IT CORPORATION
A Member of The IT Group
IT/EMCON
1326 N. Market Boulevard
Sacramento, California 95834-1943

PHONE: 916/928-3300
FAX: 916/928-3341

TRANSMITTAL

TO: Ms. Jeanne M. Zolezzi
Herum, Crabtree, Dyer, Zolezzi & Terpstra, LLP
2291 West March Lane, Suite B100
Stockton, California 95207

DATE: APRIL 15, 2002

PROJECT NO.: 792775

FROM: Charles S. Metzinger

RE: Submittal of First Quarter 2002 Monitoring Report, McLemore Trust/Hard Chrome Engineering

QUANTITY:	DESCRIPTION:
1	First Quarter 2002 Monitoring Report, McLemore Trust/Hard Chrome Engineering

FOR YOUR:		SENT BY:	
X	USE	X	REGULAR MAIL
☐	APPROVAL	☐	OVERNIGHT
☐	REVIEW/COMMENTS	☐	UPS
☐	INFORMATION	☐	COURIER
☐	OTHER	☐	OTHER

cc: Ms. Cheryl McLemore
Ms. Terry Tacock, 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)

SAC:\N:\sacDP\2002\PRJ\PJ7\792775.2aa.doc-01\i:1
(00005000)

SEMI-ANNUAL
FIRST QUARTER 2002 MONITORING REPORT

HARD CHROME ENGINEERING

OAKLAND, CALIFORNIA

Prepared for:

McLemore Trust

April 15, 2002

Prepared by:

IT/EMCON
1326 North Market Boulevard
Sacramento, California 95834-1912

Project No.: 792775

Semi-Annual
First Quarter 2002 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

for

J. C. Isham, CHG 007
Geology Manager

CONTENTS

TABLES AND ILLUSTRATIONS

Tables

Figures

INTRODUCTION

The following report documents the semi-annual first quarter 2002 monitoring event conducted at the Hard Chrome Engineering facility, located 750 107th 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

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-4 and MW-6 were sampled consistent with the protocol presented in Figure 3 and submitted for chemical analysis. Monitoring wells MW-1B and MW-5 were not accessible, and were not sampled this quarter. Groundwater samples collected on June 26 and 27, 1997, were not field filtered. Groundwater samples collected on March 12, 2002 were filtered in the field.

Groundwater samples collected from wells MW-1 through MW-4 and MW-6 were submitted to California Laboratory Services (CLS) (a state-certified laboratory) and analyzed for the CAM 17 listed dissolved metals using U. S. Environmental Protection Agency (USEPA) Series Methods 6000/7000 and for dissolved hexavalent chromium using USEPA Method 7196, and for dissolved mercury by USEPA Method 7470. See Appendix B for certified analytical results and chain-of-custody reports.

RESULTS

Groundwater Flow and Gradient

Groundwater during the first quarter 2002 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 2002 monitoring event, groundwater flowed to the west-northwest with a gradient of approximately 0.003 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
- Matrix spike and matrix spike duplicates (MS/MSD) were performed by the laboratory. MS and MSD recoveries, and the relative percent difference (RPD) between duplicate results were within acceptance limits.
- The laboratory reported the results of laboratory control samples (LCS). Results were within 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

A concentration of barium was detected in MW-1, MW-3, MW-4, and MW-6 at 0.068, 0.066, 0.078, and 0.075 milligrams per liter (mg/L), respectively. Chromium was detected in all the wells ranging from 0.016 mg/L to 410 mg/L. Hexavalent chromium was detected in MW-2 at 410 mg/L. Copper, mercury, vanadium and zinc were detected in MW-2 at concentrations of 7 mg/L, 0.00045 mg/L, 1.5 mg/L and 0.97 mg/L, respectively. Mercury and nickel were detected in well MW-4 at concentrations of 0.00032 and 0.024 mg/L, respectively. Mercury was detected in well MW-6 at a concentration of 0.00044 mg/L. Table 2 summarizes the groundwater analytical results.

ADDITIONAL ACTIVITIES

During the fourth quarter 2001 the sump lining was completed. The work was completed in two phases. Equipment, hardware and pluming near or in the vault was removed to facilitate cleaning and lining the vault surface. The vault surface was cleaned in accordance with the coating-supplier recommendation. A coating material was then applied to the entire interim surface of the vault including the vault bottom and all sides. The coating material was allowed to cure in accordance with manufacturing specifications. The project was completed by re-welding and re-connecting all equipment, hardware and plumbing.

SUMMARY AND CONCLUSIONS

Based on analytical results collected from wells MW-1 through MW-4 and MW-6 on March 12, 2002 metals detected include barium, copper, mercury, nickel, vanadium and zinc. Impacted water extends from the existing sump (well MW-2), west (hydraulically downgradient) toward 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 2002 monitoring event, the monitoring well exhibiting the greatest chromium impact was well MW-2, located hydraulically downgradient from the sump. Monitoring wells MW-3, MW-4, and MW-6 also showed some chromium impact.

Concentrations of total chromium in on-site well MW-2, currently exceed the maximum contaminant level (MCL) for this compound (.05 mg/L). Overall, this well has decreased with respect to historical levels. Historical analytical results are contained in Table 2.

LIMITATIONS

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 12, 2002

Sample Designation	Top of Casing (feet/SSR)	Depth to Water (feet)	Groundwater Elevation (feet/SSR)
MW-1	100.23	14.63	85.60
MW-1B	99.01	NM	NM
MW-2	100.38	15.11	85.27
MW-3	100.37	14.94	85.43
MW-4	100.30	14.96	85.34
MW-5	99.29	NM	NM
MW-6	100.48	15.18	85.30

feet/SSR = feet with respect to the site specific benchmark
NM = Not Measured. Near or under parked camper.

