5814

Fax Water Board
non purge
No recommendation
MAR 19 '01

TRANSMITTAL FORM

Tetra Tech EM Inc.

10670 White Rock Road, Suite 100
Rancho Cordova, CA 95670
Phone: 916/852-8300 Fax : 916/852-0307

Alameda County, Health Care Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

DATE: March 16, 2001
SUBJECT: McMorgan & Company

ATTN: Barney M. Chan

PROJECT NO: P1389-05-01

The following items are: ☒ Enclosed ☐ Sent separately via

☒ Report ☐ Specifications ☐ Cost Estimate ☐ Plans
☐ Test Results ☐ Prints ☐ Test Samples ☐ Other

No. of Copies	Description
2	Fourth Quarter Groundwater Monitoring Report, December 2000
	444 Hegenberger Road, Oakland, California

These items are submitted:
☐ At your request
☐ For your approval
☒ For your review
☐ Other
☐ For your action
☐ For your files
☐ For your information

General Remarks: Upon your review of the enclosed report, the property manager/client, McMorgan & Company, requests a meeting to discuss the particulars of this project. Specifically, the requirements for further monitoring, closure, and issues related to proposed development of this property. Upon completing your review please contact me at 916-853-4505 to schedule the meeting. Thank you in advance for your consideration.

Sincerely,
Tetra Tech EM, Inc.

Walter H. K.

Copies to: Mary Schroeder/McMorgan

☐ With Enclosures ☒ Without Enclosures

Tetra Tech EM Inc.

10670 White Rock Road, Suite 100 ◆ Rancho Cordova, CA 95670 ◆ (916) 852-8300 ◆ FAX (916) 852-0307

March 9, 2001
Via Federal Express

Mr. Patrick G. Murray
McMorgan & Company
One Bush Street, Suite 800
San Francisco, CA 94104

Subject: **Fourth Quarter Groundwater Monitoring Report, December 2000**
McMorgan & Company
444 Hegenberger Road, Oakland, California
TtEMI Project No. P1389-05-01

Dear Mr. Murray:

Tetra Tech EM Inc. (TtEMI), is pleased to submit to McMorgan & Company this letter report on the results of a sensitive receptor survey, groundwater monitoring well installation, and the fourth quarter of groundwater monitoring conducted at the subject site (Figures 1 and 2). The work was conducted in accordance with the July 21, 2000, workplan prepared by TtEMI and submitted to the Alameda County Health Care Services Agency (ACHCSA). The ACHCSA granted approval of the workplan in a letter to McMorgan & Company, dated July 25, 2000. The scope of work consisted of the following:

- Conducting a sensitive receptor survey
- Installing two off-site groundwater monitoring wells (MW-7 and MW-8)
- Measuring groundwater levels in the seven wells at the project site
- Purging and subsequent sampling of groundwater from monitoring wells MW-2 through MW-8
- Analyzing the groundwater samples for petroleum hydrocarbon constituents
- Preparing this report

SITE BACKGROUND

The subject site is located in northwest Alameda County, approximately ¼ mile south of the Interstate 880-Hegenberger Road interchange and approximately one mile northeast of the Oakland International Airport. The unpaved site occupies a rectangular-shaped parcel (Assessor's Parcel Number 044-5076-007-02) situated in the northeast corner of the intersection of Hegenberger Road and Hegenberger Loop. The southwestern portion of the site was previously occupied by a retail gasoline service station.

The available data indicate that a series of soil and groundwater investigations have been conducted at the site since 1997. A site assessment in April 1997 ("Work Plan for Additional Environmental Investigation" by TtEMI, dated July 21, 2000) indicated the presence of petroleum hydrocarbons in soils and groundwater beneath the site. However, concentrations of methyl tertiary butyl ether (MTBE) were not detected at or above the laboratory reporting limits in the soil and grab groundwater samples that were collected during the assessment. A subsequent investigation, conducted in July and October 1997, indicated that none of the site's former underground storage tanks (USTs) remained (number of USTs

and date of removal are not known). The investigation also confirmed the previous findings of petroleum hydrocarbons being present in soil and groundwater.

A supplemental assessment of soil and groundwater in November 1998 (TtEMI July 21, 2000, "Work Plan for Additional Environmental Investigation") resulted in the installation of five, 2-inch-diameter groundwater monitoring wells (MW1, MW-2, MW-3, MW-4, and MW-5), each with perforated casing set between five and 20 feet below ground surface (bgs). Laboratory analysis of soil samples collected during the drilling for the wells indicated concentrations of total petroleum hydrocarbons as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The data appeared to indicate that concentrations of petroleum hydrocarbons in soil decreased with depth. Soil samples were not analyzed for MTBE. Analysis of groundwater samples collected from the five wells indicated concentrations of TPH-g in two wells (MW-3 and MW-4) and TPH as diesel (TPH-d) as well as BTEX in four wells (MW-2, MW-3, MW-4, and MW-5). Concentrations of MTBE were not detected at or above the laboratory reporting limit in the samples collected from the five wells.

As reported by E_2C, Inc., in the report "Quarterly Groundwater Monitoring First Quarter 2000," dated May 11, 2000, well MW-1 was destroyed in December 1999 in accordance with ACHCSA guidelines. In addition, well MW-6 was installed in accordance with a ACHCSA request that the portion of the site inferred to be downgradient of the former waste-oil tank be monitored. Well MW-6 was completed with perforations set between 10 and 20 feet bgs. One soil sample was collected at 11 feet bgs from the boring for MW-6. Although a "heavy odor" of suspected fuel was noted for the soil sample, laboratory analysis indicated that concentrations of volatile organic compounds, semi-volatile organic compounds, TPH-g, TPH-d, TPH as motor oil (TPH-mo), and BTEX were not detected at or above the respective laboratory reporting limits. In addition, cadmium, chromium, lead, nickel, and zinc were not detected at concentrations at or above their respective regulatory action levels.

Quarterly groundwater monitoring began at the subject site in December 1998, after the installation of wells MW-1 through MW-5. The monitoring has included collecting depth-to-groundwater (DTW) measurements and groundwater samples from each of the project site's active wells, now expanded to include off-site wells MW-7 and MW-8. However, the DTW measurement and groundwater sample were not collected during the June 2000 monitoring by E_2C, Inc., because floating liquid hydrocarbons were present within the well. Floating liquid hydrocarbons had not been observed within the site's wells before June 2000 and have not been observed since then (Table 1).

SENSITIVE RECEPTOR SURVEY

From July 1999 to June 2000, the measurements of DTW and/or resulting calculated groundwater elevations in MW-4 appeared anomalous when compared to the other on-site wells (Figure 3). Potentiometric surface maps constructed from the groundwater elevation data suggested that MW-4 was situated within a groundwater depression that resulted in groundwater flowing to the north under a markedly steepened gradient when compared to rest of the site. In its May 11, 2000, and August 16, 2001 ("Quarterly Groundwater Monitoring Second Quarter 2000"), reports, E_2C, Inc., interpreted the steepened gradient to be suggestive of either lower permeability materials in the subsurface (for example, between MW-2 and MW-4) or groundwater being extracted in the vicinity of the site, downgradient (i.e., to the north) of MW-4. Based on this interpretation, E_2C, Inc., recommended a "database review" (sensitive receptor survey) be conducted to identify whether wells within the vicinity of the subject site were being used to extract groundwater. In a letter to McMorgan & Company, dated May 18, 2000, the ACHCSA agreed that a such a sensitive receptor survey should be conducted and that wells MW-7 and MW-8 should be installed to assess the potential for migration of petroleum hydrocarbons off site.

TtEMI conducted the sensitive receptor survey, including a field check, based on the data summarized in Table 2. The results of and conclusions drawn from the survey are summarized in the following sections.

Human Population

The analytical data collected to date indicate a limited potential for humans to come into contact with petroleum hydrocarbons in the subsurface. Although the site is not paved and there appears to be minimal potential for such exposure, direct contact with petroleum hydrocarbons in soils beneath the site may occur during excavations or other soil-moving activities. Therefore, such potential activities should be conducted under the provisions of approved health and safety plans that take into account the analytical data and provide for the protection of workers and the general public. Direct contact with petroleum hydrocarbons in the groundwater might occur if it was used as a source of drinking water. This scenario is highly unlikely because of the poor quality of the groundwater within the shallow water-bearing zone due to its proximity to San Francisco Bay. However, vapors may be released from soil and groundwater into the air where exposure to volatile petroleum hydrocarbons through inhalation could occur. Depending on the future use of the site, the vapors might be released into indoor and/or outdoor air. Thus, the potential for such exposure should be considered as construction is planned for the site.

Wells Near the Site

TtEMI obtained information from the California Department of Water Resources (DWR) regarding monitoring and water-supply wells near the subject site. The DWR information indicated that 40 monitoring wells and two irrigation wells are (or were) located at 11 sites as shown on Figure 4. The two irrigation wells are southeast (i.e., upgradient) of the subject site. The DWR information did not indicate domestic wells near the site.

Surface Water

The nearest body of surface water is San Leandro Creek, located approximately 800 feet southwest of the subject site. In addition, the Airport Channel (an arm of San Francisco Bay) is located approximately 0.70 mile west of the site. According to Federal Emergency Management Agency, the site does not lie within the 100- or 500-year floodplains.

Land Use

Land use as specified by the Zoning Division of Oakland for the area surrounding the site includes commercial, residential, and industrial zones. The site itself has been zoned for commercial use. Approximately 1 block to the west is an industrial zone. A residential zone is located approximately 500 feet east-southeast of the site. (Hotel)

Subsurface Soil Conditions and Hydrology

To a depth of approximately 20 feet bgs, the site's shallow subsurface generally consists of clay, gravelly clay, silty clay, and gravelly sand. Groundwater is usually encountered within five feet bgs. Based on the data collected to date, groundwater beneath the project site is inferred to flow generally to the north (Figure 5), across Hegenberger Road. However, the direction of flow appears to vary depending on the location at the site (e.g., toward the southeast near MW-5).

Preferential Pathways

Potential preferential pathways for petroleum hydrocarbons to migrate off site appear limited to groundwater within the shallow water-bearing zone and trenches containing buried utilities. A number of buried utilities are located near the subject site, including water and sanitary sewer mains, telephone and electric cables, and natural gas mains. Based on the inferred direction of groundwater flow to the north, review of underground utility maps, and reasonable assumptions as to the depths of the buried utilities, the utility trenches may act as preferential pathways and could allow for movement of petroleum hydrocarbons to the north and west beyond the site.

DRILLING AND INSTALLTION OF MONITORING WELLS

On December 12, 2000, TtEMI supervised the drilling and installation of off-site groundwater monitoring wells MW-7 and MW-8 (Figure 2) by Weeks Drilling and Pump Company (C57-177681) of Sebastopol, California. The wells were installed and sampled in accordance with TtEMI standard operating procedures (SOPs) and the approved July 21, 2000, workplan (mentioned previously) to assess the possible extent of off-site migration of petroleum hydrocarbons.

Permits

Permits for the new wells included an encroachment permit issued by the City of Oakland and well installation permits issued by the Alameda County Public Works Agency. Copies of the permits are included as Appendix A.

