

RO234



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June 28, 2002

Project No. 3628
StID #922/RO0000234

Mr. Barney Chan
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

**Subject: May 2002 Quarterly Monitoring Report
Oakland Truck Stop
1107 Fifth Street
Oakland, California**

Dear Mr. Chan:

Enclosed is the subject Quarterly Monitoring Report for the Oakland Truck Stop. At present, we are preparing to implement the Conduit Pathway Investigation. ~~A work plan describing sampling procedures and showing sampling locations along buried utility corridors in the vicinity of the site will be sent to you within the next week. We plan on drilling and sampling seven temporary borings along 5th Street and Chestnut Avenue on July 11.~~ *CEK*

If you have any questions in regard to this UST case, please contact me at (707) 693-2929.

Sincerely,

W.A. Craig, Inc.,

Tim Cook, PE
Principal Engineer

cc: Reed Rinehart, Rinehart Distributing, Inc.
Chuck Headlee, SFBRWQCB

4/15/02 *AKR*

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**QUARTERLY MONITORING REPORT
MAY 2002**

**SITE LOCATION:
Oakland Truck Stop
1107 Fifth Street
Oakland, California**

**PREPARED FOR:
Mr. Reed Rinehart
Rinehart Distribution, Inc.
P.O. Box 725
Ukiah, California 94582**

**SUBMITTED TO:
Mr. Barney Chan
Alameda County Department of Environmental Health Services
Division of Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577
(510) 567-6774
fax (510) 337-9335**

**W. A. CRAIG, INC. PROJECT # 3628
June 28, 2002**



PROFESSIONAL CERTIFICATION

Quarterly Monitoring Report – May 2002

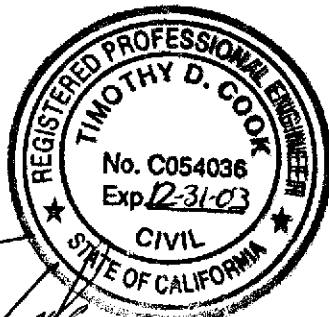
**Oakland Truck Stop
1107 Fifth Street
Oakland, California**


**W.A. Craig, Inc.
Project No. 3628**

June 28, 2002

This document has been prepared by the staff of W. A. Craig, Inc., under the professional supervision of the persons whose seals and signatures appear hereon. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analysis, conclusions and recommendations contained in this document are based upon site conditions as they existed at the time of the investigation and they are subject to change.

The conclusions presented in this document are professional opinions based solely upon visual observations of the site and vicinity, and interpretation of available information as described in this document. W.A. Craig, Inc., recognizes that the limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs, or requirements of other state agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of said user.




Tim Cook, P.E.
Principal Engineer

INTRODUCTION

Site Location and Description

The Oakland Truck Stop located at 1107 5th Street in Oakland, California ("the Site") is owned by Mr. Tony Muir. Rino Pacific, Inc. and Rinehart Distribution, Inc. lease the property from the owner. The Site is in a commercial and industrial district at the intersection of Adeline and 5th Streets (Figure 1). A service station building, two underground storage tanks, four pump dispenser islands, a truck scale and scale house currently occupy the Site.

The Site topography is flat and is bounded on the north by Fifth Street, on the west by Adeline Street, on the south by a restaurant and parking lot and on the east by Chestnut Street. The nearest surface water is the Oakland Estuary located approximately 2,400 feet south of the Site.

Background

The Site was developed as a truck stop approximately 40 years ago and has been in operation throughout this period. Three 10,000-gallon underground storage tanks (USTs) and one 8,000-gallon UST were formerly maintained at the Site. All four USTs were constructed of single-wall steel. Of the 10,000-gallon USTs, two contained diesel fuel and one contained mid-grade unleaded gasoline. The 8,000-gallon UST contained regular unleaded gasoline. Prior to the recent remodel of the Site, fuel product lines were constructed of single-wall fiberglass.

In mid-1995 an unauthorized release of fuel occurred as a result of a leak in a product line. Product lines associated with this release were replaced as soon as the leak was discovered. Interim cleanup of the spill was performed by installing and operating two product recovery sumps in the vicinity of the release. The sumps recovered approximately 6.3 gallons of gasoline using a skimmer device and reduced the floating product thickness to a sheen on the water in the recovery wells. The sumps were removed during recent leaseholder improvements at the Site. The water table fluctuates seasonally between 10 inches and 4 feet below grade.

In March 1999, the four single-walled USTs were replaced with two 15,000-gallon double-walled fiberglass USTs. An interim remedial action was performed during UST replacement activities to remove the grossly contaminated soil and groundwater.

The following is a summary of interim remedial activities performed at the Site by Trinity Excavating and Engineering, Inc. of Santa Rosa, California. The work was performed between February 8, 1999 and May 5, 1999.

2/8 through 2/10, 1999	Excavated to tops of tanks and rinsed three gasoline and one diesel underground fuel tanks
2/11/1999	Removed tanks and disposed offsite (observed by Fire Inspector)
3/3 & 3/4, 1999	Removed approximately 2,100 tons of contaminated soil from excavation bottom and sides before sampling as directed by Fire Inspector. Collected excavation and stockpile samples. Removed water from pit as needed. Stored approximately 33,000 gallons of contaminated water in temporary storage tanks.
2/24 through 5/19, 1999	Loaded, manifested and disposed of 2,000.5 tons of contaminated soil at the Forward non-hazardous disposal facility near Stockton, California.
2/1 through 5/6, 1999	Provided and placed approximately 1,700 tons of backfill.
5/3 through 5/5, 1999	Disposed of contaminated water at Seaport Environmental.

Quarterly groundwater monitoring is being conducted. The direction of groundwater flow has varied from southwest to north. Interpretation of the groundwater gradient is suspect and could be affected by very localized recharge (i.e., leaking water or sewer lines).

The shallow aquifer beneath the Site has no beneficial use as a potential drinking water resource due to its high total dissolved solids concentration (>3,000 mg/l). Proposed Groundwater Amendments to the Water Quality Control Plan (Basin Plan), dated April 2000, specifically states that shallow groundwater to a depth of about 100 feet in portions of the East Bay Plain is often brackish due to naturally-occurring saltwater intrusion. However, well yields may be sufficient for industrial or irrigation uses.

This same document states that cleanup in areas that have no beneficial use as a drinking water resource, should be protective of ecological receptors, human health and probable non-potable uses (e.g., irrigation or industrial process supply). Pursuant to State Board Resolution No. 92-49, pollution sites will continue to be required to demonstrate that 1) reasonably adequate source removal has occurred, 2) the plume has been reasonably defined both laterally and vertically and 3) a long-term monitoring program is established to verify that the plume is stable and will not impact ecological receptors or human health (e.g., from volatilization into trenches and buildings). In the East Bay Plain there are deep aquifers that will continue to be designated as potential drinking water resources. In such a setting, the deep aquifers (defined as aquifers below the Yerba Buena Mud) are subject to protection as potential drinking water resources.

In a letter to Rinehart Distributing Inc. dated July 27, 2001, Alameda County Health Care Services (ACHCS) requested that additional investigation be performed to delineate the extent of petroleum hydrocarbons both on-site and off-site. Specifically, they requested monitoring wells to the south or adjacent to the main building. A *Site Investigation Work Plan* dated October 22, 2001 was submitted to and approved by the ACHCS. A site access agreement was executed with the adjacent property owner. [REDACTED]

~~_____~~ Details of these site investigation activities are included in this report.

SCOPE OF WORK

The scope of work conducted by W.A. Craig, Inc (WAC) during this period included the following:

- Obtained regulatory approvals, permits, and utility clearance for well installations;
- Installed two offsite and one onsite monitoring wells;
- Abandoned one onsite monitoring well;
- Developed the three new monitoring wells;
- Measured dissolved oxygen concentrations and static water levels in eight onsite and two offsite monitoring wells;
- Purged and sampled groundwater from these wells;
- Analyzed samples for total petroleum hydrocarbons as gasoline (TPH-g), total petroleum hydrocarbons as diesel (TPH-d), benzene, toluene, ethylbenzene, xylenes (BTEX), fuel oxygenates (MtBE, ETBE, TAME, DIPE, tert-Butanol, methanol, ethanol) and lead scavengers (EDB and 1,2 DCA); and
- Prepared this *Quarterly Monitoring Report*.

MONITORING WELL INSTALLATION

Regulatory Approvals, Well Permits and Utility Clearance

Well permits were obtained from the Alameda County Department of Public Works. A copy of the well permit for the installation of wells MW-3N, MW-10 and MW-11 and the abandonment of well MW-3 is in **Appendix A**. The ACHCS was notified 48 hours prior to the start of field activities.

Per requirements of California law, underground service alert (USA) was notified of the intent to perform subsurface investigation at the Site and the investigation area was demarcated in white paint. USA notified public and private utility companies and each utility had the opportunity to mark the location of their underground utilities. W.A. Craig, Inc reviewed the location of buried utilities and found that no changes to the proposed well locations were needed.

Monitoring Well Drilling and Construction

On May 8, 2002, monitoring wells MW-3N, MW-10 and MW-11 were drilled using a truck-mounted hollow-stem auger drill rig. Monitoring well MW-10 and MW-11 were located 66' on 360 A delina, the property immediately south of the Site. Well MW-3N was drilled to replace ~~_____~~

Well borings were continuously logged using a modified California sampler. Soils were described using the unified soil classification system. Lithologic descriptions included soil type, color, grain size, moisture content, texture, hardness, hydrocarbon staining or odor and other pertinent information. Boring logs are included in **Appendix B**.

One soil sample was collected at the soil-groundwater interface in each of the three new well borings. Soil samples were collected with a 1.5-foot long modified California sampler lined with brass sample tubes. The sampler was placed inside the hollow-stem augers down the boring and driven using a 140-pound hammer dropped approximately 30 inches. Immediately after removing the brass tubes from the sampler, five 5-gram aliquots of soil were collected in EnCore Samplers. These samplers meet all requirements for the collection of solid and waste oil samples for volatile organic analytes described in EPA Method 5035. EnCore samplers were pushed into the brass tubes using a T-handle until the Encore samplers were completely full. The cap coring body was then properly seated and locked in place to form an airtight seal. The EnCore samplers were then placed in a zipper foil pouch. The zipper foil pouch was labeled with the project name, project number, sample ID and date of collection. The same information was recorded on the chain of custody form. EnCore samplers were then placed in a cooler with ice to maintain them at 4 degrees Centigrade. Samples were delivered to the analytical laboratory within 24 hours of collection and were extracted within 48 hours of receipt by the lab.

Results of the soil analyses are summarized in **Table 1**. All three soil samples yielded detectable TPH-d. Concentrations ranged from 20 milligrams per kilogram (mg/kg) in boring MW-10 to 30 mg/kg in boring MW-3N. TPH-g was detected in MW-3N at 2.3 mg/kg. MtBE and total xylenes were detected in this same sample at 0.11 mg/kg and 0.0072 mg/kg, respectively. Total lead was detected in all three soil samples. Lead was within background concentrations in samples MW-11 and MW-3N. However, lead was 2,800 mg/kg in sample MW-10. This lead concentration is not related to the presence of hydrocarbons since this same sample did not yield detectable BTEX and TPH-g and the TPH-d concentration was 29 mg/kg, a relatively low value. Laboratory analytical reports for soil are included in **Appendix C**.

Soil cuttings from the drilling operations are stored onsite in 55-gallon, steel, DOT approve drums. These investigation-derived wastes will be properly disposed of upon approval of the disposal facility.

~~The three new wells were constructed of two inch diameter, flush-threaded, Schedule-40 PVC well casing. The screen, casing and sand pack were installed through the hollow-stem augers. The screen has a slot size of 0.010 inches. Water was encountered at 5 feet below grade (fbg) to 7 fbg. The screened interval in all three wells was from 5 fbg to 12 fbg. The screened section annulus was packed with clean RMC #2/12 graded sand to two feet above the screened interval. Bentonite chips (Enviroplug) were placed above the sand as a sealing material. The well was sealed from the bentonite seal to the ground surface with a Portland cement/bentonite grout. No glues or other solvents were used during construction of the wells. The wells are not designed to provide optimum flow but are intended to provide representative water samples from the~~

uppermost water-bearing zone. Well construction data for all monitoring wells is summarized in **Table 2**.

Wellheads are protected from vandalism with a locking expansion-plug cap and are housed within a traffic-rated box to protect the well from traffic and surface water runoff. The grout was allowed to set for a period of 72 hours prior to development or sampling.

Well Development

W.A. Craig developed the three new wells on May 13, 2002 by intermittent surging, bailing and pumping. Field parameters such as color, odor, turbidity, specific conductance, temperature, pH and the presence of hydrocarbons were monitored during development. Development continued until field parameters stabilized and the water was relatively clear and free of silt and sand. Well development logs documenting the volume of water removed and water quality parameters are included in **Appendix D**.

Surveying

On May 25, 2002, Horizon Surveys, Inc, a licensed land surveyor surveyed the existing and newly installed wells for horizontal and vertical control using the global positioning satellite (GPS) network for control and conventional methods for topography. The vertical datum of the survey is based on the USGS "Port 1" benchmark, which is 9.39 feet above mean sea level (msl) based on North American Geodetic Vertical Datum of 1988 (NGVD88). The tops of well casing elevations are accurate to within 0.01 foot. The survey methods are consistent with the GEOTRACKER requirements. Latitudes and longitudes are in decimal degrees, to nine significant digits, and based on monument from the North American Datum of 1983 (NAD83). A permanent mark on the top of each well casing references the surveyed point on the casing. Subsequent depth to water measurements will be made from this reference point.