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	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	NA	6.46
MW-1	09/29/97	NA	<0.05	NA	<0.005	NA	<0.01	<0.01	NA	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	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	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-1	09/20/00	<0.05	<0.05	0.105	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	<0.05	<0.0002	<0.02	<0.02	<0.05	<0.005	<0.05	<0.02	<0.0005	6.31
MW-1	03/20/01	<0.1	<0.1	<0.1	<0.01	<0.01	0.0951	0.0486	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	0.0236	6.88
MW-1	09/13/01	<0.1	<0.1	<0.1	<0.01	<0.01	<0.01	0.0052	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	5.54
MW-1	03/12/02	<0.05	<0.005	0.068	<0.005	<0.01	0.016	<0.01	<0.02	<0.02	<0.005	<0.0002	<0.02	<0.02	<0.005	<0.01	<0.005	<0.02	<0.02	5.80
MW-1B	06/27/97	NA	<0.05	NA	0.011	NA	430	360	NA	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	NA	6.48
MW-1B	09/29/97	NA	<0.5	NA	<0.05	NA	280	260	NA	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	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	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-1B	09/20/00	0.56	<0.5	<0.5	<0.05	<0.05	134	122	<0.2	<0.05	<0.5	<0.0002	<0.2	<0.2	<0.5	<0.05	<0.5	<0.2	<0.005	6.01
MW-1B	03/20/01	<0.5	<0.5	<0.5	<0.05	<0.05	72.6	74.6	<0.2	<0.05	<0.5	<0.0002	<0.2	<0.2	<0.5	<0.05	<0.5	<0.2	<0.05	6.95
MW-1B	09/13/01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-1B	03/12/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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-2	06/27/97	NA	0.21	NA	0.032	NA	3000	3000	NA	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	NA	5.66
MW-2	09/29/97	NA	<0.5	NA	<0.05	NA	1500	1400	NA	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	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	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-2	09/20/00	2.67	<2.5	<2.5	<0.25	<0.25	598	611	<1.0	7.06	<2.5	0.00078	<1.0	1.04	<2.5	<0.25	<2.5	<1.0	1.12	3.49
MW-2	03/20/01	2.24	<2	<2	<0.2	<0.2	752	757	<0.8	17.2	<2	0.00122	<0.8	1.69	<2	<0.2	<2	<0.8	1.88	6.37
MW-2	09/13/01	<10	<10	<10	<1	<1	1000	55	<4	14	<10	0.00088	<4	<4	<10	<1	<10	<4	2.3	5.19
MW-2	03/12/02	<0.05	<0.005	<0.02	<0.005	<0.01	410	410	<0.02	7.0	<0.005	0.00045	<0.02	0.94	<0.005	<0.01	<0.005	1.5	0.97	5.47
MW-3	06/26/97	NA	<0.05	NA	0.011	NA	1	<0.01	NA	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	NA	6.84
MW-3	09/29/97	NA	<0.05	NA	<0.005	NA	<0.01	<0.01	NA	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	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	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-3	09/20/00	<0.05	<0.05	0.0553	<0.005	<0.005	0.014	<0.005	<0.02	<0.005	<0.05	<0.0002	<0.02	<0.02	<0.05	0.0056	<0.05	<0.02	<0.0005	6.56
MW-3	03/20/01	<0.1	<0.1	<0.1	<0.01	<0.01	0.0368	0.017	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	0.0135	7.00
MW-3	09/13/01	<0.1	<0.1	<0.1	<0.01	<0.01	0.11	0.074	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.28
MW-3	03/12/02	<0.05	<0.005	0.066	<0.005	<0.01	0.024	<0.01	<0.02	<0.02	<0.005	<0.0002	<0.02	<0.02	<0.005	<0.01	<0.005	<0.02	<0.02	6.28

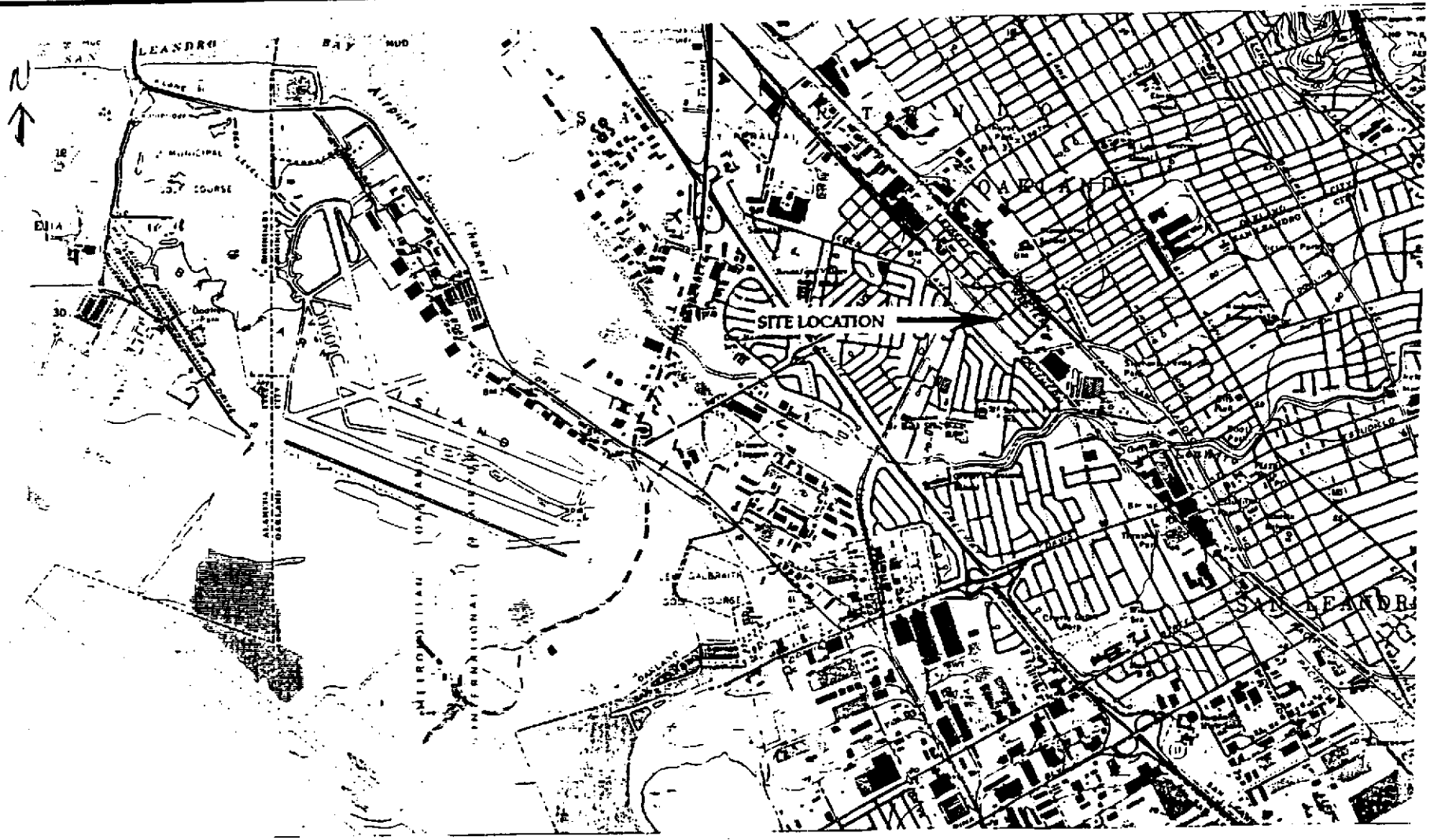
Table 2
Groundwater Analytical Results
Hard Chrome Engineering
(Units: mg/L, unless noted)

