Chromium Vault
RO 2656

WORKPLAN FOR INITIAL SUBSURFACE INVESTIGATION

CHROMEX

A DIVISION OF CHARLES LOWE COMPANY
1400 PARK AVENUE
EMERYVILLE, CA 94608

Prepared For

Charles Lowe Company
1400 Park Avenue
Emeryville, CA 94608

Prepared By

Excel Trans, Inc.
290 W. Channel Road
Benicia, CA 94510

A Workplan Prepared for

Chromex
A Division of Charles Lowe Company
1400 Park Avenue
Emeryville, California 94608

WORKPLAN FOR INITIAL SUBSURFACE INVESTIGATION
CHROMEX
EMERYVILLE, CALIFORNIA

Excel Trans Job No. 072027

Prepared By

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July 24, 1992

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APPENDICES

I. INTRODUCTION

This workplan describes a preliminary subsurface investigation at the former Chromex plating facility located in Emeryville, California. The objective of this investigation is to evaluate soil and groundwater for the existence of contamination that may be present at the site. The workplan follows the "Tri-Regional Staff Recommendations, Appendix A, Workplan for Initial Subsurface Investigation" guidelines.

A. STATEMENT OF SCOPE OF WORK

The Scope of Work includes contracting an environmental geologist and a licensed C-57 drilling contractor to drill and collect soil and groundwater samples from four bore holes at the site. In addition to the bore hole samples, soil samples and a surface water sample will be taken from the bottom of an excavated vault. A survey will be taken to measure groundwater elevations. Using the groundwater elevation information, calculations will be made to determine the on-site groundwater gradient and flow direction. A registered professional engineer will submit a written technical report at the conclusion of the study.

B. SITE LOCATION

The former Chromex facility is located within the Charles Lowe compound in southern Emeryville. The Charles Lowe Company is located at the northeast corner of Park Avenue and Horton Street in Emeryville, California (Appendix A, Map 1 & Map 2). Prior to demolition, Chromex was a 30x100 foot structural addition to the northwest corner of the Charles Lowe general manufacturing area. The main entrance to the Chromex site is through the Charles Lowe Company which faces Park Avenue. The service entrance to the site faces Horton Street.

C. BACKGROUND

Under a workplan submitted by Excel Trans and approved by the Alameda County Health Department (ACHD), the Chromex facility is in the final phase of a complete plant closure and demolition. The structure and all equipment have been decontaminated, dismantled, and sent for disposal. A concrete vault and one-quarter of the concrete floor have been excavated and sent for disposal.

The Chromex plant closure is the first environmental work at the site. Moreover, there is no history of any previous subsurface investigations at this site. However, surficial studies were performed by Excel Trans on September 17, 1991. The surface soils were sampled and analyzed for 17 metals, total cyanide, and pH. A site map showing sample locations can be found in Appendix A, Map 3. Analytical results are located in Appendix B.

D. SITE HISTORY

This section discusses the type of activities that took place at Chromex, the previous businesses on the property, and the Chromex tank activities.

1. TYPE OF BUSINESS AND NUMBER OF ABOVEGROUND TANKS

TYPE OF BUSINESS

Chromex is a division of the Charles Lowe Company, a manufacturer of industrial equipment. Chromex supported the manufacturing operations of the Charles Lowe Company by providing chrome electroplating, metal spraying, and selective brush plating services. Chromex ceased these activities in January 1991.

NUMBER AND CAPACITY OF ABOVEGROUND TANKS

Prior to the plant closure, the chrome plating shop contained one 12 foot deep, concrete, secondary containment vault and eight above ground tanks with the following capacities: 3600, 3200, 3200, 2800, 750, 120, 100, and 60 gallons.

2. PREVIOUS BUSINESSES AT THE SITE

The room that housed the Chromex plating shop was constructed in 1973 by the former building owner, the Fred Meyer Company. From 1973 to 1978 the room was occupied by Modern Plating, a subsidiary of the Fred Meyer Company. Modern Plating performed copper and brass plating until 1978 when they ceased operation and vacated. Chromex occupied the room from 1978 to January 1991.

3. TANK ACTIVITIES, CONTENTS, AND REMOVAL

Chromex operated eight tanks for their plating activities: six were in a below grade vault, and two tanks were in an above grade bermed area (Appendix A, Map 4).

THE VAULT AS SECONDARY CONTAINMENT

The vault was used as secondary containment for six tanks. All tanks were supported above the vault floor on tank stands. The vault was constructed of 12 inch thick steel-reinforced concrete, and was 12 feet deep, 22 feet wide, and 18.5 feet long. The vault, and tanks in the vault, were not considered to be underground storage tanks by the ACHD.

ABOVEGROUND SECONDARY CONTAINMENT

In addition to the vault, the facility had an above grade, concrete secondary containment area with an angle-iron berm (Appendix A, Map 4). The bermed area was L-shaped with the following dimensions: 4x13 feet and 11x18.5 feet. This area contained one steel tank and one polyethylene tank.

Table 1 lists the volume, location, construction material, contents, and purpose of all eight aboveground tanks at the facility.

Table 1: Tank Descriptions

VOLUME (gallons)/ LOCATION	CONSTRUCTION MATERIAL	CONTENTS	TANK PURPOSE
3600/vault	steel	26% chromic acid	chrome plating
3200/vault	steel	26% chromic acid	chrome plating
3200/vault	steel	26% chromic acid	chrome plating
2800/above grade berm	steel	26% chromic acid	chrome plating
750/vault	polyethylene	20% sodium hydroxide	stripping
120/vault	polyethylene	20% hydrochloric acid	etching
100/vault	polyethylene	20% sulfuric acid	stripping
60/above grade berm	polyethylene	20% hydrochloric acid	etching

a. NUMBER OF UNDERGROUND STORAGE TANKS

As detailed in the preceding section, neither the vault nor the tanks within the vault, were considered to be underground storage tanks by the ACHD.

b. REMOVAL OF ABOVEGROUND PLATING, ETCHING, AND STRIPPING TANKS

Plating, etching, and stripping tanks were removed in June 1991 as part of the plant closure. Tanks were decontaminated, demolished, tested to verify decontamination, and sent to scrap or an EPA permitted landfill for disposal. The facility decommissioning Final Closure Report, which will be submitted to the Alameda County Health Agency by Excel Trans, will document decontamination and disposal activities.

c. REMOVAL OF ABOVEGROUND TANK CONTENTS

The tank contents were removed and sent to an EPA permitted facility for disposal. A total of 12,800 gallons of chromic acid, 750 gallons of sodium hydroxide, 180 gallons of hydrochloric acid, and 100 gallons of sulfuric acid were removed for disposal. Copies of all manifests will be submitted to the Alameda County Health Agency with the Final Closure Report for the facility decommissioning.

4. SPILL, LEAK, AND ACCIDENT HISTORY

The Charles Lowe Company has no record of any spill, leak, release, or accident from their plating operations. There is no history of any previously removed underground storage tanks.

5. PREVIOUS SUBSURFACE WORK

Prior to the commencement of facility closure work activities, there had been no environmental or subsurface work at the site. However, research at the Regional Water Quality Control Board (RWQCB) in Oakland, California indicates that there has been subsurface work at an immediately adjacent facility: Electro-Coatings Industries (ECI), RWQCB file number 2199.9075.

ECI has completed several soil and groundwater studies on their Park Avenue property. Results of the study indicate that ECI has chromium contamination of their soil and groundwater. For example, a monitoring well placed on ECI property and immediately downgradient of an ECI chromic acid waste storage pit showed an average of 450 ppm of chromium in well water samples.

II. SITE DESCRIPTION

This section presents the following: a brief description of businesses in the immediate vicinity of the site; the hydrogeological setting; a vicinity and site map; and the results of sampling a soil pile.