MONITORING WELL ABANDONMENT

Well MW-3 was screened from 12 to 17 feet below grade (Fig. 1). The water table on February 15, 2002 was 4.65 feet. The water table is significantly higher than the screened interval and could prevent free product from entering this well. We proposed replacing this well with a new well (MW-3N) screened through the water table. On May 8, 2002, well MW-3 was abandoned by over-drilling the 2-inch diameter casing with hollow-stem augers. The traffic box and the PVC casing were removed and the borehole was filled with Portland cement/bentonite grout to the surface. A cold-patch asphalt mix finished the boring at the surface grade.

MISSING

GROUNDWATER SAMPLING AND ANALYSIS

Groundwater Elevations

On May 20, 2002, water levels were measured in ten monitoring wells with an electronic water-level indicator. The wells were exposed to atmospheric conditions for approximately 30 minutes to stabilize static water levels. The depths to static water level measurements were subtracted from the top of casings to obtain static water elevations. Groundwater elevations for this and previous monitoring events are presented in **Table 3**. A depiction of the groundwater flow direction is shown on **Figure 3**. If the groundwater elevations from wells MW-1, MW-7 and MW-10 are excluded from the analysis, the groundwater flow direction is northerly under a gradient of approximately 0.011 ft/ft. Hydrographs showing the variation of groundwater elevations with time are presented on **Figure 4**.

Groundwater Sampling

On May 20, 2002, the wells were purged prior to collecting groundwater samples to ensure that formation water was sampled. The dissolved oxygen concentration was measured prior to sampling. Dissolved oxygen concentrations and temperature readings are summarized in **Table 4**. Three well volumes were purged from each well prior to sampling to ensure that water samples were representative of the ambient groundwater quality. Well sampling logs documenting the volume of water purged and water quality parameters are included in **Appendix E**.

Groundwater samples were collected using disposable polyethylene bailers. The samples were collected in laboratory cleaned sample bottles appropriate for each analysis. ~~The first two bailers evacuated from well MW-7 yielded approximately 6 inches of floating product.~~ Groundwater samples were submitted under chain-of-custody control to McCampbell Analytical, Inc. (MAI), of Pacheco, California. The purged groundwater is currently stored on-site in labeled, DOT approved, 55-gallon, steel drums.

Groundwater Analytical Results

The groundwater samples were analyzed for TPH-g/TPH-d using EPA Method 8015 (modified), for purgeable aromatic hydrocarbons (BTEX) using EPA Method 8020 and for fuel oxygenates and lead scavengers using EPA Method 8260. MAI is certified by the State of California to perform these analyses. The results of the analyses are summarized in **Table 5**. A copy of the laboratory analytical report and chain-of-custody document are in **Appendix F**.

~~MtBE concentrations remain above 50,000 ug/L in wells MW-4, MW-7 and MW-8.~~ The highest concentrations are detected in well MW-7. Approximately 6 inches of floating product was observed in this well. MW-7 yielded TPH-g at 140,000 ug/L, TPH-d at 510,000 ug/L, benzene at 24,000 ug/L and MtBE at 220,000 ug/L. The distribution of MtBE in groundwater on May 20,

2002 is presented on **Figure 5**. MtBE concentrations versus time in monitoring wells are depicted on **Figure 6**.

MtBE is the principal constituent of concern (COC). TPH-g, TPH-d and BTEX constituents are present in many wells. TPH-g was only detected in one well thus no figure depicting the extent of TPH-g in groundwater is provided. TPH-g concentrations versus time in all monitoring wells are depicted on **Figure 7**. The distribution of TPH-d in groundwater on May 20, 2002 is presented on **Figure 8**. TPH-d concentrations versus time for these same wells are presented on **Figure 9**.

SUMMARY

Well MW-3 was abandoned because the well screen interval was significantly deeper than the water table and data from this well could not be compared to data from other monitoring wells that intersected the water table. This well was replaced with well MW-3N. Well MW-3N has a screened interval from 5 fbg to 12 fbg, which intersects the water table. Two offsite monitoring wells (MW-10 and MW-11) were installed on the property immediately adjacent and south of the Site to better define the groundwater flow direction and to determine if hydrocarbons have migrated offsite.

Remediation of MtBE will also remove the other COCs. The hydrocarbon plume appears to be centered about wells MW-4, MW-5, MW-6, MW-7 and MW-8. This area includes the former UST pit, and dispenser islands to the west, and east of the former UST pit. This area will be the focus of the remedial action. The next quarterly sampling event is scheduled for August 2002 and the next *Quarterly Monitoring Report* will be submitted by September 30, 2002.

RECOMMENDATIONS

We recommend collecting additional soil and groundwater samples along buried utility conduits to determine if these conduits are providing a pathway for the offsite migration of hydrocarbons from the site. A work plan for a conduit study will be prepared and submitted to the ACHCS. Upon approval of this work plan we will conduct this investigation and attempt to submit the results of this study with the next *Quarterly Monitoring Report*.

[REDACTED]

Table 1
Soil Analytical Results
Oakland Truck Stop

Well ID	Depth	TPH-d	TPH-g	MtBE (8260)	Benzene	Toluene	Ethyl- benzene	Xylenes	DIPE
MW-3N	7.5	30	2.3	0.11	<0.005	<0.005	<0.005	0.0072	<0.005
MW-10	6.5	20	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-11	7.0	29	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Well ID	Depth	ETBE	TAME	tert- Butanol	Methanol	Ethanol	EDB	1,2 DCA	Total Lead
MW-3N	7.5	<0.005	<0.005	<0.05	<2.5	<0.25	<0.005	<0.005	12
MW-10	6.5	<0.005	<0.005	<0.05	<2.5	<0.25	<0.005	<0.005	79
MW-11	7.0	<0.005	<0.005	<0.05	<2.5	<0.25	<0.005	<0.005	2,000

Notes: Units are mg/kg

Table 2
Well Construction Data
Oakland Truck Stop

Well Number	Date Installed	Casing Diameter (inches)	Borehole Depth (feet)	Screened Interval (feet)	Filter Pack Interval (feet)	Bentonite Interval (feet)	Grouting Interval (feet)
MW-1	10/10/96	2	20.5	10-20	9-20	7-9	1-7
MW-2 ¹	10/10/96	2	14.0	8-13	7-8	5-7	1-5
MW-3 ²	10/10/96	2	17.0	12-17	11-17	9-11	1-9
MW-3N	05/08/02	2	12.0	5-12	4-12	2-4	1-2
MW-4	08/16/00	2	20.5	5-20	4-20	3-4	1-3
MW-5	08/16/00	2	20.5	5-20	4-20	7-13	1-3
MW-6	08/16/00	2	20.5	5-20	4-20	3-4	1-3
MW-7	08/17/00	2	20.5	5-20	4-20	3-4	1-3
MW-8	08/16/00	2	20.5	5-20	4-20	3-4	1-3
MW-9	08/23/00	2	20.5	5-20	4-20	3-4	1-3
MW-10	05/08/02	2	12.0	5-12	3-12	2-3	1-2
MW-11	05/08/02	2	12.0	5-12	3-12	2-3	1-2

Notes: ¹MW-2 was abandoned during the UST excavation and removal in March 1999.

²MW-3 was abandoned in May 2002 and replaced with MW-3N.

Table 4
Dissolved Oxygen Concentrations
Oakland Truck Stop

Monitoring Well	Date	Dissolved Oxygen Concentration (mg/l)	Temperature (Celsius)	Dissolved Oxygen Percent of Saturation
MW-1	08/30/00	0.27	24.2	3.2%
	11/06/00	0.24	21.8	2.7%
	02/22/01	0.76	15.7	7.6%
	05/07/01	0.79	20.3	8.6%
	08/27/01	0.20	23.9	2.4%
	11/04/01	0.60	22.5	6.9%
	02/15/02	0.32	17.8	3.3%
	05/20/02	0.42	18.9	4.5%
MW-3	08/30/00	0.35	26.4	4.4%
	11/06/00	0.23	22.7	2.6%
	02/22/01	0.97	15.3	9.6%
	05/07/01	NM	NM	NM
	08/27/01	0.40	23.9	4.7%
	11/04/01	NM	NM	NM
	02/15/02	0.37	18.7	3.9%
MW-3N	05/20/02	0.51	20.6	5.6%
MW-4	08/30/00	0.16	27.4	2.0%
	11/06/00	0.30	23.9	3.5%
	02/22/01	0.85	16.3	8.6%
	05/07/01	0.95	20.5	10.4%
	08/27/01	0.20	26.1	2.5%
	11/04/01	0.30	23.7	3.5%
	02/15/02	0.18	17.0	1.8%
	05/20/02	0.21	20.0	2.3%
MW-5	08/30/00	0.28	27.0	3.6%
	11/06/00	0.24	22.6	2.8%
	02/22/01	0.77	14.7	7.5%
	05/07/01	0.99	19.8	10.7%
	08/27/01	0.20	26.4	2.5%
	11/04/01	0.60	23.1	7.0%
	02/15/02	0.27	16.9	2.8%
	05/20/02	0.22	18.7	2.3%
MW-6	08/30/00	0.42	27.7	5.4%
	11/06/00	0.23	23.0	2.7%
	02/22/01	1.01	15.3	10.0%
	05/07/01	0.89	21.0	9.9%
	08/27/01	0.15	26.5	1.9%
	11/04/01	0.50	23.0	5.8%
	02/15/02	0.23	18.3	2.4%
	05/20/02	0.25	22.5	2.9%
MW-7	08/30/00	0.17	26.8	2.1%
	11/06/00	0.25	23.5	2.9%
	02/22/01	0.66	17.1	6.8%
	05/07/01	0.56	21.0	6.2%
	08/27/01	0.40	25.4	4.9%
	11/04/01	0.42	24.0	5.0%
	02/15/02	0.18	18.3	1.9%
	05/20/02	0.42	20.2	4.6%

Table 4
Dissolved Oxygen Concentrations
Oakland Truck Stop

Monitoring Well	Date	Dissolved Oxygen Concentration (mg/l)	Temperature (Celsius)	Dissolved Oxygen Percent of Saturation
MW-8	08/30/00	0.18	26.4	2.3%
	11/06/00	0.25	23.7	2.9%
	02/22/01	0.69	17.1	7.1%
	05/07/01	0.96	21.1	10.7%
	08/27/01	0.15	26.1	1.9%
	11/04/01	0.3	24.2	3.6%
	02/15/02	0.25	17.0	2.6%
	05/20/02	0.24	20.0	2.6%
MW-9	08/30/00	0.30	22.8	3.5%
	11/06/00	0.31	21.7	3.5%
	02/22/01	0.71	16.2	7.2%
	05/07/01	0.97	18.8	10.3%
	08/27/01	0.2	23.0	2.3%
	11/04/01	0.3	22.1	3.4%
	02/15/02	0.22	17.6	2.3%
	05/20/02	0.25	18.7	2.6%
MW-10	05/20/02	0.21	16.7	2.1%
MW-11	05/20/02	0.22	19.6	2.4%