Soil Boring and Sampling

The borings for the new wells were drilled to 20 feet bgs with a truck-mounted, hollow-stem auger rig using 6-inch (outside diameter) augers. Soil samples were collected from each borehole at five-foot intervals, starting with the sample at five feet bgs. The subsurface materials encountered during the drilling included clay, silty clay, sandy gravel, and poorly-graded sand. Logs of the borings are included as Appendix B. The soil samples collected in brass tubes, sealed, placed in a cooler with ice, and submitted under chain-of-custody (COC) to Kiff Analytical LLC of Davis, California, a state-certified analytical laboratory for analysis of the following constituents:

- TPH-d by EPA Method 8015modified
- TPH-g and BTEX by EPA Method 8260B
- MTBE, di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), and tertiary butyl alcohol (TBA) by EPA Method 8260B

Soil cuttings generated during the drilling were stored temporarily on site in U.S. Department of Transportation (DOT)-approved 55-gallon drums pending the results of laboratory analysis and decision regarding appropriate disposal.

Well Completion and Development

Wells MW-7 and MW-8 were completed with 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing installed to 20 feet bgs. For both wells, the screened intervals were set from five to 20 feet bgs using 0.01-inch slotted casing. The filter pack consisted of type 2/12 sand that was placed from the bottom of each boring to four feet bgs. A two-foot-thick seal of bentonite chips was placed at the top of

each filter pack and the annular seal was completed to near surface with Portland cement. The wells were then completed at the surface with a flush-mounted, traffic-rated, wellhead vaults. Well completion diagrams are included as Appendix C.

Following completion, the seals within the new wells were allowed to set. Wells MW-7 and MW-8 were developed on December 14, 2000, in conjunction with the monitoring of the seven wells discussed in the following text. The well development was conducted by TtEMI personnel using surge block and stainless-steel bailer. The development water was stored temporarily on site in DOT-approved 55-gallon drums pending the results of laboratory analysis and a decision regarding appropriate disposal. Information regarding the development of the two wells is included on the forms included in Appendix D.

Well-Elevation Survey

Because the sensitive receptor survey did not reveal that extraction wells were located downgradient of the subject site, the previous (December 1998) well survey using an arbitrary datum established at MW-4 was suspected as a possible explanation for the apparent marked change in gradient discussed previously. As a result, TtEMI contracted Virgil Chavez Land Surveying of Vallejo, California, a California Licensed Land Surveyor (license 6323), to resurvey the top-of-casing (TOC) elevations for the seven wells using an established City of Oakland benchmark. The TOC elevations were resurveyed on January 25, 2001, relative to mean sea level, and were established at the top north side of each well casing. A copy of the surveyor's report is included as Appendix E and the resulting data are included in Table 1.

As indicated on Figure 3, the new survey and resulting groundwater elevation data for December 2000 indicate that the level of groundwater in MW-4 no longer appears to be anomalous. Contouring of the calculated groundwater elevations (Figure 5) does not suggest the presence of a steepened gradient near MW-4.

GROUNDWATER PURGING AND SAMPLING

On December 14, 2000, TtEMI personnel conducted the fourth quarterly round of groundwater monitoring at the subject site for 2000. The seven wells were purged and sampled according to TtEMI SOPs, including sampling handling, preservation, identification, and chain-of-custody control.

Before the samples were collected, DTW measurements were made in each well using a Solinst water-level indicator (Table 1). Following the DTW measurements, a minimum of three wetted-casing volumes were purged from each well using a pre-cleaned bailer that was steam-cleaned between wells. The purged water was stored temporarily on site in DOT-approved 55-gallon drums pending the results of laboratory analysis and a decision regarding appropriate disposal. Information regarding the purging and sampling of the seven wells is included on the forms in Appendix D.

In addition, temperature, pH, and specific conductance of the purged groundwater were measured every two to three gallons for MW-2 through MW-6 and every 10 gallons for MW-7 and MW-8 using a Horiba U-10 water quality meter. Observations, including color, turbidity, and odor of the purged water were noted at each monitoring well (Appendix D). When the measured parameters stabilized to within 10 percent, the wells were allowed to recharge to 80 percent of the initial volume. Groundwater samples were then collected using a new, disposable PVC bailer at each well. The samples were dispensed into appropriate containers (40-milliliter glass vials and 1-Liter bottles), sealed, labeled, placed in a portable

cooler with ice, recorded on COC forms, and submitted to Kiff Analytical LLC for analysis of the following constituents:

- TPH-d by EPA Method 8015modified
- TPH-g, BTEX, and the fuel additives MTBE, DIPE, ETBE, TAME, and TBA by EPA Method 8260B

ANALYTICAL RESULTS

Soil Samples

Analysis of the eight soil boring samples indicated that concentrations of TPH-d, TPH-g, BTEX, MTBE, DIPE, ETBE, TAME, and TBA were not detected at or above the respective laboratory reporting limits. The soil sample analytical results are summarized in Table 3. Copies of the laboratory analytical reports for the soil samples and COC form are included as Appendix F.

Groundwater Samples

Analysis of the groundwater samples collected from the seven wells indicated that concentrations of TPH-d were detected in the sample collected from MW-2 and TPH-g and/or BTEX were detected in the samples collected from MW-2, MW-3, MW-4, MW-5, and MW-6. Except for the sample collected from MW-8, concentrations of MTBE, DIPE, ETBE, TAME, and TBA were not detected in the groundwater samples at or above the respective laboratory reporting limits. The sample from MW-8 indicated MTBE at 0.52 micrograms per Liter, but this is considered anomalous and may be due to sampling or laboratory error. None of the TPH, BTEX, and fuel-additive constituents were detected in the sample from MW-7. The groundwater sample analytical results are summarized in Table 4. Copies of the laboratory analytical reports for the groundwater samples and COC form are included as Appendix F.

Figures 6 and 7 are isoconcentration maps of benzene and TPH-g, respectively, in groundwater for December 14, 2000, based on the data summarized in Table 4. The maps suggest that benzene and TPH-g have migrated primarily to the west, from the vicinity of MW-2 toward MW-3, but also toward MW-4 and MW-5. This pattern is consistent with the inferred directions of groundwater flow beneath the subject site as indicated by Figure 5.

GROUNDWATER FLOW

Based on the interpretation shown on Figure 5, the inferred direction of groundwater flow beneath the subject site is primarily to the north under a relatively shallow gradient of about 0.003 foot per foot (ft/ft) when measured from MW-2 to MW-4. Groundwater flows about 0.006 ft/ft when measured from MW-7 to MW-8. However, the direction of flow appears to vary across the project site, including a component toward the southeast away from MW-5. In addition, the potentiometric surface appears relatively flat in the portion of the site between MW-3 and MW-5. The data from previous groundwater monitoring were interpreted as indicating that groundwater flowed toward the north (Table 5).

CONCLUSIONS

Based on the sensitive receptor survey, no groundwater extraction wells are known to exist to north and downgradient of the subject site. The resulting resurvey of the elevations of the on-site wells reveals that previous interpretations of the groundwater potentiometric surface and gradients were in error, although

the inferred primary direction of groundwater flow appears to remain toward the north. The reinterpreted potentiometric surface and inferred directions of flow are deemed more representative of natural conditions.

In addition, a number of buried utilities in the vicinity of the project site could act as preferential pathways for migration of petroleum hydrocarbons in the event that groundwater impacted by these constituents was to encounter the utility trenches. However, the analysis of groundwater samples from the two new off-site wells indicates that petroleum hydrocarbons emanating from the subject site have not migrated to the locations of these wells, across Hegenberger Loop or Hegenberger Road.

The results of the fourth quarter of groundwater monitoring at the subject site also indicate the following:

- A plume of hydrocarbons, including TPH-d, TPH-g and BTEX, remains beneath the west corner of the site.
- The plume continues to impact wells MW-2, MW-3, MW-4, MW-5, and MW-6. However, the impact to MW-6 appears limited to benzene.
- The low concentration of MTBE detected in the sample collected from MW-8 is anomalous and is suspected to be the result of sampling or laboratory error.

RECOMMENDATIONS

Based on the cumulative results of groundwater monitoring at the subject site, TtEMI recommends the following:

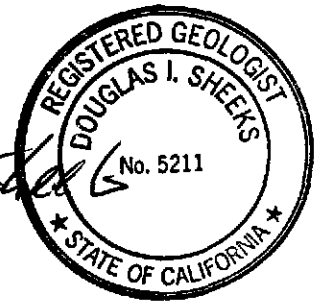
- Quarterly groundwater monitoring of the seven wells should continue. ✓
- The monitoring should include testing for TPH-g, TPH-d, and BTEX, but testing for the fuel additives MTBE, DIPE, ETBE, TAME, and TBA should be discontinued for all the wells. ✓
- Testing for natural attenuation factors (typically recommended by the Regional Water Quality Control Board and American Society for Testing and Materials) should be considered for future monitoring efforts, but on a semi-annual basis. Do 2 of 4 only
- Installing a new groundwater monitoring well should be considered to the north and downgradient of the site, near MW-4.

This report is based on available information and was prepared in accordance with currently accepted geologic, hydrogeologic, and engineering practices. No other warranty is implied or intended. This report has been prepared for the sole use of McMorgan & Company and applies only to the subject site. Use of this report by third parties shall be at their sole risk. This report was prepared under the direct supervision of the California Registered Geologist whose signature appears below.

We appreciate the opportunity to provide McMorgan & Company geologic, engineering, and environmental consulting services and trust that this letter report meets your needs. If you have any questions or concerns, please call Walter Kim at (916) 853-4505 or Doug Sheeks at (916) 853-4515.

Sincerely,
TETRA TECH EM INC.