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-4	06/26/97	NA	<0.05	NA	0.006	NA	0.55	<0.01	NA	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	NA	NA	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	NA	0.07	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	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	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
MW-4	09/20/00	<0.05	<0.05	0.0624	<0.005	<0.005	<0.005	<0.005	<0.02	<0.005	<0.05	<0.0002	<0.02	<0.02	<0.05	<0.005	<0.05	<0.02	<0.0005	6.62
MW-4	03/20/01	<0.1	<0.1	0.118	<0.01	<0.01	1.03	0.475	<0.04	<0.01	<0.1	<0.0002	<0.04	0.059	<0.1	<0.01	<0.1	<0.04	<0.01	6.64
MW-4	09/13/01	<0.1	<0.1	0.1	<0.01	<0.01	1.3	0.011	<0.04	<0.01	<0.1	<0.0002	<0.04	0.052	<0.1	<0.01	<0.1	<0.04	<0.01	5.94
MW-4	03/12/02	<0.05	<0.005	0.078	<0.005	<0.01	0.028	<0.01	<0.02	<0.02	<0.005	0.00032	<0.02	0.024	<0.005	<0.01	<0.005	<0.02	<0.02	6.15
MW-5	06/27/97	NA	<0.05	NA	0.005	NA	110	90	NA	NA	NA	NA	NA	NA	<0.05	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	NA	<0.5	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	NA	<0.05	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-5	09/20/00	<0.5	<0.5	<0.5	<0.05	<0.05	81.6	81.4	<0.2	<0.05	<0.5	<0.0002	<0.2	<0.2	<0.5	<0.05	<0.5	<0.2	<0.005	6.56
MW-5	03/20/01	<0.1	<0.1	<0.1	<0.01	<0.01	0.448	<0.005	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.94
MW-5	09/13/01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	03/12/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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-6	06/26/97	NA	<0.05	NA	0.005	NA	0.47	<0.01	NA	NA	NA	NA	NA	NA	<0.05	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	NA	0.05	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	NA	<0.01	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
MW-6	09/20/00	<0.05	<0.05	0.0667	<0.005	<0.005	0.00665	<0.005	<0.02	<0.005	<0.05	<0.0002	<0.02	<0.02	<0.05	<0.005	<0.05	<0.02	0.0133	6.65
MW-6	03/20/01	<0.1	<0.1	<0.1	<0.01	<0.01	0.028	0.0249	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.83
MW-6	09/13/01	<0.1	<0.1	<0.1	<0.01	<0.01	0.031	<0.005	<0.04	<0.01	<0.1	<0.0002	<0.04	<0.04	<0.1	<0.01	<0.1	<0.04	<0.01	6.36
MW-6	03/12/02	<0.05	<0.005	0.075	<0.005	<0.01	0.018	<0.01	<0.02	<0.02	<0.005	0.00044	<0.02	<0.02	<0.005	<0.01	<0.005	<0.02	<0.02	6.37
MCL		0.006	0.05	1	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.

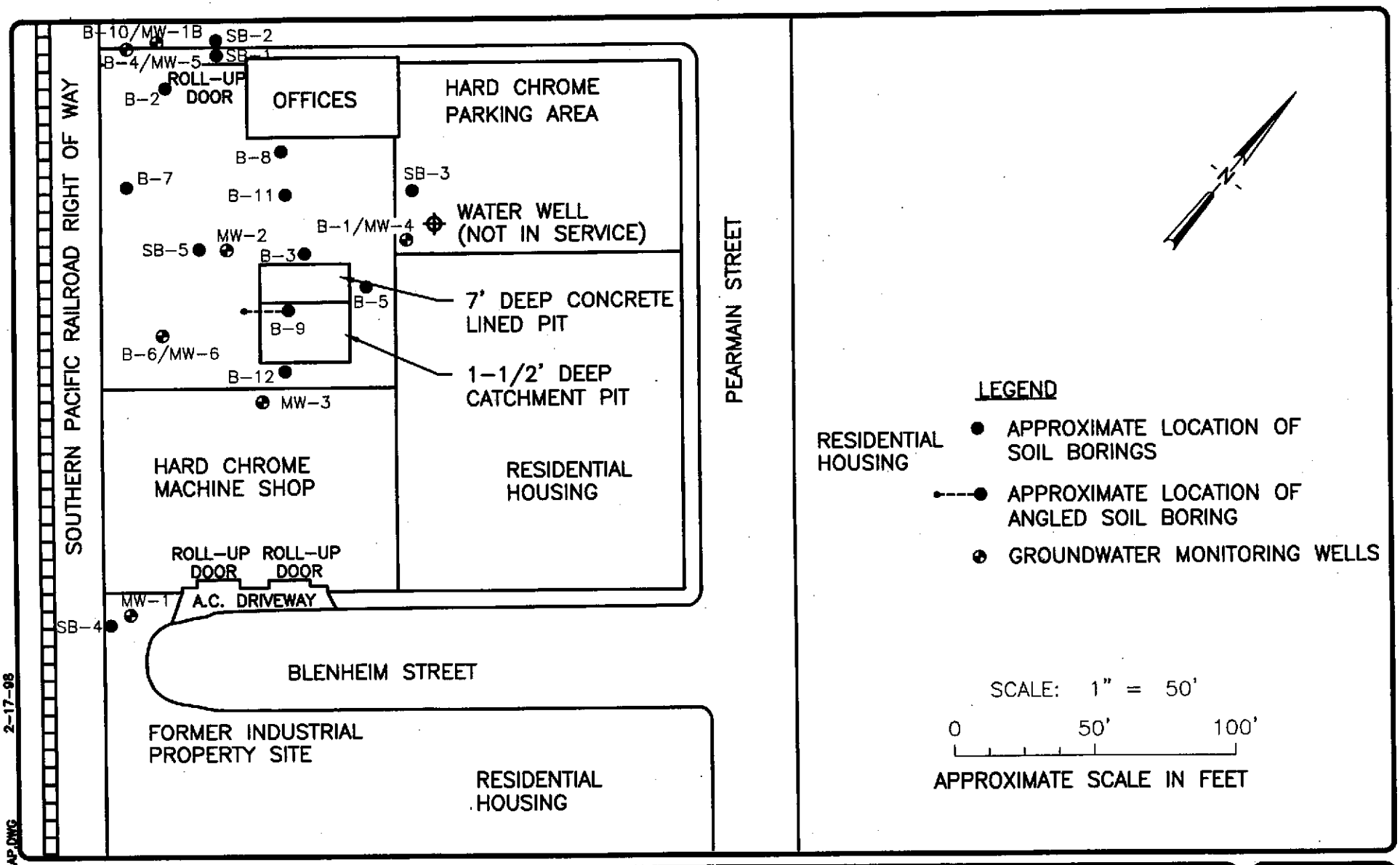


EMCON

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

SITE LOCATION MAP

FIGURE
1
PROJECT NO.
22619-100.001



2-17-98

I:\DWGS\2612\SITEMAP.DWG

EMCON

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

FIGURE
2
PROJECT NO.
792775

MONITORING WELL PURGING PROTOCOL

EMCON

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)
- π = 3.14
- r = radius of well casing in feet
- h = height of water column in feet

EVACUATE 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.