A. VICINITY DESCRIPTION AND HYDROGEOLOGIC SETTING

VICINITY DESCRIPTION

The site is situated in the industrial section of Emeryville. It is in a mixed industrial area of manufacturing plants, warehouses, and offices. The site is bound by California Plywood on the north, P. G. & E. on the east, Park Avenue on the south, and Horton Street on the west. Electro-Coating Industries, a plating facility, is located directly across Park Avenue from the site. The Sherwin-Williams manufacturing facility is across Horton Street from the site.

HYDROGEOLOGIC SETTING

The characteristics of the soil and groundwater underlying the site have never been studied. Information regarding the hydrogeologic characteristics of the site will be obtained as a result of the bore hole drilling outlined in this workplan. However, information provided by RWQCB indicates that groundwater at surrounding sites has been encountered at 10-12 feet below grade, and that soil is silty clay or gravelly silty clay sediments ("Evaluation of Interim Remedial Measures at the Sherwin-Williams Facility", Dec. 20, 1991, Levine•Fricke). It is anticipated that the hydrogeologic setting of the Sherwin-Williams site will be similar to the Chromex site.

B. VICINITY MAP

The Vicinity Map (Appendix A, Map 5) shows facilities in close proximity to the site and monitoring wells on nearby property.

C. SITE MAPS

The Site Map (Appendix A, Map 4) shows adjacent streets, site buildings, underground utilities, the location of former tanks, and the location of the former vault.

D. EXISTING SOIL PILE AND EXCAVATION RESULTS

As part of the plant closure, the concrete vault was shored and subsequently excavated. This section provides soil pile sampling details of the excavated soil.

Prior to demolition, the concrete vault area was shored with sheer pile. During shoring, approximately 40 cubic yards of soil was excavated to aid in the installation of sheet piles. The soil was placed on plastic, and then covered with plastic sheeting. The soil pile was then sampled according to random sampling procedures described in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Manual (SW-846).*

1. SAMPLING PROCEDURES

On May 6, 1992, the above mentioned soil pile was sampled using a three-dimensional random sampling method (SW-846). The pile was divided into three, three-dimensional grids. Each grid section was assigned a range of numbers. Four sampling points were then chosen using a random-number table.

Soil samples were collected in brass tubes, taped, labeled, and placed in an ice chest for transport to a state certified analytical laboratory. Samples were submitted under chain-of-custody to Trace Analysis in Hayward, California.

2. DEPTH TO GROUNDWATER

During the demolition of the vault, depth to groundwater was not measured. However, visual observations indicate that groundwater is at approximately 12 feet below grade.

3. SOIL TYPES AND STRATA

Soil types and strata were not characterized during excavation of the vault. Soil Characterization will be performed as part of this preliminary subsurface investigation.

4. ANALYTICAL RESULTS OF SOIL PILE SAMPLING

Four soil pile samples were taken as described in Part 1 of this section. A composite of the four samples was prepared, and TCLP and total metal analyses were performed on the composite.

The composite sample was extracted using EPA method 1311 (TCLP), and was analyzed for eight federally regulated (RCRA) metals. Results of the TCLP extraction for chromium were 1.5 ppm. Other TCLP metals were either non-detectable or below EPA regulatory levels. Since the EPA regulatory level for TCLP chromium is 5.0 ppm (40 CFR 261.24), and because other TCLP metals were below regulatory levels, the soil is not an EPA hazardous waste.

In addition to the TCLP for metals, total metal analysis for 13 Priority Pollutant Metals were performed on a composite of the four samples. Analytical results for the total metals showed that all metals analyzed were below California regulatory levels. In particular, analytical results for total chromium showed 6.3 mg/kg. Since the California regulatory level for total chromium is 500 mg/kg, and because other total

metal analyses were below the California regulatory level, the soil pile is not a California hazardous waste. Thus, the soil pile is neither an EPA nor a California hazardous waste.

Analytical results of the soil pile, chain-of-custody, date sampled, identity of sampler, and signed laboratory data sheets are presented in Appendix C.

5. UNDERGROUND UTILITIES

The location of underground utilities at the site are shown on Map 4, Appendix A.

6. PROBLEMS DURING EXCAVATION

No problems were encountered during removal of concrete walls and floor of the vault.

7. STORAGE AND DISPOSAL OF EXCAVATED SOIL

The soil pile is stored on and covered by 4 millimeter polyethylene sheeting until removal. Documentation of disposal will appear in the Final Closure Report.

8. PERMIT FOR EXCAVATION OF THE VAULT

The City of Emeryville issued permit number B4301-492 on April 24, 1992 to Tank Excavators of Scotts Valley, California for excavation of the vault.

III. PLAN FOR DETERMINING THE PRESENCE OF SOIL CONTAMINATION AT THE SITE

This section describes a preliminary subsurface investigation plan to determine if soil contamination has occurred at the site.

A. PROPOSED METHODS FOR DETERMINING PRESENCE OF SOIL CONTAMINATION

Presence of contamination will be determined by drilling bore holes for soil samples and by sampling soil at the bottom and sides of the vault.

B. SAMPLING PROCEDURES

The following subsections describe the soil boring sampling procedures that will be used at the site.

1. SOIL GAS SURVEY

A soil gas survey will not be used for the soil investigation.

2. SOIL BORINGS TO DETERMINE IF CONTAMINATION IS PRESENT

The following subsection includes a site map, description of borings, and soil sample analysis.

a. SITE MAP FOR PROPOSED BORE HOLES

Map 6, located in Appendix A, identifies the number and location of the proposed bore holes. In addition to sampling the bore holes, soil samples and a standing surface water sample will be taken from the bottom of the vault.

b. DEPTH OF BORINGS AND ANALYSIS OF SOIL SAMPLES

Borings for four bore holes will be to the first encountered groundwater. Soil samples will be taken at 1, 5, and 10 foot depths for each hole. Soil sample depths and soil analysis are outlined in Table 2:

Table 2: Depths of Borings and Soil Analysis

BORE HOLE	SAMPLES & ANALYSIS
B0 (control sample)	1. Boring soil samples at 1,5, & 10 feet 2. EPA Priority Pollutant Metals (13), EPA method 6010/7000
B1, B2, B3 (borings)	1. Boring soil samples at 1,5, & 10 feet. 2. EPA Priority Pollutant Metals (13), EPA method 6010/7000
SO1 (vault)	1. Soil sample from bottom, southwest side of vault 2. EPA Priority Pollutant Metals (13), EPA method 6010/7000
SO2 (vault)	1. Soil sample from bottom, northeast corner of vault 2. EPA Priority Pollutant Metals (13), EPA Method 6010/7000

c. SOIL CLASSIFICATION SYSTEM AND SOIL SAMPLING METHOD

SOIL CLASSIFICATION SYSTEM

An environmental geologist will be on site to work with the drilling crew, handle samples, and prepare drill logs. Logs will include descriptions of the depths and types of soil encountered and notes on indications of contamination. The Unified Soil Classification System with visual-manual procedures (ASTM D 2488-84) will be used for soil description. A registered professional engineer will certify the findings of the environmental geologist.

SOIL SAMPLING METHOD

Soil samples will be obtained using an 18-inch long modified California split-spoon sampler containing new, 2-inch diameter brass liners. The ends of the soil liners retained for consideration for subsequent laboratory analysis will be sealed with Teflon sheets, and end caps will be taped. The liners will then be individually labeled and placed on ice or refrigerated for preservation until delivery to the analytical laboratory. Standard chain-of-custody procedures will be implemented in the field to document soil sample collection, handling, and analytical requests.

d. BORING DRILLING METHOD AND DECONTAMINATION PROCEDURES

DRILLING PROCEDURE

A C-57-licensed drilling contractor will be retained to drill the exploratory borings and obtain soil samples. The borings will be drilled using 8-inch outside-diameter hollow-stem augers. An environmental geologist will open the split spoons, examine the sample, record findings, and prepare the sample for analysis.