John Lane
Staff Scientist



Douglas I. Sheeks, R.G.
Senior Geologist
CRG No. 5211

cc: B. M. Chan, Alameda County Health Care Services Agency
W. H. Kim, TtEMI

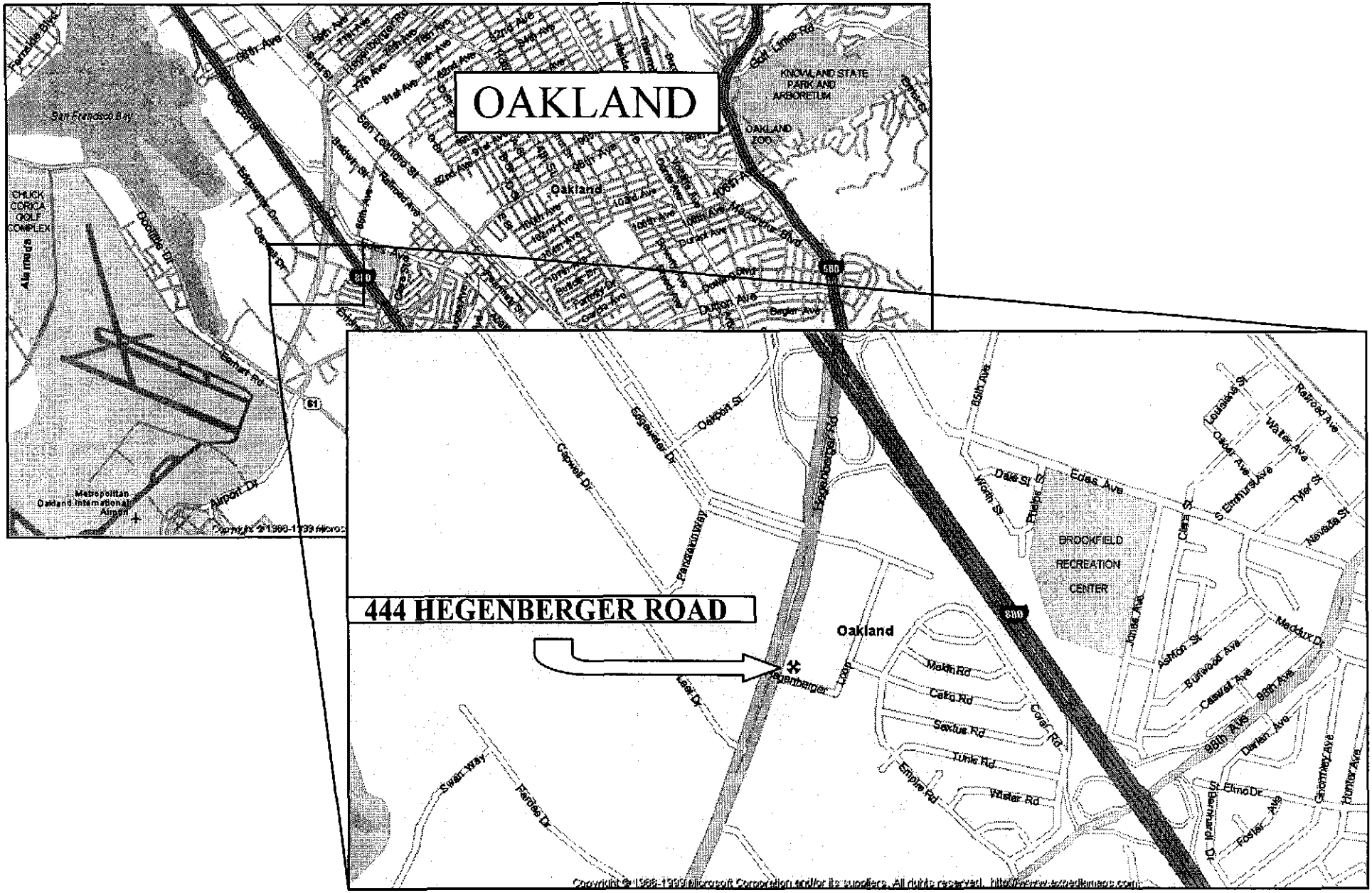
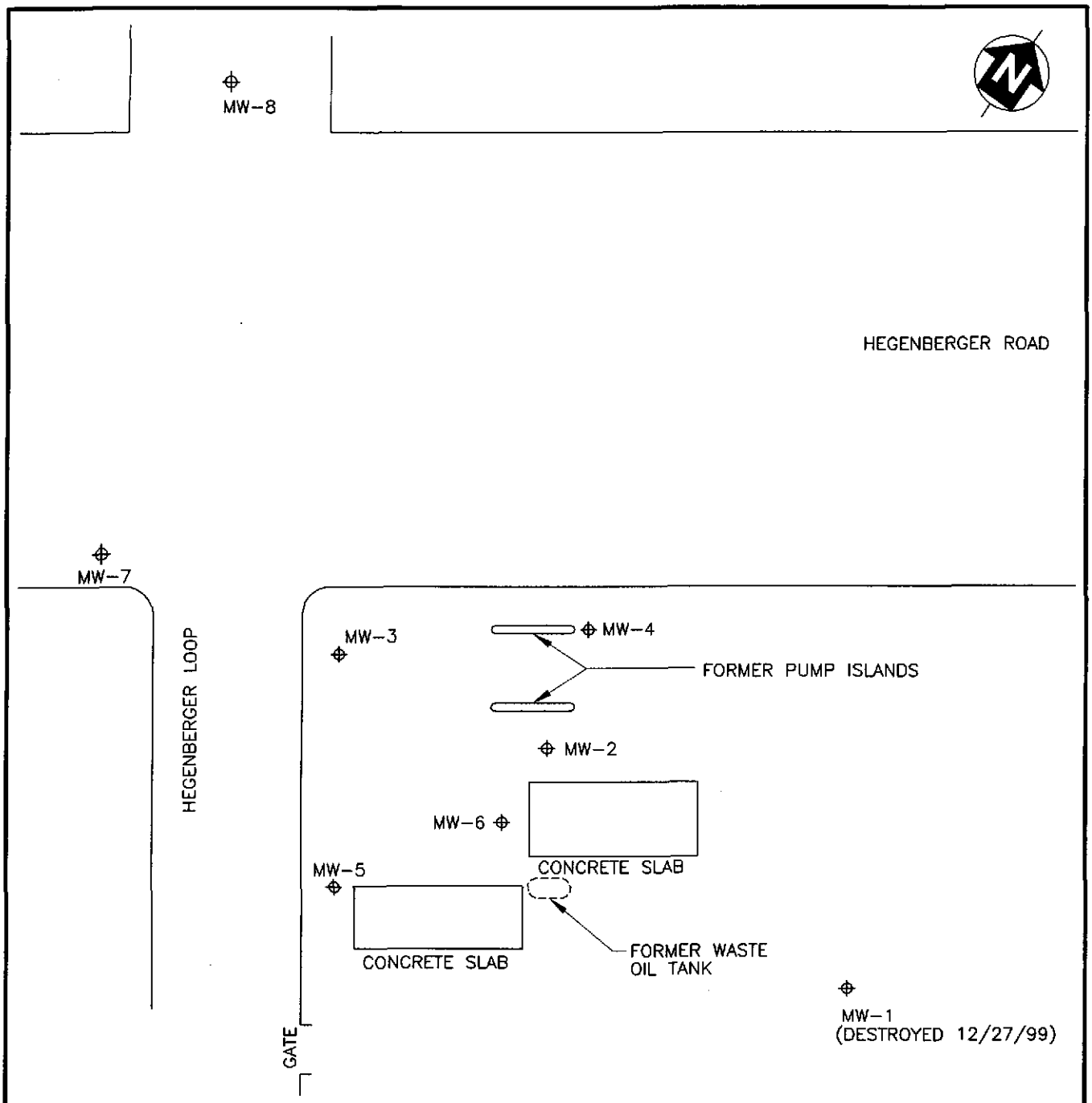
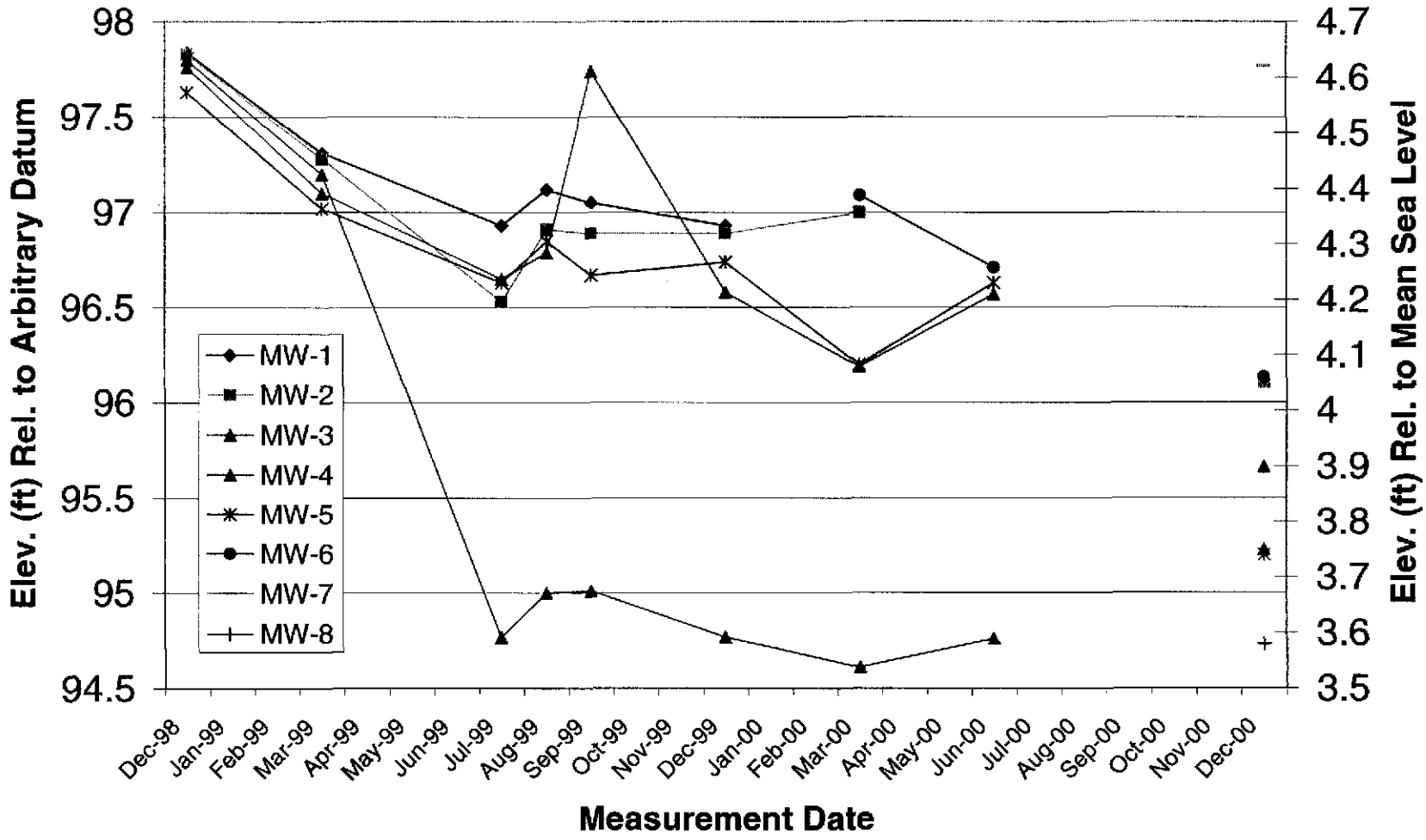


