



**IT/EMCON**

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## TRANSMITTAL

**To:** Ms. Jeanne M. Zolezzi

**DATE: MAY 1, 2000**

Herum, Crabtree, Dyer, Zolezzi & Terpstra, LLP

**PROJECT No.: 792775**

2291 West March Lane, Suite B100

Stockton, California 95207

750 - 107th Ave.  
ST-D 1364

**FROM:** Charles S. Metzinger

**RE:** Submittal of First Quarter 2000 Monitoring Report, McLemore Trust/Hard Chrome Engineering

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**QUANTITY:**

**DESCRIPTION:**

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1 First Quarter 2000 Monitoring Report, McLemore Trust/Hard Chrome Engineering

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<b>FOR YOUR:</b>	<b>SENT BY:</b>
<input checked="" type="checkbox"/> USE	<input checked="" type="checkbox"/> REGULAR MAIL
<input type="checkbox"/> APPROVAL	<input type="checkbox"/> OVERNIGHT
<input type="checkbox"/> REVIEW/COMMENTS	<input type="checkbox"/> UPS
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<input type="checkbox"/> OTHER	<input type="checkbox"/> OTHER

---

**cc:** Ms. Cheryl McLemore

Mr. Tom Peacock, Alameda County Environmental Health

Ms. Patricia Nettles, Department of Toxic Substances Control (California)

Ms. Sumadhu Arigala, Regional Water Quality Control Board  
(San Francisco Bay Area)

**IT/EMCON**

**SEMI-ANNUAL  
FIRST QUARTER 2000 MONITORING REPORT**

**HARD CHROME ENGINEERING**

**OAKLAND, CALIFORNIA**

Prepared for

McLemore Trust

April 27, 2000

Prepared by

IT/EMCON

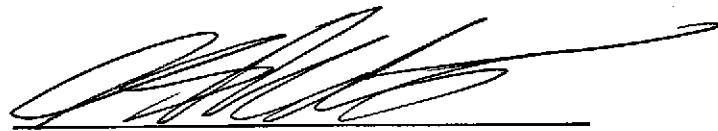
1433 North Market Boulevard  
Sacramento, California 95834

Project 792775

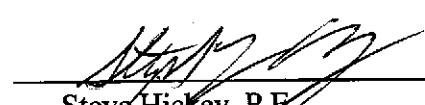
**Semi-Annual  
First Quarter 2000 Monitoring Report  
Hard Chrome Engineering  
Oakland, California**

The material and data in this report were prepared under the supervision and direction of the undersigned:

IT/EMCON



Charles S. Metzinger  
Project Manager

  
Steve Hickey, P.E.  
Senior Engineer

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**IT/EMCON**

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792775

## **INTRODUCTION**

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The following report documents the semi-annual first quarter 2000 monitoring event conducted at the Hard Chrome Engineering facility, located 750 107<sup>th</sup> Avenue, Oakland, California (see Figure 1). The site currently operates as a chrome plating facility and occupies approximately 27,500 square feet. Groundwater monitoring consists of collecting groundwater samples for laboratory analyses from each monitoring well, measuring groundwater elevation in each monitoring well, and evaluating groundwater gradient and direction of groundwater flow beneath the site.

### **Background**

Based on the Preliminary Environmental Characterization, BSK & Associates, September 29, 1992, and Summary and Evaluation of Environmental Conditions, Soil and Groundwater Investigation, March 24, 1998, EMCON, and Recommendations for Future Actions, Levine Fricke, July 2, 1996, it appears that groundwater and, to a lesser extent, soil beneath the site is impacted with chromium. As part of the previous investigations, soil borings SB-1 through SB-17 were drilled, and groundwater monitoring wells MW-1 and MW-1B through MW-6 were installed at the site. Site soil and groundwater impacted with chromium appears to be primarily located near a concrete-lined pit within the Hard Chrome facility (see Figure 2).

## **SAMPLING AND ANALYSIS PROGRAM**

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IT/EMCON measured groundwater levels in each well on site using an electronic sounding device and reported the data on the monitoring well data forms included in Appendix A. Groundwater monitoring wells MW-1 through MW-6 and MW-1B were sampled consistent with the protocol presented in Figure 3 and submitted for chemical analysis. Groundwater samples collected on June 26 and 27, 1997, were not field filtered. Groundwater samples collected on March 13, 2000 were filtered in the field.

Groundwater samples collected from wells MW-1 through MW-6 and MW-1B were submitted to Sequoia Analytical (a state-certified laboratory) and analyzed for the CAM 17 listed dissolved metals using USEPA Series Methods 6000/7000 and for dissolved hexavalent chromium using USEPA Method 7196, for dissolved selenium using USEPA Method 7740, and for dissolved arsenic by USEPA Method 7060. See Appendix B for certified analytical results and chain-of-custody reports.

## **RESULTS**

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### **Groundwater Flow and Gradient**

Groundwater during the first quarter 2000 monitoring event was measured, and groundwater elevations were calculated in each well and used to construct a groundwater contour map (see Figure 4). During the first quarter 2000 monitoring event, groundwater flowed to the northwest with a gradient of approximately 0.006 foot per foot. These flow conditions are generally similar to those reported by the previous consultant and generally agree with assumed regional flow patterns.

### **Quality Control Results**

Laboratory Quality Control (QC) data were evaluated to assess the acceptability of the analytical data, and therefore their usefulness in interpreting groundwater quality. Laboratory QC results are included with the analytical reports in Appendix B. The QC evaluation is summarized below.

- All analyses were performed within USEPA – recommended holding times
- The results of the daily laboratory method blanks were acceptable
- Surrogate spike recovery results were within the laboratory-established acceptance limits
- Routine reporting limits were used to quantify and report the analytical results.

The laboratory QC results indicate that the groundwater analytical data are of acceptable quality and can be used to evaluate groundwater quality.

## **Groundwater Analytical Results**

Groundwater samples collected from MW-3, MW-4, and MW-6 contained no detectable concentrations of total chromium or hexavalent chromium. Concentrations of total chromium and hexavalent chromium detected in wells MW-1, MW-2, MW-5, and MW-1B ranged from 0.0305 to 252 mg/L and 0.0261 to 258 mg/L, respectively. Dissolved metals results were below reporting limits in all groundwater samples except for MW-2, copper 1.24 mg/L, nickel 0.3 mg/L, and zinc 0.294 mg/L, and MW-6, barium 0.102 mg/L. Table 2 summarizes the groundwater analytical results.

## **SUMMARY AND CONCLUSIONS**

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Based on analytical results collected from wells MW-1B and MW-1 through MW-6 on March 13, 2000 groundwater beneath the site is impacted with total and hexavalent chromium. Impacted water extends from the existing sump (well MW-2), northwest (hydraulically downgradient) towards the locations of wells MW-5 and MW-1B. The lateral extent of impacted groundwater beneath the site appears to be defined to the north by monitoring well MW-4; and to the south and southwest by wells MW-1, MW-3, and MW-6. The lateral extent of impacted groundwater has not been defined to the east or northwest of the site; however, concentrations of total chromium and hexavalent chromium have generally decreased in well MW-2 and wells MW-5 and MW-1B. Vertically, the extent of impacted groundwater has not been defined.

During the March 2000 monitoring event, the monitoring well exhibiting the greatest chromium impact was well MW-1B, located hydraulically downgradient from the sump. MW-5, MW-1, and MW-2 monitoring wells also showed some chromium impact.

Although, concentrations of total chromium in on-site wells MW-1B, MW-2, and MW-5 currently exceed the maximum contaminant level (MCL) for this compound (.05 mg/L), they have significantly decreased from historical levels. Historical analytical results are contained in Table 2.

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## **LIMITATIONS**

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The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

**Table 1**  
**Groundwater Elevation Data**  
**Hard Chrome Engineering**  
**March 13, 2000**

Sample Designation	Top of Casing (feet/SSR)	Depth to Water (feet)	Groundwater Elevation (feet/SSR)
MW-1	100.23	12.47	87.76
MW-1B	99.01	12.10	86.91
MW-2	100.38	13.12	87.26
MW-3	100.37	12.80	87.57
MW-4	100.30	13.24	87.06
MW-5	99.29	12.36	86.93
MW-6	100.48	13.19	87.29