Notes: NM = not measured

**Table 5
Groundwater Analytical Results
Oakland Truck Stop**

Well Number	Date Sampled	TPH-d	TPH-g	MtBE	Benzene	Toluene	Ethyl-benzene	Xylenes	DIPE	ETBE	MtBE (8260)	TAME	tert-Butanol	Methanol	Ethanol	EDB	1,2 DCA
MW-1	11/04/96	220	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	230	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/12/97	290	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	09/09/97	180	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/13/98	590	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/07/98	1,400	ND	NA	ND	ND	ND	ND	NA	NA	2.7	NA	NA	NA	NA	NA	NA
	10/01/98	1,100	ND	NA	ND	ND	ND	ND	NA	NA	1.8	NA	NA	NA	NA	NA	NA
	12/30/98	1,700	ND	NA	ND	ND	ND	ND	NA	NA	2.3	NA	NA	NA	NA	NA	NA
	03/21/00	3,100	220	NA	11	ND	ND	ND	NA	NA	4,800	NA	NA	NA	NA	NA	NA
	08/30/00	1,600	140	2,900	5.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	1,500	51	1,700	1.0	<0.5	<0.5	<0.5	<50	<50	2,100	<50	<250	NA	NA	<50	<50
	02/22/01	3,000	140	1,000	<0.5	<0.5	<0.5	<0.5	<20	<20	1,100	<20	<100	<4,000	<1,000	<20	<20
	05/07/01	3,800	<50	780	<0.5	<0.5	<0.5	<0.5	<20	<20	1,100	<20	<100	<10,000	<1,000	<20	<20
	08/22/01	1,800	<110	1,900	<0.5	<0.5	<0.5	<0.5	<25	<25	1,600	<25	<130	NA	NA	<25	<25
	11/04/01	1,300	<50	1600	<0.5	<0.5	<0.5	<0.5	<50	<50	1,500	<50	<250	NA	NA	<50	<50
	02/15/02	2,000	<50	610	<0.5	<0.5	<0.5	<0.5	<20	<20	770	<20	<100	<10,000	<1,000	<20	<20
	05/20/02	160	<50	570	<0.5	<0.5	<0.5	<0.5	<10	<10	730	<10	<100	<10,000	<1,000	<10	<10
MW-2	11/04/96	2,700	910	NA	120	23	3.5	51	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	2,300	4,400	NA	1,500	51	24	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/12/97	2,400	3,600	NA	1,200	14	12	40	NA	NA	NA	NA	NA	NA	NA	NA	NA
	09/09/97	970	3,700	NA	570	31	19	60	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/13/98	2,200	6,500	NA	2,400	31	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/07/98	2,700	5,200	NA	2,800	ND	ND	ND	NA	NA	1,000,000	NA	NA	NA	NA	NA	NA
	10/01/98	1,200	1,200	NA	330	12	8.8	11	NA	NA	360,000	NA	NA	NA	NA	NA	NA
Well Destroyed	12/30/98	1,900	1,000	NA	96	ND	ND	ND	NA	NA	360,000	NA	NA	NA	NA	NA	NA
MW-3	11/04/96	310	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	210	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/12/97	94	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	09/09/97	2,300	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/13/98	570	ND	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/07/98	1,100	ND	NA	ND	ND	ND	ND	NA	NA	6.6	NA	NA	NA	NA	NA	NA
	10/01/98	390	ND	NA	ND	ND	ND	ND	NA	NA	4.8	NA	NA	NA	NA	NA	NA
	12/30/98	64	ND	NA	ND	ND	ND	ND	NA	NA	4.5	NA	NA	NA	NA	NA	NA
	03/21/00	2,800	ND	NA	ND	ND	ND	ND	NA	NA	4.8	NA	NA	NA	NA	NA	NA
	08/30/00	260	<50	12	1.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	940	<50	25	<0.5	<0.5	<0.5	<0.5	<1	<1	12	<1	<5	NA	NA	<1	<1
	02/22/01	340	<50	18	1.2	1.5	<0.5	0.74	<1	<1	26	<1	<5	<200	<50	<1	<1
	05/07/01	460	140	25	0.76	4.7	2.2	14	<5,000	<5,000	200000	<5,000	<25,000	<2,500,000	<250,000	<1	<1
	08/22/01	130	<50	41	<0.5	<0.5	<0.5	<0.5	<1	<1	44	<1	<5	NA	NA	<1	<1
	11/04/01	190	<50	36	<0.5	<0.5	<0.5	<0.5	<1	<1	43	<1	<5	NA	NA	<1	<1
Well Destroyed	02/15/02	780	<50	38	<0.5	<0.5	<0.5	<0.5	<1	<1	45	<1	<5	<500	<50	<1	<1
MW-3N	05/20/02	1,800	<50	1,100	<0.5	<0.5	<0.5	<0.5	<25	<25	1,500	<25	<250	<25,000	<2,500	<25	<25

Table 5
Groundwater Analytical Results
Oakland Truck Stop

Well Number	Date Sampled	TPH-d	TPH-g	MtBE	Benzene	Toluene	Ethylbenzene	Xylenes	DIPE	ETBE	MtBE (8260)	TAME	tert-Butanol	Methanol	Ethanol	EDB	1,2 DCA
MW-4	08/30/00	390	1,300	210,000	64	63	9.7	110	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	170	<3,300	130,000	80	<4	<5	<3	<2,500	<2,500	120,000	<2,500	<13,000	NA	NA	<2,500	<2,500
*	11/06/00	NA	<3,300	130,000	86	<4	<7	<6	<2,500	<2,500	120,000	<2,500	<13,000	NA	NA	<2,500	<2,500
	02/22/01	120	<3,300	120,000	30	<3	<3	<3	<2,500	<2,500	150,000	<2,500	<13,000	<500,000	<130,000	<2,500	<2,500
	05/07/01	240	<4,200	150,000	<20	<10	<5	<5	<1,000	<1,000	59,000	<1,000	<5,000	<500,000	<50,000	<5,000	<5,000
	08/22/01	300	<5,400	160,000	<5	<5	<5	<5	<5,000	<5,000	190,000	<5,000	<25,000	NA	NA	<5,000	<5,000
	11/04/01	210	<5,000	130,000	<5	<5	<5	<5	<2,500	<2,500	170,000	<2,500	<13,000	NA	NA	<2,500	<2,500
	02/15/02	340	<5,000	160,000	<5	<5	<5	<10	<2,500	<2,500	160,000	<2,500	<12,500	<1,250,000	<125,000	<2,500	<2,500
	05/20/02	200	<2,500	98,000	<25	<25	<25	<25	<1,700	<1,700	130,000	<1,700	<17,000	<2,500,000	<170,000	<1,700	<1,700
MW-5	08/30/00	450	1,000	52,000	<5	<5	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	520	<1,000	44,000	<1	<1	<1	<1	<1,000	<1,000	42,000	<1,000	<5,000	NA	NA	<1,000	<1,000
	02/22/01	270	<1,000	30,000	<1	<1	<1	<1	<500	<500	39,000	<500	<2,500	<100,000	<25,000	<500	<500
	05/07/01	470	<1,800	48,000	<5	<2	<2	<2	<1	<1	33	<1	<5	<500	<50	<1,000	<1,000
	08/22/01	780	<2,200	63,000	<3	<3	<3	<3	<1,000	<1,000	70,000	<1,000	<5,000	NA	NA	<1,000	<1,000
	11/04/01	670	<1,700	44,000	<2	<2	<2	<2	<1,000	<1,000	37,000	<1,000	<5,000	NA	NA	<1,000	<1,000
	02/15/02	480	<1,100	33,000	<1	<1	<1	<1	<1,250	<1,250	33,000	<1,250	<6,250	<625,000	<62,500	<1,250	<1,250
	05/20/02	1,600	<500	21,000	<5	<5	<5	<5	<500	<500	28,000	<500	<5,000	<500,000	<50,000	<500	<500
MW-6	08/30/00	1,300	1,300	23,000	55	<0.5	16	27	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	1,100	<630	26,000	7	8.1	<3	5.2	<630	<630	27,000	<630	<3,200	NA	NA	<630	<630
	02/22/01	420	<200	6,500	<5	<5	<5	<5	<100	<100	8,000	<100	<500	<20,000	<5,000	<100	<100
	05/07/01	900	<1,000	37,000	<2	<2	<1	<1	<500	<500	40,000	<500	<2,500	<250,000	<25,000	<500	<500
	08/22/01	520	<350	8,600	<2	<1	<0.5	<0.5	<200	<200	8,800	<200	<1,000	NA	NA	<200	<200
	11/04/01	420	<500	12,000	<2	<2	<0.5	<0.5	<250	<250	17,000	<250	<1,300	NA	NA	<250	<250
	02/15/02	910	<960	23,000	2.6	4.5	<1	4.2	<1,000	<1,000	26,000	<1,000	<5,000	<500,000	<50,000	<1,000	<1,000
	05/20/02	690	<620	25,000	<6.2	<6.2	<6.2	<6.2	<500	<500	37,000	<500	<5,000	<500,000	<50,000	<500	<500
MW-7	08/30/00	2,600	160,000	800,000	28,000	15,000	1,200	5,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	1,700	80,000	540,000	23,000	12,000	1,200	5,000	<13,000	<13,000	920,000	<13,000	<63,000	NA	NA	<13,000	<13,000
	02/22/01	2,000	80,000	440,000	19,000	12,000	1,100	3,200	<5,000	<5,000	460,000	<5,000	<2,500	<1,000,000	<250,000	<5,000	<5,000
*	02/22/01	2,400	84,000	400,000	20,000	13,000	1,200	3,400	<5,000	<5,000	500,000	<5,000	<25,000	<1,000,000	<250,000	<5,000	<5,000
	05/07/01	7,600	100,000	460,000	25,000	16,000	1,700	6,600	<5,000	<5,000	520,000	<5,000	<2,500	<2,500,000	<250,000	<5,000	<5,000
*	05/07/01	8,200	100,000	530,000	25,000	17,000	1,700	6,700	<5,000	<5,000	500,000	<5,000	<25,000	<2,500,000	<5,000	<5,000	<5,000
	08/22/01	22,000	110,000	240,000	18,000	12,000	2,000	9,400	<5,000	<5,000	250,000	<5,000	<25,000	NA	NA	<5,000	<5,000
	11/04/01	6,500	85,000	150,000	17,000	2,700	2,100	9,700	<2,500	<2,500	180,000	<2,500	<13,000	NA	NA	<2,500	<2,500
	02/15/02	21,000	96,000	180,000	21,000	7,300	2,600	13,000	<5,000	<5,000	200,000	<5,000	<25,000	<2,500,000	<250,000	<5,000	<5,000
*	02/15/02	29,000	160,000	170,000	30,000	27,000	3,700	19,000	<5,000	<5,000	200,000	<5,000	<25,000	<2,500,000	<250,000	<5,000	<5,000
	05/20/02	310,000	140,000	180,000	24,000	21,000	3,800	20,000	<5,000	<5,000	220,000	<5,000	<50,000	<5,000,000	<500,000	<5,000	<5,000
MW-8	08/30/00	690	<1,000	28,000	18	<1	<1	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	810	<3,300	120,000	<8	<5	<3	<7	<2,500	<2,500	76,000	<2,500	<13,000	NA	NA	<2,500	<2,500
	02/22/01	1,100	<2,500	99,000	53	<3	<3	<3	<2,000	<2,000	130,000	<2,000	<10,000	<400,000	<100,000	<2,000	<2,000
	05/07/01	1,300	<5,000	110,000	32	<10	<5	<5	<2,500	<2,500	120,000	<2,500	<13,000	<1,300,000	<13,000	<2,500	<2,500
	08/22/01	1,200	<4,000	76,000	<5	<5	<5	16	<1,700	<1,700	86,000	<1,700	<8,500	NA	NA	<1,700	<1,700
	11/04/01	1,100	590	60,000	6.9	<0.5	<0.5	<0.5	<2,500	<2,500	49,000	<2,500	<13,000	NA	NA	<2,500	<2,500

Table 5
Groundwater Analytical Results
Oakland Truck Stop

Well Number	Date Sampled	TPH-d	TPH-g	MtBE	Benzene	Toluene	Ethyl-benzene	Xylenes	DIPE	ETBE	MtBE (8260)	TAME	tert-Butanol	Methanol	Ethanol	EDB	1,2 DCA
MW-8	02/15/02	1,500	<3,400	110,000	<5	<5	<5	<5	<2,500	<2,500	91,000	<2,500	<12,500	<1,250,000	<125,000	<2,500	<2,500
	05/20/02	2,200	<1,700	66,000	<17	<17	<17	<17	<1,000	<1,000	86,000	<1,000	<10,000	<1,000,000	<100,000	<1,000	<1,000
MW-9	08/30/00	770	<50	97	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/06/00	390	<50	190	<0.5	<0.5	<0.5	<0.5	<25	<25	220	<25	<125	NA	NA	<5	<5
	02/22/01	240	<50	120	<0.5	<0.5	<0.5	<0.5	<2	<2	160	<2	<1	<400	<100	<2	<2
	05/07/01	190	<50	120	<0.5	<0.5	<0.5	<0.5	<2.5	<2.5	150	<2.5	<13	<1300	<130	<2.5	<2.5
	08/22/01	120	<50	120	<0.5	<0.5	<0.5	<0.5	<5	<5	120	<5	<25	NA	NA	<5	<5
	11/04/01	160	<50	130	<0.5	<0.5	<0.5	<0.5	<5	<5	120	<5	<25	NA	NA	<5	<5
	02/15/02	150	<50	92	<0.5	<0.5	<0.5	<0.5	<2.5	<2.5	98	<2.5	<12.5	<1,250	<125	<2.5	<2.5
	05/20/02	380	<50	79	<0.5	<0.5	<0.5	<0.5	<2.5	<2.5	85	<2.5	<25	<2,500	<250	<2.5	<2.5
MW-10	05/20/02	63	<50	<5.0	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<5	<500	<50	<0.5	<0.5
MW-11	05/20/02	95	<50	260	1.5	3.0	<0.5	1.4	<5	<5	310	<5	<50	<5,000	<500	<5	<5

Notes: units are micrograms per liter (ug/L)