FIGURE 1
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

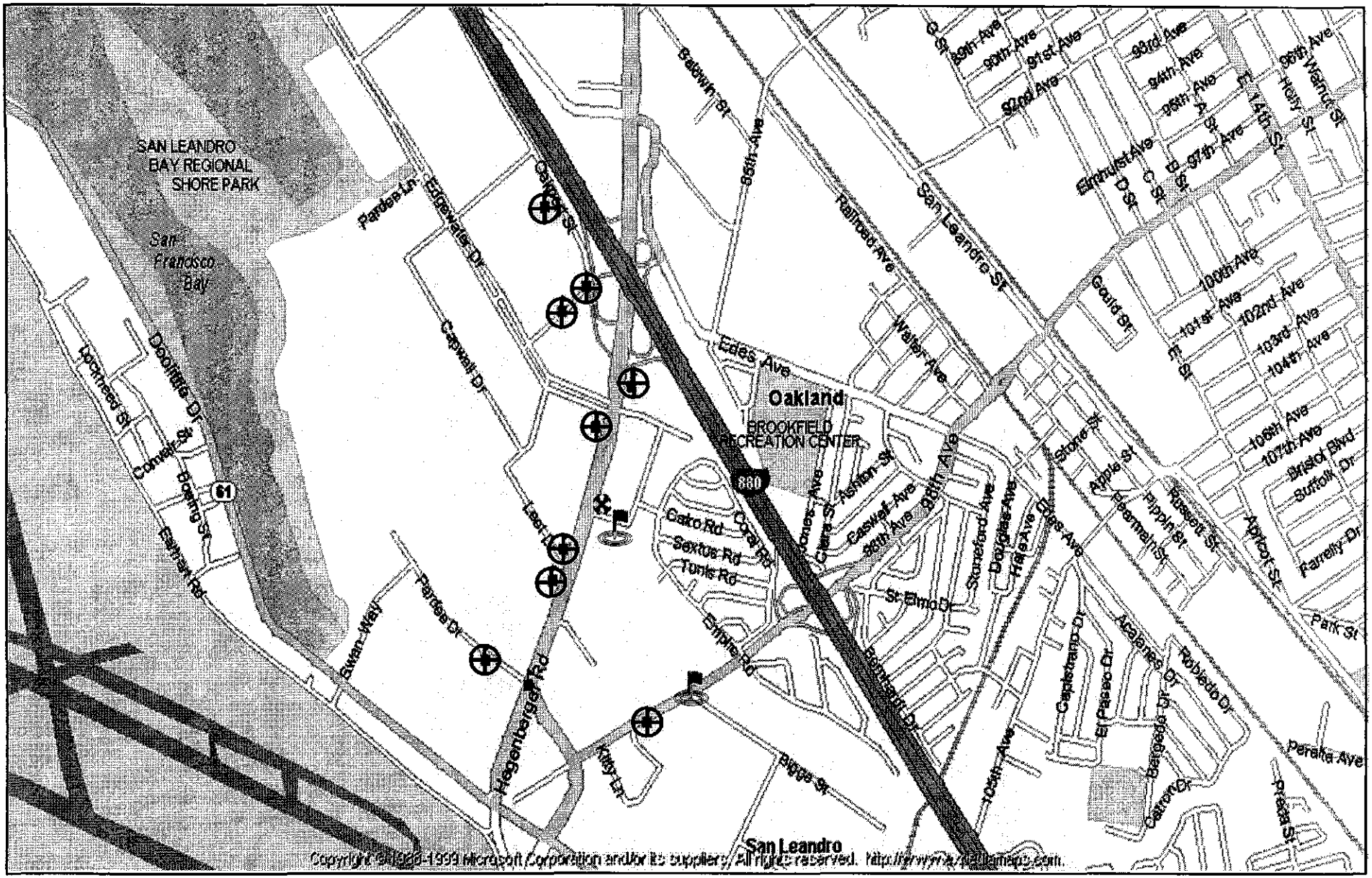

MW-8
HEGENBERGER ROAD
MW-7
HEGENBERGER LOOP
MW-3
MW-4
FORMER PUMP ISLANDS
MW-2
MW-6
CONCRETE SLAB
MW-5
CONCRETE SLAB
FORMER WASTE OIL TANK
MW-1
(DESTROYED 12/27/99)
GATE
30' 0 30' 60'
SCALE: 1" = 60'
LEGEND
MW-5 GROUNDWATER MONITORING WELL LOCATION
NOTE: ALL LOCATIONS ARE APPROXIMATE
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA
FIGURE 2
SITE MAP
Tetra Tech EM Inc.
R:\P1389-0504\ basemap.dwg 03/01/2001 TURONEM DN



444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 3
COMPARISON OF GROUNDWATER ELEVATIONS

Tetra Tech EM Inc.



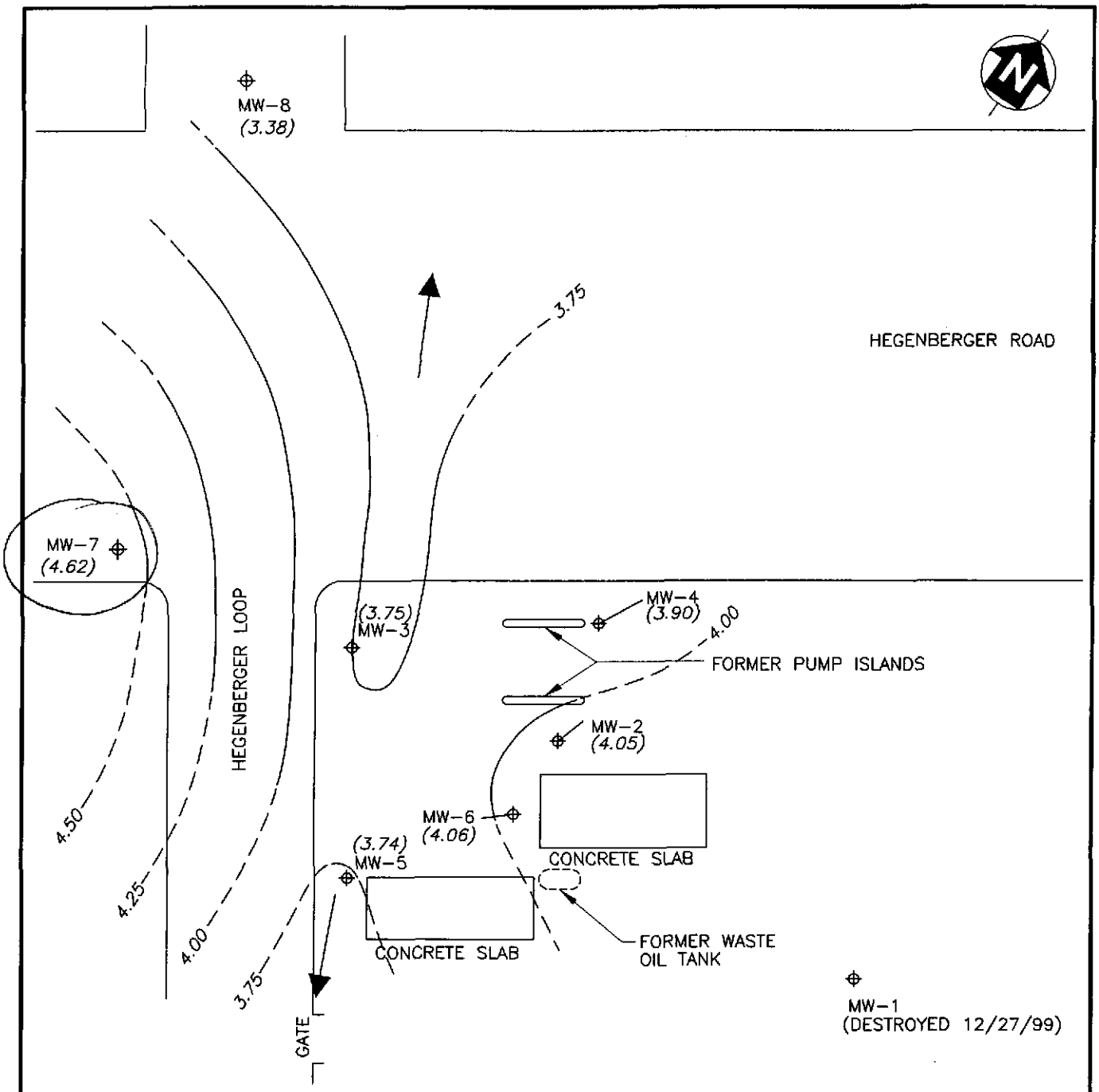
LEGEND

- 444 Hegenberger Road
- Monitoring Well Site
- Irrigation Well Site

Scale (feet)

0 2000

FIGURE 4
SENSITIVE RECEPTORS
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA



LEGEND

MW-5 ⊕ GROUNDWATER MONITORING WELL LOCATION

——— GROUNDWATER CONTOUR CONTOUR INTERVAL = 0.25 FEET (DASHED WHERE INFERRED)

(3.74) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)

→ INFERRED GROUNDWATER FLOW DIRECTION

30' 0 30' 60'
SCALE: 1" = 60'

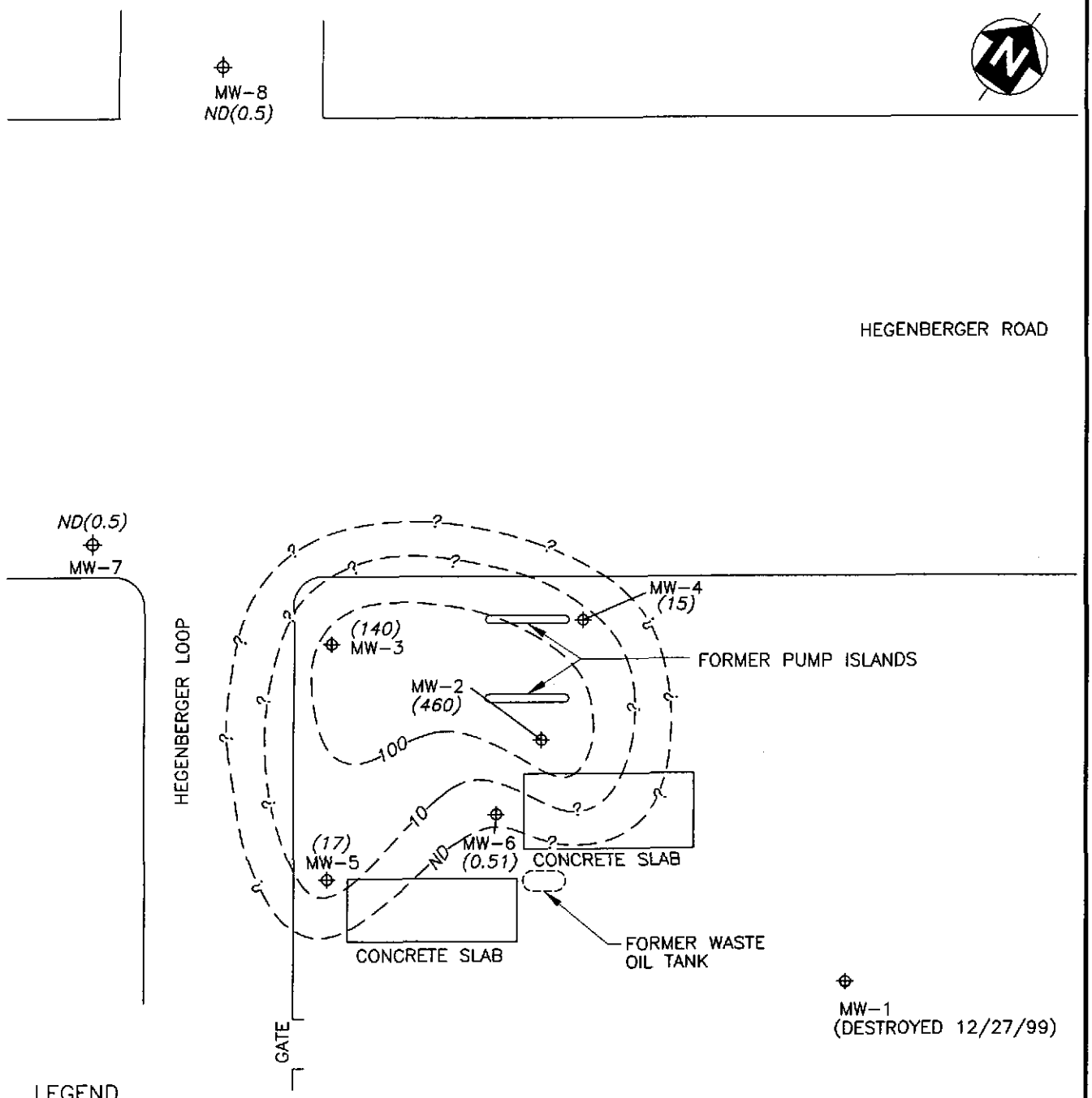
NOTE: ALL LOCATIONS ARE APPROXIMATE

444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 5
POTENTIOMETER SURFACE MAP
DECEMBER 14, 2000

Tetra Tech EM Inc.