feet/SSR = feet with respect to the site specific benchmark

Table 2

**Groundwater Analytical Results**  
**Hard Chrome Engineering**  
**(Units: mg/L, unless noted)**

Sample Designation	Sampling Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	pH (units)
MW-1	06/26/97	NA	<0.05	NA	<0.005	NA	0.33	<0.01	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	6.57	
MW-1	08/11/97	NA	NA	NA	NA	NA	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.46	
MW-1	09/29/97	NA	<0.05	NA	<0.005	NA	<0.01	<0.01	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	6.53	
MW-1	12/30/97	NA	<0.01	NA	<0.005	NA	0.01	<0.01	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	7.18	
MW-1	04/23/98	NA	NA	NA	NA	NA	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
MW-1	03/13/00	<0.1	<0.1	<0.1	<0.01	<0.01	0.0305	0.0261	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	0.0107	6.51
MW-1B	06/27/97	NA	<0.05	NA	0.011	NA	430	360	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	6.57	
MW-1B	08/11/97	NA	NA	NA	NA	NA	340	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.48	
MW-1B	09/29/97	NA	<0.5	NA	<0.05	NA	280	260	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA	7.59	
MW-1B	12/30/97	NA	<0.05	NA	<0.025	NA	200	160	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	6.91	
MW-1B	04/23/98	NA	NA	NA	NA	NA	580	520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.47	
MW-1B	03/13/00	<0.1	<0.1	<0.1	<0.01	<0.01	252	258	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.56
MW-2	06/27/97	NA	0.21	NA	0.032	NA	3000	3000	NA	NA	NA	NA	NA	0.14	NA	NA	NA	NA	4.65	
MW-2	08/11/97 *	NA	NA	NA	NA	NA	2600	2600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.66	
MW-2	09/29/97	NA	<0.5	NA	<0.05	NA	1500	1400	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA	4.82	
MW-2	12/30/97	NA	<0.05	NA	<0.025	NA	86	83	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	6.42	
MW-2	04/23/98	NA	NA	NA	NA	NA	150	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.31	
MW-2	03/13/00	<0.1	<0.1	<0.1	<0.01	<0.01	139	136	<0.04	1.24	<0.1	<0.0002	<0.04	0.3	<0.1	<0.01	<0.1	<0.04	0.294	4.77
MW-3	06/26/97	NA	<0.05	NA	0.011	NA	1	<0.01	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	6.86	
MW-3	08/11/97	NA	NA	NA	NA	NA	<0.01	<0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.84	
MW-3	09/29/97	NA	<0.05	NA	<0.005	NA	<0.01	<0.01	NA	NA	NA	NA	NA	0.05	NA	NA	NA	NA	7.55	
MW-3	12/30/97	NA	<0.01	NA	<0.005	NA	<0.01	<0.01	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	7.42	
MW-3	04/23/98	NA	NA	NA	NA	NA	0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.94	
MW-3	03/13/00	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	0.00623	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.68
MW-4	06/26/97	NA	<0.05	NA	0.006	NA	0.55	<0.01	NA	NA	NA	NA	NA	0.06	NA	NA	NA	NA	6.88	
MW-4	08/11/97	NA	NA	NA	NA	NA	<0.01	<0.01	NA	NA	NA	NA	NA	NA	0.07	NA	NA	NA	6.72	
MW-4	09/29/97	NA	<0.05	NA	<0.005	NA	<0.01	<0.01	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	7.61	
MW-4	12/30/97	NA	<0.01	NA	<0.005	NA	0.01	<0.01	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	7.40	
MW-4	04/23/98	NA	NA	NA	NA	NA	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
MW-4	03/13/00	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	0.00623	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.60

Table 2

**Groundwater Analytical Results**  
**Hard Chrome Engineering**  
**(Units: mg/L, unless noted)**

Sample Designation	Sampling Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Hexavalent Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	pH (units)
MW-5	06/27/97	NA	<0.05	NA	0.005	NA	110	90	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	NA	6.70
MW-5	08/11/97	NA	NA	NA	NA	NA	120	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.67
MW-5	09/29/97	NA	<0.5	NA	<0.05	NA	130	100	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA	NA	7.13
MW-5	12/30/97	NA	<0.05	NA	<0.025	NA	110	98	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	NA	7.13
MW-5	04/23/98	NA	NA	NA	NA	NA	70	58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.67
MW-5	03/13/00	<0.1	<0.1	<0.1	<0.01	<0.01	49.4	54.3	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.63
MW-6	06/26/97	NA	<0.05	NA	0.005	NA	0.47	<0.01	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	NA	6.91
MW-6	08/11/97	NA	NA	NA	NA	NA	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.84
MW-6	09/29/97	NA	<0.05	NA	<0.005	NA	<0.01	<0.01	NA	NA	NA	NA	NA	0.05	NA	NA	NA	NA	NA	7.79
MW-6	12/30/97	NA	<0.01	NA	<0.005	NA	<0.01	<0.01	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	NA	7.40
MW-6	04/23/98	NA	NA	NA	NA	NA	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	03/13/00	<0.1	<0.1	0.102	<0.01	<0.01	<0.01	0.00733	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.71
MCL		0.006	0.05	1.0	0.004	0.005	0.05	—	—	1.0 **	---	0.002	—	0.1	0.05	0.1 **	0.002	—	5.0 **	—

Note: Samples collected on 06/26/97 and 06/27/97 were unfiltered and analyzed for total metals; all other samples were field filtered and analyzed for dissolved metals.

mg/L = Milligrams per liter

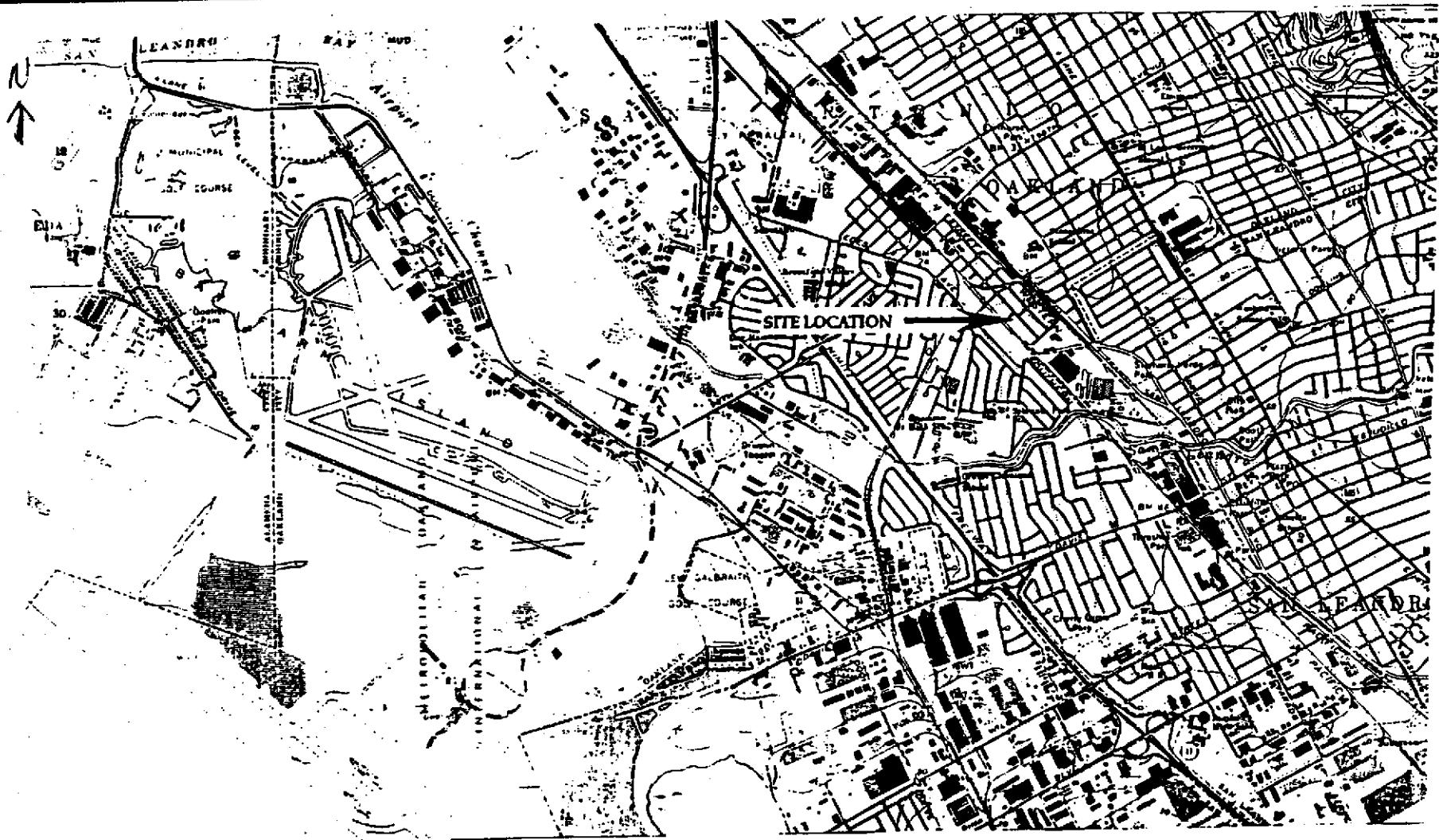
NA = Not Analyzed.

\* Total dissolved solids and total suspended solids were analyzed and detected at concentrations of 5,200 and 13,000 mg/L.

MCL = California primary maximum contaminant level (MCL).

\*\* = Secondary MCL

--- = MCL not established.