ND = Not detected

NA = Not analyzed

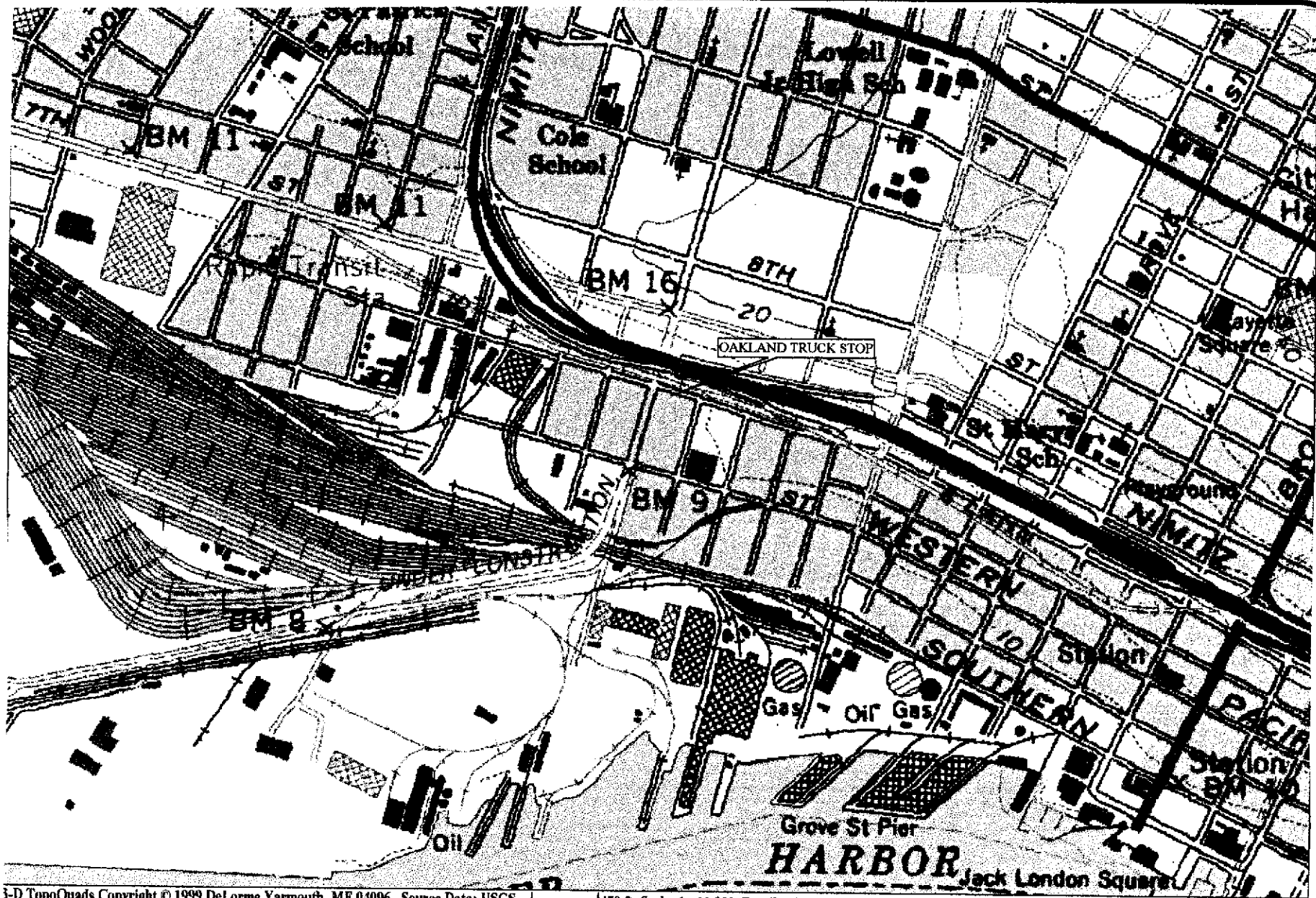
* = Duplicate Sample

MW-2 was destroyed during excavation of contaminated soil in March 1999

MW-3 was destroyed in May 2002

MW-4 through MW-9 were constructed in August 2000

MW-3N, MW-10 and MW-11 were constructed in May 2002



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS | 450 ft Scale: 1 : 11,200 Detail: 14-0 Datum: WGS84



W.A. Craig, Inc.

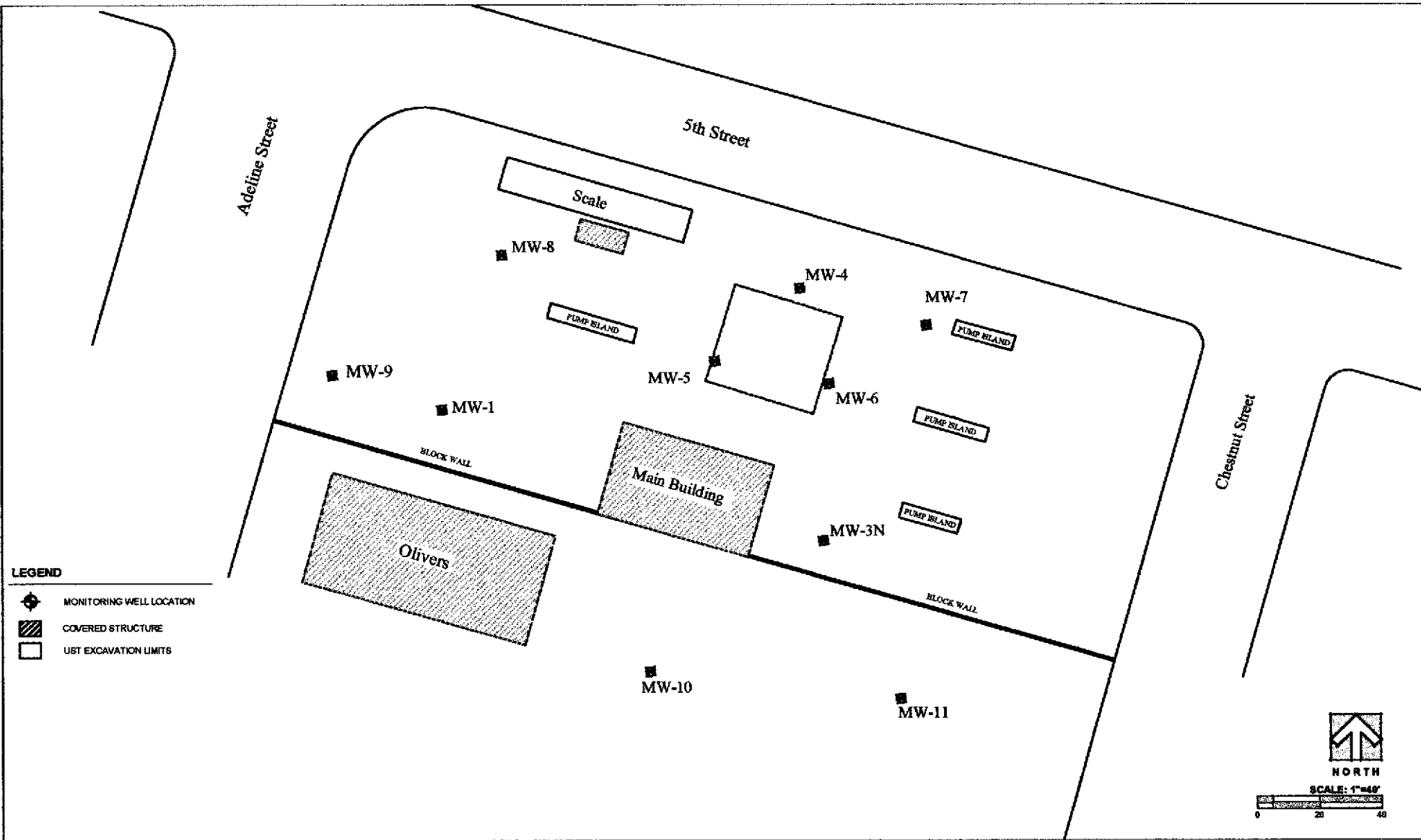
6940 Tremont Road LIC# 455752
 Dixon, California 95620-9603
 PH# (707) 693-2929 Fax# (707) 693-2922

Site Map

OAKLAND TRUCK STOP
 1107 FIFTH STREET
 OAKLAND, CA

Project #: 3628
 Date: 06/18/02

Figure:
1



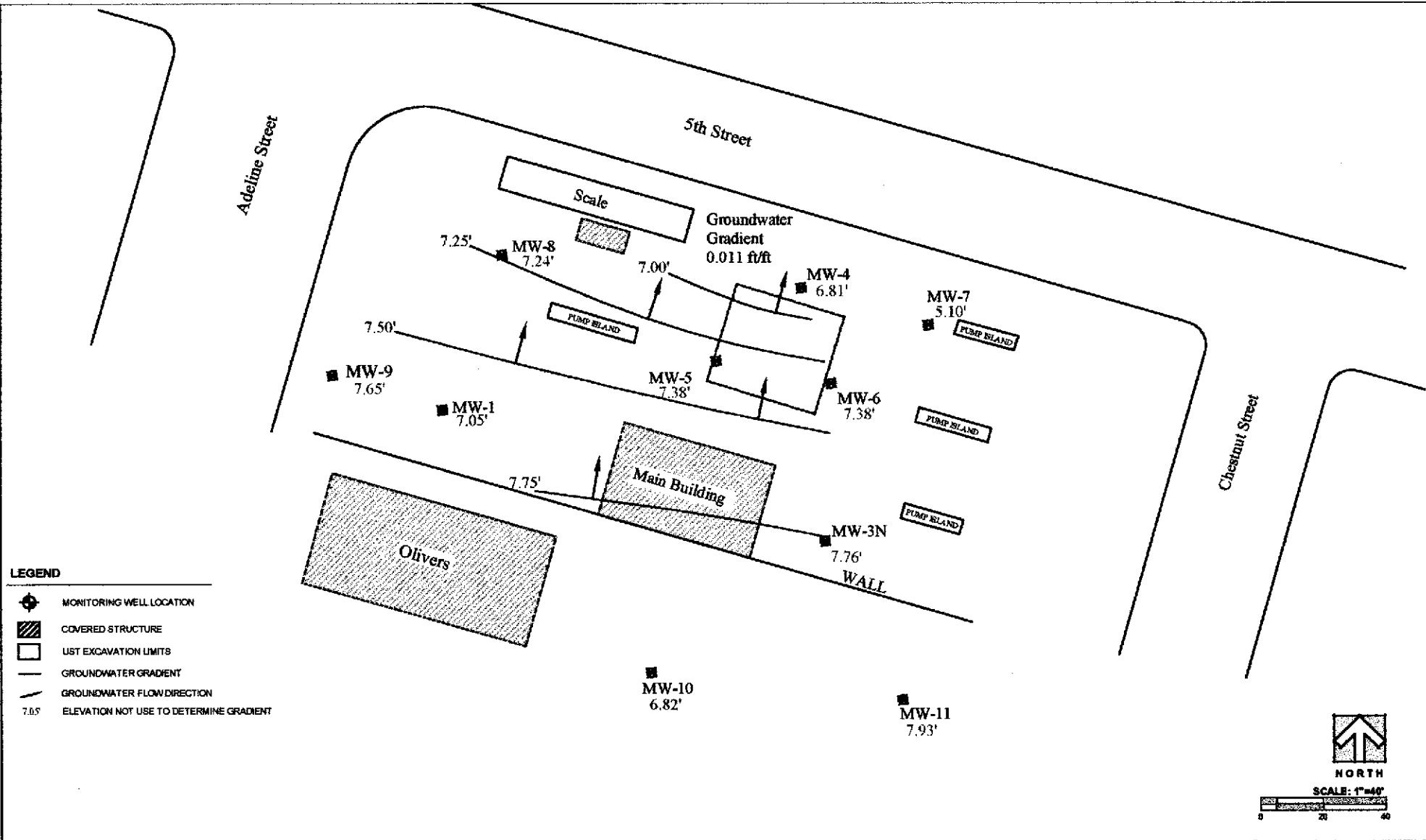
W.A. Craig, Inc.

6940 Tremont Road LIC# 455752
 Dixon, California 95620-9603
 PH# (707) 693-2929 Fax# (707) 693-2922

SITE PLAN

1107 5th Street
 Oakland, California

Project #: 3628	Figure: 2
Date: 6/24/02	
Scale:	



W.A. Craig, Inc.

