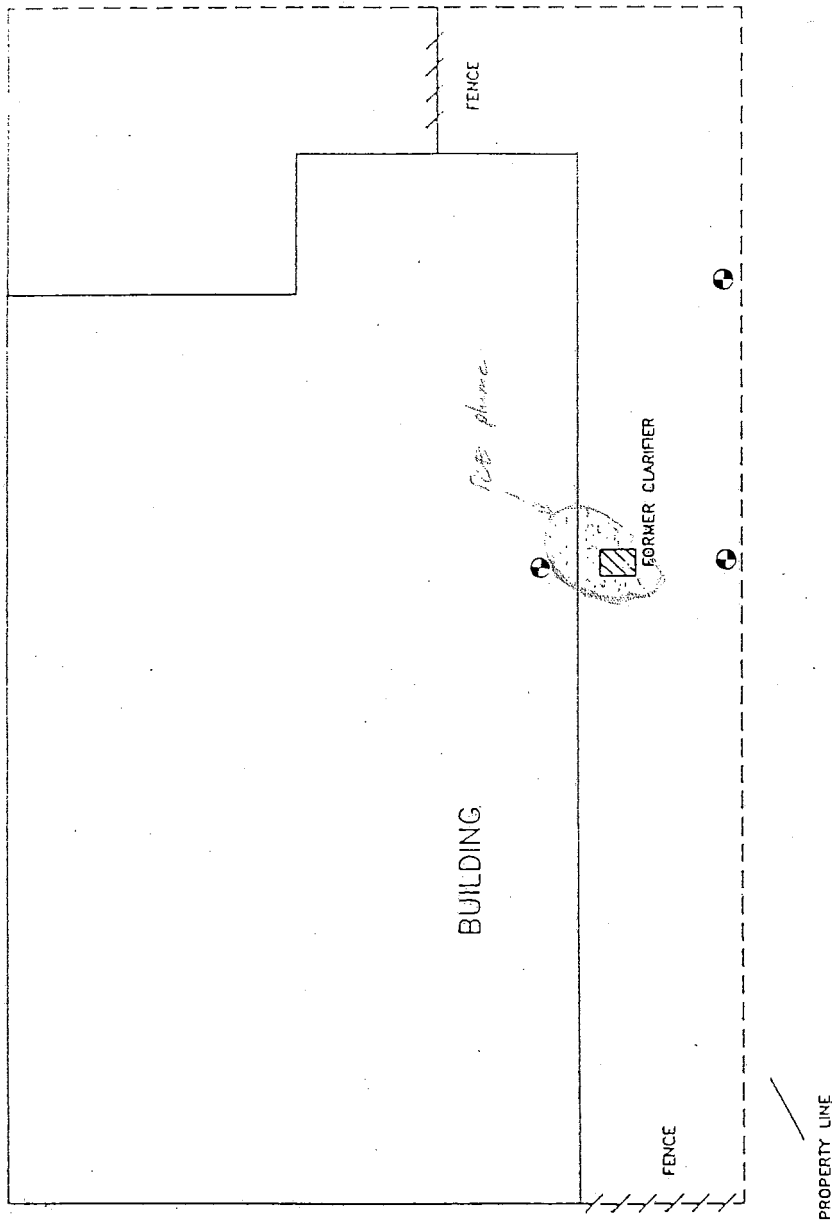
JMB/GSS


Attachments: Figure 1 -- Proposed Boring Locations
 Appendix A -- Health & Safety Plan

Distribution: 1 Addressee
 1 Mr. Robert Holub, Santa Ana RWQCB



F I G U R E S



 Converse Consultants Orange County		Consulting Engineering and Applied Sciences
PROPOSED MONITORING WELL LOCATIONS		
Fullerton Business Park North 1551 East Orangethorpe Avenue Fullerton, California		
DATE: 01/26/95	PROJECT NO: 94-42871-02	FIGURE NO:
SCALE: 1" = 60'	CHECKED BY: <i>JMB</i>	1



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**SITE HEALTH AND SAFETY PLAN
FULLERTON BUSINESS PARK NORTH**

CLIENT: Red Eagle Properties, Ltd.
CLIENT CONTACT: Mark Boen
PHONE NO.: (909) 945-2582
PROJECT NO: 94-42871-04

SITE NAME: Fullerton Business Park North
SITE ADDRESS: 1551 East Orangethorpe Avenue, Fullerton
SITE CONTACT: none
PHONE NO:
THOM. BROS. COORD: 769 B-1
DATE: February 15, 1995

PRINCIPAL: Gary S. Salzman
PROJECT MANAGER: J. Michael Batten
SUBCONTRACTOR: Drill Line, Inc.