DECONTAMINATION PROCEDURES

All drilling and sampling equipment will be steam-cleaned prior to use on-site. Equipment will be cleaned in the field using a dilute Alconox (non-phosphate) wash followed by a double tap water rinse. The used wash water will be held on site in a closed top drum until appropriate disposal methods have been determined. The wash water will be disposed of according to all applicable federal, state, and local regulations.

e. BORING ABANDONMENT

Upon completion, exploratory borings will be abandoned by filling the boring with a cement and bentonite slurry. The slurry will be placed from the bottom up using a tremie hose.

C. METHODS TO SCREEN SOIL SAMPLES FOR PETROLEUM HYDROCARBONS

Because this workplan is for a preliminary subsurface investigation of a former chrome plating shop, and because there have been no known activities involving underground storage of petroleum hydrocarbons, soil will not be screened for petroleum hydrocarbons. Neither on-site aeration nor bioremediation are anticipated for this project.

D. SECURITY MEASURES

At present, there is a locked, gated, 6 foot high, temporary chain-link fence surrounding the north, east and west perimeters of the Chromex site. The southern perimeter is secured by a wall of the Charles Lowe manufacturing area. Access to the Charles Lowe manufacturing area is controlled by a badge and sign-in procedure in the lobby of the Charles Lowe building.

Within the fenced perimeter of the site, the former Chromex plating area and yard is encircled by a locked, gated, 6 foot high chain-link fence. The soil pile is covered and located in an area of no traffic flow as shown on Map 4, Appedix A.

IV. PLAN FOR DETERMINING GROUNDWATER CONTAMINATION

The following section describes the plan for the preliminary investigation of groundwater contamination. Because there are no on-site domestic wells, there will be no well sampling.

A. PLACEMENT OF MONITORING WELLS

At this time, there will be no placement of monitoring wells. The objective of the workplan is to determine if any significant contamination has resulted from the Chromex plating operation.

B. DRILLING METHOD FOR MONITORING WELLS

Because monitoring wells are not part of this preliminary investigation, no description of drilling methods for wells is needed for this workplan.

C. GROUNDWATER SAMPLING PLAN

This workplan for a subsurface investigation does not include installation or sampling of wells. The groundwater sampling plan includes sampling of the first encountered water during soil boring. There will be four groundwater samples taken, one sample from each bore hole. In addition, the absence of established domestic or monitoring wells on the property eliminates the potential for any well sampling. There will be no well purging or well purge water characterization.

1. WATER LEVEL MEASUREMENT, GROUNDWATER ELEVATION, GRADIENT & FLOW DIRECTION

WATER LEVEL MEASUREMENT METHOD

Absence of wells precludes the need for well water level measurements.

GROUNDWATER ELEVATION, GRADIENT & FLOW DIRECTION

After bore holes have been drilled and groundwater reached, a piece of slotted PVC pipe will be installed in each bore hole. After placement of the pipe and groundwater sampling, the groundwater will be allowed to equilibrate for one hour. A survey will then be conducted to measure the groundwater elevation, in relation to an arbitrarily established datum, in the holes. The groundwater elevation information will be used to calculate the on-site groundwater gradient and flow direction.

2. DISPOSAL OF EXCESS GROUNDWATER

Excess groundwater retrieved during sampling will be contained in closed-top, labelled 55-gallon drums. After analysis has been completed, the groundwater will be disposed of according to applicable federal, state, and local regulations.

3. WATER SAMPLE COLLECTION PROTOCOL

Groundwater samples will be collected directly through the hollow-stem drilling augers using pre-cleaned Teflon bailers. The groundwater samples will be carefully transferred from the bailers into proper containers obtained from the analytical laboratory. Groundwater for analysis for volatile organic compounds will be placed into volatile organic analysis (VOA) vials. After filling and capping, each vial

will be inverted and tapped to ensure the absence of air bubbles. All containers will be individually labeled and placed in a field cooler for preservation. Standard chain-of-custody procedures will be implemented in the field to document sample collection, handling, and analytical requests.

4. COMPOUNDS AND ANALYTICAL METHODS

Groundwater samples will analyzed for constituents using the methods of analysis outlined in Table 3:

Table 3: Groundwater Analysis

GROUNDWATER SAMPLE IDENTIFICATION	CONSTITUENT & ANALYTICAL METHOD
GW0, GW1, GW2, GW3	Volatile Organics (Purgeable Organics) by GC/MS EPA method 8240
GW0, GW1, GW2, GW3, & SW1	EPA Priority Pollutant Metals (13) EPA method 6010/7000

5. QUALITY ASSURANCE/QUALITY CONTROL

This section details the quality assurance/quality control procedures for the collection and handling of environmental samples at the site.

Proper collection and handling are essential to ensure the quality of a sample. Each sample will be collected in a suitable container, preserved correctly, and stored prior to analysis no longer than the maximum allowable holding time according to EPA protocol. Sample containers and preservatives that will be used for the site are listed in Table 4.

SAMPLE CONTAINERS AND PRESERVATIVES

Table 4: Groundwater Sample Containers and Preservatives

Procedure		Container	Quantity	Preservative
EPA 8240	(volatile organics)	Glass with teflon lined cap	2x40 ml	Cool to 4°C
EPA 6010/7000	(chromium VI)	Glass	100 ml	Cool to 4°C
EPA 6010/7000	(all other metals)	Glass	300 ml	Cool to 4°C, HNO_3

6. CHAIN OF CUSTODY, SAMPLE IDENTIFICATION, AND SITE SAFETY PLAN

Chain of custody and sample identification procedures ensure sample integrity and document sample possession from the time of collection to ultimate disposal.

SAMPLE IDENTIFICATION

A label will be affixed to each sample container to identify job number, date, time of sample collection, identity of sampler, analysis requested, and sample number unique to that sample. The aforementioned

information on the label, the sample description, field measurements, sampling methodology, names of on-site personnel, and other pertinent field observations, will be recorded on the boring log or in the field log book.

CHAIN OF CUSTODY

A chain-of-custody form will be used to record possession of the sample from time of collection, to arrival at the lab, and to its ultimate disposal. The sample control officer at the lab will verify sample integrity and confirm that it was collected in the proper container, preserved correctly, and collected in sufficient quantity. If conditions are met, the sample will be assigned a unique log number for identification throughout analysis and reporting.

SITE SAFETY PLAN

The Site Safety Plan is located in Appendix D of this workplan.