6940 Tremont Road LIC# 455752
 Dixon, California 95620-9603
 PH# (707) 693-2929 Fax# (707) 693-2922

GROUNDWATER ELEVATIONS

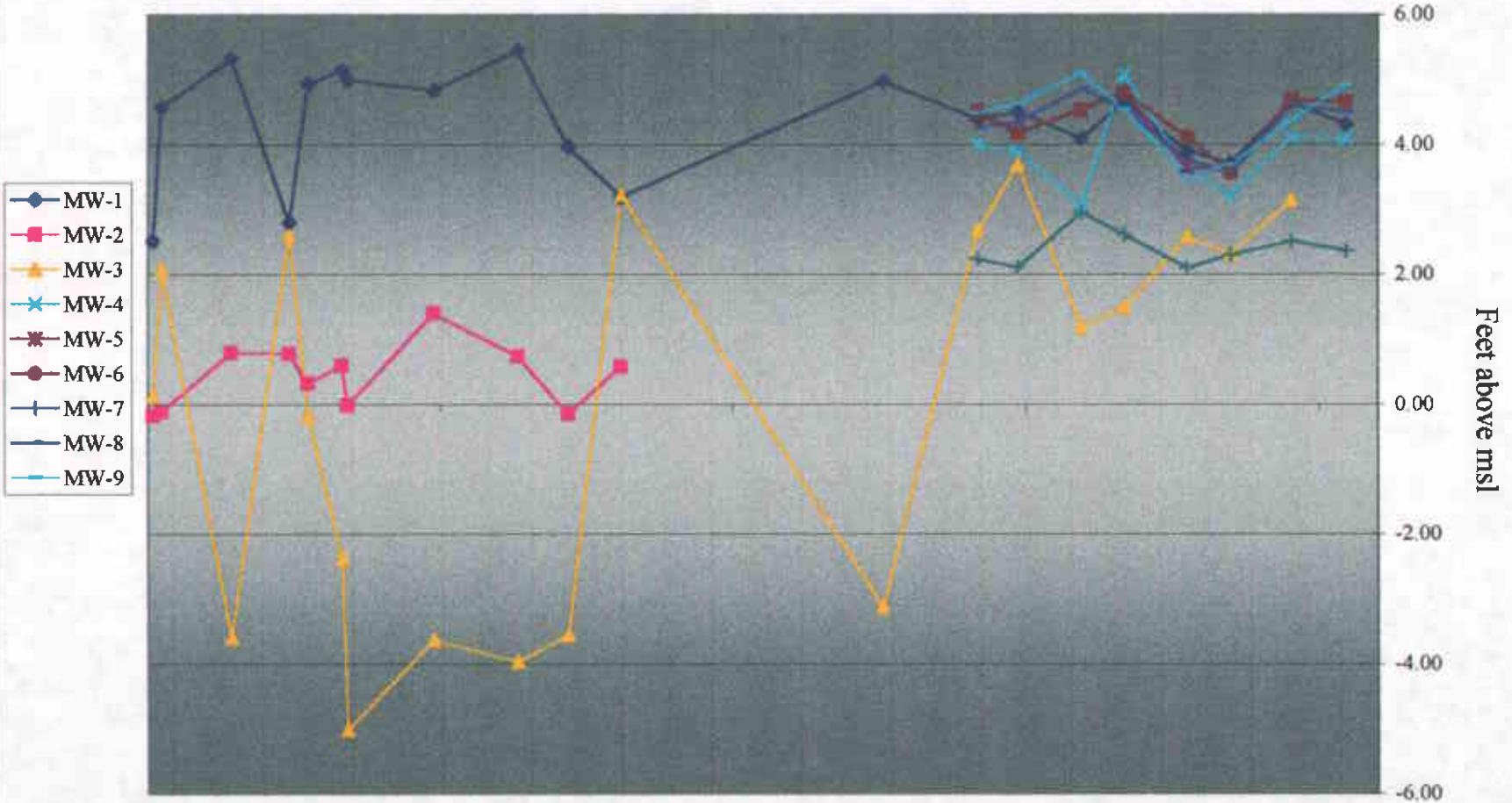
1107 5th Street
 Oakland, California

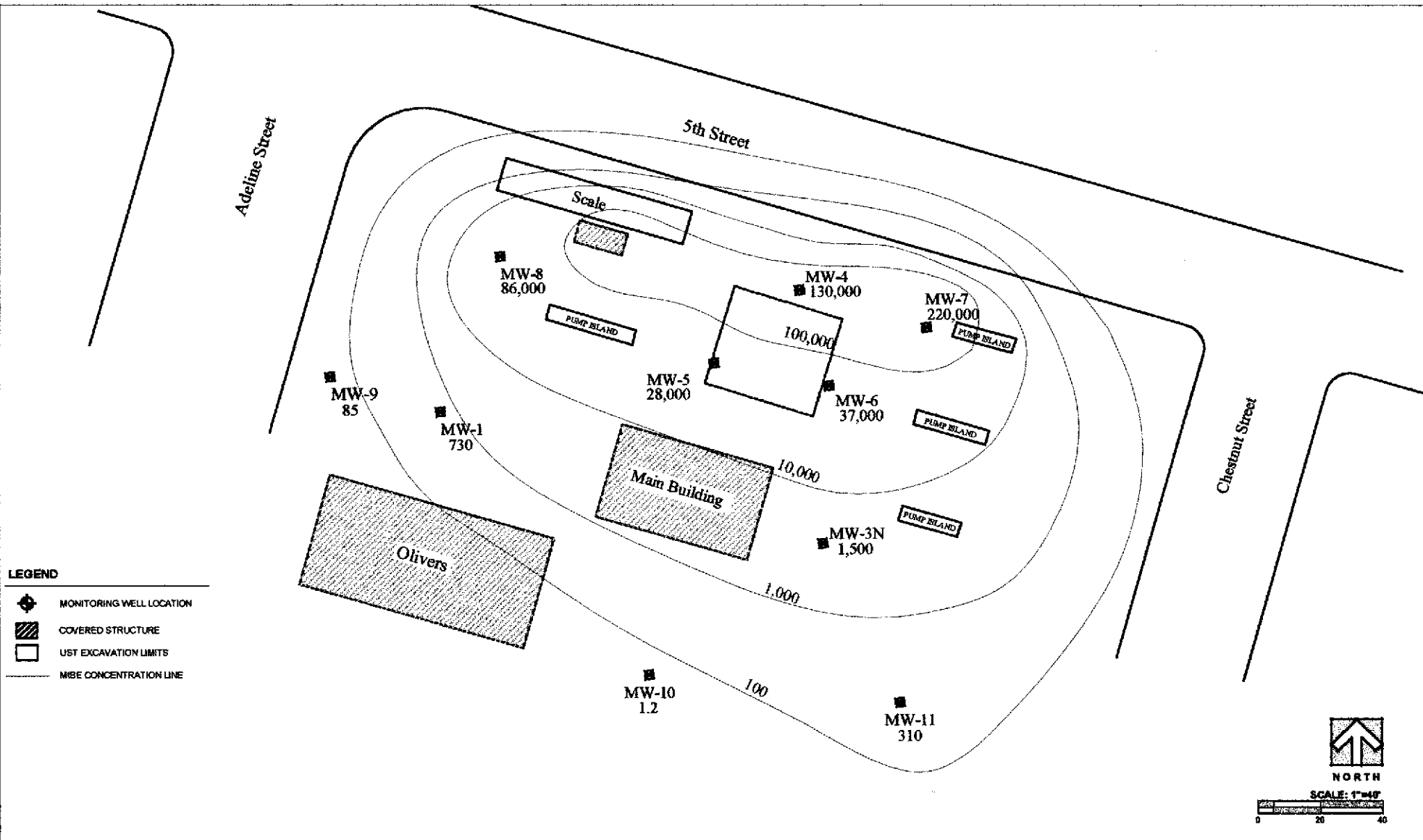
Project #: 3628
 Date: 6/24/02
 Scale:

Figure:

3

Figure 4. Groundwater Elevations





W.A. Craig, Inc.

6940 Tremont Road LIC# 455752
 Dixon, California 95620-9603
 PH# (707) 693-2929 Fax# (707) 693-2922

MtBE Concentrations in Groundwater

1107 5th Street
 Oakland, California

Project #: 3628

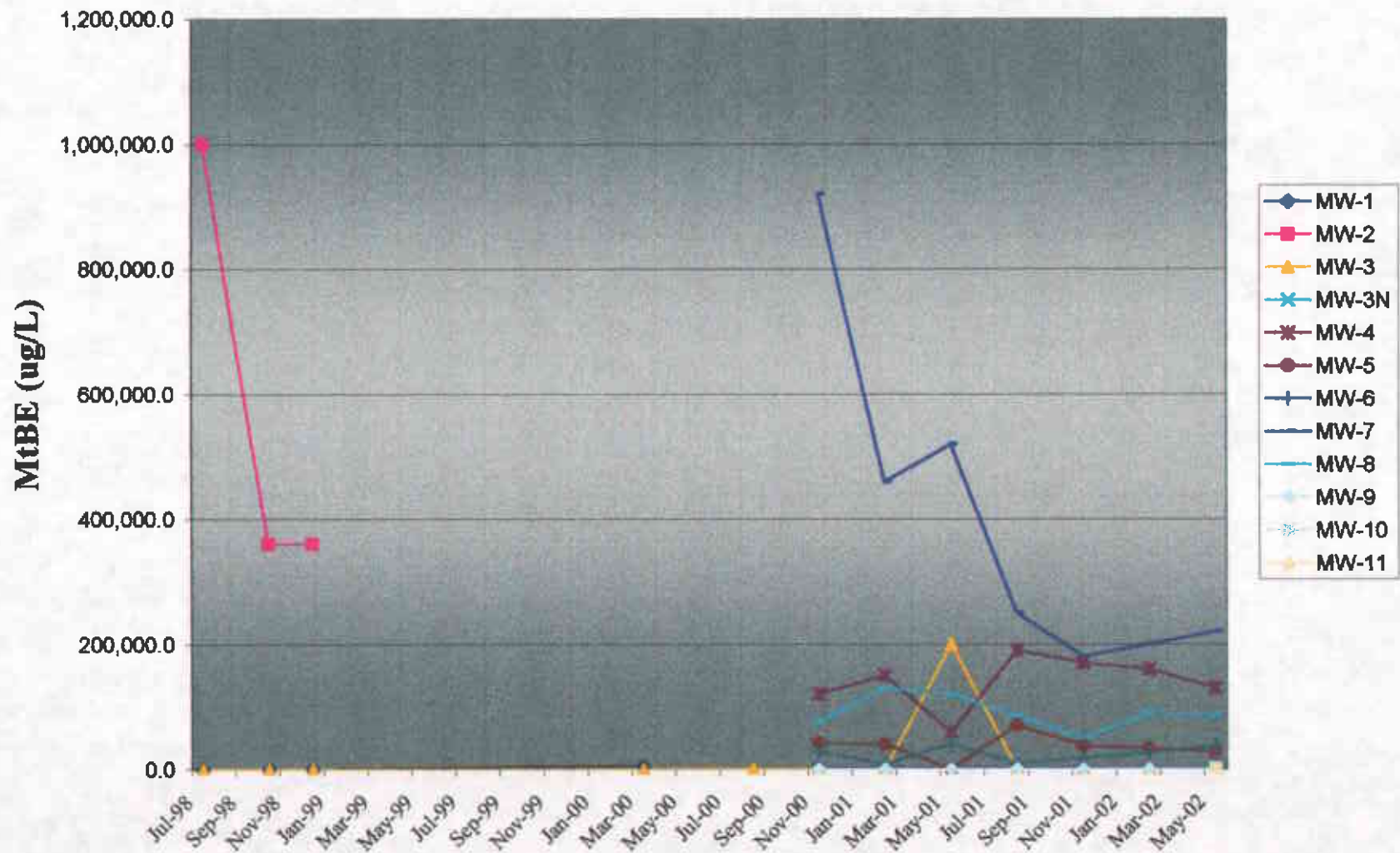
Date: 6/24/02

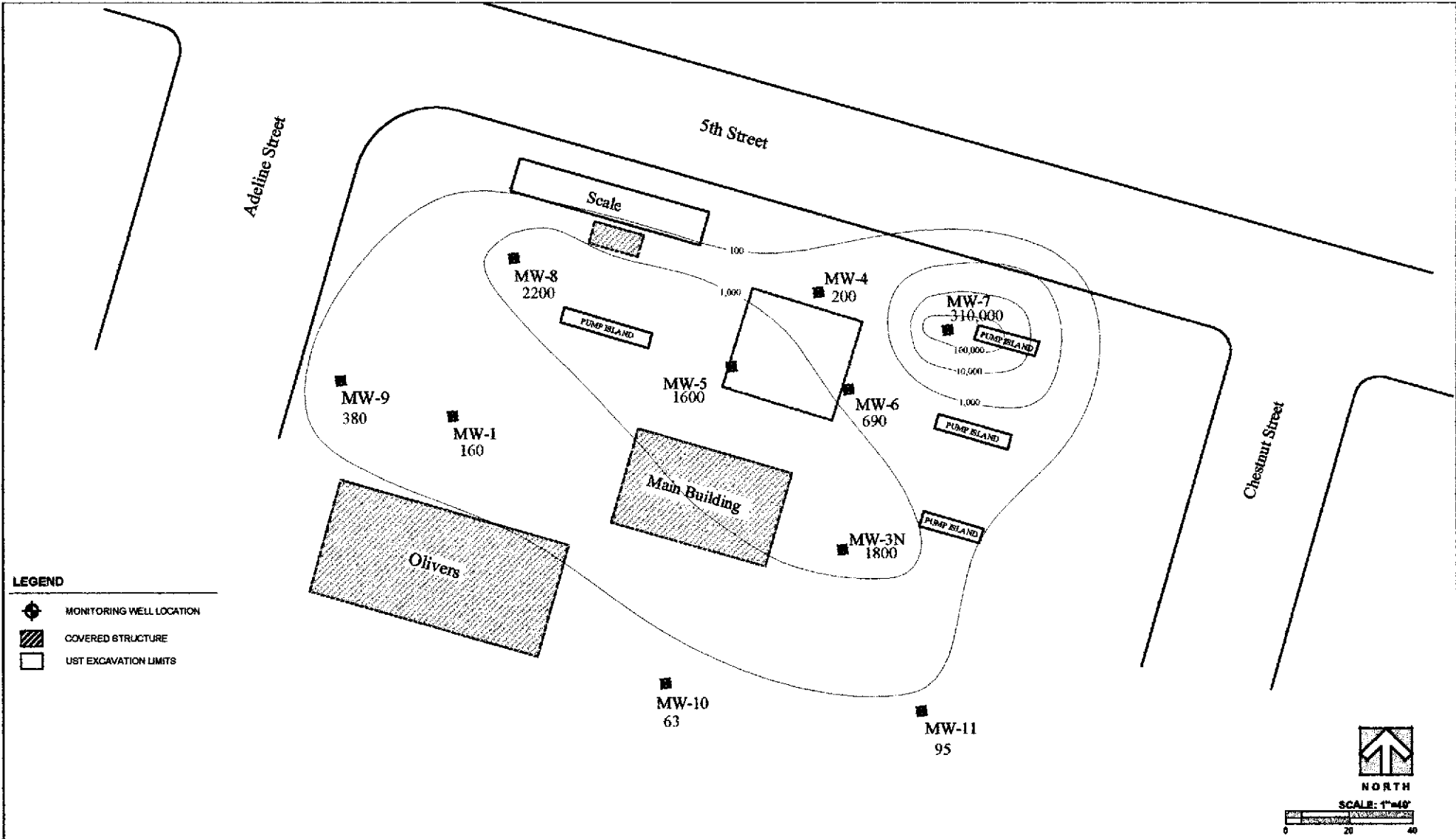
Scale:

Figure:

5

Figure 6. MtBE Concentrations in Groundwater





W.A. Craig, Inc.