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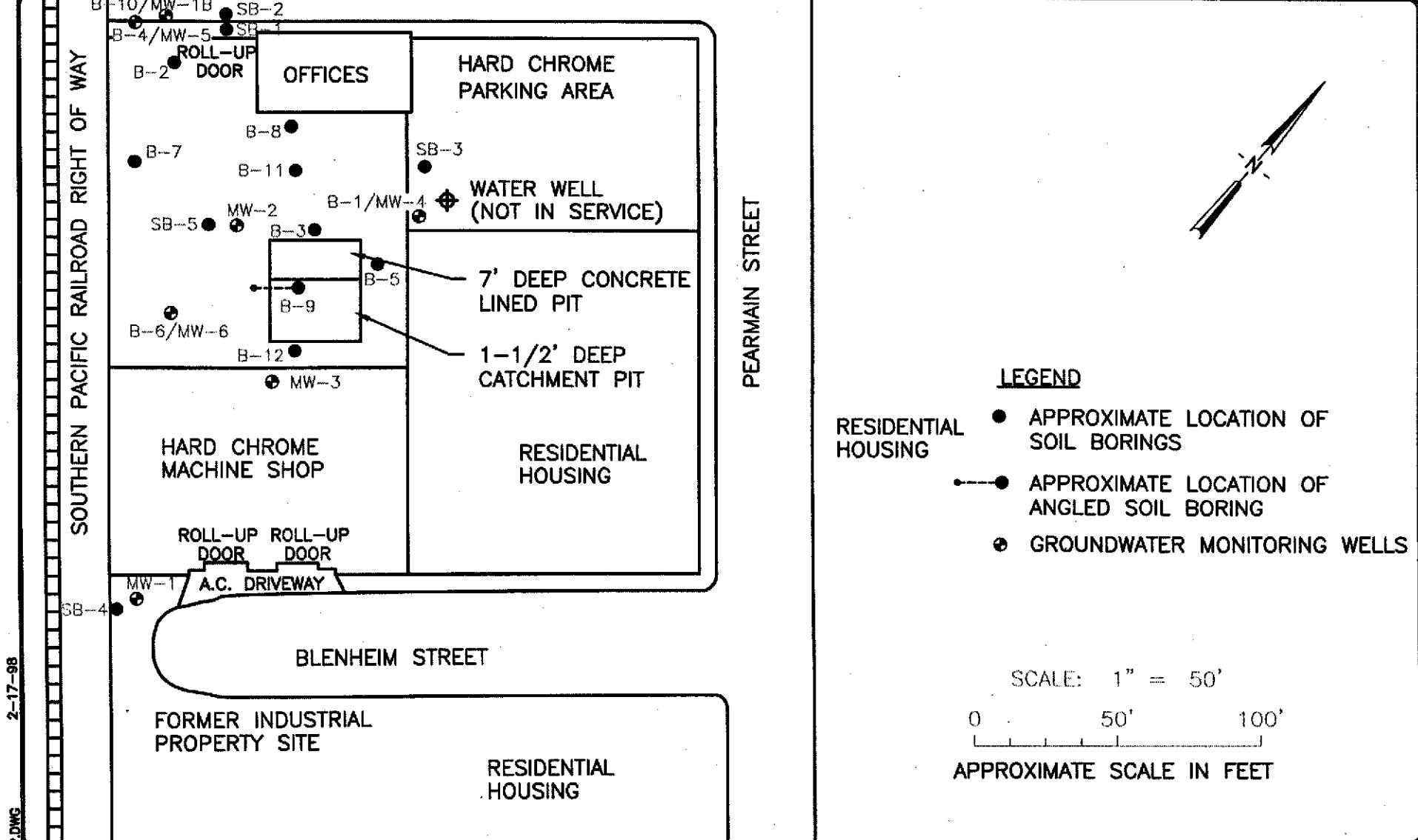
**McLEMORE TRUST  
HARD CHROME ENG. INC.,  
750 1107th AVENUE, OAKLAND, CALIFORNIA**

## SITE LOCATION MAP

**FIGURE**

1

PROJECT NO.  
22619-100.001



MCLEMORE TRUST  
HARD CHROME ENG. INC.,  
750 107TH AVENUE  
OAKLAND, CALIFORNIA  
SITE MAP

FIGURE  
2  
PROJECT NO.  
792775



EMCON

## MONITORING WELL PURGING PROTOCOL

MEASURE AND RECORD DEPTH TO WATER  
AND WELL TOTAL DEPTH

CHECK FOR FLOATING PRODUCT

YES

MEASURE AND DOCUMENT  
FLOATING PRODUCT THICKNESS.  
DO NOT SAMPLE WELL FOR  
DISSOLVED CONSTITUENTS.

NO

CALCULATE PURGE VOLUME BY  
USING THE FOLLOWING EQUATION:

$$P = \pi r^2 h \times 7.48 \times 3$$

where:

P = calculated purge volume (gallons)

 $\pi$  = 3.14

r = radius of well casing in feet

h = height of water column in feet

WELL EVACUATED TO PRACTICAL LIMITS  
OF DRYNESS BEFORE REMOVING  
CALCULATED PURGE VOLUMEEVACUATE WATER FROM WELL EQUAL TO  
THE CALCULATED PURGE VOLUME WHILE  
MONITORING GROUND-WATER STABILIZATION  
INDICATOR PARAMETERS (pH, CONDUCTIVITY,  
TEMPERATURE) AND TURBIDITY AT INTERVALS  
OF ONE CASING VOLUME.

NO

YES

FINAL TWO SETS OF GROUND-WATER  
STABILIZATION INDICATOR PARAMETER  
MEASUREMENTS MEET THE FOLLOWING  
CRITERIA:pH =  $\pm$  0.05 pH unitsCOND. =  $\pm$  3 %TEMP. =  $\pm$  1.0 °FTURBIDITY =  $\pm$  <5 NTU

YES

NO

WELL PURGING  
CRITERIA MET;  
PROCEED TO  
WELL SAMPLINGCONTINUE PURGING;  
EVACUATE ADDITIONAL  
CASING VOLUME OF  
WATER, MONITORING  
INDICATOR PARAMETERS  
FOR STABILITY.WELL RECHARGES TO A LEVEL  
SUFFICIENT FOR SAMPLE  
COLLECTION WITHIN 24 HOURS  
OF EVACUATION TO DRYNESS.

YES

NO

FIELD TEST FIRST  
RECHARGE WATER FOR  
INDICATOR PARAMETERS  
AND TURBIDITY, THEN  
PROCEED TO WELL  
SAMPLING.RECORD WELL  
AS DRY FOR  
PURPOSES OF  
SAMPLING.

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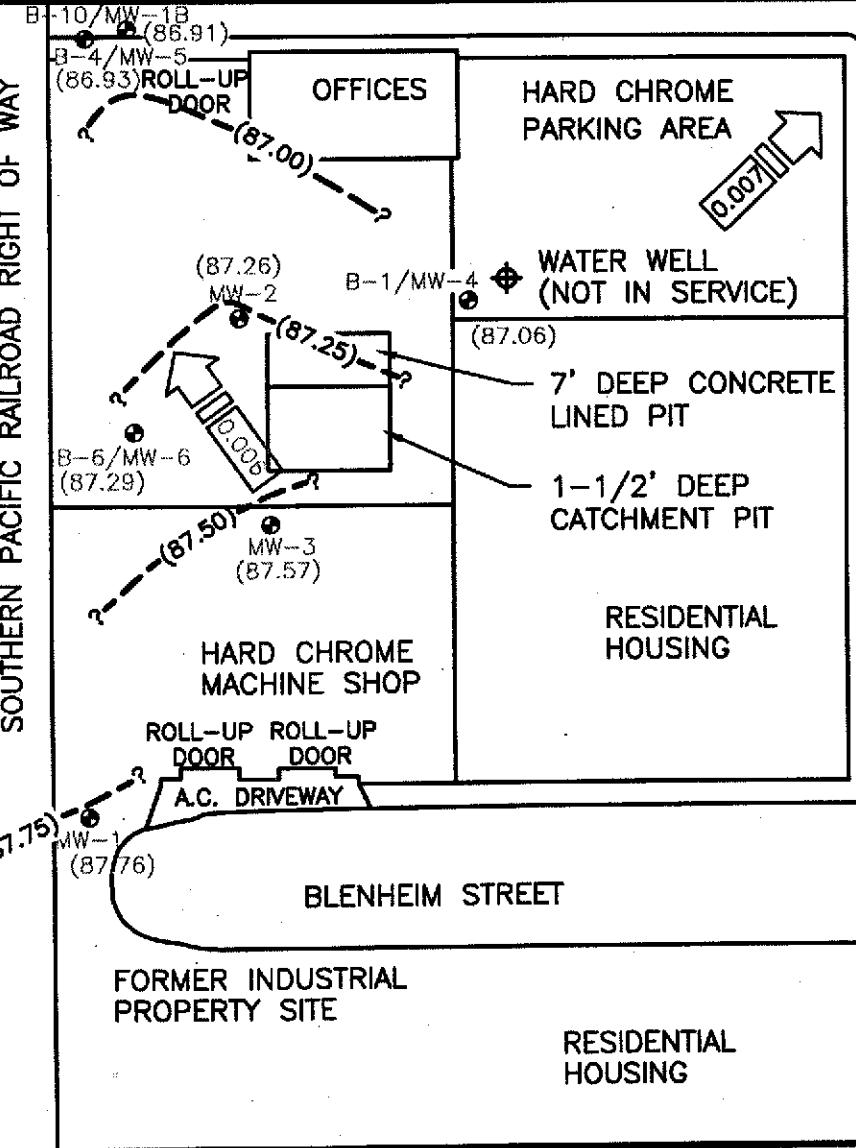
MONITORING WELL PURGING PROTOCOL