APPENDIX A
MAPS

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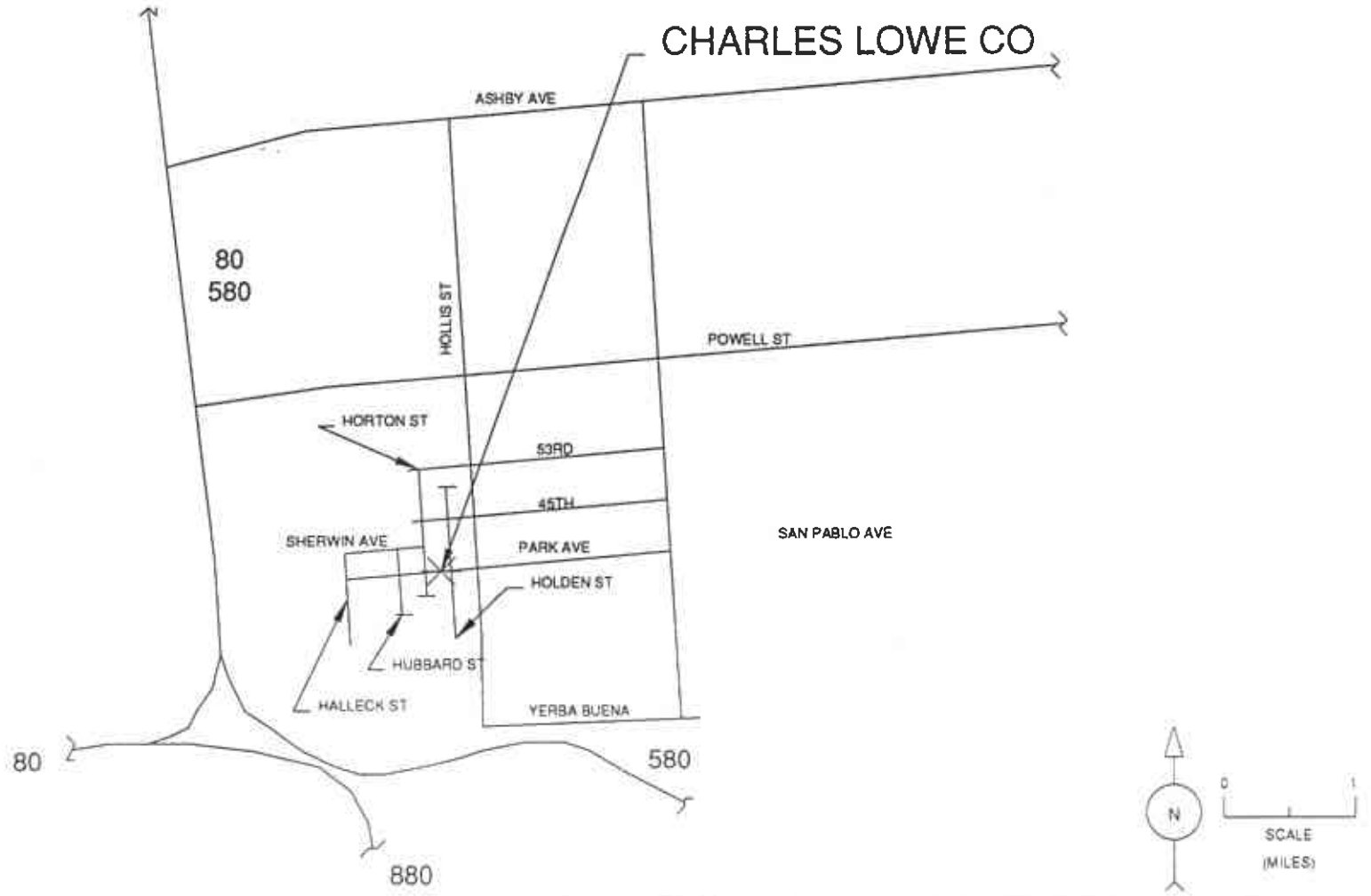
SAN FRANCISCO BAY AREA/ EMERYVILLE MAP 1

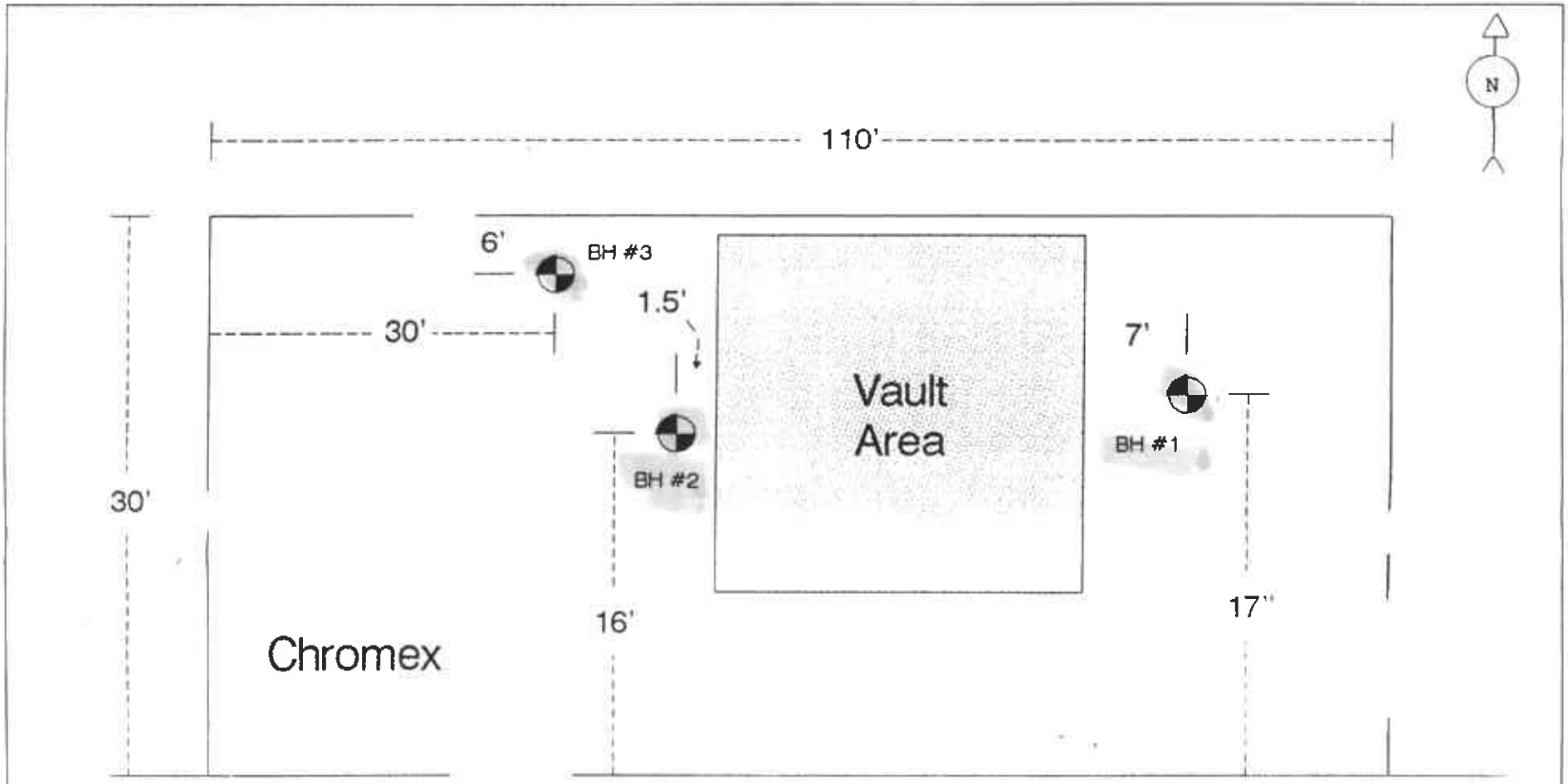
CHARLES LOWE COMPANY 1400 PARK AVE EMERYVILLE, CA 94608