DISCLAIMER

This Site Health and Safety Plan has been written for the use of Converse Consultants Orange County (Converse) and its employees. It may also be used as a guidance document by properly trained and experienced Converse subcontractors. However, Converse does not guarantee the health or safety of any person entering this site.

Due to the 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 on the site. The health and safety guidelines in this plan were prepared specifically for this site and should not be used on any other site without prior research by trained health and safety specialists.

All personnel participating in the field must be trained in the general and specific hazards unique to the job and, if applicable, participate in medical surveillance programs.

Converse claims no responsibility for use of this plan by others. The plan is written for the specific site conditions, purposes, dates, and personnel specified and must be amended if these conditions change.

**SITE HEALTH & SAFETY PLAN
FULLERTON BUSINESS PARK NORTH**

I. SITE HISTORY AND PROJECT INFORMATION

- A) Facility Site Description: Factory/warehouse building currently occupied by a furniture manufacturer.
- B) Site Abandoned or Occupied? Occupied.
- C) Site Map Attached with the following designated (Figure 1):
- 1) Entry and emergency egress;
 - 2) Work location(s);
 - 3) Location of borings.
- D) Background Information: PCE contamination of soil has been identified. The source of contamination is suspected to be a former fill pipe from a former clarifier and/or an off-site source.
- E) Levels of Contamination Found: Maximum of 96,000 ppb, found at BH-5 at 20 feet below ground surface.
- F) Scope of Work: Install three (3) ground water monitoring wells, develop three wells, survey locations of the wells, and obtain ground water samples from three wells.
- G) Written Work Plan: Yes.
- Approval from: Orange County Health Care Agency (pending), Santa Ana Regional Water Quality Control Board (pending).
- H) Project Crew:
- | | |
|----------------------|---------------------------------------|
| Project Manager: | J. Michael Batten |
| Field Supervisor: | Steven S. Maffioli |
| Site Safety Officer: | Steven S. Maffioli |
| Team Members: | J. Michael Batten, Steven S. Maffioli |

II. HEALTH RISK ANALYSIS

- A) Job Tasks to be performed: Drilling and installation of three monitoring wells, collecting soil samples, collecting ground water samples.

B) Summary of Potential Exposure Conditions, Pathways, Chemical Hazards and Physical Hazards:

See Table I.

C) Chemical Hazard Data: See Table II.

D) Physical and Non-Chemical Hazards: See Table III.

E) Overall Rating of Risk due to Project Hazards:

Serious Moderate Low

F) Utility Clearance: Pending.

- 1) Dig Alert called (date): _____
- 2) Field clearance done by (date): _____
- 3) Reference #: _____

III. AIR MONITORING EQUIPMENT/PERSONAL PROTECTIVE EQUIPMENT AND ACTION LEVELS

Monitoring is to be conducted by the Site Safety Officer or designee. The results shall be interpreted by the Site Safety Officer. Monitoring results and calibration logs are to be completed and filed with the Site Health & Safety Plan.

All monitoring shall be performed on a periodic basis. Periodic is defined as adequate characterization before, during and after each task/activity. Monitoring should be performed on a continuous basis until the operation is stable and the SSO or CHSO feel that the monitoring is sufficient to adequately assess and characterize exposure during that operation. A minimum of five independent data points per minute is suggested. Upon task/environmental/activity stabilization, periodic monitoring every 30 minutes is required to verify the initial exposure assessment to all chemicals identified as necessary below. Additional characterization monitoring shall begin immediately if the operation destabilizes, the environment changes, or the potential for exposure is otherwise affected.

A) Monitoring Instruments/Direct Reading Instruments:

CONTAMINANT/ HAZARD	INSTRUMENT(S)	FREQUENCY	
		Initially? Yes	Periodically? Yes
Organics	OVA		

B) Personal Protective Equipment and Action Levels:

See Table IV.