WELL EVACUATED TO PRACTICAL LIMITS OF DRYNESS BEFORE REMOVING CALCULATED PURGE VOLUME

NO

FINAL TWO SETS OF GROUND-WATER STABILIZATION INDICATOR PARAMETER MEASUREMENTS MEET THE FOLLOWING CRITERIA:

pH	=	±	0.05 pH units
COND.	=	±	3 %
TEMP.	=	±	1.0 °F
TURBIDITY	=	±	<5 NTU

YES

WELL PURGING CRITERIA MET; PROCEED TO WELL SAMPLING

NO

CONTINUE PURGING; EVACUATE ADDITIONAL CASING VOLUME OF WATER, MONITORING INDICATOR PARAMETERS FOR STABILITY.

YES

WELL RECHARGES TO A LEVEL SUFFICIENT FOR SAMPLE COLLECTION WITHIN 24 HOURS OF EVACUATION TO DRYNESS.

YES

FIELD TEST FIRST RECHARGE WATER FOR INDICATOR PARAMETERS AND TURBIDITY, THEN PROCEED TO WELL SAMPLING.

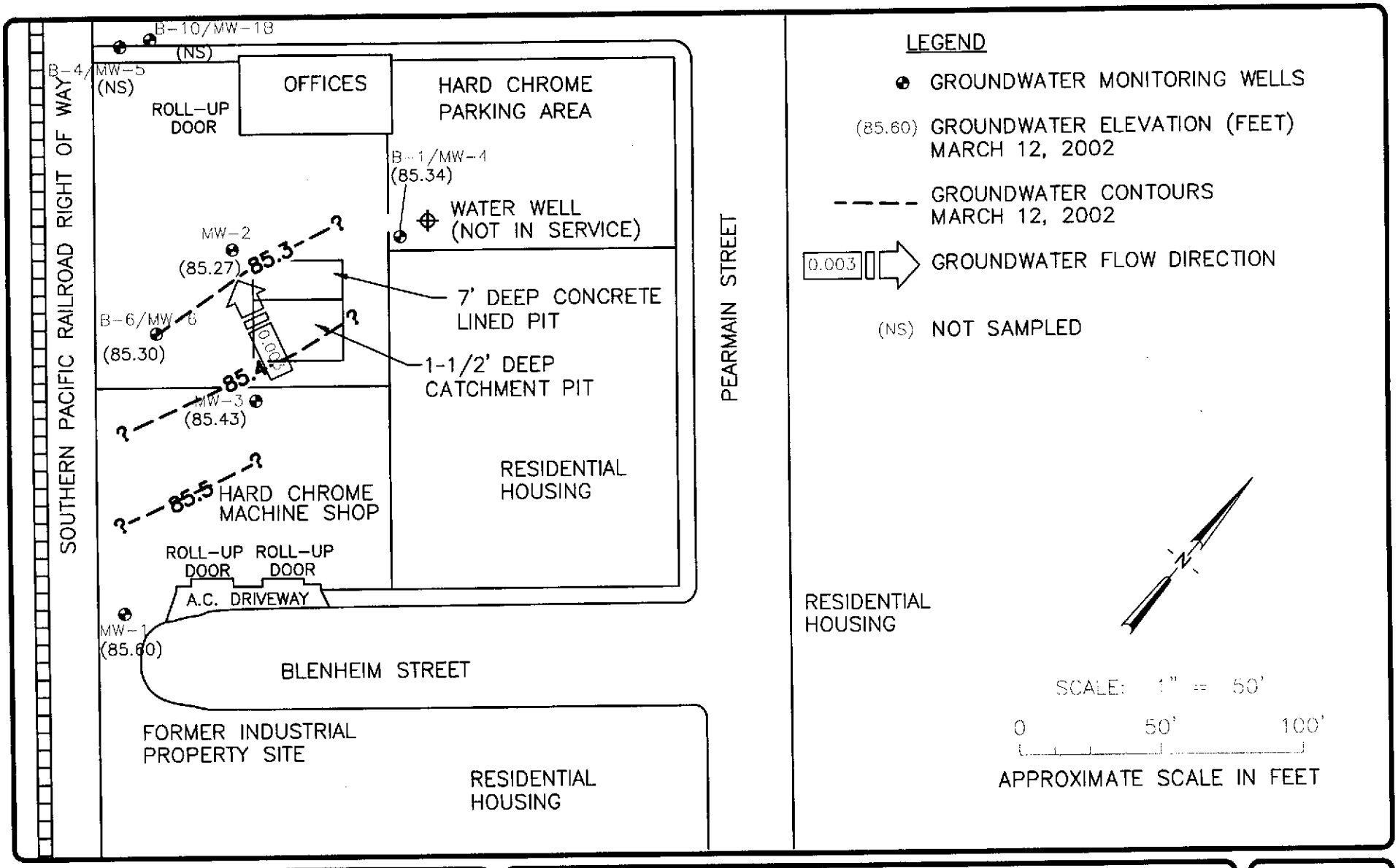
NO

RECORD WELL AS DRY FOR PURPOSES OF SAMPLING.

EMCON

MONITORING WELL PURGING PROTOCOL

FIGURE 3



emcon

MCLEMORE TRUST
HARD CHROME ENG. INC.,
750 107TH AVENUE
OAKLAND, CALIFORNIA
GROUNDWATER CONTOUR MAP
MARCH 12, 2002

FIGURE
4
PROJECT NO.
792775

N:\Consulting\CAD\DWG\792775\ChromGW1Q02.dwg Thu, 11/Apr/02 09:09am rballai

APPENDIX A

FIELD REPORT AND FIELD DATA SHEETS

FIELD REPORT
WATER LEVEL / FLOATING PRODUCT SURVEY

IT CORPORATION
1326 North Market Boulevard
Sacramento, California 95834
(916) 928-3300

PROJECT NO : 792775 / 00002000 **LOCATION : 750 107th Avenue, Oakland** **DATE:** 3/12/02

CLIENT : Hard Chrome Engineering **SAMPLER :** R Moyan **DAY OF WEEK:** Tues.