FIGURE

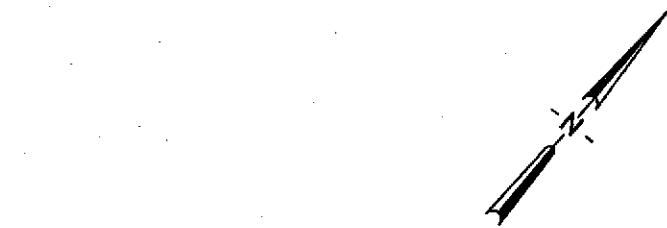
3

SOUTHERN PACIFIC RAILROAD RIGHT OF WAY

2-17-98



PEARMAIN STREET

LEGEND

- GROUNDWATER MONITORING WELLS
- (87.06) GROUNDWATER ELEVATION (FEET)  
MARCH 13, 2000
- GROUNDWATER CONTOURS  
MARCH 13, 2000
- 0.006 → GROUNDWATER FLOW DIRECTION

RESIDENTIAL  
HOUSING

SCALE: 1" = 50'

0 50' 100'

APPROXIMATE SCALE IN FEET



MCLEMORE TRUST  
HARD CHROME ENG. INC.,  
750 107TH AVENUE  
OAKLAND, CALIFORNIA  
GROUNDWATER CONTOUR MAP  
MARCH 13, 2000

FIGURE  
4  
PROJECT NO.  
792775

**APPENDIX A**

**FIELD REPORT AND FIELD DATA SHEETS**

**FIELD REPORT  
WATER LEVEL / FLOATING PRODUCT  
SURVEY**

**IT / EMCON**  
1433 North Market Boulevard  
Sacramento, California 95834  
(916) 928-3300

PROJECT NO : 792775

**LOCATION : 750 107th Avenue, Oakland**

DATE: 3/13/00

**CLIENT : Hard Chrome Engineering**

SAMPLER: Dawn DAY OF WEEK: Monday

DAY OF WEEK: *Monday*

#### **Comments :**

✓  
✓  
✓

Signature

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
PURGED BY: Dwight  
SAMPLED BY: \_\_\_\_\_

SAMPLE ID: MW-1  
CLIENT NAME: Hard Chrome Engineering  
LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater L Surface Water \_\_\_\_\_  
CASING DIAMETER (inches): 2 L 3 \_\_\_\_\_ 4 \_\_\_\_\_ 4.5 \_\_\_\_\_ 6 \_\_\_\_\_ Other \_\_\_\_\_

CASING ELEVATION (feet/MSL): \_\_\_\_\_ VOLUME IN CASING (gal.): 2.0  
DEPTH OF WELL (feet): 24.4 CALCULATED PURGE (gal.): 60  
DEPTH TO WATER (feet): 12.47 ACTUAL PURGE VOL. (gal.): 6.0

DATE PURGED: 3/13/00 END PURGE: 1536  
DATE SAMPLED: L SAMPLING TIME: 1540

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. ( $\mu$ mhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1532</u>	<u>2.0</u>	<u>6.18</u>	<u>452.0</u>	<u>64.1</u>	<u>Brown</u>	<u>modest</u>
<u>1534</u>	<u>4.0</u>	<u>6.40</u>	<u>453.0</u>	<u>64.0</u>	<u>~</u>	<u>~</u>
<u>1536</u>	<u>6.0</u>	<u>6.51</u>	<u>451.0</u>	<u>63.8</u>	<u>~</u>	<u>~</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

OTHER: \_\_\_\_\_ ODOR: NONE (COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): \_\_\_\_\_

#### PURGING EQUIPMENT

2" Bladder Pump \_\_\_\_\_  
Centrifugal Pump \_\_\_\_\_  
Submersible Pump \_\_\_\_\_  
Well WizardÔ \_\_\_\_\_  
Other: \_\_\_\_\_

#### SAMPLING EQUIPMENT

2" Bladder Pump \_\_\_\_\_  
Bomb Sampler \_\_\_\_\_  
Dipper \_\_\_\_\_  
Well WizardÔ \_\_\_\_\_  
Other: \_\_\_\_\_

WELL INTEGRITY: GOOD LOCK: 0164

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

pH, E.C., Temp. Meter Calibration: Date: 8/88 Time: MW-6 Meter Serial No.: \_\_\_\_\_  
E.C. 1000: 1 pH 7: 8.85 pH 10: 1 pH 4: 1

Temperature °F: \_\_\_\_\_

SIGNATURE: DH REVIEWED BY: DL PAGE 1 OF 7

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
PURGED BY: Dwight  
SAMPLED BY: J

SAMPLE ID: MW-2  
CLIENT NAME: Hard Chrome Engineering  
LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL):	VOLUME IN CASING (gal.): <u>2.0</u>
DEPTH OF WELL (feet): <u>23.9</u>	CALCULATED PURGE (gal.): <u>6.0</u>
DEPTH TO WATER (feet): <u>13.12</u>	ACTUAL PURGE VOL. (gal.): <u>6.0</u>

DATE PURGED: 3/9/00 END PURGE: 1:05  
DATE SAMPLED:  SAMPLING TIME: 1:08

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. ( $\mu$ mhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1:00	2.0	5.25	552.0	65.5	yellow	44.11
1:03	4.0	4.55	627.0	65.3	-	-
1:08	6.0	4.77	604.0	65.2	-	-

OTHER:  ODOR: NONE (COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL ( i.e. FB-1, XDUP-1):

#### PURGING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)   
Centrifugal Pump  Bailer (PVC)   
Submersible Pump  Bailer (Stainless Steel)   
Well Wizard®  Dedicated   
Other:

#### SAMPLING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)   
Bomb Sampler  Bailer (Stainless Steel)   
Dipper  Submersible Pump   
Well Wizard®  Dedicated   
Other:

WELL INTEGRITY: GOOD LOCK: 044

REMARKS:

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pH, E.C., Temp. Meter Calibration: Date: 3/9/00 Time: 1:05 Meter Serial No.:   
E.C. 1000 / pH 7 55.5 pH 10 / pH 4 /

Temperature °F

SIGNATURE: JH REVIEWED BY: JH PAGE 2 OF 7

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
PURGED BY: Dwolby  
SAMPLED BY: J

SAMPLE ID: MW-3  
CLIENT NAME: Hard Chrome Engineering  
LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL):	<u>/</u>	VOLUME IN CASING (gal.):	<u>20</u>
DEPTH OF WELL (feet):	<u>23.7</u>	CALCULATED PURGE (gal.):	<u>6.0</u>
DEPTH TO WATER (feet):	<u>12.86</u>	ACTUAL PURGE VOL. (gal.):	<u>6.0</u>

DATE PURGED: 3/13/00 END PURGE: 1415  
DATE SAMPLED: / SAMPLING TIME: 1417

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. ( $\mu$ mhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1411	2.0	6.37	442.0	65.0	Brown	Cloudy
1413	4.0	6.62	444.0	64.9	-	-
1417	6.0	6.68	441.0	65.1	-	-

OTHER: / ODOR: none (COBALT 0-100) (OPTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1): /

#### PURGING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard®  Dedicated  
Other: /

#### SAMPLING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard®  Dedicated  
Other: /

WELL INTEGRITY: Good LOCK: OK

REMARKS: /  
/  
/  
/

pH, E.C., Temp. Meter Calibration: Date: 5/25/00 Meter Serial No.: mw-3  
E.C. 1000 1, pH 7 7, pH 10 10, pH 4 4

Temperature °F: 65

SIGNATURE: [Signature] REVIEWED BY: [Signature] PAGE 3 OF 7

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
 PURGED BY: Dupont  
 SAMPLED BY:

SAMPLE ID: MW-4  
 CLIENT NAME: Hard Chrome Engineering  
 LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
 CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL):	VOLUME IN CASING (gal.): <u>1.1</u>
DEPTH OF WELL (feet): <u>22.9</u>	CALCULATED PURGE (gal.): <u>4.5</u>
DEPTH TO WATER (feet): <u>13.24</u>	ACTUAL PURGE VOL. (gal.): <u>4.5</u>

DATE PURGED:	<u>3/14/00</u>	END PURGE:	<u>10:00</u>
DATE SAMPLED:	<u></u>	SAMPLING TIME:	<u>10:13</u>

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. ( $\mu$ mhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1007</u>	<u>1.5</u>	<u>6.79</u>	<u>471.0</u>	<u>64.9</u>	<u>Brown</u>	<u>41</u>
<u>1008</u>	<u>3.0</u>	<u>6.63</u>	<u>472.0</u>	<u>64.8</u>	<u>-</u>	<u>11</u>
<u>1010</u>	<u>4.5</u>	<u>6.60</u>	<u>470.0</u>	<u>64.6</u>	<u>-</u>	<u>-</u>