DATE	LTR	DESCRIPTION

AREA LAYOUT MAP 2

CHARLES LOWE COMPANY 1400 PARK AVE EMERYVILLE, CA 94608 (510) 652-5900

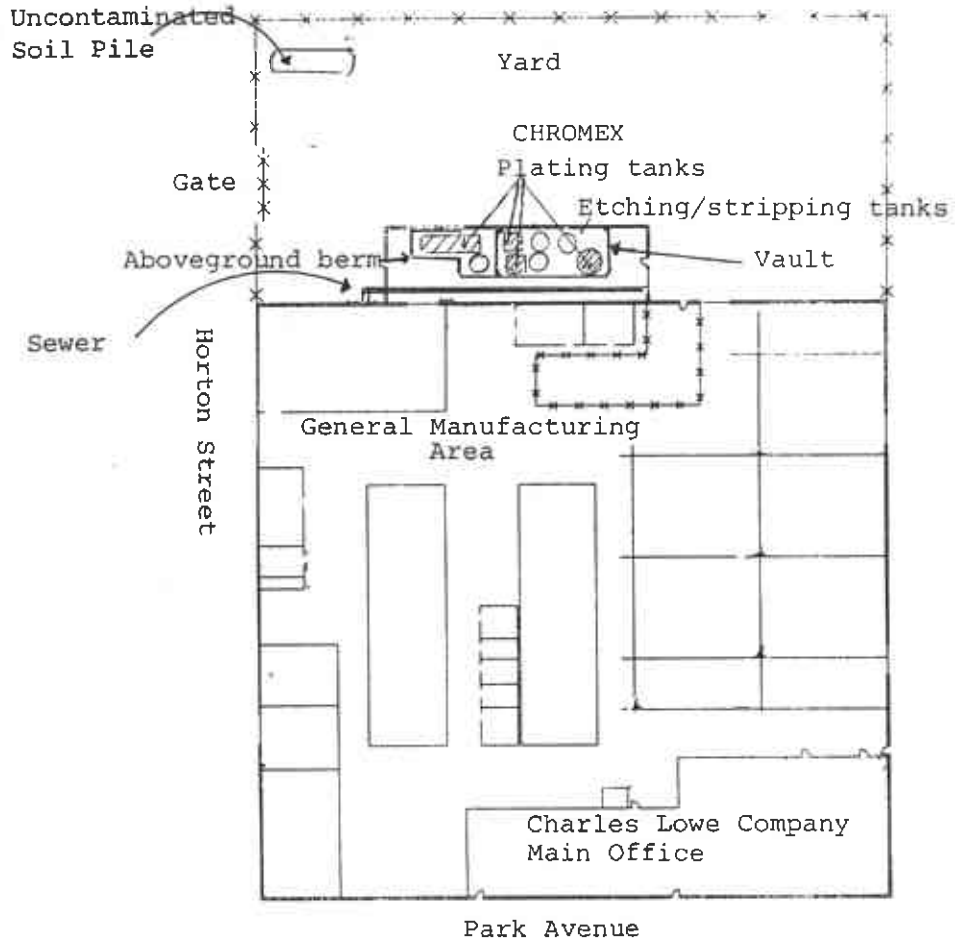


KEY

Hand Boring

SURFICIAL SOIL SAMPLING DIAGRAM MAP 3

CHARLES LOWE COMPANY 1400 PARK AVE EMERYVILLE, CA 94608 (510)652-5900



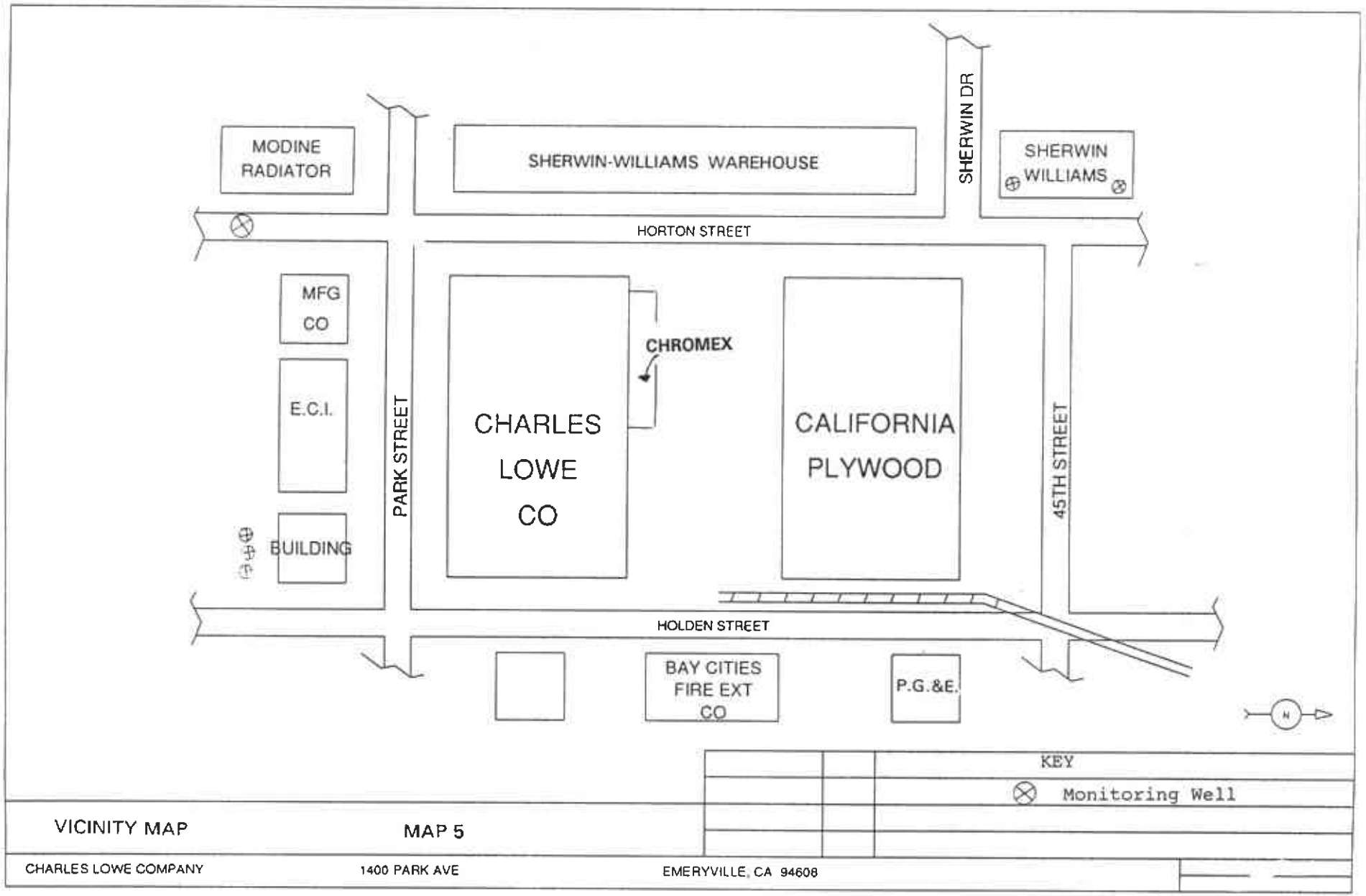
0 50

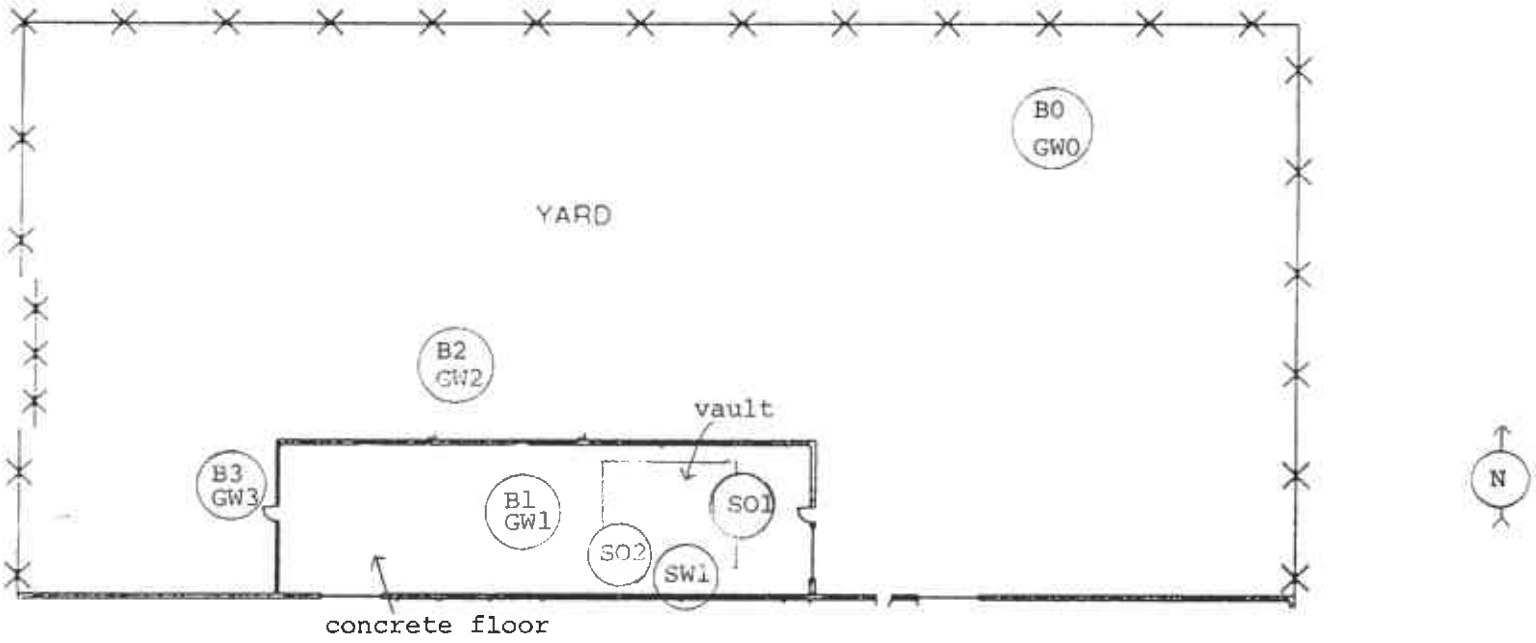
SCALE
(FEET)