WELL ID	CASING ELEVATION (Feet, MSL)	TOTAL DEPTH (Feet)	PREVIOUS DEPTH TO WATER 09/13/2001	DEPTH TO WATER (Feet)	FLOATING PRODUCT THICKNESS (Feet)	COMMENTS
MW-1		24.4	17.49	14.63	--	
MW-2		23.9	17.83	15.11		
MW-3		23.5	17.70	14.94		
MW-4		22.9	17.62	14.96		
MW-5			N/A			inaccessible due to safety issue
MW-6		22.7	17.93	15.18		
MW-1B			N/A			inaccessible due to safety issue

Comments :

R Moyan
Signature

14.94
15.18 15.11

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 | SAMPLE ID : MW-1

PURGED BY : Bob Morgan | CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan | LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X | Surface Water ____ | Leachate ____ | Other ____

CASING DIAMETER (inches): 2 ✓ | 3 ____ | 4 ____ | 4.5 ____ | 6 ____ | Other ____

CASING ELEVATION (feet/MSL) : ____

DEPTH OF WELL (feet) : 24.40

DEPTH TO WATER (feet) : 14.63

VOLUME IN CASING (gal.) : 1.59

CALCULATED PURGE (gal.) : 4.77

ACTUAL PURGE VOL. (gal.) : 4.75

DATE PURGED : 3/12/02 | END PURGE : 1008

DATE SAMPLED : ✓ | SAMPLING TIME : 1015

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
0959	1.50	5.52	458.9	18.8	clear	low
1003	3.25	5.61	376.8	19.1	✓	✓
1008	4.75	5.80	374.0	18.7	✓	✓

OTHER: ____ ODOR: ____ (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
✓ Disposal Bailer
____ Bailer (Teflon)
____ Bailer (PVC)
____ Bailer (Stainless Steel)
____ Dedicated
Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump
____ Bomb Sampler
____ Dipper
✓ Disposal Bailer
____ Bailer (Teflon)
____ Bailer (Stainless Steel)
____ Submersible Pump
____ Dedicated
Other: ____

WELL INTEGRITY: OK | LOCK: 0469

REMARKS: ____

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan | REVIEWED BY: OK | PAGE 1 OF 7

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 SAMPLE ID : MW-1B

PURGED BY : Bob Morgan CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2 ____ 3 ____ 4 ____ 4.5 ____ 6 ____ Other ____

CASING ELEVATION (feet/MSL) : ____ VOLUME IN CASING (gal.) : ____

DEPTH OF WELL (feet) : ____ CALCULATED PURGE (gal.) : ____

DEPTH TO WATER (feet) : ____ ACTUAL PURGE VOL. (gal.) : ____

DATE ~~PURGED~~ : 3/12/02 END PURGE : ____

DATE SAMPLED : ____ SAMPLING TIME : ____

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)

OTHER: ____ ODOR: ____ (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)

____ Disposal Bailer ____ Dedicated

Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump ____ Bailer (Teflon)

____ Bomb Sampler ____ Bailer (Stainless Steel)

____ Dipper ____ Submersible Pump

____ Disposal Bailer ____ Dedicated

Other: ____

WELL INTEGRITY: ____ LOCK: ____

REMARKS: Inaccessible see MW-5 - same issue 3/12/02 KEM

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan REVIEWED BY: ____ PAGE 2 OF 7

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 | SAMPLE ID : MW-2

PURGED BY : Bob Morgan | CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan | LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X | Surface Water ____ | Leachate ____ | Other ____

CASING DIAMETER (inches): 2 ✓ | 3 ____ | 4 ____ | 4.5 ____ | 6 ____ | Other ____

CASING ELEVATION (feet/MSL) : ____

DEPTH OF WELL (feet) : 23.90

DEPTH TO WATER (feet) : 15.11

VOLUME IN CASING (gal.) : 1.43

CALCULATED PURGE (gal.) : 4.29

ACTUAL PURGE VOL. (gal.) : 4.30

DATE PURGED : 3/12/02 | END PURGE : 1135

DATE SAMPLED : ↓ | SAMPLING TIME : 1145

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
1128	1.50	6.00	801.6	18.9	yellow	low
1131	3.00	5.53	1107	19.1	↓	↓
1135	4.30	5.47	1127	19.0	↓	↓

OTHER: ____ ODOR: ____ (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
✓ Disposal Bailer
____ Bailer (Teflon)
____ Bailer (PVC)
____ Bailer (Stainless Steel)
____ Dedicated
Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump
____ Bomb Sampler
____ Dipper
✓ Disposal Bailer
____ Bailer (Teflon)
____ Bailer (Stainless Steel)
____ Submersible Pump
____ Dedicated
Other: ____

WELL INTEGRITY: OK | LOCK: 0464

REMARKS: ____

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan | REVIEWED BY: OK | PAGE 3 OF 7

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 | SAMPLE ID : MW-3

PURGED BY : Bob Morgan | CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan | LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X | Surface Water ____ | Leachate ____ | Other ____

CASING DIAMETER (inches): 2 ✓ | 3 ____ | 4 ____ | 4.5 ____ | 6 ____ | Other ____

CASING ELEVATION (feet/MSL) : ____ | VOLUME IN CASING (gal.) : 1.39

DEPTH OF WELL (feet) : 23.50 | CALCULATED PURGE (gal.) : 4.18

DEPTH TO WATER (feet) : 14.94 | ACTUAL PURGE VOL. (gal.) : 4.25

DATE PURGED : 3/12/02 | END PURGE : 1041

DATE SAMPLED : ↓ | SAMPLING TIME : 1050

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
1035	1.50	6.22	402.2	18.8	clear	low
1038	3.00	6.28	413.2	19.1	↓	↓
1041	4.25	6.28	415.1	19.1		

OTHER: ____ | ODOR: ____ | (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)

✓ Disposal Bailer | ____ Dedicated

Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump | ____ Bailer (Teflon)

____ Bomb Sampler | ____ Bailer (Stainless Steel)

____ Dipper | ____ Submersible Pump

✓ Disposal Bailer | ____ Dedicated

Other: ____

WELL INTEGRITY: OK | LOCK: 0464

REMARKS: ____

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan | REVIEWED BY: ____ | PAGE 4 OF 7

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 | SAMPLE ID : MW-4

PURGED BY : Bob Morgan | CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan | LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X | Surface Water ____ | Leachate ____ | Other ____

CASING DIAMETER (inches): 2 ✓ | 3 ____ | 4 ____ | 4.5 ____ | 6 ____ | Other ____

CASING ELEVATION (feet/MSL) : ____

DEPTH OF WELL (feet) : 22.90

DEPTH TO WATER (feet) : 14.96

VOLUME IN CASING (gal.) : 1.29

CALCULATED PURGE (gal.) : 3.88

ACTUAL PURGE VOL. (gal.) : 4

DATE PURGED : 3/12/02 | END PURGE : 1159

DATE SAMPLED : ↓ | SAMPLING TIME : 1210

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
1153	1.50	6.07	478.4	19.0	1+green	low
1156	3	6.11	480.3	19.2	↓	↓
1159	4	6.15	481.5	19.2	↓	↓

OTHER: ____ ODOR: ____ (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)

✓ Disposal Bailer ____ Dedicated

Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump ____ Bailer (Teflon)

____ Bomb Sampler ____ Bailer (Stainless Steel)

____ Dipper ____ Submersible Pump

✓ Disposal Bailer ____ Dedicated

Other: ____

WELL INTEGRITY: OK LOCK: 0469

REMARKS: ____

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan REVIEWED BY: ✓ PAGE 5 OF 7

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 SAMPLE ID : MW-5

PURGED BY : Bob Morgan CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X Surface Water ____ Leachate ____ Other ____