R:\P1389-0504\GW-12-00.dwg 03/01/2001 TURONEM DN



LEGEND

MW-5 ⊕ GROUNDWATER MONITORING WELL LOCATION

— — — — ISOCONCENTRATION CONTOUR (QUERIED WHERE UNKNOWN)

(17) DETECTED CONCENTRATION OF BENZENE (IN MICROGRAMS PER LITER)

ND (0.5) NOT DETECTED AT OR ABOVE INDICATED LABORATORY REPORTING LIMIT

30' 0 30' 60'
SCALE: 1" = 60'

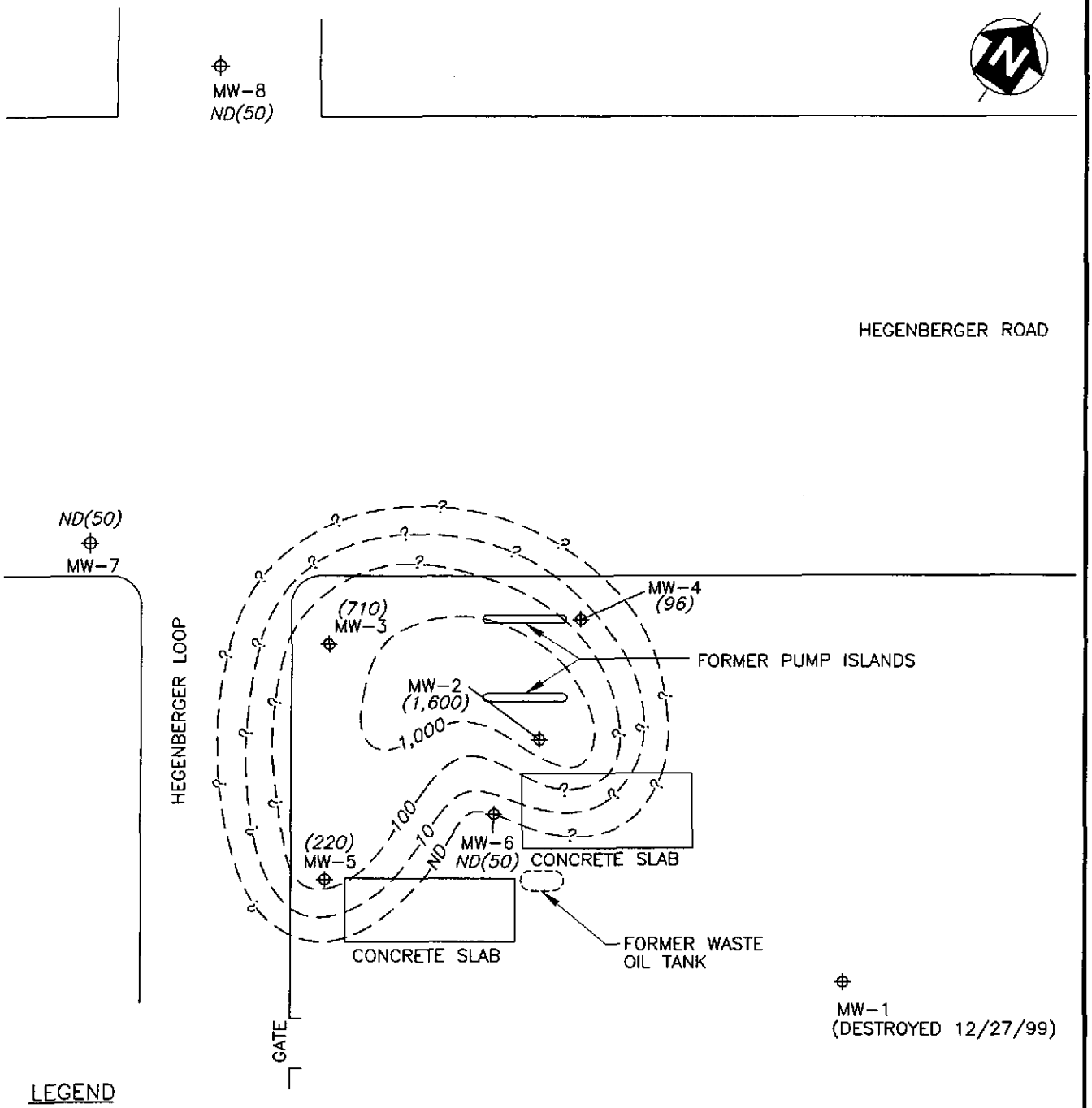
NOTE: ALL LOCATIONS ARE APPROXIMATE

444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 6
ISOCONCENTRATION CONTOUR MAP
OF BENZENE IN GROUNDWATER
DECEMBER 14, 2000

Tetra Tech EM Inc.

R:\P1389-0504\ GW-BENZENE.dwg 03/01/2001 TURONEM DN



LEGEND

MW-5 ⊕ GROUNDWATER MONITORING WELL LOCATION

— — — ISOCONCENTRATION CONTOUR (QUERIED WHERE UNKNOWN)

(220) DETECTED CONCENTRATION OF TOTAL PETROLEUM HYDROCARBON AS GASOLINE (IN MICROGRAMS PER LITER)

ND (50) NOT DETECTED AT OR ABOVE INDICATED LABORATORY REPORTING LIMIT

NOTE: ALL LOCATIONS ARE APPROXIMATE

30' 0 30' 60'
SCALE: 1" = 60'

444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

FIGURE 7
ISOCONCENTRATION CONTOUR MAP OF TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN GROUNDWATER
DECEMBER 14, 2000

Tetra Tech EM Inc.

R:\P1389-0504\ GW-TOTAL-PET.dwg 03/01/2001 TURONEM DN

TABLE 1

WELL DATA
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

WELL I.D.	DATE	INSTALLED WELL DEPTH (feet bgs)	SCREEN INTERVAL (feet bgs)	WELL DEPTH (feet BTOC)	TOC ELEVATION (feet)	DEPTH TO GROUNDWATER (feet BTOC)	GROUNDWATER ELEVATION (feet)	COMMENTS
MW-1	12/02/98	20'	5' - 20'	19.60	100.74*	2.90	97.84	hard bottom
	03/08/99			19.35		3.43	97.31	soft bottom
	07/01/99			19.53		3.81	96.93	
	08/18/99			19.53		3.62	97.12	
	09/15/99			19.30		3.69	97.05	
	12/27/99			19.45		3.81	96.93	well destroyed
MW-2	12/02/98	20'	5' - 20'	19.79	102.44*	4.61	97.83	soft bottom
	03/08/99			19.32		5.16	97.28	soft bottom
	07/01/99			19.43		5.91	96.53	
	08/18/99			19.43		5.53	96.91	
	09/15/99			19.43		5.55	96.89	
	12/27/99			19.52		5.55	96.89	
	03/29/00			19.57		5.44	97.00	
	06/09/00			?		?	?	NM -- FLH
	12/14/00			19.50	9.05**	5.00	4.05	Resurveyed
MW-3	12/02/98	20'	5' - 20'	19.85	102.00*	4.24	97.76	soft bottom
	03/08/99			19.24		4.90	97.10	soft bottom
	07/01/99			19.54		5.35	96.65	
	08/18/99			19.54		5.21	96.79	
	09/15/99			19.56		5.26	96.74	
	12/27/99			19.60		5.42	96.58	
	03/24/00			19.63		5.81	96.19	
	06/09/00			19.59		5.43	96.57	
	12/14/00			16.55	8.60**	4.85	3.75	Resurveyed
MW-4	12/02/98	20'	5' - 20'	19.15	100.00*	2.20	97.80	soft bottom
	03/08/99			19.44		2.80	97.20	hard bottom
	07/01/99			19.48		5.23	94.77	
	08/18/99			19.48		5.00	95.00	
	09/15/99			19.42		4.99	95.01	
	12/27/99			19.58		5.23	94.77	
	03/24/00			19.63		5.39	94.61	
	06/09/00			19.67		5.24	94.76	
	12/14/00			19.55	8.50**	4.60	3.90	Resurveyed

TABLE 1

WELL DATA
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

WELL I.D.	DATE	INSTALLED WELL DEPTH (feet bgs)	SCREEN INTERVAL (feet bgs)	WELL DEPTH (feet BTOC)	TOC ELEVATION (feet)	DEPTH TO GROUNDWATER (feet BTOC)	GROUNDWATER ELEVATION (feet)	COMMENTS
MW-5	12/02/98	20'	5' - 20'	19.72	102.22*	4.59	97.63	soft bottom
	03/08/99			19.72		5.20	97.02	hard bottom
	07/01/99			19.61		5.59	96.63	
	08/18/99			19.61		5.37	96.85	
	09/15/99			19.55		5.55	96.67	
	12/27/99			19.54		5.48	96.74	
	03/24/00			19.57		6.02	96.20	
	06/09/00			19.52		5.59	96.63	
	12/14/00			19.75	8.84**	5.10	3.74	Resurveyed
MW-6	03/24/00	20'	10' - 20'	18.39	102.58*	5.49	97.09	
	06/09/00			18.44		5.87	96.71	
	12/14/00			14.25	9.19**	5.13	4.06	Resurveyed
MW-7	12/14/00	20'	5' - 20'	18.75	8.10**	3.48	4.62	
MW-8	12/14/00	20'	5' - 20'	20.15	8.68**	5.10	3.58	

Notes:
bgs = Below ground surface
TOC = Top of casing
BTOC = Below top of casing
NM = Not measured
FLH = Floating product
* = Elevation relative to arbitrary benchmark of 100 feet established at MW-4
** = Elevation relative to established City of Oakland benchmark (feet above mean sea level)

TABLE 2

DATA AND THEIR SOURCES
SENSITIVE RECEPTOR SURVEY

DATA	SOURCES
• Human population of Oakland	• Based on Census 2000 information from the California Department of Finance
• Groundwater wells, including depths of wells, located within 2000 feet	• California Department of Water Resources
• Locations and uses of nearest surface water bodies, also including flood hazard zones as defined by the National Flood Insurance program	• Federal Emergency Management Agency (FEMA)
• Zoning and land use of the areas surrounding the site	• Zoning Division of Community and Economic Development Agency for Oakland, California
• Locations of potential preferential pathways for migration of contamination off-site including groundwater and buried subsurface utility vaults, which may be surrounded by high-permeability backfill	• City of Oakland • East Bay Municipal Utilities District (EBMUD) • Pacific Gas and Electric (PGE) • Pacific Bell • ATT • TCI Cable Television • Underground Service Alert (USA)
• Climatological conditions for the eastern San Francisco Bay area	• City of Oakland
• Characteristics of regional groundwater resources	• City of Oakland