SITE MAP

MAP 4

HARRIS LOWE COMPANY 1400 PARK AVE EMERYVILLE, CA 94608


MODINE RADIATOR
SHERWIN-WILLIAMS WAREHOUSE
SHERWIN DR
SHERWIN WILLIAMS
HORTON STREET
MFG CO
E.C.I.
BUILDING
PARK STREET
CHROMEX
CHARLES LOWE CO
CALIFORNIA PLYWOOD
45TH STREET
HOLDEN STREET
BAY CITIES FIRE EXT CO
P.G.&E.
N
KEY
Monitoring Well
VICINITY MAP
MAP 5
CHARLES LOWE COMPANY
1400 PARK AVE
EMERYVILLE, CA 94608



KEY

BO	Bore hole soil sample site, control
GW0	Bore hole groundwater sample, control
B1	Bore hole soil sample site
GW1	Bore hole groundwater sample site
B2	Bore hole soil sample site
GW2	Bore hole groundwater sample site
B3	Bore hole soil sample site
GW3	Bore hole groundwater sample site
SO1	Soil sample from vault
SO2	Soil sample from vault
SW1	Surface water sample from vault

BORE HOLE SITE MAP MAP 6

CHARLES LOWE COMPANY 1400 PARK AVE EMERYVILLE, CA 94608

APPENDIX B
SURFICIAL SOIL STUDY, ANALYTICAL RESULTS

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JOB NO.

PROJECT NAME: Chromex

LAB. NO.: 9117191

SAMPLER (Signature): Dave Nielsen

DATE: ~~9/30/91~~

NO.	SAMPLE LOCATION/INFORMATION	NO. OF CONTAINERS	ANALYSIS: Total Chrome	Hex Chrome	17 metals	Total CN-	pH			1305
1	Bore hole #1	1			X	X	X			Iced.
2	Bore hole #2	1			X	X	X			↓
3	Bore hole #3	1			X	X	X			

walk-in
5-day TAT
50.1
1-bt ea
on ice
Y-9

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
Dave Nielsen	9/17/91 4:38 pm	
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED FOR LAB. BY (Signature)
		John Kong 9/17/91 4:38

REMARKS

~~Standard TAT~~

5- day Turnaround

Bill to Excel Trans

ERICKSON INC. 255 PARR BOULEVARD • RICHMOND, CALIFORNIA 94801 • (415) 235-1393

(1) WHITE - LAB TO CLIENT (2) YELLOW - LAB COPY (3) PINK - CLIENT COPY

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (415) 783-6960
Facsimile (415) 783-1512

TAL

September 24, 1991

Mr. Jerry Sondree
Exceltrans
P.O. Box 866, 290 West Channel Road
Benicia, California 94510-0866

Dear Mr. Sondree:

Trace Analysis Laboratory received three soil samples on September 17, 1991 for your project, Chromex (our custody log number 1305).

These samples were analyzed for California 17 Metals, Cyanide and pH. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (415) 783-6960
Facsimile (415) 783-1512

TAL

LOG NUMBER: 1305
DATE SAMPLED: 9/17/91
DATE RECEIVED: 9/17/91
DATE EXTRACTED: 9/20/91 and 9/23/91
DATE ANALYZED: 9/23/91 and 9/24/91
DATE REPORTED: 9/24/91

CUSTOMER: Exceltrans

REQUESTER: Jerry Sondree

PROJECT: Chromex

Sample Type: Soil

Method and Constituent:	Units	1 Concentration	1 Reporting Limit	2 Concentration	2 Reporting Limit	3 Concentration	3 Reporting Limit
EPA Method 7040:							
Antimony	ug/kg	ND	5,000	ND	5,000	ND	5,000
EPA Method 7061:							
Arsenic	ug/kg	8,800	120	15,000	120	9,000	120
EPA Method 7080:							
Barium	ug/kg	ND	25,000	95,000	25,000	85,000	25,000
EPA Method 7090:							
Beryllium	ug/kg	ND	120	ND	120	ND	120
EPA Method 7130:							
Cadmium	ug/kg	ND	130	190	130	ND	130
EPA Method 7190:							
Chromium	ug/kg	2,800	1,200	17,000	1,200	770,000	1,200
EPA Method 219.1:							
Cobalt	ug/kg	ND	12,000	ND	12,000	16,000	12,000
EPA Method 7210:							
Copper	ug/kg	68,000	5,000	44,000	5,000	100,000	5,000
EPA Method 7420:							
Lead	ug/kg	ND	2,500	59,000	2,500	16,000	2,500

Concentrations reported as ND were not detected at or above reporting limit.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 1305
DATE SAMPLED: 9/17/91
DATE RECEIVED: 9/17/91
DATE EXTRACTED: 9/20/91, 9/23/91 and 9/24/91
DATE ANALYZED: 9/24/91
DATE REPORTED: 9/24/91
PAGE: Two

Sample Type: Soil

Method and Constituent:	Units	1 Concentration	1 Reporting Limit	2 Concentration	2 Reporting Limit	3 Concentration	3 Reporting Limit
EPA Method 7471:							
Mercury	ug/kg	23	5.0	82	5.0	100	5.0
EPA Method 246.1							
Molybdenum	ug/kg	ND	25,000	ND	25,000	ND	25,000
EPA Method 7520:							
Nickel	ug/kg	ND	7,500	22,000	7,500	17,000	7,500
EPA Method 7741:							
Selenium	ug/kg	ND	120	ND	120	ND	120
EPA Method 7760:							
Silver	ug/kg	ND	250	ND	250	ND	250
EPA Method 7840:							
Thallium	ug/kg	ND	3,400	ND	3,400	ND	3,400
EPA Method 7910:							
Vanadium	ug/kg	54,000	5,000	47,000	5,000	100,000	5,000
EPA Method 7950:							
Zinc	ug/kg	45,000	1,200	120,000	1,200	84,000	1,200

Concentrations reported as ND were not detected at or above reporting limit.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 1305
DATE SAMPLED: 9/17/91
DATE RECEIVED: 9/17/91
DATE EXTRACTED: 9/20/91 and 9/23/91
DATE ANALYZED: 9/23/91 and 9/24/91
DATE REPORTED: 9/24/91
PAGE: Three

Sample Type: Soil

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7040:					
Antimony	ug/kg	ND	5,000	68**	*
EPA Method 7061:					
Arsenic	ug/kg	ND	120	66	18
EPA Method 7080:					
Barium	ug/kg	ND	25,000	85**	2.9
EPA Method 7090:					
Beryllium	ug/kg	ND	120	67**	*
EPA Method 7130:					
Cadmium	ug/kg	ND	130	86	6.4
EPA Method 7190:					
Chromium	ug/kg	ND	1,200	95	0.9
EPA Method 219.1:					
Cobalt	ug/kg	ND	12,000	88	0.0
EPA Method 7210:					
Copper	ug/kg	ND	5,000	59	0.4
EPA Method 7420:					
Lead	ug/kg	ND	2,500	94**	0.4

Concentrations reported as ND were not detected at or above reporting limit.