CASING DIAMETER (inches): 2 ____ 3 ____ 4 ____ 4.5 ____ 6 ____ Other ____

CASING ELEVATION (feet/MSL) : ____ VOLUME IN CASING (gal.) : ____

DEPTH OF WELL (feet) : ____ CALCULATED PURGE (gal.) : ____

DEPTH TO WATER (feet) : ____ ACTUAL PURGE VOL. (gal.) : ____

DATE ~~PURGED~~ : 3/12/02 END PURGE : ____

DATE SAMPLED : ____ SAMPLING TIME : ____

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)

OTHER: ____ ODOR: ____ (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)

____ Disposal Bailer ____ Dedicated

Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump ____ Bailer (Teflon)

____ Bomb Sampler ____ Bailer (Stainless Steel)

____ Dipper ____ Submersible Pump

____ Disposal Bailer ____ Dedicated

Other: ____

WELL INTEGRITY: ~~OK~~ LOCK: ____

REMARKS: Inaccessible due to personal safety issue. Possible criminal activities w/ large guard dogs. rem 3/12/02

Not sampled

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan REVIEWED BY: ~~OK~~ PAGE 6 OF 7

WATER SAMPLE FIELD DATA SHEET

Rev. 1/97

PROJECT NO : 792775 / 00002000 | SAMPLE ID : MW-6

PURGED BY : Bob Morgan | CLIENT NAME : Hard Chrome Engineering

SAMPLED BY : Bob Morgan | LOCATION : 750 107th Avenue, Oakland

TYPE: Groundwater X | Surface Water ____ | Leachate ____ | Other ____

CASING DIAMETER (inches): 2 ✓ | 3 ____ | 4 ____ | 4.5 ____ | 6 ____ | Other ____

CASING ELEVATION (feet/MSL) : ____

DEPTH OF WELL (feet) : 22.70

DEPTH TO WATER (feet) : 15.18

VOLUME IN CASING (gal.) : 1.22

CALCULATED PURGE (gal.) : 3.67

ACTUAL PURGE VOL. (gal.) : 3.75

DATE PURGED : 3/12/02

DATE SAMPLED : ↓

END PURGE : 1106

SAMPLING TIME : 1115

TIME (2400 HR)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm@25°c)	TEMPERATURE (°C)	COLOR (visual)	TURBIDITY (visual)
1100	1.25	6.34	451.0	18.9	lt green	low
1103	2.50	6.36	456.0	19.2	↓	↓
1106	3.75	6.37	456.8	19.2	↓	↓

OTHER: ____ ODOR: ____

(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
✓ Disposal Bailer
____ Bailer (Teflon)
____ Bailer (PVC)
____ Bailer (Stainless Steel)
____ Dedicated
Other: ____

SAMPLING EQUIPMENT

____ 2" Bladder Pump
____ Bomb Sampler
____ Dipper
✓ Disposal Bailer
____ Bailer (Teflon)
____ Bailer (Stainless Steel)
____ Submersible Pump
____ Dedicated
Other: ____

WELL INTEGRITY: OK LOCK: 0464

REMARKS: ____

pH, E.C., Temp. Meter Calibration: Date: ____ Time: ____ Meter Serial No.: ____

E.C. 1000 ____ / ____ pH 7 ____ / ____ pH 10 ____ / ____ pH 4 ____ / ____

Temperature °C ____

SIGNATURE: R Morgan REVIEWED BY: OK PAGE 7 OF 7

IT CORPORATION - Drum Inventory Record

792775 / 00002000
Project No

750 107th Ave., Oakland
Location

3/12/02
Date

Hard Chrome Engineering
Client

R Morgan
Sampler

Tues
Day of Week

DRUM NUMBER OR ID	WELL OR SOURCE ID(s)	TYPE OF MATERIAL	AMOUNT OF MATERIAL IN DRUM	DATE ACCUMULATED OR GENERATED
792775-31202	MW-1234 #6	Purge H2O	21 gal	3/12/02
792775-91301	MW,1234 #6	↓	15 gal	9/13/01

Sketch locations of drums, include drum ID's

IA enclosure

COMMENTS:

Number of Drums From This Event 1 = 21 gal

Total Number of Drums At Site 7

APPENDIX B

CERTIFIED ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY REPORTS

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Sampled: 03/12/2002
Date Received: 03/12/2002
Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002
Client ID No.: MW-1

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240-1A
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

MW-1

Analyte	CAS No.	Results (ug/L)	Rep. Limit (ug/L)	Method	Dilution (factor)
Ag (Silver)	7440224	ND	10	200.7	1.0
As (Arsenic)	7440382	ND	5.0	200.8	1.0
Ba (Barium)	7440393	68	20	200.7	1.0
Be (Beryllium)	7440417	ND	5.0	200.7	1.0
Cd (Cadmium)	7440439	ND	10	200.7	1.0
Co (Cobalt)	7440484	ND	20	200.7	1.0
Cr (Chromium)	7440473	16	10	200.7	1.0
Cu (Copper)	7440508	ND	20	200.7	1.0
Hg (Mercury)	7439976	ND	0.20	245.1	1.0
Mo (Molybdenum)	7439987	ND	20	200.7	1.0
Ni (Nickel)	7440020	ND	20	200.7	1.0
Pb (Lead)	7439921	ND	5.0	200.8	1.0
Sb (Antimony)	7440360	ND	50	200.7	1.0
Se (Selenium)	7783008	ND	5.0	200.8	1.0
Tl (Thallium)	7440280	ND	5.0	200.8	1.0
V (Vanadium)	7440622	ND	20	200.7	1.0
Zn (Zinc)	7440666	ND	20	200.7	1.0

ND = Not detected at or above indicated Reporting Limit

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Sampled: 03/12/2002
Date Received: 03/12/2002
Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002
Client ID No.: MW-2

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240-2A
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

MW-2

Analyte	CAS No.	Results (ug/L)	Rep. Limit (ug/L)	Method	Dilution (factor)
Ag (Silver)	7440224	ND	100	200.7	10
As (Arsenic)	7440382	ND	25	200.8	20
Ba (Barium)	7440393	ND	200	200.7	10
Be (Beryllium)	7440417	ND	50	200.7	10
Cd (Cadmium)	7440439	ND	100	200.7	10
Co (Cobalt)	7440484	ND	200	200.7	10
Cr (Chromium)	7440473	410000	100	200.7	10
Cu (Copper)	7440508	7000	200	200.7	10
Hg (Mercury)	7439976	0.45	0.20	245.1	1.0
Mo (Molybdenum)	7439987	ND	200	200.7	10
Ni (Nickel)	7440020	940	200	200.7	10
Pb (Lead)	7439921	ND	100	200.8	20
Sb (Antimony)	7440360	ND	50	200.7	10
Se (Selenium)	7783008	ND	100	200.8	20
Tl (Thallium)	7440280	ND	100	200.8	20
V (Vanadium)	7440622	1500	200	200.7	10
Zn (Zinc)	7440666	970	200	200.7	10

ND = Not detected at or above indicated Reporting Limit

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Sampled: 03/12/2002
Date Received: 03/12/2002
Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002
Client ID No.: MW-3