OTHER:  ODOR: none (COBALT 0-100) (INTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL (i.e. FB-1, XDUP-1):

#### PURGING EQUIPMENT

2" Bladder Pump   
 Centrifugal Pump   
 Submersible Pump   
 Well Wizard®   
 Other:

#### SAMPLING EQUIPMENT

2" Bladder Pump   
 Bomb Sampler   
 Dipper   
 Well Wizard®   
 Other:

WELL INTEGRITY: Good LOCK: Open

REMARKS:

pH, E.C., Temp. Meter Calibration: Date: 5/22/00 Time: MW-6 Meter Serial No.:   
 E.C. 1000 /, pH 7 /, pH 10 /, pH 4 /

Temperature °F 64

SIGNATURE: DK REVIEWED BY: DK PAGE 4 OF 7

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
PURGED BY: Dwight  
SAMPLER BY: J

SAMPLE ID: MW-5  
CLIENT NAME: Hard Chrome Engineering  
LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL):	<u>/</u>	VOLUME IN CASING (gal.):	<u>2.0</u>
DEPTH OF WELL (feet):	<u>23.2</u>	CALCULATED PURGE (gal.):	<u>6.0</u>
DEPTH TO WATER (feet):	<u>12.36</u>	ACTUAL PURGE VOL. (gal.):	<u>1.0</u>

DATE PURGED: 3/13/00 END PURGE: 1613  
DATE SAMPLED: J SAMPLING TIME: 1617

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. ( $\mu\text{mhos}/\text{cm}@25^\circ\text{C}$ )	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1610</u>	<u>2.0</u>	<u>6.67</u>	<u>429.0</u>	<u>62.2</u>	<u>yellow</u>	<u>154</u>
<u>1612</u>	<u>4.0</u>	<u>6.62</u>	<u>451.0</u>	<u>62.3</u>	<u>u</u>	<u>?</u>
<u>1613</u>	<u>6.0</u>	<u>6.63</u>	<u>453.0</u>	<u>62.3</u>	<u>z</u>	<u>z</u>

OTHER:   ODOR: weak (COBALT 0-100) (INTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL ( i.e. FB-1, XDUP-1):  

#### PURGING EQUIPMENT

- 2" Bladder Pump  Bailer (Teflon)
- Centrifugal Pump  Bailer (PVC)
- Submersible Pump  Bailer (Stainless Steel)
- Well Wizard®  Dedicated
- Other:

#### SAMPLING EQUIPMENT

- 2" Bladder Pump  Bailer (Teflon)
- Bomb Sampler  Bailer (Stainless Steel)
- Dipper  Submersible Pump
- Well Wizard®  Dedicated
- Other:

WELL INTEGRITY: GOOD LOCK: Dry

REMARKS:

pH, E.C., Temp. Meter Calibration: Date:   Time: SEE MW-6 Meter Serial No.:    
E.C. 1000   / pH 7   / pH 10   / pH 4   /

Temperature °F   DH

SIGNATURE:  

REVIEWED BY: R PAGE 5 OF 7

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
PURGED BY: Dwight  
SAMPLED BY:

SAMPLE ID: MW-6  
CLIENT NAME: Hard Chrome Engineering  
LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater  Surface Water  Leachate  Other   
CASING DIAMETER (inches): 2  3  4  4.5  6  Other

CASING ELEVATION (feet/MSL): <u></u>	VOLUME IN CASING (gal.): <u>1.3</u>
DEPTH OF WELL (feet): <u>22.7</u>	CALCULATED PURGE (gal.): <u>4.3</u>
DEPTH TO WATER (feet): <u>13.19</u>	ACTUAL PURGE VOL. (gal.): <u>4.5</u>

DATE PURGED: <u>3/13/00</u>	END PURGE: <u>1440</u>
DATE SAMPLED: <u></u>	SAMPLING TIME: <u>1443</u>

TIME (2400 HR)	VOLUME (gal)	pH (units)	E.C. ( $\mu$ mhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1438	1.3	6.80	559.0	64.9	Brown	1414
1439	3.0	6.73	559.0	65.0	-	-
1440	4.5	6.71	559.0	65.0	-	-

OTHER:  ODOR: none (COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL ( i.e. FB-1, XDUP-1 ):

#### PURGING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Centrifugal Pump  Bailer (PVC)  
 Submersible Pump  Bailer (Stainless Steel)  
 Well Wizard®  Dedicated  
Other:

#### SAMPLING EQUIPMENT

2" Bladder Pump  Bailer (Teflon)  
 Bomb Sampler  Bailer (Stainless Steel)  
 Dipper  Submersible Pump  
 Well Wizard®  Dedicated  
Other:

WELL INTEGRITY: Good LOCK: 044

REMARKS:

pH, E.C., Temp. Meter Calibration: Date: 3/13/00 Time: 1348 Meter Serial No.: 232  
E.C. 1408, 1413 pH 6.98, 7.00 pH 10 9.99, 10.00 pH 4 4.04 —

Temperature °F 71.2

SIGNATURE:  REVIEWED BY:  PAGE 6 OF 7

# WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO.: 792775  
PURGED BY: Dwight  
SAMPLED BY: J

SAMPLE ID: MW-1B  
CLIENT NAME: Hard Chrome Engineering  
LOCATION: 750 107th Avenue, Oakland

TYPE: Groundwater L Surface Water \_\_\_\_\_  
CASING DIAMETER (inches): 2 f 3 \_\_\_\_\_ 4 \_\_\_\_\_ 4.5 \_\_\_\_\_ 6 \_\_\_\_\_ Other \_\_\_\_\_

CASING ELEVATION (feet/MSL):	<u>300</u>	VOLUME IN CASING (gal.):	<u>3.0</u>
DEPTH OF WELL (feet):	<u>300</u>	CALCULATED PURGE (gal.):	<u>9.0</u>
DEPTH TO WATER (feet):	<u>12.10</u>	ACTUAL PURGE VOL. (gal.):	<u>9.0</u>

DATE PURGED: 3/13/00 END PURGE: 1640  
DATE SAMPLED: J SAMPLING TIME: 1645

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. ( $\mu$ mhos/cm@25°C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1639</u>	<u>3.0</u>	<u>6.56</u>	<u>1304</u>	<u>64.0</u>	<u>yellow</u>	<u>cty fl</u>
<u>1637</u>	<u>6.0</u>	<u>6.54</u>	<u>1361</u>	<u>64.2</u>	<u>-</u>	<u>-</u>
<u>1640</u>	<u>9.0</u>	<u>6.56</u>	<u>1397</u>	<u>64.0</u>	<u>-</u>	<u>-</u>

OTHER: J ODOR: NON (COBALT 0-100) (NTU 0-200)

FIELD QC SAMPLES COLLECTED AT THIS WELL ( i.e. FB-1, XDUP-1):

#### PURGING EQUIPMENT

2" Bladder Pump \_\_\_\_\_  
Centrifugal Pump \_\_\_\_\_  
Submersible Pump \_\_\_\_\_  
Well Wizard® J  
Other: \_\_\_\_\_

#### SAMPLING EQUIPMENT

2" Bladder Pump J  
Bomb Sampler \_\_\_\_\_  
Dipper \_\_\_\_\_  
Well Wizard® J  
Other: \_\_\_\_\_

WELL INTEGRITY: 6000 LOCK: 0464

REMARKS:

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pH, E.C., Temp. Meter Calibration: Date: 5/21/00 Time: 14:15 Meter Serial No.: 1234567890  
E.C. 1000 1, pH 7 1, pH 10 1, pH 4 1

Temperature °F 64

SIGNATURE: DW REVIEWED BY: J PAGE 7 OF 7

## **IT / EMCON - Drum Inventory Record**

792775

750 107th Ave., Oakland

3/14/00

**Project No**

#### **Location**

Date

## Hard Chrome Engineering

## **Client**

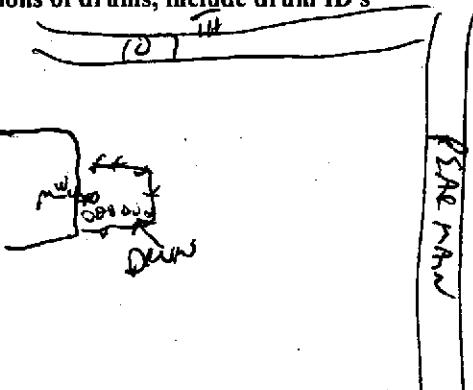
Woflos

## **Sampler**

TUESDAY

**Day of Week**

**Sketch locations of drums, include drum ID's**



COMMENTS: 26 down

all full ~~over~~ site

DWNR HAS SOME CONCERN  
ABOUT DRUMS ON SITE

**Number of  
Drums From  
This Event**

1

**Total Number  
of Drums  
At Site**

26

94218

**IT / EMCN - SACRAMENTO**  
**GROUNDWATER SAMPLING AND ANALYSIS REQUEST FORM**

PROJECT NAME : Hard Chrome  
 750 107th Avenue, Oakland  
 SCHEDULED DATE: March 13, 2000

94692      95007

**SPECIAL INSTRUCTIONS / CONSIDERATIONS :**

1st Quarter 2000 Groundwater Monitoring Event

3 casing volume purge.