* The RPD is not reportable since the sample prepared in duplicate was not detectable.

** The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.

LOG NUMBER: 1305
DATE SAMPLED: 9/17/91
DATE RECEIVED: 9/17/91
DATE EXTRACTED: 9/20/91, 9/23/91 and 9/24/91
DATE ANALYZED: 9/24/91
DATE REPORTED: 9/24/91
PAGE: Four

Sample Type: Soil

Method and Constituent:	Units	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7471:					
Mercury	ug/kg	ND	5.0	78	13
EPA Method 246.1					
Molybdenum	ug/kg	ND	25,000	65	*
EPA Method 7520:					
Nickel	ug/kg	ND	7,500	81	1.9
EPA Method 7741:					
Selenium	ug/kg	ND	120	84	*
EPA Method 7760:					
Silver	ug/kg	ND	250	75	*
EPA Method 7840:					
Thallium	ug/kg	ND	3,400	82	*
EPA Method 7910:					
Vanadium	ug/kg	ND	5,000	78	8.7
EPA Method 7950:					
Zinc	ug/kg	ND	1,200	99	0.2

Concentrations reported as ND were not detected at or above reporting limit.

* The RPD is not reportable since the sample prepared in duplicate was not detectable.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 1305
DATE SAMPLED: 9/17/91
DATE RECEIVED: 9/17/91
DATE ANALYZED: 9/20/91
DATE REPORTED: 9/24/91
PAGE: Five

Sample Type: Soil

Method and Constituent:	Units	1 Concentration	1 Reporting Limit	2 Concentration	2 Reporting Limit	3 Concentration	3 Reporting Limit
Modified EPA Method 335.2:							
Cyanide	ug/kg	ND	300	ND	300	ND	300

QC Summary:

% Recovery: 79
% RPD: 1.0

Concentrations reported as ND were not detected at or above the reporting limit.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 1305
DATE SAMPLED: 9/17/91
DATE RECEIVED: 9/17/91
DATE ANALYZED: 9/18/91
DATE REPORTED: 9/24/91
PAGE: Six

Sample Type: Soil

Method and Constituent:	1 Concentration	1 Reporting Limit	2 Concentration	2 Reporting Limit	3 Concentration	3 Reporting Limit
EPA Method 150.1:						
pH	8.1	±0.01	8.6	±0.01	7.6	±0.01

Louis W. DuPuis
Quality Assurance/ Quality Control Manager

APPENDIX C
SOIL PILE, ANALYTICAL RESULTS

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EXCELTRANS

CHAIN OF CUSTODY RECORD

2089

PROJECT NAME: Chromex

SAMPLERS (Signature): Dave Nielsen (Dave Nielsen)

SAMPLE	DATE	TIME	COMP	GRAB	SAMPLE LOCATION	MEDIA	Fed 8 - TCLP	13 metals - TTLC	Total Cyanide	Chromium (no chromium for Dave Nielsen eliminate)	DETECTION LIMIT	TURN-AROUND TIME	SUSPECTED CONTAMINANT
19	5/6/92	8:30 am	X		19	Soil	X	X	X			10-day	Cr, Cu, CN⁻
32		9:20 am	X		32	Soil					Composite		
72		9:30 am	X		72	Soil					4 soil		
81		9:40 am	X		81	Soil					samples		
-		10:15 am		X	Concrete	Concrete	X					10-day	Cr

Pick up

soil	solid
1-brass	1-4 oz jar
Y-9	Y-9

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
David Nielsen	May 6 1992 10:32 am				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time
		Maureen Negrette	5/6/92 10:32 am

Remarks: Bill to: Excel Trans Inc. P.O. Box 866 Benicia, CA 94510

P.O. No: 92-9797

L-TAT

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

May 20, 1992

Mr. Dave Nielsen
Excel Trans, Inc.
P.O. Box 866
Benicia, California 94510-0866

Dear Mr. Nielsen:

Trace Analysis Laboratory received four soil and one solid sample on May 6, 1992 for your project, Chromex (our custody log number 2089).

These samples were analyzed according to your chain of custody. Our analytical report and the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

Jennifer Pekol

Jennifer Pekol
Project Specialist

Enclosures

LOG NUMBER: 2089
DATE SAMPLED: 05/06/92
DATE RECEIVED: 05/06/92
DATE EXTRACTED: 05/15/92 and 05/16/92
DATE ANALYZED: 05/16/92, 05/18/92, 05/19/92 and 05/20/92
DATE REPORTED: 05/20/92
PAGE: Three

Sample Type: Soil

Method and Constituent:	Units	Composite of 1/19, 2/32, 3/72 and 4/81 Concentration	Composite of 1/19, 2/32, 3/72 and 4/81 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7041:							
Antimony	ug/kg	ND	45,000	ND	45,000	61*	**
EPA Method 7060:							
Arsenic	ug/kg	15,000	120	ND	120	62*	16
EPA Method 7090:							
Beryllium	ug/kg	ND	120	ND	120	75*	**
EPA Method 7130:							
Cadmium	ug/kg	ND	250	ND	250	79	**
EPA Method 7190:							
Chromium	ug/kg	63,000	1,200	ND	1,200	82	0.0
EPA Method 7210:							
Copper	ug/kg	25,000	5,000	ND	5,000	86	1.8
EPA Method 7420:							
Lead	ug/kg	28,000	2,500	ND	2,500	73*	3.7
EPA Method 7471:							
Mercury	ug/kg	210	50	ND	50	109	13

Concentrations reported as ND were not detected at or above the reporting limit.
* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545
Telephone (510) 783-6960
Facsimile (510) 783-1512

TAL

LOG NUMBER: 2089
DATE SAMPLED: 05/06/92
DATE RECEIVED: 05/06/92
DATE EXTRACTED: 05/16/92 and 05/17/92
DATE ANALYZED: 05/17/92 and 05/18/92
DATE REPORTED: 05/20/92

CUSTOMER: Exceltrans

REQUESTER: Dave Nielson

PROJECT: Chromex

		Sample Type:	Toxicity Characteristic Leaching Procedure Extract of Soil				
		Composite of 1/19, 2/32, 3/72 and 4/81		Method Blank		QC Summary	
Method and Constituent:	Units	Concentration	Reporting Limit	Concentration	Reporting Limit	% Recovery	% RPD
EPA Method 7060:							
Arsenic	ug/l	ND	5.0	ND	5.0	87*	**
EPA Method 7080:							
Barium	ug/l	ND	1,000	ND	1,000	100	**
EPA Method 7130:							
Cadmium	ug/l	ND	10	ND	10	84	**
EPA Method 7190:							
Chromium	ug/l	1,300	50	ND	50	88	2.1
Chromium Recovery Correct	ug/l	1,500					
EPA Method 7420:							
Lead	ug/l	ND	100	ND	100	71	**
EPA Method 7471:							
Mercury	ug/l	1.1	1.0	ND	1.0	111	**
Mercury Recovery Correct	ug/l	0.99					
EPA Method 7741:							
Selenium	ug/l	ND	5.0	ND	5.0	80*	**
EPA Method 7760:							
Silver	ug/l	ND	10	ND	10	94	**