TABLE 3

SOIL SAMPLE ANALYTICAL DATA
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

BORING	DEPTH (ft)	DATE	TPH-d	TPH-g	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	MTBE
MW-7	5	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
	10	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
	15	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
	20	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
MW-8	5	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
	10	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
	15	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)
	20	12/12/00	ND(1.0)	ND(1.0)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)	ND(0.0050)

Notes:

All results are reported in micrograms per liter
TPH-d = Total petroleum hydrocarbons as diesel
TPH-g = Total petroleum hydrocarbons as gasoline
MTBE = Methyl tertiary butyl ether
ND = Not detected at or above indicated laboratory reporting limit

TABLE 4

GROUNDWATER ANALYTICAL DATA
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

WELL I.D.	DATE	TPH-d	TPH-g	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	FUEL ADDITIVES
MW-1	12/02/98(a)	ND(50)	ND(50)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	---
	03/08/99	190	ND(50)	ND(0.3)	ND(0.3)	ND(0.3)	ND(0.3)	---
	07/01/99	ND(50)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	---
	09/15/99	ND(50)	3100	ND(0.5)	9.6	7.8	12	---
	12/27/99	ND(50)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	---
	12/27/99	WELL DESTROYED						
MW-2	12/02/98(a)	99	ND(50)	**4.6**	0.85	0.57	5	---
	03/08/99	210	180	**200(a)**	0.74	1.3	2.3	---
	07/01/99	ND(50)	1,100	**190**	13	33	36	---
	09/15/99	100*	990	**330**	9.7	11	19	---
	12/27/99	ND(50)	1,000	**260**	7.2	1.3	10	---
	03/29/00	31,000	1,900	**110**	4.8	9.5	12	---
	06/09/00	NOT SAMPLED: WELL CONTAINED FLOATING HYDROCARBONS						
	12/14/00	470	1600	**450**	18	61	26	ND(2/20)
MW-3	12/02/98(a)	300	970	**160**	6.5	16	9	---
	03/08/99	1,400	2,600	**1,800(b)**	30(c)	67(c)	26(c)	---
	07/01/99	150*	3,000	**1**	ND(0.5)	32	36	---
	09/15/99	110*	1,100	**350**	8.3	5.4	10	---
	12/27/99	70	560	**170**	2.1	7.6	3.1	---
	03/24/00	1,000	8,400	**4,100**	71	190	75	---
	06/09/00	320	2,700	**1,100**	17	18	ND(10)	---
	12/14/00	ND(100)	710	**140**	2.2	3.3	1.2	ND(0.5/5)
MW-4	12/02/98(a)	620	ND(50)	**1.1**	0.37	<0.3	2	---
	03/08/99	ND(50)	1,300	**1,900(b)**	9.4	1.2	11	---
	07/01/99	ND(50)	610**	**120**	ND(0.5)	<0.5	<0.5	---
	09/15/99	59*	830	**320**	6.5	1.7	<2.0	---
	12/27/99	ND(50)	55	**5.8**	ND(0.5)	<0.5	<0.5	---
	03/24/00	77	430	**240**	3.3	0.98	1.5	---
	06/09/00	ND(50)	220	**91**	0.93	ND(0.5)	ND(0.5)	---
	12/14/00	ND(50)	96	**15**	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5/5)

TABLE 5

SUMMARY OF HISTORICAL GROUNDWATER FLOW CONDITIONS
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

DATE	WELL ID	GROUNDWATER ELEVATION (feet)	GROUNDWATER FLOW DIRECTION	GROUNDWATER GRADIENT (feet/feet)
12/02/98	MW-1	97.84	W	0.00091
	MW-2	97.83		
	MW-3	97.76		
	MW-4	97.80		
	MW-5	97.63		
03/08/99	MW-1	97.31	SW	0.00086
	MW-2	97.28		
	MW-3	97.10		
	MW-4	97.20		
	MW-5	97.02		
07/01/99	MW-1	96.93	SW	0.0011
	MW-2	96.53		
	MW-3	96.65		
	MW-4	94.77		
	MW-5	96.63		
08/18/99	MW-1	97.12	W	0.0013
	MW-2	96.91		
	MW-3	96.79		
	MW-4	95.00		
	MW-5	96.85		
09/15/99	MW-1	97.05	N*	0.04089*
	MW-2	96.89		
	MW-3	96.74		
	MW-4	95.01	W	0.00125**
	MW-5	96.67		
12/27/99	MW-1	96.93	W**	0.0010**
	MW-2	96.89		
	MW-3	96.58		
	MW-4	94.77	N*	0.0489*
	MW-5	96.74		

TABLE 5

SUMMARY OF HISTORICAL GROUNDWATER FLOW CONDITIONS
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

DATE	WELL ID	GROUNDWATER ELEVATION (feet)	GROUNDWATER FLOW DIRECTION	GROUNDWATER GRADIENT (feet/feet)
03/24/00	MW-2	97.00***	NW	0.0469
	MW-3	96.19		(from MW-2 to MW-4)
	MW-4	94.61		
	MW-5	96.20	WSW	0.0131
	MW-6	97.09		(from MW-6 to area of MW-5)
06/09/00	MW-2	NM	N	0.03 (average)
	MW-3	96.57		(at MW-2, -3 & -4;
	MW-4	94.76		from MW-6 to MW-4)
	MW-5	96.63	SSW	0.0011 (average)
	MW-6	96.71		(from MW-6 to area of MW-5)
12/14/00	MW-2	4.05	N	0.003
	MW-3	3.75		(from MW-2 to MW-4)
	MW-4	3.90		
	MW-5	3.74		
	MW-6	4.06		
	MW-7	4.62	N	0.006
	MW-8	3.58		(from MW-7 to MW-8)

Notes:

* Flow component between Wells MW-2 and MW-4
** Flow component between Wells MW-2, MW-3,and MW-5
*** Measurement taken 3/29/00
Well MW-1 destroyed 12/27/99
Well MW-6 installed 3/20/00

APPENDIX A

ALAMEDA COUNTY PUBLIC WORKS AGENCY DRILLING PERMIT
CITY OF OAKLAND ENCROACHMENT PERMIT

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD Ca. 94544-1395
PHONE (510) 670-5554
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 444 Hegenberger Rd. Oakland

CLIENT
Name McMorgan and Company
Address _____ Phone _____
City _____ Zip _____

APPLICANT
Name Michael Buchalski
Tetra Tech EM Inc. Fax 916 852 0387
Address 10670 White Rock Rd. Phone 916 851 4500
City Rancho Cordova Zip 95670

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Weeks Drilling + Pumping

DRILLER'S LICENSE NO. C57 177681

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum
Casing Diameter 2 in. Depth 20 ft.
Surface Seal Depth 5 ft. Owner's Well Number MW-7

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

ESTIMATED STARTING DATE 12/12/00
ESTIMATED COMPLETION DATE 12/12/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Michael Buchalski DATE 12/8/00

FOR OFFICE USE
PERMIT NUMBER W00-893
WELL NUMBER _____
APN _____

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

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.

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.

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.

E. CATHODIC
Fill hole above 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.

Surface Seal Shall be at min 5 ft.

APPROVED _____ DATE 12-11-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 444 Hegenberger Rd., Oakland

CLIENT
Name McMorgan and Company
Address _____ Phone _____
City _____ Zip _____

APPLICANT
Name Michael Buchalski
Tetra Tech EM Inc. Fax 916 852 0307
Address 10670 Trade Center Dr. Phone 916 853 4500
City Rancho Cordova Zip 95670

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other _____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	☒
Cable	☐	Other	☐		

DRILLER'S NAME Weeks Drilling + Pumping

DRILLER'S LICENSE NO. C57 177681

WELL PROJECTS
Drill Hole Diameter 6 in. Maximum Depth 20 ft.
Casing Diameter 2 in. Owner's Well Number MW-8
Surface Seal Depth 5 ft.

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

ESTIMATED STARTING DATE 12/12/00
ESTIMATED COMPLETION DATE 12/12/00

FOR OFFICE USE
PERMIT NUMBER W00-894
WELL NUMBER _____
APN _____

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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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.

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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.

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

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.

Surface Seal Depth shall be min 5ft.

APPROVED _____ DATE 12-11-00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Michael Buchalski DATE 12/8/00

Recording Requested by:
CITY OF OAKLAND

When Recorded Mail to:
City of Oakland
Community & Economic
Development Agency
Building Services Division,
Engineering Information
250 Frank H. Ogawa Plaza, 2nd Floor
Oakland, CA 94612

TAX ROLL PARCEL NUMBER
(ASSESSOR'S REFERENCE NUMBER)

044	5076	007	02
MAP	BLOCK	PARCEL	SUB

Address:

Space Above for Recorder's Use Only

MINOR ENCROACHMENT PERMIT AND AGREEMENT

BNY WESTERN TRUST COMPANY TR C/O McMORGAN & COMPANY, the owners of certain real property described in the Grant Deed number 99-175072, recorded on May 4, 1999, in Oakland, Alameda County, California is hereby granted a Conditional Revocable Permit to encroach into the public right-of-way of Hegenberger Road in Oakland with one monitoring well. The location of said encroachment shall be as delineated in Exhibit 'A' attached hereto and made a part hereof.

The permittee agrees to comply with and be bound by the conditions for granting an Encroachment Permit attached hereto and made a part hereof.

This agreement shall be binding upon the undersigned, the present owners of the property described above, and their successors in interest thereof.

In witness whereof, I, have set my signature this 8TH day of DECEMBER, 2000.

NAME: PATRICK MURRAY
POSITION: SENIOR VICE PRESIDENT

----------*Below for office use only*----------

CITY OF OAKLAND

Dated: _____

By: _____
CALVIN N. WONG
Director of Building Services
For:
WILLIAM E. CLAGGETT
Executive Director,
Community & Economic Development Agency

ACKNOWLEDGMENT

STATE OF CALIFORNIA)
)SS.
COUNTY OF SAN FRANCISCO)

On December 8, 2000, before me, Mary Schroeder, Notary Public, personally appeared Patrick Murray, personally known to me ~~(or proved to me on the basis of satisfactory evidence)~~ to be the person(s) whose name(s) is~~/are~~ subscribed to the within instrument and acknowledged to me that he~~/she/they~~ executed the same in his~~/her/their~~ authorized capacity(~~ies~~), and that by his~~/her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

PC01 MARY SCHROEDER COMM. #1159690 NOTARY PUBLIC-CALIFORNIA SAN FRANCISCO COUNTY My Comm. Expires Oct. 27, 2001 PC01

Mary Schroeder
NOTARY PUBLIC

(seal)

TO: *Patrick G. Murray*
McMORGAN & COMPANY
One Bush Street, Suite 800
San Francisco, CA 94104
(APN: 044-5076-007-02)

RE: Minor Encroachment Permit for installation of one monitoring well on Hegenberger Road.