Drum purge water and leave on site; complete drum inventory form.

Please see revised H&S plan. Review and implement.

Wear yellow Tyvec suit , Solvex or Neoprene gloves and rubber boots

When sampling MW-2, MW-5 and MW-1B.

Contact site prior to visit.

— CK / 3/1/00 / PH.

Wells w/in the  
fenced property must be  
accessed before  
3:30 p.m. - closing time.

Authorization: Charles Metzinger

Sacto Office: 916-928-3300

Project No. 792775

Task Code: 00020000

Originals to: Charles Metzinger

cc:

Well Lock  
Number(s)


Site Contact: Ron Teffs 510-568-0265

Take 2 drums for purge water.

Well Number or Source	Casing Diameter (inches)	Total Depth (feet)	Depth to Water (feet)	ANALYSES REQUESTED
		04/23/1998		<b>FOR ALL WELLS:</b>
MW-1	2.0	24.4	15.67	*Field Filtered.
MW-6	2.0	22.7	16.22	Hexavalent Chromium (Chrom VI) by 7196* (24-hour hold time) Cam 17 Metals*
MW-4	2.0	22.9	15.93	
MW-3	2.0	23.5	15.94	Field Measurements: Temp, ph, EC
MW-5	2.0	23.2	15.28	
MW-1B	2.0	30.0	15.05	SAMPLES TO THE LAB THE SAME DAY THEY ARE COLLECTED.
MW-2	2.0	23.9	16.15	

Laboratory and Lab QC Instructions :

Sequoia Analytical

819 Striker Blvd, Suite 8

Sacramento, Ca 95834

916-921-9600

Hexavalent Chromium - 24 hour hold time.

**APPENDIX B**

**CERTIFIED ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY  
REPORTS**



# Sequoia Analytical

819 Striker Avenue, Suite 8  
Sacramento, CA 95834  
(916) 921-9600  
FAX (916) 921-0100

March 27, 2000

Charles Metzinger  
EMCON/IT - Sacramento  
1433 N. Market Blvd., #1  
Sacramento, CA 95834

RE: Hard Chrome Engineering/S003172

Dear Charles Metzinger

Enclosed are the results of analyses for sample(s) received by the laboratory on March 14, 2000. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

*Sandra R. Hanson*

Sandra R. Hanson  
Client Services Representative

CA ELAP Certificate Number 1624





# Sequoia Analytical

819 Striker Avenue, Suite 8  
Sacramento, CA 95834  
(916) 921-9600  
FAX (916) 921-0100

EMCON/IT - Sacramento  
1433 N. Market Blvd., #1  
Sacramento, CA 95834

Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/13/00  
Received: 3/14/00  
Reported: 3/27/00

## ANALYTICAL REPORT FOR S003172

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-1	S003172-01	Water	3/13/00
MW-2	S003172-02	Water	3/13/00
MW-3	S003172-03	Water	3/13/00
MW-5	S003172-04	Water	3/13/00
MW-6	S003172-05	Water	3/13/00
MW-1B	S003172-06	Water	3/13/00



# Sequoia Analytical

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Sacramento, CA 95834  
(916) 921-9600  
FAX (916) 921-0100

EMCON/IT - Sacramento  
1433 N. Market Blvd., #1  
Sacramento, CA 95834

Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/13/00  
Received: 3/14/00  
Reported: 3/27/00

## Total Metals by EPA 6000/7000 Series Methods Sequoia Analytical - Sacramento

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<u>MW-1</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	<u>S003172-01</u> EPA 7196A	0.00500	0.0261	Water mg/l	
<u>MW-2</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	<u>S003172-02</u> EPA 7196A	25.0	136	Water mg/l	D
<u>MW-3</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	<u>S003172-03</u> EPA 7196A	0.00500	0.00623	Water mg/l	
<u>MW-5</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	<u>S003172-04</u> EPA 7196A	12.5	54.3	Water mg/l	D
<u>MW-6</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	<u>S003172-05</u> EPA 7196A	0.00500	0.00733	Water mg/l	
<u>MW-1B</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	<u>S003172-06</u> EPA 7196A	25.0	258	Water mg/l	D



# Sequoia Analytical

819 Striker Avenue, Suite 8  
Sacramento, CA 95834  
(916) 921-9600  
FAX (916) 921-0100

EMCON/IT - Sacramento  
1433 N. Market Blvd., #1  
Sacramento, CA 95834

Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/13/00  
Received: 3/14/00  
Reported: 3/27/00

## Dissolved Metals by EPA 6000/7000 Series Methods Sequoia Analytical - Sacramento

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<b>MW-1</b>								
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	0.100	ND	mg/l	
Arsenic	"	"	"	EPA 6010A	0.100	ND	"	
Barium	"	"	"	EPA 6010A	0.100	ND	"	
Beryllium	"	"	"	EPA 6010A	0.0100	ND	"	
Cadmium	"	"	"	EPA 6010A	0.0100	ND	"	
Chromium	"	"	"	EPA 6010A	0.0100	<b>0.0305</b>	"	
Cobalt	"	"	"	EPA 6010A	0.0400	ND	"	
Copper	"	"	"	EPA 6010A	0.0100	ND	"	
Lead	"	"	"	EPA 6010A	0.100	ND	"	
Molybdenum	"	"	"	EPA 6010A	0.0400	ND	"	
Nickel	"	"	"	EPA 6010A	0.0400	ND	"	
Selenium	"	"	"	EPA 6010A	0.100	ND	"	
Silver	"	"	"	EPA 6010A	0.0100	ND	"	
Thallium	"	"	"	EPA 6010A	0.100	ND	"	
Vanadium	"	"	"	EPA 6010A	0.0400	ND	"	
Zinc	"	"	"	EPA 6010A	0.0100	<b>0.0107</b>	"	
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	
<b>MW-2</b>								
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	0.400	ND	mg/l	1,D
Arsenic	"	"	"	EPA 6010A	0.400	ND	"	1,D
Barium	"	"	"	EPA 6010A	0.400	ND	"	1,D
Beryllium	"	"	"	EPA 6010A	0.0400	ND	"	1,D
Cadmium	"	"	"	EPA 6010A	0.0400	ND	"	1,D
Chromium	"	"	"	EPA 6010A	5.00	<b>139</b>	"	D
Cobalt	"	"	"	EPA 6010A	0.160	ND	"	1,D
Copper	"	"	"	EPA 6010A	0.0400	<b>1.24</b>	"	D
Lead	"	"	"	EPA 6010A	0.400	ND	"	1,D
Molybdenum	"	"	"	EPA 6010A	0.160	ND	"	1,D
Nickel	"	"	"	EPA 6010A	0.160	<b>0.300</b>	"	D
Selenium	"	"	"	EPA 6010A	0.400	ND	"	1,D
Silver	"	"	"	EPA 6010A	0.0400	ND	"	1,D
Thallium	"	"	"	EPA 6010A	0.400	ND	"	1,D
Vanadium	"	"	"	EPA 6010A	0.160	ND	"	1,D
Zinc	"	"	"	EPA 6010A	0.0400	<b>0.294</b>	"	D
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	
<b>MW-3</b>								
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	0.100	ND	mg/l	
Arsenic	"	"	"	EPA 6010A	0.100	ND	"	
Barium	"	"	"	EPA 6010A	0.100	ND	"	

\*Refer to end of report for text of notes and definitions.



# Sequoia Analytical

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 FAX (916) 921-0100

EMCON/IT - Sacramento  
 1433 N. Market Blvd., #1  
 Sacramento, CA 95834

Project: Hard Chrome Engineering  
 Project Number: 792775  
 Project Manager: Charles Metzinger