Concentrations reported as ND were not detected at or above the reporting limit.
* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 2089
DATE SAMPLED: 05/06/92
DATE RECEIVED: 05/06/92
DATE EXTRACTED: 05/16/92 and 05/17/92
DATE ANALYZED: 05/17/92 and 05/18/92
DATE REPORTED: 05/20/92
PAGE: Two

Sample Type: Toxicity Characteristic Leaching Procedure Extract of Concrete

Method and Constituent:	Units	5 Concentration	5 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7060:							
Arsenic	ug/l	ND	5.0	ND	5.0	87*	**
EPA Method 7080:							
Barium	ug/l	ND	1,000	ND	1,000	100	**
EPA Method 7130:							
Cadmium	ug/l	ND	10	ND	10	84	**
EPA Method 7190:							
Chromium	ug/l	960	50	ND	50	88	2.1
Chromium Recovery Correct	ug/l	1,100					
EPA Method 7420:							
Lead	ug/l	ND	100	ND	100	71	**
EPA Method 7471:							
Mercury	ug/l	1.1	1.0	ND	1.0	111	**
Mercury Recovery Correct	ug/l	0.99					
EPA Method 7741:							
Selenium	ug/l	ND	5.0	ND	5.0	80*	**
EPA Method 7760:							
Silver	ug/l	ND	10	ND	10	94	**

Concentrations reported as ND were not detected at or above the reporting limit.
* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

LOG NUMBER: 2089
DATE SAMPLED: 05/06/92
DATE RECEIVED: 05/06/92
DATE EXTRACTED: 05/15/92 and 05/16/92
DATE ANALYZED: 05/16/92, 05/18/92 and 05/20/92
DATE REPORTED: 05/20/92
PAGE: Four

Sample Type: Soil

Method and Constituent:	Units	Composite of 1/19, 2/32, 3/72 and 4/81 Concentration	Composite of 1/19, 2/32, 3/72 and 4/81 Reporting Limit	Method Blank Concentration	Method Blank Reporting Limit	QC Summary % Recovery	QC Summary % RPD
EPA Method 7520:							
Nickel	ug/kg	33,000	7,500	ND	7,500	81	3.4
EPA Method 7741:							
Selenium	ug/kg	ND	120	ND	120	70*	**
EPA Method 7760:							
Silver	ug/kg	ND	250	ND	250	95*	**
EPA Method 7841:							
Thallium	ug/kg	ND	3,400	ND	3,400	74	**
EPA Method 7950:							
Zinc	ug/kg	77,000	1,200	ND	1,200	75	**

Concentrations reported as ND were not detected at or above the reporting limit.

* The Recovery is for the Laboratory Control Sample, due to interference in the spiked sample.
** The RPD is not reportable since the sample prepared in duplicate was not detectable.

Trace Analysis Laboratory, Inc.

LOG NUMBER: 2089
DATE SAMPLED: 05/06/92
DATE RECEIVED: 05/06/92
DATE ANALYZED: 05/11/92
DATE REPORTED: 05/20/92
PAGE: Five

Sample Type: Soil

Method and Constituent:	Units	Composite of 1/19, 2/32, 3/72 and 4/81 Concentration	Reporting Limit
EPA Method 335.2:			
Cyanide	ug/kg	ND	300

QC Summary:

% Recovery: 92
% RPD: < 1

Concentrations reported as ND were not detected at or above the reporting limit.

Louis W. DuPuis
Quality Assurance/Quality Control Manager

SITE SAFETY PLAN
FOR
SUBSURFACE INVESTIGATION

Prepared For:

CHROMEX

A DIVISION OF CHARLES LOWE COMPANY
1400 PARK AVENUE
EMERYVILLE, CA 94608

Prepared By:

EXCEL TRANS, INC.
290 W. CHANNEL ROAD
BENICIA, CA 94510

APPENDIX D
SITE SAFETY PLAN

TABLE OF CONTENTS

SITE SAFETY PLAN
SUBSURFACE INVESTIGATION

Chromex
A Division of Charles Lowe Company
1400 Park Avenue
Emeryville, CA 94608

1.0 INTRODUCTION

This plan describes the hazards associated with drilling four bore holes, sampling soil and groundwater from the bore holes, and sampling the soil and surface water in an excavated pit. The plan specifies the minimum requirements for personal protective equipment and general safe work practices.

2.0 SITE DESCRIPTION

The work site is located within the Charles Lowe Company compound at 1400 Park Avenue in Emeryville, California.

3.0 JOB DESCRIPTION

An environmental geologist and a licensed C-57 drilling rig will drill four bore holes at the site. Soil will be sampled at 1, 5, and 10 foot depths from each bore hole. One groundwater sample will be taken from each hole at the first encountered water. Soil and groundwater samples will be prepared for shipment to an analytical laboratory.

In addition to the bore holes, two soil samples will be taken from the bottom of the pit. A surface water sample will be taken from the bottom, southwest corner of the pit. No worker will enter the pit. A technician will be at grade level while using light equipment to obtain soil and groundwater samples from the excavated vault site.

4.0 HAZARDS

4.1 CHEMICAL HAZARDS

The chemical hazard at this site is limited to chromium contaminated soil or water. There is a reduced risk of exposure due to the expected low level of chromium in the matrices and due to the nature of the work tasks. However, employees will be required to wear personal protective equipment as outlined in section 6.0 to protect them from any possible exposure to chromium.

4.2 PHYSICAL HAZARDS

Physical hazards and the associated mitigation techniques are outlined in Table I.

TABLE I: Physical Hazards & Their Mitigation Techniques

HAZARD	MITIGATION TECHNIQUE
Heavy Equipment	Review hand signals for communication between rig operator and assistant before drilling. Persons not directly involved with drilling are to stay clear of the rig.
Slip, Trip or Fall	Be alert for uneven work area, debris or other slip, trip or fall hazards.
Noise	Drill rig workers will wear ear protection as appropriate to protect against noise produced by heavy equipment.
Air born material	Employees must wear safety glasses or goggles.
Heavy items	To avoid backstrain, use proper lifting techniques when moving drilling augers and other heavy items.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Employees will wear level D safety gear. Safety gear includes the items listed in Table II.

TABLE II: Safety Gear

PERSONAL PROTECTIVE EQUIPMENT
Tyvek coveralls: when sampling
Chemical Resistant Gloves: when sampling
Hard Hat
Safety Glasses
Steel Toe Boots
Ear Protection: as appropriate for drill operators
Leather gloves: as appropriate for drill operators

6.0 GENERAL SAFE WORK PRACTICES

General safe work practices include proper tool use, good hygiene and good housekeeping.

The field supervisor is responsible for ensuring that all employees have the proper tools and safety equipment.

All employees must wash their hands and face before breaks and lunch and upon completion of the work day.

Good housekeeping includes the elimination of debris and fall hazards around the site. Hoses should be stored out of the general work area. Excess plastic sheeting should be immediately picked up off the ground and moved out of the work area.

7.0 TAILGATE SAFETY MEETING

To ensure worker safety, employees will attend a tailgate safety meeting prior to the commencement of work. The meeting will cover all the topics in the site safety plan. A copy of the site safety plan will be available for reference at the site. The tailgate safety meeting will be documented and kept on file.

8.0 EMERGENCY PHONE NUMBERS & ADDRESSES

Table III lists the local emergency phone numbers for this site and the addresses of the local medical clinic and hospital.

TABLE III: Emergency Phone Numbers & Addresses

FACILITY	PHONE NUMBER
Fire, Police, Medical	911
ReadiCare Medical Clinic 1350 Ocean Avenue Emeryville, CA	(510) 652-5800
Childrens Hospital 747 52nd Street Oakland, CA	(510) 428-3000
California State Office of Emergency Services	(800) 852-7550
Regional Water Quality Control Board (Region I)	(707) 576-2220