6940 Tremont Road LIC# 455752
 Dixon, California 95620-9603
 PH# (707) 693-2929 Fax# (707) 693-2922

TPH-d Concentrations in Groundwater

1107 5th Street
 Oakland, California

Project #: 3628	Figure:
Date: 6/24/02	8
Scale:	

APPENDIX A WELL PERMITS



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
339 ELMHURST ST. RAYWARD CA 94544-1315
PHONE (510) 670-5524
FAX (510) 782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 1107 Fifth St
Oakland CA

PERMIT NUMBER W02-0467
WELL NUMBER _____
APN _____

CLIENT Name Rwehner Distribution Inc
Address POB 725 Phone 415-462-8811
City Livermore Zip 94582

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT Name WA Craig
Address 6940 Fremont St Phone 415-463-2922
City Dixon Zip 95620

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

TYPE OF PROJECT

Well Construction	<input type="checkbox"/>	Geotechnical Investigation	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input type="checkbox"/>	Contamination	<input type="checkbox"/>
Monitoring	<input type="checkbox"/>	Well Destruction	<input checked="" type="checkbox"/>

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other	<input type="checkbox"/>

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

DRILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input checked="" type="checkbox"/>
Cable	<input type="checkbox"/>	Ditch	<input type="checkbox"/>		

D. GEOTECHNICAL

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

DRILLER'S NAME WEST HAZ MAT

DRILLER'S LICENSE NO. 554979

E. CATHODIC

Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum Depth	<u>20</u> ft.
Casing Diameter	<u>8</u> in.	Owner's Well Number	<u>NW-3</u>
Surface Seal Depth	<u>30</u> ft.		

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

GEOTECHNICAL PROJECTS

Number of Borings	_____	Maximum Depth	_____ ft.
Hole Diameter	_____ in.		

ESTIMATED STARTING DATE 5/8/02
ESTIMATED COMPLETION DATE 5/15/02

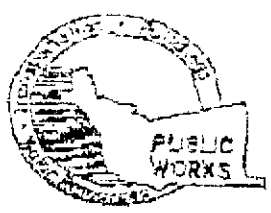
APPROVED _____

DATE 4-23-02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 71-63.

APPLICANT'S SIGNATURE Tom Cook DATE 4/19/02

PLEASE PRINT NAME Tom Cook WA Craig Rev. 5-13-00



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
159 FLAMINGO ST. RAYWARD CA 94544-1395
PHONE (510) 970-5554
FAX (510) 782-1938

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 1107 EGG ST
OAKLAND CA

PERMIT NUMBER WD-0466
WELL NUMBER _____
APN _____

CLIENT NAME Rinehart Distribution, Inc.
ADDRESS P.O. Box 125 Phone (907) 462-8011
CITY Oakland Zip 94582

PERMIT CONDITIONS
Circled Permit Requirements Apply

APPLICANT NAME W.A. Coats, Inc
ADDRESS 10340 Fremont Rd Phone (907) 693-2922
CITY Oakland Zip 94620

- A. GENERAL**
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
 2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
 3. Permit is void if project not begun within 90 days of approval date.

TYPE OF PROJECT

Well Construction	<input type="checkbox"/>	Geotechnical Investigation	<input type="checkbox"/>
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input checked="" type="checkbox"/>	Contamination	<input type="checkbox"/>
Monitoring	<input type="checkbox"/>	Well Destruction	<input type="checkbox"/>

- B. WATER SUPPLY WELLS**
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other	<input type="checkbox"/>

- C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS**
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

DRILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input checked="" type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<input type="checkbox"/>		

- D. GEOTECHNICAL**
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted casing.

DRILLER'S NAME WEST HAZMAT
DRILLER'S LICENSE NO. #554979

- E. CATHODIC**
Fill hole anode zone with concrete placed by tremie.
- F. WELL DESTRUCTION**
Send a map of work site. A separate permit is required for wells deeper than 45 feet.
- G. SPECIAL CONDITIONS**

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum	
Casing Diameter	<u>2</u> in.	Depth	<u>15</u> ft.
Surface Seal Depth	<u>8</u> ft.	Owner's Well Number	

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

GEOTECHNICAL PROJECTS

Number of Borings		Maximum	
Hole Diameter		Depth	

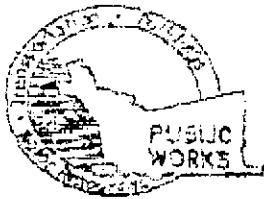
MW-11 (see attached figure)

ESTIMATED STARTING DATE 5/8/02
ESTIMATED COMPLETION DATE 5/8/02

APPROVED _____ DATE 4-23-02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-03.

APPLICANT'S SIGNATURE Tim Cook DATE 4/18/02
PLEASE PRINT NAME Tim Cook W.A. Coats REC-5-13-00



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
199 ELMHURST ST. RAYWARD CA. 94544-1397
PHONE (510) 578-5554
FAX (510) 782-1939

DILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 1107 Fifth St
Oakland CA

PERMIT NUMBER WD-0465
WELL NUMBER _____
APN _____

PERMIT CONDITIONS

Circled Permit Requirements Apply

CLIENT Rinehart Distribution, Inc.
Name P.O. Box 125 Phone (907) 462-8811
Address Oakland Zip 94612

A. GENERAL

1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

APPLICANT W.A. CRAIG, INC.
Name 16940 Fremont Rd Fax (907) 493-2922
Address Oakland Phone (907) 493-2929
City Oakland Zip 94620

B. WATER SUPPLY WELLS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	<input type="checkbox"/>	General	<input type="checkbox"/>
Water Supply	<input checked="" type="checkbox"/>	Contamination	<input type="checkbox"/>
Monitoring	<input checked="" type="checkbox"/>	Well Destruction	<input type="checkbox"/>

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS

1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

PROPOSED WATER SUPPLY WELL USE

New Domestic	<input type="checkbox"/>	Replacement Domestic	<input type="checkbox"/>
Municipal	<input type="checkbox"/>	Irrigation	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	Other	<input type="checkbox"/>

D. GEOTECHNICAL

Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted sandings.

DILLING METHOD:

Mud Rotary	<input type="checkbox"/>	Air Rotary	<input type="checkbox"/>	Auger	<input checked="" type="checkbox"/>
Cable	<input type="checkbox"/>	Other	<input type="checkbox"/>		

E. CATHODIC

Fill hole annule zone with concrete placed by tremie.

RILLER'S NAME WEST HAZMAT

RILLER'S LICENSE NO. #554979

F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum	
Casing Diameter	<u>2</u> in.	Depth	<u>15</u> ft.
Surface Seal Depth	<u>8</u> ft.	Owner's Well Number	<u>MW-10</u>

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

(see attached figure)

GEOTECHNICAL PROJECTS

Number of Borings	_____	Maximum	
Note Diameter	_____ in.	Depth	_____ ft.

ESTIMATED STARTING DATE 5/8/02

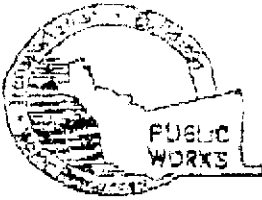
ESTIMATED COMPLETION DATE 5/8/02

APPROVED _____ DATE 4-23-02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 75-01.

APPLICANT'S SIGNATURE Tim Cook DATE 4/19/02

BASE PRINT NAME Tim Cook W.A. CRAIG Rev. 5-13-00



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
179 ELAMFURST ST. RAYWARD CA 94514-1195
PHONE (510) 870-5554
FAX (510) 881-1938

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT 1107 E 6th St
Oakland CA

PERMIT NUMBER W02-0464
WELL NUMBER
APN

CLIENT: Rinehart Distribution, Inc.
Address: P.O. Box 725 Phone: (408) 462-8811
City: DIXON Zip: 94582

APPLICANT: W.A. CRAIG, INC.
Address: 16940 Tremont Rd Phone: (916) 993-2922
City: DIXON Zip: 95620

TYPE OF PROJECT

Well Construction
Cathodic Protection
Water Supply
Monitoring
Geotechnical Investigation
General
Contamination
Well Destruction

PROPOSED WATER SUPPLY WELL USE

New Domestic
Municipal
Industrial
Replacement Domestic
Irrigation
Other

DILLING METHOD:

Mud Rotary
Cable
Air Rotary
Other
Auger

DILLER'S NAME: WEST HAZMAT

DILLER'S LICENSE NO.: #554979

WELL PROJECTS

Drill Hole Diameter: 8 in.
Casing Diameter: 8 in.
Surface Seal Depth: 8 ft.
Maximum Depth: 15 ft.
Owner's Well Number: MW-3N

GEOTECHNICAL PROJECTS

Number of Borings
Hole Diameter
Maximum Depth

ESTIMATED STARTING DATE: 5/8/02
ESTIMATED COMPLETION DATE: 5/15/02

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 72-63.

APPLICANT'S SIGNATURE: [Signature] DATE: 4/18/02

PLEASE PRINT NAME: Tim Cook W.A. CRAIG Rev. 5-15-00

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL

- 1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

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E. CATHODIC

Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION

Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

(see attached figure)

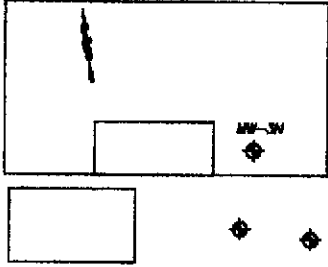
APPROVED

[Signature]

DATE: 4-23-02



APPENDIX B BORING LOGS



SITE MAP



W.A. Craig, Inc.
Environmental Contracting and Consulting

6940 Tremont Road
Dixon, California 95620-9603 PH# (707) 693-2929
LIC# 455752 Fax# (707) 693-2922

PROJECT:	RINEHART	PROJECT #:	3628	BORING #:	MW-3N
DRILLING CONTRACTOR:	WEST HAZMAT	START:	FINISH:	DATE:	5-8-02
DRILLING METHOD:	CME-75	TOTAL DEPTH:	14'	DEPTH TO WATER:	7'
SAMPLER:	CA MODIFIED SPLIT SPOON	SCREEN INT.:	5'-12'	CASING:	2" PVC
HAMMER WEIGHT:	140	DROP:	30"	FIELD GEOLOGIST:	Mokr!

DEPTH	SAMPLE #	SAMPLE	BLOWS/0.5'	PID (ppm)	BORING/WELL CONSTRUCTION	LITHOLOGIC LOG	LITHOLOGIC DESCRIPTION DESCRIPTION, COLOR, DENSITY, MOISTURE
5	MW-3 @ 7.5		9 7 4 7 7 7 5 5 7 5 6 7 3 4 6 7 7 12	32.1			ASPHALT FILL MATERIAL SAND, DARK BROWN, FINE GRAINED, WET, LOOSE, SOME BRICK FRAGS, PETRO ODOR. AS ABOVE, GREENISH COLOR. AS ABOVE, SOME 1/2 INCH GRAVEL, LOOSER. CLAYEY SAND (SC), DARK REDDISH BROWN, SOME ORGANIC MATERIAL, LESS MOISTURE, ROTTEN EGG SMELL (H2S).
10							
15							
20							
25							
30							
35							
40							

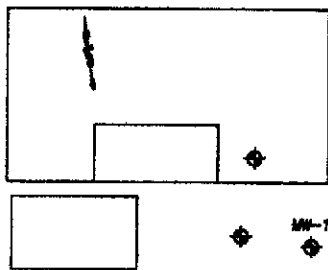
CHECKED BY: TDC

NOTE: THE LINE SEPARATING STRATA REPRESENT APPROXIMATE BOUNDARIES ONLY. THE ACTUAL TRANSITION MAY BE GRADUAL. NO WARRANTY IS PROVIDED AS TO THE CONTINUITY OF THE SOIL STRATA BETWEEN BORINGS. LOGS REPRESENT THE SOIL SECTION OBSERVED AT THE BORING LOCATION ON THE DATE OF DRILLING ONLY.