CONDITIONS FOR GRANTING A MINOR ENCROACHMENT PERMIT

1. That this permit shall be revocable at the pleasure of the *Director of Building Services.*

2. That the permittee, by the acceptance, either expressed or implied, of the minor encroachment permit hereby disclaims any right, title, or interest in or to any portion of the public street area, and agrees that said temporary use of said area does not constitute an abandonment on the part of the City of Oakland of any of its rights for street purposes and otherwise.

3. The permittee shall maintain in force and effect at all times that said encroachment occupies said public area, good and sufficient public liability insurance in the amount of $300,000 for each occurrence, and property damage insurance in the amount of $50,000 for each occurrence, both including contractual liability, insuring the City of Oakland, its officers and employees against any and all claims arising out of the existence of said encroachment in said sidewalk area, as respects liabilities assumed under this permit,and that a certificate of such insurance and subsequent notices of the renewal thereof, shall be filed with the *Director of Building Services* of the City of Oakland, and that such certificate shall state that said insurance coverage shall not be canceled or be permitted to lapse without thirty (30) days written notice to said *Director of Building Services*. The permittee also agrees that the City may review the type and amount of insurance required of the permittee every five (5) years and may require the permittee to increase the amount of and/or change the type of insurance coverage required.

4. That the permittee, by the acceptance, either expressed or implied, of this revocable permit shall be solely and fully responsible for the repair or replacement of any portion or all of said improvements in the event that said improvements shall have failed or have been damaged to the extent of creating a menace or of becoming a hazard to the safety of the general public; and that the permittee shall be liable for the expenses connected therewith.

5. That the permittee is aware that the proposed work is out of the ordinary and does not

comply with City standard installations. Permittee is also aware that the City has to conduct work in the public right-of-way which may include, but may not be limited to, excavation, trenching, and relocation of its facilities, all of which may damage encroachments. Permittee is further aware that the City takes no responsibility for repair or replacement of encroachments which are damaged by the City or its contractors. That the permittee, by the acceptance, either expressed or implied, of the encroachment permit hereby agrees that upon receipt of notification from the City, permittee shall immediately repair or replace within 30 days all damages to permittee's encroachments within the public right-of-way which are damaged by the City or its contractors in carrying out the City's work. Permittee agrees to employ interim measures required and approved by the City until repair or replacement work is completed.

6. That upon the termination of the permission herein granted, permittee shall immediately remove said encroachment from the street area, and any damage resulting therefrom shall be repaired to the satisfaction of the *Director of Building Services*.

7. That the permittee shall file with the City of Oakland for recordation a Minor Encroachment Permit and Agreement, and shall be bound by and comply with all the terms and conditions of said permit.

8. That said permittee shall obtain an excavation permit prior to construction and a separate excavation permit prior to the removal of the ground water monitoring well.

9. That said permittee shall provide to the City of Oakland an AS BUILT plan showing the actual location of the *monitoring well* and the results of all data collected from the monitoring well.

10. That said permittee shall remove the monitoring well and repair any damage to the street area in accordance with City standards two (2) years after construction or as soon as monitoring is complete.

11. That said permittee shall notify the *Community & Economic Development Agency, Building Services Division* after the *monitoring well* is removed and the street area restored to initiate the procedure to rescind the minor encroachment permit.

12. That the monitoring well cover installed within the sidewalk area shall have a skid-proof surface.

13. That the ground water monitoring well casting and cover shall be iron and shall meet H-20 load rating. The cover shall be secured with a minimum of two stainless steel bolts. Bolts and cover shall be mounted flush with the surrounding surface. For sidewalk installations, a precast concrete utility box and non-skid cover may be needed in conjunction with the bolted cast iron cover with City approval.

14. That the permittee acknowledges that the City makes no representations or warranties as to the conditions beneath said encroachment. By accepting this revocable permit, permittee agrees that it will use the encroachment area at its own risk, is responsible for the proper coordination of its activities with all other permittees, underground utilities, contractors, or workmen operating, within the encroachment area and for the safety of itself and any of its personnel in connection with its entry under this revocable permit.

15. The permittee acknowledges that the City is unaware of the existence of any hazardous substances beneath the encroachment area, and permittee hereby waives and fully releases and forever discharges the City and its officers, directors, employees, agents, servants, representatives, assigns and successors from any and all claims, demands, liabilities, damages, actions, causes of action, penalties, fines, liens, judgements, costs, or expenses whatsoever (including, without limitation, attorneys' fees and costs), whether direct or indirect, known or unknown, foreseen or unforeseen, that may arise out of or in any way connected with the physical condition or required remediation of the excavation area of any law or regulation applicable thereto, including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. Sections 9601 et seq.), the Resource Conservation and Recovery Act of 1976 (42 U.S.C. Section 466 et seq.), the Safe Drinking Water Act (14 U.S.C. Sections 1401, 1450), the Hazardous Waste Control Law (California Health and Safety Code Sections 25100 et seq.), the Porter-Cologne Water Quality Control Act (California Health and Safety Code Section 13000 et seq.), the Hazardous Substance Account Act (California Health and Safety Code Sections 253000 et seq.), and the Safe Drinking Water and Toxic Enforcement Act (California Health and Safety Code Section 25249.5 et seq.).

16. Permittee further acknowledges that it understands and agrees that it hereby expressly waives all rights and benefits which it now has or in the future may have, under and by virtue of the terms of California Civil Code Section 1542, which reads as follows: "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUBJECT TO EXIST IN HIS FAVOR BY HIM MUST HAVE MATERIALLY AFFECTED HIS SETTLEMENT WITH THE DEBTOR."

17. Permittee recognizes that by waiving the provisions of this section, permittee will not be able to make any claims for damages that may exist, and to which, if known, would materially affect its decision to agree to these encroachment terms and conditions, regardless of whether permittee's lack of knowledge is the result of ignorance, oversight, error, negligence, or any other cause.

18. (a) That the permittee, by the acceptance of this revocable permit, agrees and promises to indemnify, defend, and hold harmless the City of Oakland, its officers, agents, and employees, to the maximum extent permitted by law, from any and all claims, demands, liabilities damages, actions, causes of action, penalties, fines, liens,

judgments, costs, or expenses whatsoever (including, without limitation, attorneys' fees and costs; collectively referred to as "claims", whether direct or indirect, known or unknown, foreseen or unforeseen, to the extent that such claims were either (1) caused by the permittee, its agents, employees, contractors or representatives, or, (2) in the case of environmental contamination, the claim is a result of environmental contamination that emanates or emanated from the said vacant lot in Oakland, California site, or was otherwise caused by the permittee, its agents, employees, contractors or representatives.

(b) That, if any contamination is discovered below or in the immediate vicinity of the encroachment, and the contaminants found are of the type used, housed, stored, processed or sold on or from the said vacant lot in Oakland, California site, such shall amount to a rebuttable presumption that the contamination below, or in the immediate vicinity of, the encroachment was caused by the permittee, its agents, employees, contractors or representatives.

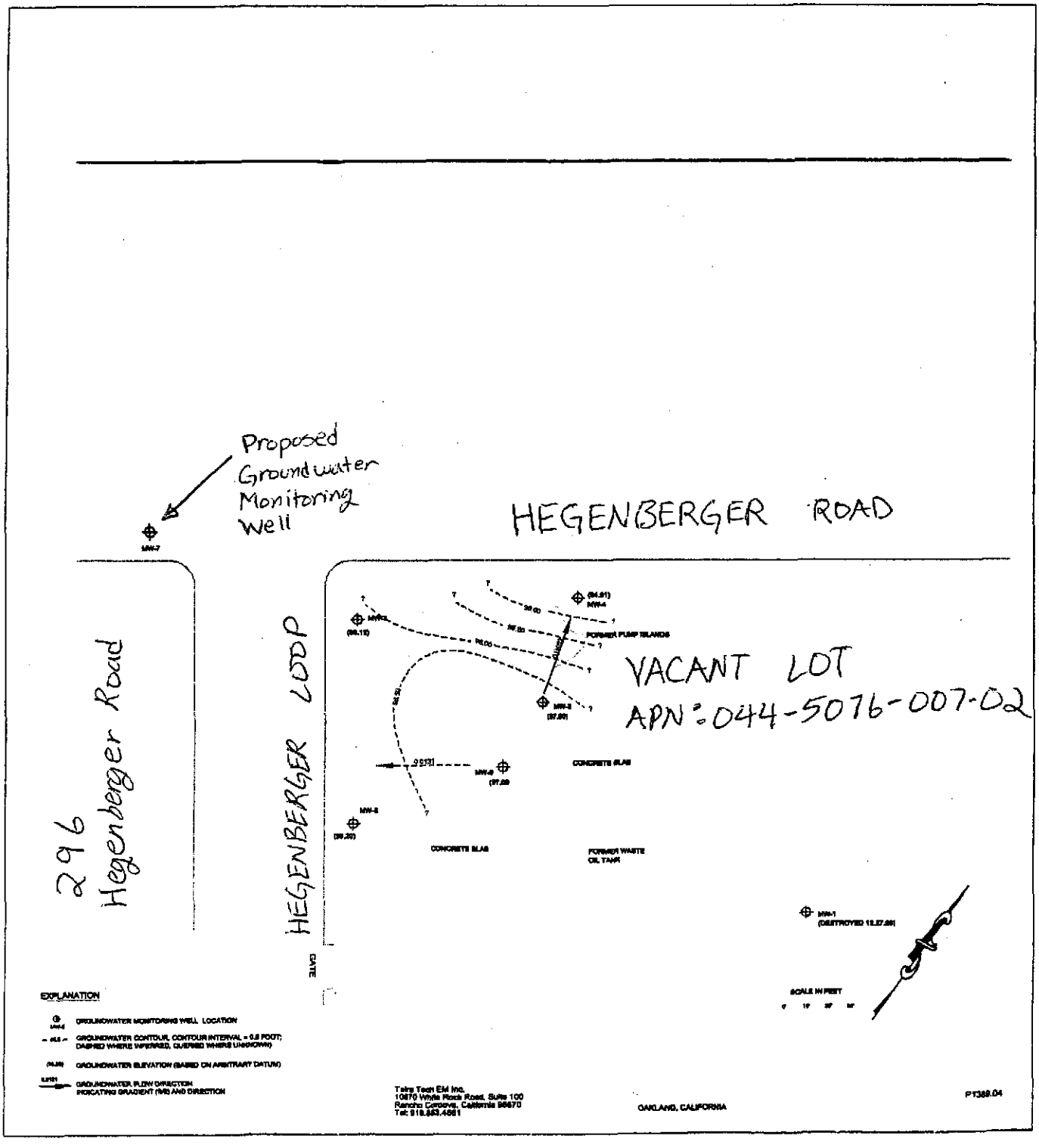
(c) That the permittee shall comply with all applicable federal, state, county and local laws, rules, and regulations governing the installation, maintenance, operation and abatement of the encroachment.

19. That the permittee hereby does remise, release, and forever discharge, and agree to defend, indemnify, and save harmless, the City, its officers, agents and employees and each of them, from any and all actions, claims, and demands of whatsoever kind or nature, and andy damage, loss or injury which may be sustained directly or by the undersigned and any other person or persons, and arising out of, or by reason of the occupation of said public property, and the future removal of the above-mentioned encroachment.