IV. DECONTAMINATION/HAZARDOUS WASTE GENERATION

A) Sampling/Equipment Samples:

- 3 Step decontamination procedures;
 - Soapy Water,
 - Rinse Water,
 - De-ionized Water.

B) Personal Protective Equipment:

- Respirator shall be cleaned and sanitized by each worker.
- Disposables shall be properly disposed of.

C) Heavy Equipment:

- Steam Clean auger flights, containing run-off.

D) Hazard Waste Generation:

- Drill cuttings to be placed in properly labeled drums.
- Liquid generated during decontamination or sampling shall be placed in properly labeled drums.
- Disposable protective equipment to be placed in drum with cuttings
- Vapor and/or Dust generated by site activities to be mitigated by wetting the work area.

V. SITE ACCESS PROCEDURE

On Site Command Post: Converse truck.

General: Cones, barrier tape, saw horses, and Converse trucks will be utilized to segregate work area.

Work Area Access: Converse and Drill Line personnel only.

Security For Off-Hours: Area is fenced.

VI. EMERGENCY PROCEDURES

First Aid:

Eyes: Irrigate immediately, transport to hospital.
Skin: Wash immediately.
Breathing: Artificial respiration, seek medical attention.

Nearest Telephone: Converse truck.

Emergency Phone Nos.:

Ambulance: 911
Police: 911
Fire: 911
Hospital: 827-6700

Emergency Hospital: Anaheim Memorial Hospital
Hospital Address: 1111 West La Palma Avenue

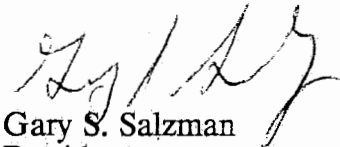
****MAP ATTACHED WITH ROUTE HIGHLIGHTED****
(Figure 2)

Pager Numbers:

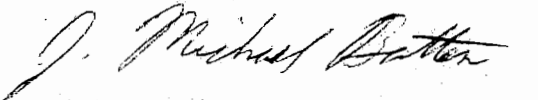
Project Mgr.: 733-4016

VII. PLAN APPROVAL/SIGN OFF/LOG SHEET/TAIL GATE MEETINGS

A) Plan approved by:


Gary S. Salzman
President


Ashok C. Shah
Health & Safety Officer


J. Michael Batten
Sr. Staff Geologist, Project Manager

B) The following team members have read this plan before entering the site:

PRINT NAME	SIGNATURE	DATE

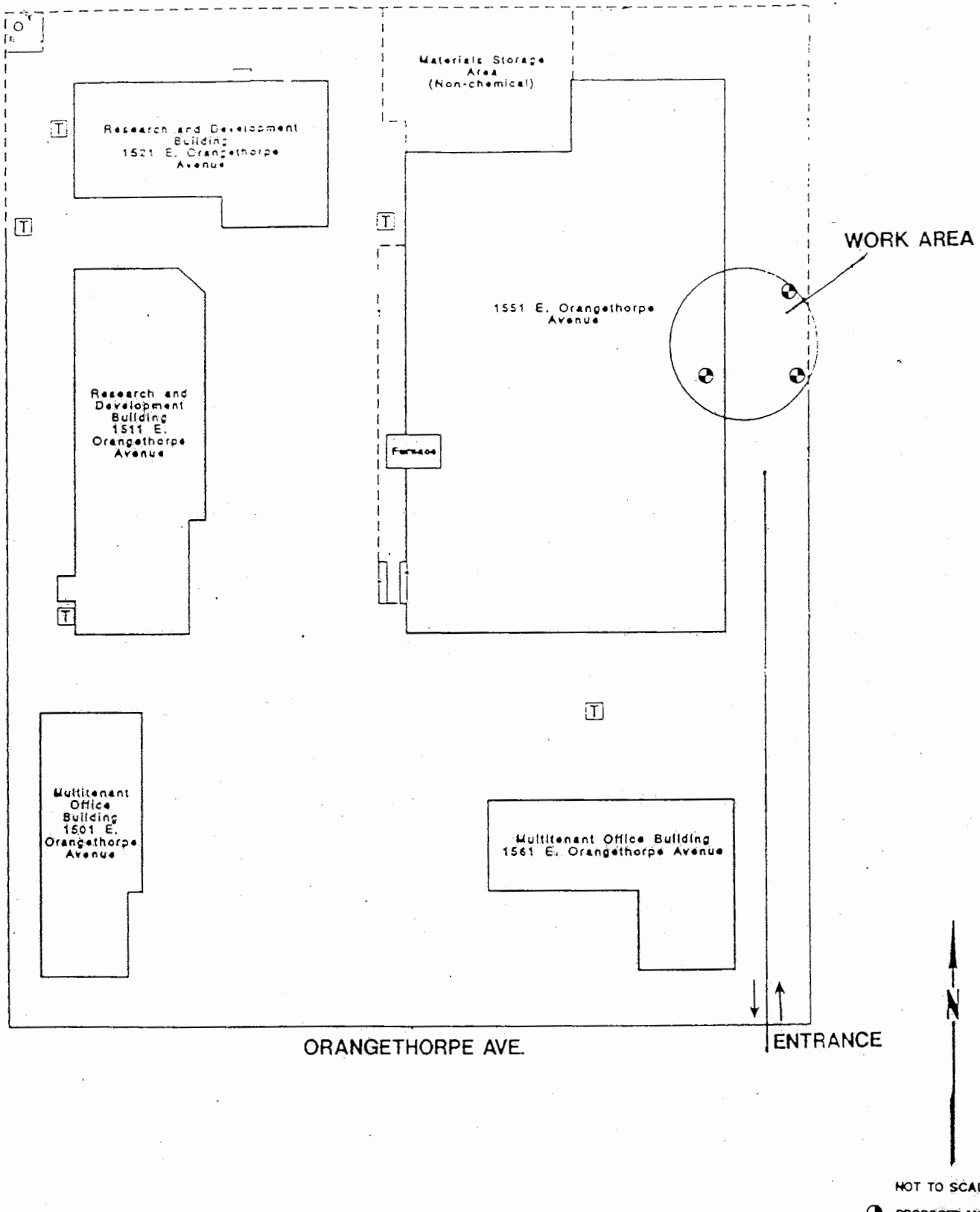
C) Daily Tail Gate Meeting:

Fill out On-Site Safety Meeting Form and return a copy to the Project Manager.

VIII. REFERENCES

Circle all that apply:

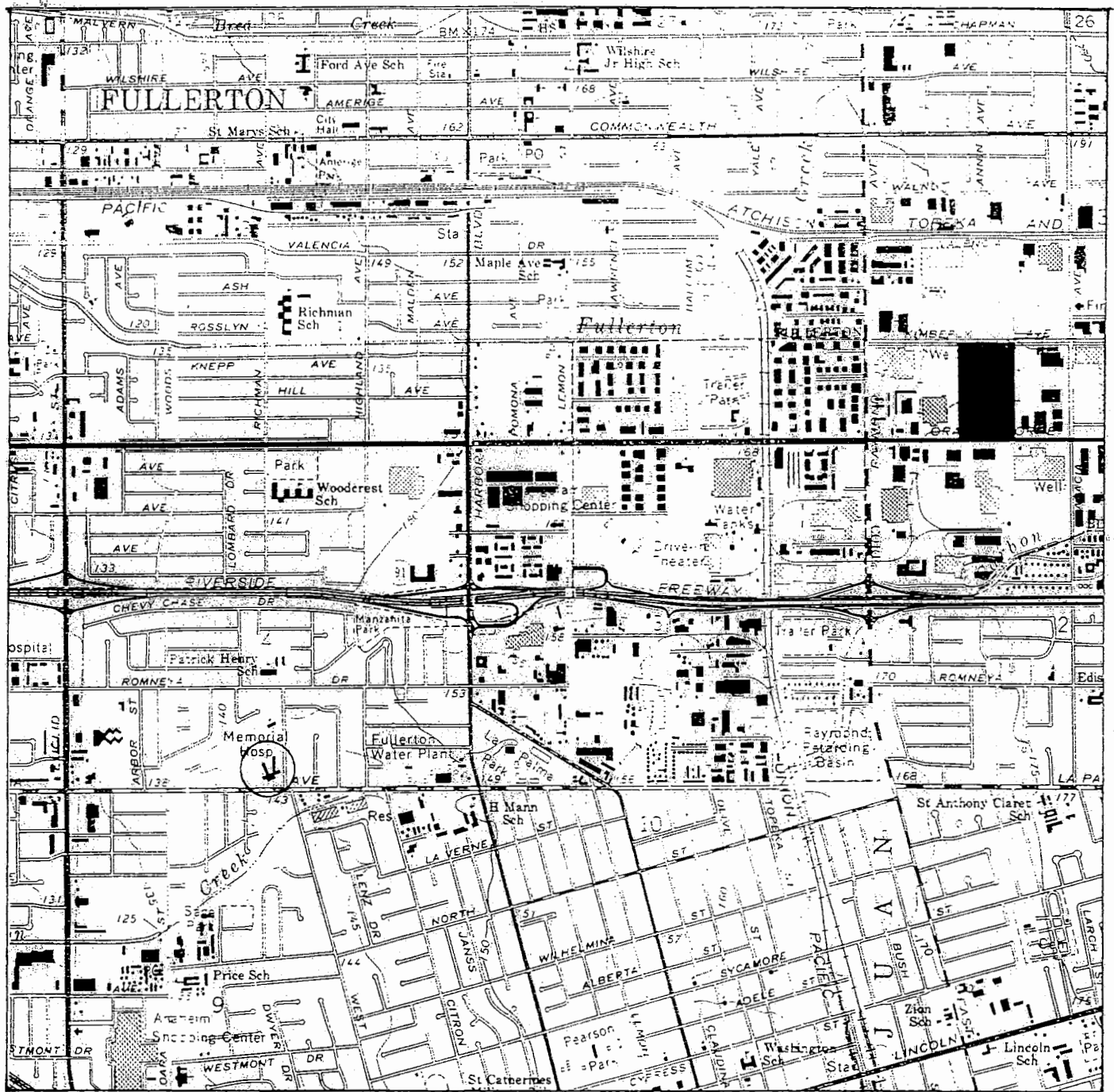
NIOSH Pocket Guide, Forsberg-Guide Selection for PPE, Patty's-Tox,
Sac's, Merck, CHRIS, other _____



NOT TO SCALE
 ⊕ PROPOSED MONITORING WELL LOCATION

SITE LAYOUT MAP

Project No.
 94-42871-04



SOURCE: USGS Anaheim, Calif. Quadrangle, 7.5 minute series, 1965.

HOSPITAL ROUTE MAP

Project No
94-42871-04

Figure No
2

TABLE I
TASK RISK ANALYSIS/SUMMARY OF POTENTIAL
EXPOSURE, PATHWAYS, CHEMICALS AND PHYSICAL HAZARDS

TASKS SCHEDULED	MEDIA OF CONCERN	POTENTIAL EXPOSURE PATHWAYS	PHYSICAL HAZARDS	CHEMICAL HAZARDS
Utility Clearance	none	none	none	none
Drilling/Sampling	Soil Water	Inhalation, Dermal	Heavy Equipment	PCE, other solvents
Decontamination	Soil Water	Inhalation, Dermal	Heavy Equipment, Slippery Surfaces	PCE, other solvents

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TABLE II
IDENTIFICATION AND ASSESSMENT OF CHEMICAL HAZARDS

CHEMICAL NAME	PEL/TLV	OTHER LIMITS	WARNING PROPERTIES	PHYSICAL PROPERTIES	TARGET ORGANS	ACUTE/CHRONIC HEALTH EFFECTS	CANCER
Tetrachloroethene (PCE)	25 ppm	IDLH 500 ppm	Irrit. eyes, nose, throat;	Colorless liquid w/ chloroform odor	Liver, kidneys, eyes, upper resp, CNS	Liver, kidney disease	No
Possible Other Solvents (unknown)	5-25 ppm	IDLH 100-1,000 ppm	Irrit. eyes, nose, throat, skin; nau, dizz, verti; head	Various	Liver, kidnys, eyes, upper resp, CNS, repro.	Liver, kidney, heart, lung disease; sterilization	Yes