W.A. Craig, Inc.
Environmental Contracting and Consulting

6940 Tremont Road
Dixon, California 95620-9603 PH# (707) 693-2929
LIC# 455752 Fax# (707) 693-2922



SITE MAP

PROJECT:	RINEHART	PROJECT #:	3628	BORING #:	MW-11
DRILLING CONTRACTOR:	WEST HAZMAT	START:	FINISH:	DATE:	5-8-02
DRILLING METHOD:	CME-75	TOTAL DEPTH:	28'	DEPTH TO WATER:	7'
SAMPLER:	CA MODIFIED SPLIT SPOON	SCREEN INT.:	5'-12'	CASING:	2" PVC
HAMMER WEIGHT:	140	DROP:	30"	FIELD GEOLOGIST:	COOK / MOKRI

DEPTH	SAMPLE #	SAMPLE	BLOWS/0.5	PID (ppm)	BORING/WELL CONSTRUCTION	LITHOLOGIC LOG	LITHOLOGIC DESCRIPTION DESCRIPTION, COLOR, DENSITY, MOISTURE
5	MW-11 @ 7		3	0			SAND, FINE GRAIN, DARK BROWN, W/ BRICK FRAGS, MINOR GLASS, MOIST, LOOSE.
			4	0			AS ABOVE, WET AT 7 FEET BELOW GRADE.
			8	0			
			10	0			
10			6	0			AS ABOVE, FINE GRAINED SAND, WET, W/ ORGANICS, LOOSE.
			10	0			AS ABOVE, NO ORGANICS, GRAY TO GREENISH GRAY.
			8	0			AS ABOVE, BLACK TO GRAY TO GREENISH GRAY.
			12	0			
			14	0			
15			3	0			CLAYEY SAND (SC), FINE GRAIN, REDDISH OXIDIZED, FIRM, MOIST, NOT WET (ALSO AT 17- 17.5 FBG).
			3	0			SAND, FINE GRAINED, DARK GRAY, WET, LOOSE.
			14	0			
			14	0			
			8	0			
			12	0			
			12	0			
			9	0			
20			1	0			SAND, FINE GRAINED, LOOSE, VARIES FROM DARK GRAY TO REDDISH OXIDIZED, WET.
			1	0			AS ABOVE, W/ SOME CLAYEY SAND, RUNNY, LOOSE, TAN TO REDDISH.
			3	0			
			12	0			
			15	0			
			19	0			
25			14	0			AS ABOVE, LIGHT BROWN.
			21	0			
			22	0			
			14	0			
			20	0			AS ABOVE, GRADING TO MEDIUM GRAIN SAND, DENSER.
			22	0			
			21	0			AS ABOVE, FINE GRAINED SAND, LOOSE.
			50/5	0			
30				0			
				0			
35				0			
				0			
40				0			

CHECKED BY: TDC

NOTE: THE LINE SEPARATING STRATA REPRESENT APPROXIMATE BOUNDARIES ONLY. THE ACTUAL TRANSITION MAY BE GRADUAL. NO WARRANTY IS PROVIDED AS TO THE CONTINUITY OF THE SOIL STRATA BETWEEN BORINGS. LOGS REPRESENT THE SOIL SECTION OBSERVED AT THE BORING LOCATION ON THE DATE OF DRILLING ONLY.

APPENDIX C
LABORATORY ANALYTICAL REPORTS
SOIL ANALYSES



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

W. A. Craig Inc. 6940 Tremont Road Dixon, CA 95620-9603	Client Project ID: #3628 Rine Hart	Date Sampled: 05/08/02
		Date Received: 05/08/02
	Client Contact: Tim Cook	Date Reported: 05/15/02
	Client P.O.:	Date Completed: 05/15/02

May 15, 2002

Dear Tim:

Enclosed are:

- 1). the results of 3 samples from your #3628 Rine Hart project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
 http://www.mcccampbell.com E-mail: main@mcccampbell.com

W. A. Craig Inc. 6940 Tremont Road Dixon, CA 95620-9603	Client Project ID: #3628 Rine Hart	Date Sampled: 05/08/02
		Date Received: 05/08/02
	Client Contact: Tim Cook	Date Extracted: 05/15/02
	Client P.O.:	Date Analyzed: 05/15/02

Oxygenated Volatile Organics by GC/MS*

Extraction Method: SW5035B

Analytical Method: SW8260B

Work Order: 0205117

Lab ID	0205117-001A	0205117-002A	0205117-003A	Reporting Limit for DF = I	S	W
Client ID	MW-10	MW-11	MW-3N			
Matrix	S	S	S			
DF	I	I	I			

Compound	Concentration			µg/Kg	ug/L
Diisopropyl ether (DIPE)	ND	ND	ND	5	NA
Ethyl tert-butyl ether (ETBE)	ND	ND	ND	5	NA
Methyl-t-butyl ether (MTBE)	ND	ND	110	5	NA
tert-Amyl methyl ether (TAME)	ND	ND	ND	5	NA
t-Butyl alcohol (TBA)	ND	ND	ND	50	NA
Methanol	ND	ND	ND	2500	NA
Ethanol	ND	ND	ND	250	NA
1,2-Dibromoethane (EDB)	ND	ND	ND	5	NA
1,2-Dichloroethane (1,2-DCA)	ND	ND	ND	5	NA

Surrogate Recoveries (%)

%SS	95.4	99.0	98.2		
Comments					

* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L
 ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis
 (h) lighter than water immiscible sheen/product is present; (i) liquid sample that contains greater than ~2 vol. % sediment; (j) sample diluted due to high organic content



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 05/09/02

Extraction: EPA 5030

Matrix: Soil

Compound	Concentration: mg/kg			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS		MSD
SampleID: 50902		Instrument GC-12					
Surrogate1	ND	104.000	106.000	100.00	104	106	1.9
Xylenes	ND	0.320	0.320	0.30	107	107	0.0
Ethylbenzene	ND	0.110	0.110	0.10	110	110	0.0
Toluene	ND	0.110	0.110	0.10	110	110	0.0
Benzene	ND	0.100	0.100	0.10	100	100	0.0
MTBE	ND	0.082	0.083	0.10	82	83	1.2
TPH (gas)	ND	1.045	1.044	1.00	104	104	0.1

$$\% \text{ Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation



McCAMPBELL ANALYTICAL INC.

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QC REPORT

EPA 8015m + 8020

Date: 05/09/02

Extraction: EPA 5030

Matrix: Soil

Compound	Concentration: mg/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 50902		Instrument GC-6 A					
Surrogate1	ND	104.000	104.000	100.00	104	104	0.0
TPH (diesel)	ND	150.000	150.000	150.00	100	100	0.0

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 100$$

RPD means Relative Percent Deviation



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

QC REPORT

VOCs (EPA 8240/8260)

Date: 05/15/02

Extraction: EPA 5030

Matrix: Soil

Compound	Concentration: ug/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
<u>SampleID:</u> 51502		<u>Instrument</u> GC-10					
Surrogate	ND	107.0	102.0	100.00	107	102	4.8
tert-Amyl Methyl Ether	ND	47.0	41.5	50.00	94	83	12.4
Methyl tert-Butyl Ether	ND	49.5	43.0	50.00	99	86	14.1
Ethyl tert-Butyl Ether	ND	55.0	49.5	50.00	110	99	10.5
Di-isopropyl Ether	ND	55.0	50.0	50.00	110	100	9.5

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

QC REPORT

Date: 05/09/02

Extraction: TTLC

Matrix: Soil

Compound	Concentration: mg/kg			%Recovery		RPD	
	Sample	MS	MSD	Amount Spiked	MS		MSD
SampleID: 50902		Instrument P-1 AA					
Lead	ND	4.9	4.9	5.00	98	98	0.0

$$\% \text{ Recovery} = \frac{(MS - \text{Sample})}{\text{Amount Spiked}} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 100$$

RPD means Relative Percent Deviation

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Kiosk 11404 Job No. 3628 Date FE/17/02 Weather Clear/Warm
 ler Clay

Development

Well Data

Total Depth of Well _____ Casing Elevation _____ Depth to Water _____ Well Number MW-11
 Method of Purging Well _____ Groundwater Elevation _____
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Method of Sampling Well _____
 Depth to Water Prior to Sampling _____

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
7:30	5	20.6	2.35	7.21	8	NOS
	10	20.4	2.37	7.22	6	NOS
12:00	15	20.0	2.5	7.37	3	NOS

Comments: *slow recharge ~ 1L/15min*

Well Data

Total Depth of Well _____ Casing Elevation _____ Depth to Water _____ Well Number MW-10
 Method of Purging Well _____ Groundwater Elevation _____
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Method of Sampling Well _____
 Depth to Water Prior to Sampling _____

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
10:30	5	17.1	755	7.37	9	Black color NOS
	10	17.0	755	7.35	7	" " NOS
	15	16.9	753	7.36	3	NOS
	20	16.8	748	7.35	2	NOS
	25	16.8	743	7.35	2	NOS

Comments:

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Kingshurst Job No. 3628 Date 6/13/02 Weather Clear/Warm
 ler Clay

Development

Well Data		Well Number <u>MW-3N</u>
Total Depth of Well _____	Casing Elevation _____	Depth to Water _____ Groundwater Elevation _____
Method of Purging Well _____	Method of Sampling Well _____	
Casing Volume _____	Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft	
Depth to Water Prior to Sampling _____		

Field Parameters						
Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheer/product etc.)
	Begin purging well					
	5	20.4	2.84	7.00	7	NOS
	7	21.5	2.6	7.13	3	NOS, Bore + sat inson, temp may be off.

Comments:

Slow recharge < 16/15min

Well Data		Well Number _____
Total Depth of Well _____	Casing Elevation _____	Depth to Water _____ Groundwater Elevation _____
Method of Purging Well _____	Method of Sampling Well _____	
Casing Volume _____	Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft	
Depth to Water Prior to Sampling _____		

Field Parameters						
Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheer/product etc.)
	Begin purging well					

Comments:



APPENDIX E GROUNDWATER SAMPLING LOGS

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Kinokart Job No. 3628 Date 5/20/03 Weather Rain
 ler Clay

Well Data

Total Depth of Well _____ Casing Elevation _____ Well Number MW-3N
 Method of Purging Well Bailer Depth to Water 3.21 Groundwater Elevation _____
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Depth to Water Prior to Sampling _____ Method of Sampling Well Bailer
Purge 4.02

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
11:15	2	20.3	1590	7.07	884.8	little sheen / no odor
	4	18.7	1637	7.03	354.9	

Comments:

Slow Recharge D.O. 0.5 mg/l
Temp 20.6°C

Well Data

Total Depth of Well _____ Casing Elevation _____ Well Number MW-1
 Method of Purging Well Bailer Depth to Water 3.29 Groundwater Elevation _____
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Depth to Water Prior to Sampling _____ Method of Sampling Well Bailer
Purge 8.32

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
11:45	4	18.4	4.15	7.09	462.4	NOS gran color
	6	17.9	6.58	6.58	539.8	" " "
	8	18.0	6.25	7.14	453.8	" " "

Comments:

D.O. 0.42 mg/l
Temp 18.4°C

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Rinehart Job No. 3628 Date 5/20/02 Weather Rain
 ler Clay

Well Data		2.86
Total Depth of Well _____	Casing Elevation _____	Well Number <u>MW 5</u>
Method of Purging Well <u>Bailer</u>	Depth to Water <u>2.86</u>	Groundwater Elevation _____
Casing Volume _____	Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft	Method of Sampling Well <u>Bailer</u>
Depth to Water Prior to Sampling _____		

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
1:30	Begin purging well					
	3	21.1	1577	7.09	306.9	light odor / No sheen
	6	20.8	1576	7.07	125.0	" " " "
	9	20.8	1551	7.06	174.2	" " " "

Comments: D.O. 2.2 mg/L
Temp 18.7°C

Well Data		3.65
Total Depth of Well _____	Casing Elevation _____	Well Number <u>MW 4</u>
Method of Purging Well <u>Bailer</u>	Depth to Water <u>3.65</u>	Groundwater Elevation _____
Casing Volume _____	Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft	Method of Sampling Well <u>Bailer</u>
Depth to Water Prior to Sampling _____		

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
2:00	3	20.8	2.90	6.93	184.3	some odor / no sheen / grey color
	6	19.3	3.52	6.87	118.4	" " " "
	8	19.1	3.85	6.86	138.4	" " " " black color

Comments: D.O. 2.1 mg/L
Temp 20.0°C

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Rinehart Job No. 3638 Date 5/20/02 Weather Rain
 ler Olney

Well Data

Total Depth of Well _____ Casing Elevation _____ Well Number MW-6
 Method of Purging Well Bailer Depth to Water 3.24 Groundwater Elevation _____
 Method of Sampling Well Bailer
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Depth to Water Prior to Sampling _____ Purge 8.3

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
2:30	3	22.0	1387	7.17	335.1	Some odor No Sheen
	6	22.5	1223	7.19	308.6	" " " "
	8	22.4	1224	7.18	204.4	" " (light sheen)

Comments: D.O. 25mg/l

Well Data

Total Depth of Well _____ Casing Elevation _____ Well Number MW-7
 Method of Purging Well Bailer Depth to Water 6.53 Groundwater Elevation _____
 Method of Sampling Well Bailer
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Depth to Water Prior to Sampling _____ Purge 6.67

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
3:00	3	20.5	1491	7.03	71.2	* strong odor / reddish color / high sheen
	6	19.9	1537	7.00	16.91	" " " "

Comments: * 6" of product in 1st 2 bailers reddish/greenish color
D.O. 1.92mg/l
Temp 20.2°C

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Rinehart Job No. 3628 Date 5/2/02 Weather Rain
 ler Clay

233

Well Data		Well Number <u>MU-1</u>	
Total Depth of Well _____	Casing Elevation _____	Depth to Water <u>2.32</u>	Groundwater Elevation _____
Method of Purging Well <u>Bailer</u>	Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft	Method of Sampling Well <u>Bailer</u>	
Casing Volume _____	Depth to Water Prior to Sampling _____		