Sampled: 3/13/00  
 Received: 3/14/00  
 Reported: 3/27/00

**Dissolved Metals by EPA 6000/7000 Series Methods**  
**Sequoia Analytical - Sacramento**

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<b>MW-3 (continued)</b>								
Beryllium	0030255	3/27/00	3/27/00	EPA 6010A	0.0100	ND	mg/l	
Cadmium	"	"	"	EPA 6010A	0.0100	ND	"	
Chromium	"	"	"	EPA 6010A	0.0100	ND	"	
Cobalt	"	"	"	EPA 6010A	0.0400	ND	"	
Copper	"	"	"	EPA 6010A	0.0100	ND	"	
Lead	"	"	"	EPA 6010A	0.100	ND	"	
Molybdenum	"	"	"	EPA 6010A	0.0400	ND	"	
Nickel	"	"	"	EPA 6010A	0.0400	ND	"	
Selenium	"	"	"	EPA 6010A	0.100	ND	"	
Silver	"	"	"	EPA 6010A	0.0100	ND	"	
Thallium	"	"	"	EPA 6010A	0.100	ND	"	
Vanadium	"	"	"	EPA 6010A	0.0400	ND	"	
Zinc	"	"	"	EPA 6010A	0.0100	ND	"	
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	
<b>MW-5</b>								
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	0.200	ND	mg/l	1,D
Arsenic	"	"	"	EPA 6010A	0.200	ND	"	1,D
Barium	"	"	"	EPA 6010A	0.200	ND	"	1,D
Beryllium	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Cadmium	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Chromium	"	"	"	EPA 6010A	2.00	49.4	"	D
Cobalt	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Copper	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Lead	"	"	"	EPA 6010A	0.200	ND	"	1,D
Molybdenum	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Nickel	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Selenium	"	"	"	EPA 6010A	0.200	ND	"	1,D
Silver	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Thallium	"	"	"	EPA 6010A	0.200	ND	"	1,D
Vanadium	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Zinc	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	
<b>MW-6</b>								
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	0.100	ND	mg/l	
Arsenic	"	"	"	EPA 6010A	0.100	ND	"	
Barium	"	"	"	EPA 6010A	0.100	0.102	"	
Beryllium	"	"	"	EPA 6010A	0.0100	ND	"	
Cadmium	"	"	"	EPA 6010A	0.0100	ND	"	
Chromium	"	"	"	EPA 6010A	0.0100	ND	"	

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 Project Number: 792775  
 Project Manager: Charles Metzinger

Sampled: 3/13/00  
 Received: 3/14/00  
 Reported: 3/27/00

## Dissolved Metals by EPA 6000/7000 Series Methods Sequoia Analytical - Sacramento

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<b>MW-6 (continued)</b>								
Cobalt	0030255	3/27/00	3/27/00	EPA 6010A	0.0400	ND	mg/l	
Copper	"	"	"	EPA 6010A	0.0100	ND	"	
Lead	"	"	"	EPA 6010A	0.100	ND	"	
Molybdenum	"	"	"	EPA 6010A	0.0400	ND	"	
Nickel	"	"	"	EPA 6010A	0.0400	ND	"	
Selenium	"	"	"	EPA 6010A	0.100	ND	"	
Silver	"	"	"	EPA 6010A	0.0100	ND	"	
Thallium	"	"	"	EPA 6010A	0.100	ND	"	
Vanadium	"	"	"	EPA 6010A	0.0400	ND	"	
Zinc	"	"	"	EPA 6010A	0.0100	ND	"	
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	
<b>MW-1B</b>								
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	1.00	ND	mg/l	1,D
Arsenic	"	"	"	EPA 6010A	1.00	ND	"	1,D
Barium	"	"	"	EPA 6010A	0.200	ND	"	1,D
Beryllium	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Cadmium	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Chromium	"	"	"	EPA 6010A	5.00	252	"	D
Cobalt	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Copper	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Lead	"	"	"	EPA 6010A	0.200	ND	"	1,D
Molybdenum	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Nickel	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Selenium	"	"	"	EPA 6010A	0.200	ND	"	1,D
Silver	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Thallium	"	"	"	EPA 6010A	0.200	ND	"	1,D
Vanadium	"	"	"	EPA 6010A	0.0800	ND	"	1,D
Zinc	"	"	"	EPA 6010A	0.0200	ND	"	1,D
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	



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Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/13/00  
Received: 3/14/00  
Reported: 3/27/00

## Total Metals by EPA 6000/7000 Series Methods/Quality Control

Sequoia Analytical - Sacramento

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD % Notes*
<u>Batch: 0030150</u>	<u>Date Prepared: 3/14/00</u>						<u>Extraction Method: General Preparation</u>		
<u>Blank</u>	<u>0030150-BLK1</u>								
Hexavalent Chromium	3/14/00			ND	mg/l	0.00500			
<u>LCS</u>	<u>0030150-BS1</u>								
Hexavalent Chromium	3/14/00	0.0500		0.0516	mg/l	80.0-120	103		
<u>Matrix Spike</u>	<u>0030150-MS1</u> <u>S003172-01</u>								
Hexavalent Chromium	3/14/00	0.0500	0.0261	0.0770	mg/l	75.0-125	102		
<u>Matrix Spike Dup</u>	<u>0030150-MSD1</u> <u>S003172-01</u>								
Hexavalent Chromium	3/14/00	0.0500	0.0261	0.0770	mg/l	75.0-125	102	20.0	0



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Project Manager: Charles Metzinger

Sampled: 3/13/00  
Received: 3/14/00  
Reported: 3/27/00

## Dissolved Metals by EPA 6000/7000 Series Methods/Quality Control Sequoia Analytical - Sacramento

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit	Recov. Recov. Limits %	RPD %	RPD % Notes*
<u>Batch: 0030233</u>	<u>Date Prepared: 3/22/00</u>						<u>Extraction Method: EPA 7470A</u>		
<u>Blank</u>	<u>0030233-BLK1</u>						ND mg/l 0.000200		
Mercury	3/23/00								
<u>LCS</u>	<u>0030233-BS1</u>						80.0-120 88.2		
Mercury	3/23/00	0.00500		0.00441	mg/l				
<u>Matrix Spike</u>	<u>0030233-MS1</u> <u>S003208-01</u>						75.0-125 91.8		
Mercury	3/23/00	0.00500	ND	0.00459	mg/l				
<u>Matrix Spike Dup</u>	<u>0030233-MSD1</u> <u>S003208-01</u>						75.0-125 90.0 20.0 1.98		
Mercury	3/23/00	0.00500	ND	0.00450	mg/l				
<u>Batch: 0030255</u>	<u>Date Prepared: 3/27/00</u>						<u>Extraction Method: 200.7/ No Digest</u>		
<u>Blank</u>	<u>0030255-BLK1</u>						ND mg/l 0.100		
Antimony	3/27/00								
Arsenic	"				ND "				
Barium	"				ND "				
Beryllium	"				ND "				
Cadmium	"				ND "				
Chromium	"				ND "				
Cobalt	"				ND "				
Copper	"				ND "				
Lead	"				ND "				
Molybdenum	"				ND "				
Nickel	"				ND "				
Selenium	"				ND "				
Silver	"				ND "				
Thallium	"				ND "				
Vanadium	"				ND "				
Zinc	"				ND "				
<u>LCS</u>	<u>0030255-BS1</u>						80.0-120 98.2		
Arsenic	3/27/00	5.00		4.91	mg/l				
Cadmium	"	5.00		4.92	"				
Chromium	"	5.00		4.96	"				
Nickel	"	5.00		4.86	"				
Zinc	"	5.00		4.93	"				
<u>Matrix Spike</u>	<u>0030255-MS1</u> <u>S003172-01</u>						80.0-120 103		
Arsenic	3/27/00	2.00	ND	2.07	mg/l				
Cadmium	"	2.00	ND	2.03	"				



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Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/13/00  
Received: 3/14/00  
Reported: 3/27/00

## Dissolved Metals by EPA 6000/7000 Series Methods/Quality Control Sequoia Analytical - Sacramento

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD % Notes*
<b>Matrix Spike (continued)</b>									
Chromium	3/27/00	2.00	0.0305	2.01	mg/l	80.0-120	99.0		
Nickel	"	2.00	ND	1.99	"	80.0-120	99.5		
Zinc	"	2.00	0.0107	2.05	"	80.0-120	102		
<b>Matrix Spike Dup</b>									
Arsenic	3/27/00	2.00	ND	2.10	mg/l	80.0-120	105	20.0	1.92
Cadmium	"	2.00	ND	2.05	"	80.0-120	102	20.0	0.985
Chromium	"	2.00	0.0305	2.04	"	80.0-120	100	20.0	1.01
Nickel	"	2.00	ND	2.02	"	80.0-120	101	20.0	1.50
Zinc	"	2.00	0.0107	2.08	"	80.0-120	103	20.0	0.976



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Project Number: 792775  
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Sampled: 3/13/00  
Received: 3/14/00  
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## Notes and Definitions

#	Note
---	------

D Data reported from a dilution.