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240-3A
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

MW-3

Analyte	CAS No.	Results (ug/L)	Rep. Limit (ug/L)	Method	Dilution (factor)
Ag (Silver)	7440224	ND	10	200.7	1.0
As (Arsenic)	7440382	ND	5.0	200.8	1.0
Ba (Barium)	7440393	66	20	200.7	1.0
Be (Beryllium)	7440417	ND	5.0	200.7	1.0
Cd (Cadmium)	7440439	ND	10	200.7	1.0
Co (Cobalt)	7440484	ND	20	200.7	1.0
Cr (Chromium)	7440473	24	10	200.7	1.0
Cu (Copper)	7440508	ND	20	200.7	1.0
Hg (Mercury)	7439976	ND	0.20	245.1	1.0
Mo (Molybdenum)	7439987	ND	20	200.7	1.0
Ni (Nickel)	7440020	ND	20	200.7	1.0
Pb (Lead)	7439921	ND	5.0	200.8	1.0
Sb (Antimony)	7440360	ND	50	200.7	1.0
Se (Selenium)	7783008	ND	5.0	200.8	1.0
Tl (Thallium)	7440280	ND	5.0	200.8	1.0
V (Vanadium)	7440622	ND	20	200.7	1.0
Zn (Zinc)	7440666	ND	20	200.7	1.0

ND = Not detected at or above indicated Reporting Limit

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Sampled: 03/12/2002
Date Received: 03/12/2002
Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002
Client ID No.: MW-4

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240-4A
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

MW-4

Analyte	CAS No.	Results (ug/L)	Rep. Limit (ug/L)	Method	Dilution (factor)
Ag (Silver)	7440224	ND	10	200.7	1.0
As (Arsenic)	7440382	ND	5.0	200.8	1.0
Ba (Barium)	7440393	78	20	200.7	1.0
Be (Beryllium)	7440417	ND	5.0	200.7	1.0
Cd (Cadmium)	7440439	ND	10	200.7	1.0
Co (Cobalt)	7440484	ND	20	200.7	1.0
Cr (Chromium)	7440473	28	10	200.7	1.0
Cu (Copper)	7440508	ND	20	200.7	1.0
Hg (Mercury)	7439976	0.32	0.20	245.1	1.0
Mo (Molybdenum)	7439987	ND	20	200.7	1.0
Ni (Nickel)	7440020	24	20	200.7	1.0
Pb (Lead)	7439921	ND	5.0	200.8	1.0
Sb (Antimony)	7440360	ND	50	200.7	1.0
Se (Selenium)	7783008	ND	5.0	200.8	1.0
Tl (Thallium)	7440280	ND	5.0	200.8	1.0
V (Vanadium)	7440622	ND	20	200.7	1.0
Zn (Zinc)	7440666	ND	20	200.7	1.0

ND = Not detected at or above indicated Reporting Limit

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Sampled: 03/12/2002
Date Received: 03/12/2002
Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002
Client ID No.: MW-6

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240-5A
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

MW-6

Analyte	CAS No.	Results (ug/L)	Rep. Limit (ug/L)	Method	Dilution (factor)
Ag (Silver)	7440224	ND	10	200.7	1.0
As (Arsenic)	7440382	ND	5.0	200.8	1.0
Ba (Barium)	7440393	75	20	200.7	1.0
Be (Beryllium)	7440417	ND	5.0	200.7	1.0
Cd (Cadmium)	7440439	ND	10	200.7	1.0
Co (Cobalt)	7440484	ND	20	200.7	1.0
Cr (Chromium)	7440473	18	10	200.7	1.0
Cu (Copper)	7440508	ND	20	200.7	1.0
Hg (Mercury)	7439976	0.44	0.20	245.1	1.0
Mo (Molybdenum)	7439987	ND	20	200.7	1.0
Ni (Nickel)	7440020	ND	20	200.7	1.0
Pb (Lead)	7439921	ND	5.0	200.8	1.0
Sb (Antimony)	7440360	ND	50	200.7	1.0
Se (Selenium)	7783008	ND	5.0	200.8	1.0
Tl (Thallium)	7440280	ND	5.0	200.8	1.0
V (Vanadium)	7440622	ND	20	200.7	1.0
Zn (Zinc)	7440666	ND	20	200.7	1.0

ND = Not detected at or above indicated Reporting Limit

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

METHOD BLANK

Analyte	CAS No.	Results (ug/L)	Reporting Limit (ug/L)	Method
Ag (Silver)	7440224	ND	10	200.7
As (Arsenic)	7440382	ND	5.0	200.8
Ba (Barium)	7440393	ND	20	200.7
Be (Beryllium)	7440417	ND	5.0	200.7
Cd (Cadmium)	7440439	ND	10	200.7
Co (Cobalt)	7440484	ND	20	200.7
Cr (Chromium)	7440473	ND	10	200.7
Cu (Copper)	7440508	ND	20	200.7
Hg (Mercury)	7439976	ND	0.20	245.1
Mo (Molybdenum)	7439987	ND	20	200.7
Ni (Nickel)	7440020	ND	20	200.7
Pb (Lead)	7439921	ND	5.0	200.8
Sb (Antimony)	7440360	ND	50	200.7
Se (Selenium)	7783008	ND	5.0	200.8
Tl (Thallium)	7440280	ND	5.0	200.8
V (Vanadium)	7440622	ND	20	200.7
Zn (Zinc)	7440666	ND	20	200.7

ND = Not detected at or above indicated Reporting Limit

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

LAB CONTROL SAMPLE

Analyte	CAS No.	LCS Conc. (ug/L)	LCS Recovery (percent)
Ag (Silver)	7440224	50.0	85
As (Arsenic)	7440382	100	106
Ba (Barium)	7440393	2000	96
Be (Beryllium)	7440417	50.0	102
Cd (Cadmium)	7440439	50.0	97
Co (Cobalt)	7440484	500	101
Cr (Chromium)	7440473	200	101
Cu (Copper)	7440508	250	98
Hg (Mercury)	7439976	3.00	114
Mo (Molybdenum)	7439987	500	107
Ni (Nickel)	7440020	500	101
Pb (Lead)	7439921	100	101
Sb (Antimony)	7440360	500	91
Se (Selenium)	7783008	100	100
Tl (Thallium)	7440280	100	107
V (Vanadium)	7440622	500	100
Zn (Zinc)	7440666	500	98

LAB CONTROL SAMPLE DUPLICATE

Analyte	CAS No.	LCS Conc. (ug/L)	LCSD Recovery (percent)
Ag (Silver)	7440224	50.0	93
As (Arsenic)	7440382	100	110
Ba (Barium)	7440393	2000	97
Be (Beryllium)	7440417	50.0	103
Cd (Cadmium)	7440439	50.0	105
Co (Cobalt)	7440484	500	103