MS 707

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
<u>6:30</u>	<u>5</u>	<u>19.3</u>	<u>3.86</u>	<u>6.84</u>	<u>87.52</u>	<u>Reddish granular color</u>
	<u>6</u>	<u>18.6</u>	<u>3.86</u>	<u>6.78</u>	<u>192.3</u>	<u>Wet</u>
	<u>89</u>	<u>18.7</u>	<u>4.98</u>	<u>6.77</u>	<u>173.1</u>	

Comments: D.O. .15 mg/L
Temp 20.0
 Well under pressure

282

Well Data		Well Number <u>MU-8</u>	
Total Depth of Well _____	Casing Elevation _____	Depth to Water <u>2.82</u>	Groundwater Elevation _____
Method of Purging Well <u>Bailer</u>	Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft	Method of Sampling Well <u>Bailer</u>	
Casing Volume _____	Depth to Water Prior to Sampling _____		

MS

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
<u>1:00</u>	<u>5</u>	<u>21.5</u>	<u>2.75</u>	<u>7.14</u>	<u>212.8</u>	<u>Strong odor / high sheen / black color</u>
	<u>6</u>	<u>20.7</u>	<u>2.61</u>	<u>7.04</u>	<u>223.8</u>	<u>" " less sheen</u>
	<u>9</u>	<u>20.5</u>	<u>2.68</u>	<u>7.10</u>	<u>228.0</u>	<u>" " " "</u>

Comments: D.O. .24 mg/L
Temp 20.0

WELL DEVELOPMENT AND SAMPLING LOG

Project Name Rincher Job No. 3628 Date 5/20/02 Weather Rain
 ler Clay

Well Data

488454
 Well Number MW-1

Total Depth of Well _____ Casing Elevation _____ Depth to Water 4.5 Groundwater Elevation _____
 Method of Purging Well Bailer Method of Sampling Well Bailer
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Depth to Water Prior to Sampling _____
Purge 3-73

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
10:30	1	20.7	1993	7.04	443.00	NPS
	2.5	20.8	1998	7.26	441.2	

Comments:

D.O. = 2.2 mg/L
 Temp = 19.6°C

Well Data

89
 Well Number MW-10

Total Depth of Well _____ Casing Elevation _____ Depth to Water 8.4 Groundwater Elevation _____
 Method of Purging Well Bailer Method of Sampling Well Bailer
 Casing Volume _____ Volume Factors: 2"=0.166g/ft; 4"=0.653g/ft; 6"=1.47g/ft; 8"=2.61g/ft; 12"=5.88g/ft
 Depth to Water Prior to Sampling _____
Purge 5-5

Field Parameters

Time	Volume (gal)	Temperature	SP	pH	Turbidity	Comments (color/odor/sheen/product etc.)
	Begin purging well					
11:00	3	17.0	556	7.2	149	
	6.5	17.0	559	6.58		

Comments:

D.O. = 2.2 mg/L
 Temp = 16.7

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF GROUNDWATER RESOURCES
SACRAMENTO OFFICE

APPENDIX F
LABORATORY ANALYTICAL REPORTS
GROUNDWATER SAMPLES



McC Campbell Analytical Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

W. A. Craig Inc. 6940 Tremont Road Dixon, CA 95620-9603	Client Project ID: Rinehart #3628	Date Sampled: 05/20/02
		Date Received: 05/20/02
	Client Contact: Tim Cook	Date Reported: 05/29/02
	Client P.O.:	Date Completed: 05/30/02

May 30, 2002

Dear Tim:

Enclosed are:

- 1). the results of 10 samples from your **Rinehart #3628** project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McC Campbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

McCampbell Analytical Inc. 110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone: 925-798-1620 Fax: 925-798-1622
 http://www.mccampbell.com E-mail: man@mccampbell.com

W. A. Craig Inc. 6940 Tremont Road Dixon, CA 95620-9603	Client Project ID: Rinehart #3628	Date Sampled: 05/20/02
		Date Received: 05/20/02
	Client Contact: Tim Cook	Date Extracted: 05/20/02
	Client P.O.:	Date Analyzed: 05/24/02-05/30/02

Oxygenated Volatile Organics by GC/MS*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0205288

Lab ID	0205288-001C	0205288-002C	0205288-003C	0205288-004C	Reporting Limit for DF=1
Client ID	MW-1	MW-3	MW-4	MW-5	
Matrix	W	W	W	W	
DF	20	50	3300	1000	

Compound	Concentration				ug/kg	
					ug/kg	ug/L
Diisopropyl ether (DIPE)	ND<10	ND<25	ND<2500	ND<500	NA	0.5
Ethyl tert-butyl ether (ETBE)	ND<10	ND<25	ND<2500	ND<500	NA	0.5
Methyl-t-butyl ether (MTBE)	730	1500	130,000	28,000	NA	0.5
tert-Amyl methyl ether (TAME)	ND<10	ND<25	ND<2500	ND<500	NA	0.5
t-Butyl alcohol (TBA)	ND<100	ND<250	ND<25,000	ND<5000	NA	5.0
Methanol	ND<10,000	ND<25,000	ND<2,500,000	ND<500,000	NA	500
Ethanol	ND<1000	ND<2500	ND<250,000	ND<50,000	NA	50
1,2-Dibromoethane (EDB)	ND<10	ND<25	ND<2500	ND<500	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<10	ND<25	ND<2500	ND<500	NA	0.5

Surrogate Recoveries (%)

Comments

* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

(h) lighter than water immiscible sheen/product is present; (i) liquid sample that contains greater than ~2 vol. % sediment; (j) sample diluted due to high organic content



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W. A. Craig Inc. 6940 Tremont Road Dixon, CA 95620-9603	Client Project ID: Rinehart #3628	Date Sampled: 05/20/02
		Date Received: 05/20/02
	Client Contact: Tim Cook	Date Extracted: 05/24/02-05/30/02
	Client P.O.:	Date Analyzed: 05/24/02-05/30/02

Oxygenated Volatile Organics by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0205288

Lab ID	0205288-005C	0205288-006C	0205288-007C	0205288-008C	Reporting Limit for DF =1
Client ID	MW-6	MW-7	MW-8	MW-9	
Matrix	W	W	W	W	
DF	1000	10000	2000	5	

Compound	Concentration				ug/kg	ug/L
	Diisopropyl ether (DIPE)	ND<500	ND<5000	ND<1000	ND<2.5	NA
Ethyl tert-butyl ether (ETBE)	ND<500	ND<5000	ND<1000	ND<2.5	NA	0.5
Methyl-t-butyl ether (MTBE)	37,000	220,000	86,000	85	NA	0.5
tert-Amyl methyl ether (TAME)	ND<500	ND<5000	ND<1000	ND<2.5	NA	0.5
t-Butyl alcohol (TBA)	ND<5000	ND<50,000	ND<10,000	ND<25	NA	5
Methanol	ND<500,000	ND<5,000,000	ND<1,000,000	ND<2500	NA	500
Ethanol	ND<50,000	ND<500,000	ND<100,000	ND<250	NA	50
1,2-Dibromoethane (EDB)	ND<500	ND<5000	ND<1000	ND<2.5	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<500	ND<5000	ND<1000	ND<2.5	NA	0.5

Surrogate Recoveries (%)

%SS	104	99.9	95.4	108
Comments	i	h,i		

* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

(h) lighter than water immiscible sheen/product is present; (i) liquid sample that contains greater than ~2 vol. % sediment; (j) sample diluted due to high organic content



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W. A. Craig Inc.
6940 Tremont Road
Dixon, CA 95620-9603

Client Project ID: Rinehart #3628

Date Sampled: 05/20/02

Date Received: 05/20/02

Client Contact: Tim Cook

Date Extracted: 05/24/02-05/30/02

Client P.O.:

Date Analyzed: 05/24/02-05/30/02

Oxygenated Volatile Organics by GC/MS*

Extraction Method: SW5030B

Analytical Method: SW8260B

Work Order: 0205288

Lab ID	0205288-009C	0205288-010C	Reporting Limit for DF = 1	
Client ID	MW-10	MW-11		
Matrix	W	W		
DF	1	10		
			S	W

Compound	Concentration			ug/kg	ug/L
	Diisopropyl ether (DIPE)	ND	ND<5.0		NA
Ethyl tert-butyl ether (ETBE)	ND	ND<5.0		NA	0.5
Methyl-t-butyl ether (MTBE)	1.2	310		NA	0.5
tert-Amyl methyl ether (TAME)	ND	ND<5.0		NA	0.5
t-Butyl alcohol (TBA)	ND	ND<50		NA	5
Methanol	ND	ND<5000		NA	500
Ethanol	ND	ND<500		NA	50
1,2-Dibromoethane (EDB)	ND	ND<5.0		NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	ND<5.0		NA	0.5

Surrogate Recoveries (%)

%SS	108	108		
Comments				

* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

(h) lighter than water immiscible sheen/product is present; (i) liquid sample that contains greater than ~2 vol. % sediment; (j) sample diluted due to high organic content

QC SUMMARY REPORT FOR SW8021B/8015Cm

BatchID: 1968

Matrix: W

WorkOrder: 0205288

EPA Method: SW8021B/8015Cm		Extraction: SW5030B		Ext. Date: 5/21/02		Spiked Sample ID: 0205280-001A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(gas)	N/A	60	N/A	N/A	N/A	99.7	108	7.8	80	120
MTBE	N/A	10	N/A	N/A	N/A	87.6	93	6.0	80	120
Benzene	N/A	10	N/A	N/A	N/A	91.5	97.4	6.3	80	120
Toluene	N/A	10	N/A	N/A	N/A	95.8	103	7.0	80	120
Ethylbenzene	N/A	10	N/A	N/A	N/A	96.9	103	6.5	80	120
Xylenes	N/A	30	N/A	N/A	N/A	98.3	103	5.0	80	120
%SS	103	10	N/A	N/A	N/A	99.3	103	3.2	80	120

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = $100 * (MS - Sample) / (Amount Spiked)$; RPD = $100 * (MS - MSD) / (MS + MSD) * 2$.

* MS and / or MSD spike recoveries may not be near 100% or their RPDs near 0% if: a) the sample is inhomogeneous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

QC SUMMARY REPORT FOR SW8015C

BatchID: 1952

Matrix: W

WorkOrder: 0205288

EPA Method: SW8015C		Extraction: SW3510C		Ext. Date: 5/21/02			Spiked Sample ID: N/A			
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(d)	N/A	7500	N/A	N/A	N/A	102	102	0.031	70	130
%SS1	N/A	2500	N/A	N/A	N/A	95.9	96.5	0.70	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
 NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = $100 * (MS - Sample) / (Amount\ Spiked)$; RPD = $100 * (MS - MSD) / (MS + MSD) * 2$.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.



QC SUMMARY REPORT FOR SW8260B

BatchID: 1955

Matrix: W

WorkOrder: 0205288

EPA Method: SW8260B		Extraction: SW5030B		Ext. Date: 5/20/02		Spiked Sample ID: N/A				
Compound	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
Diisopropyl ether (DIPE)	N/A	10	N/A	N/A	N/A	111	112	0.93	70	130
Ethyl tert-butyl ether (ETBE)	N/A	10	N/A	N/A	N/A	106	107	1.2	70	130
Methyl-t-butyl ether (MTBE)	N/A	10	N/A	N/A	N/A	99.7	99.7	0.048	70	130
tert-Amyl methyl ether (TAME)	N/A	10	N/A	N/A	N/A	101	102	0.73	70	130
%SS	N/A	10	N/A	N/A	N/A	103	103	0.30	70	130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

N/A = not enough sample to perform matrix spike, or analyte concentration in sample exceeds spike amount.

% Recovery = $100 * (MS - Sample) / (Amount\ Spiked)$; RPD = $100 * (MS - MSD) / (MS + MSD) * 2$.

* MS and / or MSD spike recoveries may not be near 100% or the RPDs near 0% if: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) if that specific sample matrix interferes with spike recovery.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

McCampbell Analytical Inc.

110 Second Avenue South, #D7
 Pacheco, CA 94553-5560
 (925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0205288

Client:

W. A. Craig Inc.
 6940 Tremont Road
 Dixon, CA 95620-9603

TEL: (707) 693-2929
 FAX: (707) 693-2922
 ProjectNo: #3628; Rinehart
 PO:

20-May-02

Sample ID	ClientSampID	Matrix	Collection Date	Bottle	Requested Tests					
					SW8015C	8021B/8015	SW8260B			
0205288-001	MW-1	Water	5/20/02		B	A	C			
0205288-002	MW-3	Water	5/20/02		B	A	C			
0205288-003	MW-4	Water	5/20/02		B	A	C			
0205288-004	MW-5	Water	5/20/02		B	A	C			
0205288-005	MW-6	Water	5/20/02		B	A	C			
0205288-006	MW-7	Water	5/20/02		B	A	C			
0205288-007	MW-8	Water	5/20/02		B	A	C			
0205288-008	MW-9	Water	5/20/02		B	A	C			
0205288-009	MW-10	Water	5/20/02		B	A	C			
0205288-010	MW-11	Water	5/20/02		B	A	C			

Comments:

	Date/Time		Date/Time
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Relinquished by:		Received by:	

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other