Explanation

anem	anemia	ftg	fatigue	pal	pallor
anes	anesthesia	fvr	fever	para	paralysis
ANS	autonomic nervous system	GI	gastrointestinal	peri. neur	peripheral neuropathy
asphy	asphyxia	head	headache	PNS	peripheral nervous system
atax	ataxia	hep	hepatic	sens	senitization
chol	cholinesterase	intox	intoxication	sez	seizure
cirr	cirrhosis	irrit	irritation	sleep	sleepiness
CNS	central nervous system	kera	keratitis	spas	spasm
coll	collapse	kid	kidney	tacar	tachycardia
conj	conjunctivitis	lac	lacrimation	verti	vertigo
convuls	convulsions	leuk	leukemia	vomit	vomiting
CVS	cardiovascular system	liv	liver	weak	weakness
cyan	cyanosis	low wgt	weight loss	wheez	wheezing
derm	dermatitis	muc memb	mucous membrane		
dizz	dizziness	nau	nausea		
drow	drowniness	pal	pallor		

TABLE III

PHYSICAL AND NONCHEMICAL HAZARDS

HAZARD TYPE	PRESENT	ABSENT
SAFETY HAZARDS		
Holes/trenches/ditches	X	
Steep grades		X
Slippery/wet surfaces	X	
Uneven terrain		X
Unstable surfaces		X
Elevated work area		X
Lifting/moving heavy objects	X	
SHORING/SCAFFOLDING		X
FIRE HAZARDS		X
ELECTRICAL HAZARDS		
Overhead power lines		X
Underground power lines	X	
GAS LINES	X	
EXPLOSIVE ATMOSPHERES		X
OXYGEN DEFICIENCY		X
CONFINED SPACES		X
EQUIPMENT HAZARDS		
Drilling	X	
Excavation		X
Machinery	X	
HEAT EXPOSURE		X
COLD EXPOSURE		X
NOISE	X	
IONIZING RADIATION		X
NON-IONIZING RADIATION		
Lasers		X
Infrared		X
Ultraviolet		X
BIOLOGICAL		X
OTHER		X

TABLE IV

TASK SPECIFIC PERSONAL PROTECTIVE EQUIPMENT (PPE)
ACTION LEVEL TABLE

LEVEL	TASK/ ACTIVITY ^a	ACTION LEVEL OF ANY CONTAM. FOR PPE UPGRADE	SUIT	GLOVE	FOOT ^b	HEAD ^c	EYE ^d	EAR	RESPIRATOR ^e	CARTRIDGE ^f	MONITORING EQUIPMENT ^g
D	UC,SB,WC, WS,D,WD,DR	> 10 ppm in ambient air for 5 min.		X	ST	HH	SG	X			FID/PID
C	SB,WC,DR	> 25 ppm in ambient air for 5 min.		X	ST	HH	SG	X	HF/APR	Ov	FID/PID
B	STOP WORK										
A											

a) TASKS

GPR = Ground Penetrating Radar
 HA = Hand Augering
 UC = Utility Clearance
 SS = Soil Sampling
 SB = Soil Boring
 GP = Geo probe
 WC = Well Construction
 WS = Groundwater Sampling
 D = Decontamination
 DS = Drum Sampling
 SE = Soil Excavation
 WD = Well Development
 DR = Drill Rig
 DU = Degassing Unit

b) FOOT PROTECTION

ST = Steel Toe Boots
 RB = Rubber Boots
 FC = Boot Covers

c) HEAD PROTECTION

HH = Hard Hat

d) EYE PROTECTION

SG = Safety Glasses
 FS = Face Shield

e) RESPIRATORY PROTECTION

HF/APR = Half Face Air Purifying
 FF/APR = Full Face Air Purifying

f) CARTRIDGE

CC = Combination Cartridge OV/PART
 HiE = High Efficiency Particulate
 Ov = Organic Vapor
 AC = Acid Gas

g) MONITORING EQUIPMENT

PID = Photoionization Detector
 FID = Flame Ionization Detector
 LEL/O₂ = Explosimeter Oxygen Meter
 DR = Draeger tubes
 FB = Film Badge
 MR = Miniram