Cr (Chromium)	7440473	200	101
Cu (Copper)	7440508	250	100
Hg (Mercury)	7439976	3.00	100
Mo (Molybdenum)	7439987	500	108
Ni (Nickel)	7440020	500	102
Pb (Lead)	7439921	100	103
Sb (Antimony)	7440360	500	93
Se (Selenium)	7783008	100	101
Tl (Thallium)	7440280	100	107
V (Vanadium)	7440622	500	101
Zn (Zinc)	7440666	500	100

CA DOHS ELAP Accreditation/Registration Number 1233

Analysis Report: CAM Metals, EPA Methods 200

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Extracted: 03/13/2002
Date Analyzed: 03/14/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: M020313A
Instrument ID: INMIX
Analyst ID: SCOTTF
Matrix: WATER

LCS RPD

Analyte	CAS No.	LCS Relative Percent Difference (percent)
Ag (Silver)	7440224	9
As (Arsenic)	7440382	4
Ba (Barium)	7440393	1
Be (Beryllium)	7440417	1
Cd (Cadmium)	7440439	8
Co (Cobalt)	7440484	2
Cr (Chromium)	7440473	0
Cu (Copper)	7440508	2
Hg (Mercury)	7439976	13
Mo (Molybdenum)	7439987	1
Ni (Nickel)	7440020	1
Pb (Lead)	7439921	2
Sb (Antimony)	7440360	2
Se (Selenium)	7783008	1
Tl (Thallium)	7440280	0
V (Vanadium)	7440622	1
Zn (Zinc)	7440666	2

Analysis Report: Hexavalent Chromium Analysis, EPA Method 7196

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Sampled: 03/12/2002
Date Received: 03/12/2002
Date Extracted: N/A
Date Analyzed: 03/13/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: W020312L
Instrument ID: UV002
Analyst ID: SCOTTF
Matrix: WATER

ANALYTICAL RESULTS

Lab / Client ID Analyte	CAS No.	Results (ug/L)	Rep. Limit (ug/L)	Dilution (factor)
1B / MW-1				
Hexavalent Chromium	N/A	ND	10	1.0
2B / MW-2				
Hexavalent Chromium	N/A	410000	20000	2000
3B / MW-3				
Hexavalent Chromium	N/A	ND	10	1.0
4B / MW-4				
Hexavalent Chromium	N/A	ND	10	1.0
5B / MW-6				
Hexavalent Chromium	N/A	ND	10	1.0

ND = Not detected at or above indicated Reporting Limit

Analysis Report: Hexavalent Chromium Analysis, EPA Method 7196

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Extracted: N/A
Date Analyzed: 03/13/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: W020312L
Instrument ID: UV002
Analyst ID: SCOTTF
Matrix: WATER

METHOD BLANK

Analyte	CAS No.	Results (ug/L)	Reporting Limit (ug/L)
Hexavalent Chromium	N/A	ND	10

ND = Not detected at or above indicated Reporting Limit

Analysis Report: Hexavalent Chromium Analysis, EPA Method 7196

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Extracted: N/A
Date Analyzed: 03/13/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: W020312L
Instrument ID: UV002
Analyst ID: SCOTTF
Matrix: WATER

MATRIX SPIKE

Analyte	CAS No.	MS Conc. (ug/L)	MS Recovery (percent)
Hexavalent Chromium	N/A	250	114

MATRIX SPIKE DUPLICATE

Analyte	CAS No.	MSD Conc. (ug/L)	MSD Recovery (percent)
Hexavalent Chromium	N/A	250	117

RELATIVE % DIFFERENCE

Analyte	CAS No.	Relative Percent Difference (percent)
Hexavalent Chromium	N/A	3

Analysis Report: Hexavalent Chromium Analysis, EPA Method 7196

Client: IT Corporation (Emcon)
1326 N. Market Blvd.
Sacramento, CA 95834

Project: Hard Chrome Engineering

Date Extracted: N/A
Date Analyzed: 03/13/2002
Date Reported: 04/08/2002

Project No.: 792775/00002000
Contact: Charles Metzinger
Phone: (916)928-3300

Lab Contact: Ray Oslowski
Lab ID No.: T6240
Job No.: 846240
COC Log No.: NO NUMBER
Batch No.: W020312L
Instrument ID: UV002
Analyst ID: SCOTTF
Matrix: WATER

LAB CONTROL SAMPLE

Analyte	CAS No.	LCS Conc. (ug/L)	LCS Recovery (percent)
Hexavalent Chromium	N/A	250	108

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

IT CORPORATION - 1326 North Market Boulevard, Sacramento, CA 95834
(916) 928-3300 FAX (916) 928-3341

Purchase Order: _____

Lab: CLS

Project Name: Hard Chrome Engineering
Project Number: 792775 / 00002000
Project Manager: Charles Metzinger
Company: IT CORPORATION
Address: 1326 North Market Boulevard
Sacramento, CA 95834
Dir Phone: (916) 565-4358 / FAX: (916) 928-3341

Sampler's Signature: R Morgan

Analysis Requested

Sample I.D.	Date	Time	LAB I.D.	Sample Matrix	Number of Containers	Cam 17 Metals (Field Filtered)	Hexavalent Chromium by EPA Method 7196 (24-Hr Hold) (Field Filtere	REMARKS
						3	3	Container Types
						HNO3	NP	Preservations
MW-1	3/12/02	1015		water	2	1	1	
MW-2		1145		water	2	1	1	
MW-3		1050		water	2	1	1	
MW-4		1210		water	2	1	1	
~~MW-5~~				~~water~~	~~2~~	~~1~~	~~1~~	No sample
MW-6	3/12/02	1115		water	2	1	1	
~~MW-7B~~				~~water~~	~~2~~	~~1~~	~~1~~	No sample

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: R Morgan	Signature:	Signature	Signature
Printed Name: Bob Morgan	Printed Name	Printed Name	Printed Name
Firm: IT Group	Firm	Firm	Firm
Date/Time: 3/12/02 1700	Date/Time: 3/12/02 1700	Date/Time	Date/Time

RELINQUISHED BY	RECEIVED BY
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

Special Instructions/Comments:

Chrom VI has a 24 hour hold time.
All samples need to be field filtered.

24 hr ____ 48 hr ____ 5 day
Standard (~10-15 working days) ✓
Provide Verbal Preliminary Results
Provide FAX Preliminary Results
Requested Report Date: _____

REPORT REQUIREMENTS

X I. Routine Report
__ II. Report (includes DUP, MS MSD, as required, may be charged as samples)
__ III. Data Validation Report (includes All Raw Data)
__ RWQCB (MDLs/PQLs/TRACE#)

CLS
3249 Fitzgerald Road
Rancho Cordova, Calif 95742
916-638-7301 / Fx: 638-4510
Ray Oslowski

Container Types Key:

40 ml VOA:	1
250 ml LPE:	2
500 ml LPE:	3
1 liter HDPE:	4
500 ml glass:	5
1 liter glass:	6
2x6 s/s ring:	7
glass jar:	8