1 The reporting limit for this analyte has been raised to account for matrix interference.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

Recov. Recovery

RPD Relative Percent Difference



**CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM**

**IT / EMCON - 1433 North Market Boulevard, Sacramento, CA 95834**

**Service Request No:**

## Purchase Order

**(916) 928-3300 FAX (916) 928-3341**

**Lab: SEQUOIA ANALYTICAL**



# Sequoia Analytical

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March 27, 2000

Charles Metzinger  
EMCON/IT - Sacramento  
1433 N. Market Blvd., #1  
Sacramento, CA 95834

RE: Hard Chrome Engineering/S003182

Dear Charles Metzinger

Enclosed are the results of analyses for sample(s) received by the laboratory on March 14, 2000. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sandra R. Hanson  
Client Services Representative

CA ELAP Certificate Number 1624





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Sacramento, CA 95834

Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/14/00  
Received: 3/14/00  
Reported: 3/27/00

## ANALYTICAL REPORT FOR S003182

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-4	S003182-01	Water	3/14/00





**Sequoia  
Analytical**

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Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/14/00  
Received: 3/14/00  
Reported: 3/27/00

**Total Metals by EPA 6000/7000 Series Methods  
Sequoia Analytical - Sacramento**

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<u>MW-4</u> Hexavalent Chromium	0030150	3/14/00	3/14/00	S003182-01 EPA 7196A	0.00500	0.00623	Water mg/l	





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Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/14/00  
Received: 3/14/00  
Reported: 3/27/00

## Dissolved Metals by EPA 6000/7000 Series Methods Sequoia Analytical - Sacramento

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<b>S003182-01</b>								
<u>MW-4</u>								<u>Water</u>
Antimony	0030255	3/27/00	3/27/00	EPA 6010A	0.100	ND	mg/l	
Arsenic	"	"	"	EPA 6010A	0.100	ND	"	
Barium	"	"	"	EPA 6010A	0.100	ND	"	
Beryllium	"	"	"	EPA 6010A	0.0100	ND	"	
Cadmium	"	"	"	EPA 6010A	0.0100	ND	"	
Chromium	"	"	"	EPA 6010A	0.0100	ND	"	
Cobalt	"	"	"	EPA 6010A	0.0400	ND	"	
Copper	"	"	"	EPA 6010A	0.0100	ND	"	
Lead	"	"	"	EPA 6010A	0.100	ND	"	
Molybdenum	"	"	"	EPA 6010A	0.0400	ND	"	
Nickel	"	"	"	EPA 6010A	0.0400	ND	"	
Selenium	"	"	"	EPA 6010A	0.100	ND	"	
Silver	"	"	"	EPA 6010A	0.0100	ND	"	
Thallium	"	"	"	EPA 6010A	0.100	ND	"	
Vanadium	"	"	"	EPA 6010A	0.0400	ND	"	
Zinc	"	"	"	EPA 6010A	0.0100	ND	"	
Mercury	0030233	3/22/00	3/23/00	EPA 7470A	0.000200	ND	"	



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Total Metals by EPA 6000/7000 Series Methods/Quality Control  
Sequoia Analytical - Sacramento

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Recov. Limits	RPD %	RPD %	Notes*
<u>Batch: 0030150</u>	<u>Date Prepared: 3/14/00</u>						<u>Extraction Method: General Preparation</u>		
<u>Blank</u>	<u>0030150-BLK1</u>								
Hexavalent Chromium	3/14/00			ND	mg/l	0.00500			
<u>LCS</u>	<u>0030150-BS1</u>						80.0-120	103	
Hexavalent Chromium	3/14/00	0.0500		0.0516	mg/l				
<u>Matrix Spike</u>	<u>0030150-MS1</u> <u>S003172-01</u>						75.0-125	102	
Hexavalent Chromium	3/14/00	0.0500	0.0261	0.0770	mg/l				
<u>Matrix Spike Dup</u>	<u>0030150-MSD1</u> <u>S003172-01</u>						75.0-125	102	20.0
Hexavalent Chromium	3/14/00	0.0500	0.0261	0.0770	mg/l				0



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## Dissolved Metals by EPA 6000/7000 Series Methods/Quality Control Sequoia Analytical - Sacramento

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD % Notes*
<u>Batch: 0030233</u>	<u>Date Prepared: 3/22/00</u>						<u>Extraction Method: EPA 7470A</u>		
<u>Blank</u>	<u>0030233-BLK1</u>						<u>0.000200</u>		
Mercury	3/23/00			ND	mg/l				
<u>LCS</u>	<u>0030233-BS1</u>						80.0-120	88.2	
Mercury	3/23/00	0.00500		0.00441	mg/l				
<u>Matrix Spike</u>	<u>0030233-MS1</u> <u>S003208-01</u>						75.0-125	91.8	
Mercury	3/23/00	0.00500	ND	0.00459	mg/l				
<u>Matrix Spike Dup</u>	<u>0030233-MSD1</u> <u>S003208-01</u>						75.0-125	90.0	20.0
Mercury	3/23/00	0.00500	ND	0.00450	mg/l				1.98
<u>Batch: 0030255</u>	<u>Date Prepared: 3/27/00</u>						<u>Extraction Method: 200.7/ No Digest</u>		
<u>Blank</u>	<u>0030255-BLK1</u>						<u>0.100</u>		
Antimony	3/27/00			ND	mg/l				
Arsenic	"			ND	"				
Barium	"			ND	"				
Beryllium	"			ND	"				
Cadmium	"			ND	"				
Chromium	"			ND	"				
Cobalt	"			ND	"				
Copper	"			ND	"				
Lead	"			ND	"				
Molybdenum	"			ND	"				
Nickel	"			ND	"				
Selenium	"			ND	"				
Silver	"			ND	"				
Thallium	"			ND	"				
Vanadium	"			ND	"				
Zinc	"			ND	"				
<u>LCS</u>	<u>0030255-BS1</u>						80.0-120	98.2	
Arsenic	3/27/00	5.00		4.91	mg/l				
Cadmium	"	5.00		4.92	"				
Chromium	"	5.00		4.96	"				
Nickel	"	5.00		4.86	"				
Zinc	"	5.00		4.93	"				
<u>Matrix Spike</u>	<u>0030255-MS1</u> <u>S003172-01</u>						80.0-120	103	
Arsenic	3/27/00	2.00	ND	2.07	mg/l				
Cadmium	"	2.00	ND	2.03	"				

\*Refer to end of report for text of notes and definitions.



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## Dissolved Metals by EPA 6000/7000 Series Methods/Quality Control Sequoia Analytical - Sacramento

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Recov. Limits %	RPD %	RPD % Notes*
<b>Matrix Spike (continued)</b>								
Chromium	3/27/00	2.00	0.0305	2.01	mg/l	80.0-120 99.0		
Nickel	"	2.00	ND	1.99	"	80.0-120 99.5		
Zinc	"	2.00	0.0107	2.05	"	80.0-120 102		
<b>Matrix Spike Dup</b>								
Arsenic	3/27/00	2.00	ND	2.10	mg/l	80.0-120 105	20.0	1.92
Cadmium	"	2.00	ND	2.05	"	80.0-120 102	20.0	0.985
Chromium	"	2.00	0.0305	2.04	"	80.0-120 100	20.0	1.01
Nickel	"	2.00	ND	2.02	"	80.0-120 101	20.0	1.50
Zinc	"	2.00	0.0107	2.08	"	80.0-120 103	20.0	0.976



# Sequoia Analytical

819 Striker Avenue, Suite 8  
Sacramento, CA 95834  
(916) 921-9600  
FAX (916) 921-0100

EMCON/IT - Sacramento  
1433 N. Market Blvd., #1  
Sacramento, CA 95834

Project: Hard Chrome Engineering  
Project Number: 792775  
Project Manager: Charles Metzinger

Sampled: 3/14/00  
Received: 3/14/00  
Reported: 3/27/00

## Notes and Definitions

#	Note
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DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

Recov. Recovery

RPD Relative Percent Difference



**CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM**

**IT / EMCN - 1433 North Market Boulevard, Sacramento, CA 95834**

**Service Request No:**

**Purchase Order:**

(916) 928-3300 FAX (916) 928-3341

Lab: SEQUOIA ANALYTICAL

Project Name: Hard Chrome Engineering Project Number: 792775 Project Manager: Charles Metzinger Company: IT / EMCON Address: 1433 North Market Boulevard Sacramento, CA 95834 Phone: (916) 928-3300 FAX: (916) 928-3341 Sampler's Signature: <i>DH</i>					Analysis Requested											
Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	Can 17 Metals (Field Filtered)	Hexavalent Chromium	by EPA Method 7196 (24-Hr Hold) (Field Filter)							REMARKS	
					3	HNO <sub>3</sub>	NP							Container Types		
MW-4	3/14/00	1013		water	2	1	1							Preservations		
<i>SO23182-01</i>																
RELINQUISHED BY		RECEIVED BY		RELINQUISHED BY		RECEIVED BY								REPORT REQUIREMENTS		
Signature		Signature		Signature		Signature								<input checked="" type="checkbox"/> I. Routine Report <input type="checkbox"/> II. Report (includes DUP, MS MSD, as required, may be charged as samples) <input type="checkbox"/> III. Data Validation Report (includes All Raw Data)		
Printed Name		Printed Name		Printed Name		Printed Name								<input type="checkbox"/> Provide Verbal Preliminary Results <input type="checkbox"/> Provide FAX Preliminary Results <input type="checkbox"/> Requested Report Date: _____		
Firm		Firm		Firm		Firm								RWQCB (MDLs/PQLs/TRACE#)		
Date/Time		Date/Time		Date/Time		Date/Time										
RELINQUISHED BY		RECEIVED BY		Special Instructions/Comments:  Chrom VI has a 24 hour hold time. All samples need to be field filtered.											Container Types Key:	
Signature		Signature													40 ml VOA: 1 250 ml LPE: 2 500 ml LPE: 3 1 liter HIPE: 4 500 ml glass: 5 1 liter glass: 6 2x6 s/s ring: 7 glass jar: 8	
Printed Name		Printed Name														
Firm		Firm														
Date/Time		Date/Time														