20. That the herein above conditions shall be binding upon the permittee and the successive owners and assigns thereof.

21. That said Minor Encroachment Permit and Agreement shall take effect when all the conditions hereinabove set forth shall have been complied with to the satisfaction of the *Director of Building Services*, and shall become null and void upon the failure of the permittee to comply with all conditions.

EXHIBIT 'A'


Proposed Groundwater Monitoring Well
MW-7
HEGENBERGER ROAD
296 Hegenberger Road
HEGENBERGER LOOP
VACANT LOT
APN: 044-5076-007-02
FORMER PUMP ISLANDS
CONCRETE SLAB
CONCRETE SLAB
FORMER WASTE OIL TANK
MW-1 (DESTROYED 12.27.99)
SCALE IN FEET
EXPLANATION
GROUNDWATER MONITORING WELL LOCATION
GROUNDWATER CONTOUR, CONTOUR INTERVAL = 0.5 FOOT; DASHED WHERE INFERRED, QUERIED WHERE UNKNOWN)
GROUNDWATER ELEVATION (BASED ON ARBITRARY DATUM)
GROUNDWATER FLOW DIRECTION INDICATING GRADIENT (%/ft) AND DIRECTION
Tetra Tech EM Inc.
10670 White Rock Road, Suite 100
Rancho Cordova, California 95670
Tel: 916.853.4661
OAKLAND, CALIFORNIA
FY388.04

DATE: 12/12/00

PRC LITHOLOGIC BORING LOG

SHEET 1 OF 1

SITE ID: 444 Hagenbarger Rd BORING ID: MW-7

CHARGE NO.: P1389004

LOGGED BY: M. Buchalski

SYMBOLS:
≡ Well Screen Int.
⊽ Static water level
* Staining / Odor

CONTACTS:
—— Distinct
- - - - Inferred
\ Gradational

SAMPLE ID	SAMPLE TIME	SAMPLER DEPTH	PID-SAMPLE (ppm)	BLOW COUNT / 6-IN	Inches Recovered	DEPTH (ft bgs)	GRAPHIC	USCS SOIL TYPE	Well Screen Detail	
										Asphalt Gravel (Base Rock), dark yellowish brown (10YR4/6) moist, gravel up to 2 inch, few clay, dense, no odor
			0	1		5		CH		
121200001	1105			1						Clay (CH), Black (2.5/N), moist, very plastic, very soft, no odor
				2						
			0	4		10		CL		
121200-02	1110			8						Silty clay (CL), dark greenish gray (10Y4/1), dry to moist, medium plasticity, medium stiff, no odor
				11						
						15				
			0	14				GP		Sandy gravel (GP), olive brown (2.5Y4/4), saturated, some clay, sand coarse to fine grained, gravel up to 1.5 inch, loose, no odor
121200-03	1115			18						
				20						
								SP		Poorly graded sand (SP), olive brown (2.5Y4/4), saturated, some gravel up to 3/4 inch, loose, no odor
121200-04	1130		0	0		20				
										Bottom of boring

DATE: 12/12/00

PRC LITHOLOGIC BORING LOG

SHEET 1 OF 1

SITE ID: 444 Hagenberger Rd BORING ID: MW-8

CHARGE NO.:

LOGGED BY: M. Budalski

SYMBOLS: ≡ Well Screen Int. ⊽ Static water level ✱ Staining / Odor

CONTACTS: —— Distinct ---- Inferred \ Gradational

SAMPLE ID	SAMPLE TIME	SAMPLE RECOVERY	PID-SAMPLE (ppm)	BLOW COUNT / 6-IN	Inches Recovered	DEPTH (ft bgs)	GRAPHIC	USCS SOIL TYPE	Well Screen Detail
				2		5		CL	
			0	1					
121200-05	1345			1					
				2		10		CH	
			0	3					
121200-06	1352			6					
			●	10		15		GP	
121200-07	1405			20					
						20		SP	
121200-08	1415		0	16					

Asphalt

Fill material, clay with sand and gravel, very dark grayish brown (10YR 3/2), moist, gravel up to 1.5 inch

Silty clay (CL), dark greenish gray (10Y 3/1), saturated, extremely soft, low plasticity, no odor, Bay Mud

Clay (CH), black (2.5/N), moist, few silt, some organic material, stiff, medium plasticity, hackery fracture, no odor

Sandy gravel (GP), olive brown (2.5Y 4/4), saturated, some clay, sand coarse to fine grained, gravel up to 2 inch, loose, no odor

Poorly graded sand (SP), olive brown (2.5Y 4/4), saturated, trace gravel, loose, no odor

Bottom of boring

APPENDIX C

MONITORING WELL COMPLETION DIAGRAMS

TETRATECH EM INC

MONITORING WELL COMPLETION RECORD

MONITORING WELL
MONITORING WELL NO.: MW-8
PROJECT: Mc Morgan + Company
SITE: 444 Hegenberger Rd
BOREHOLE NO.: MW-8
WELL PERMIT NO.: W00-894
TOC TO BOTTOM OF WELL: _____

DRILLING INFORMATION
DRILLING BEGAN:
DATE: 12/12/00 TIME: 1335
WELL INSTALLATION BEGAN:
DATE: 12/12/00 TIME: 1415
WELL INSTALLATION FINISHED:
DATE: 12/12/00 TIME: _____
DRILLING CO.: Weeks Drilling and Pump Co
DRILLER: Gary Meyer
LICENSE: C57177681
DRILL RIG: _____
DRILLING METHOD:
- ☒ HOLLOW STEM AUGER
- ☐ AIR ROTARY
- ☐ OTHER: _____

DIAMETER OF AUGERS:
ID: _____ OD: 6 inch

WELL CASING
- ☒ SCHEDULE 40 PVC
- ☐ OTHER: _____

PRODUCT: _____
MFG. BY: Longyear
CASING DIAMETER:
ID: _____ OD: 2 inch
LENGTH OF CASING: 20 ft

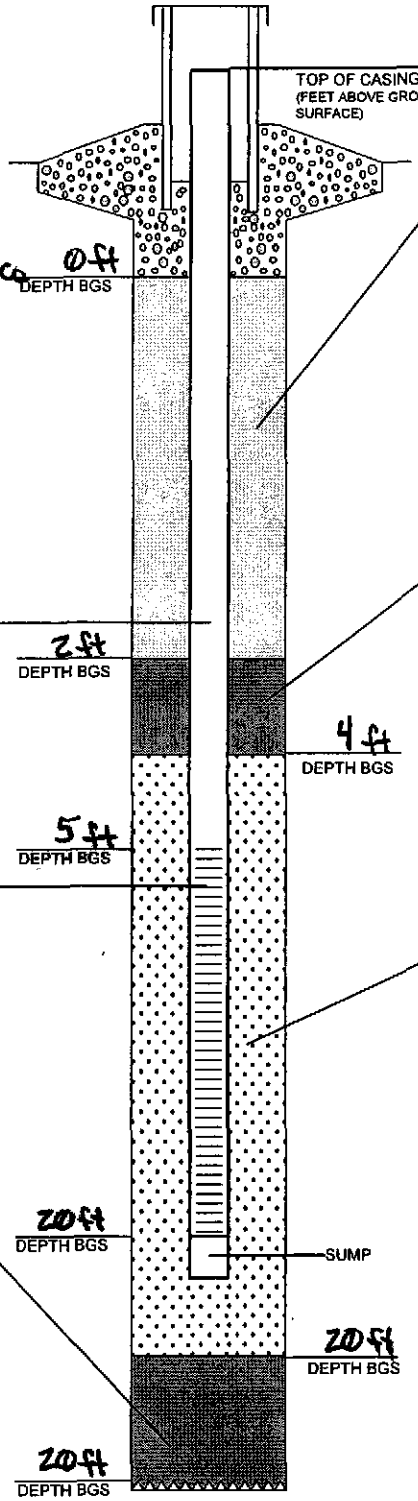
WELL SCREEN
- ☒ SCHEDULE 40 PVC
- ☐ OTHER: _____

PRODUCT: _____
MFG. BY: Longyear
CASING DIAMETER:
ID: _____ OD: 2 inch
SLOT SIZE: 0.01 inch
LENGTH OF SCREEN: 15 ft

BOREHOLE BACKFILL
AMOUNT CALCULATED: _____
AMOUNT USED: _____
- ☐ BENTONITE CHIPS, SIZE: _____
- ☐ BENTONITE PELLETS, SIZE: _____
- ☐ SLURRY: _____
- ☐ FORMATION COLLAPSE: _____
- ☐ OTHER: _____

PRODUCT: _____
MFG. BY: _____
METHOD INSTALLED:
- ☐ POURED ☐ TREMIE
- ☐ OTHER: _____

SURFACE COMPLETION
- ☒ FLUSH MOUNT
- ☐ ABOVE GROUND WITH BUMPER POST
- ☒ CONCRETE ☐ ASPHALT



SURVEY INFORMATION
TOC ELEVATION: _____
GROUND SURFACE ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE SURVEYED: _____
SURVEY CO.: _____

ANNULAR SEAL
VOLUME CALCULATED: _____
AMOUNT USED: _____
- ☒ GROUT FORMULA (PERCENTAGES)
  - PORTLAND CEMENT: 1 100 lb bag
  - BENTONITE: _____
  - WATER: _____
- ☐ PREPARED MIX
  - PRODUCT: _____
  - MFG. BY: _____

METHOD INSTALLED:
- ☒ POURED ☐ TREMIE
- ☐ OTHER: _____

BENTONITE SEAL
VOLUME CALCULATED: _____
AMOUNT USED: 50 lbs
- ☐ PELLETS, SIZE: _____
- ☒ CHIPS, SIZE: _____
- ☐ OTHER: _____

PRODUCT: Hydro Plug 3/8
MFG. BY: _____
METHOD INSTALLED:
- ☒ POURED ☐ TREMIE
- ☐ OTHER: _____

AMOUNT OF WATER USED: _____

FILTER PACK
- ☐ PREPACKED FILTER

VOLUME CALCULATED: _____
AMOUNT USED: 4 100 lb bags
- ☒ SAND, SIZE: 2/12

PRODUCT: Lapis Lustre
MFG. BY: RMC Pacific Materials
METHOD INSTALLED:
- ☒ POURED ☐ TREMIE
- ☐ OTHER: _____

WATER LEVEL: _____
(BTOC AFTER WELL INSTALLATION)

CENTRALIZERS USED?
☐ YES ☒ NO;
CENTRALIZER DEPTHS: _____ _____

LEGEND
BGS = BELOW GROUND SURFACE
BTOC = BELOW TOP OF CASING
N/A = NOT APPLICABLE
NR = NOT RECORDED
TOC = TOP OF CASING

TETRATECH EM INC

MONITORING WELL COMPLETION RECORD

MONITORING WELL
MONITORING WELL NO.: MW-7
PROJECT: McMorgan + Company
SITE: 444 Hayenbarger Rd
BOREHOLE NO.: MW-7
WELL PERMIT NO.: W00-893
TOC TO BOTTOM OF WELL: _____

SURFACE COMPLETION
☒ FLUSH MOUNT
☐ ABOVE GROUND WITH BUMPER POST
☒ CONCRETE ☐ ASPHALT

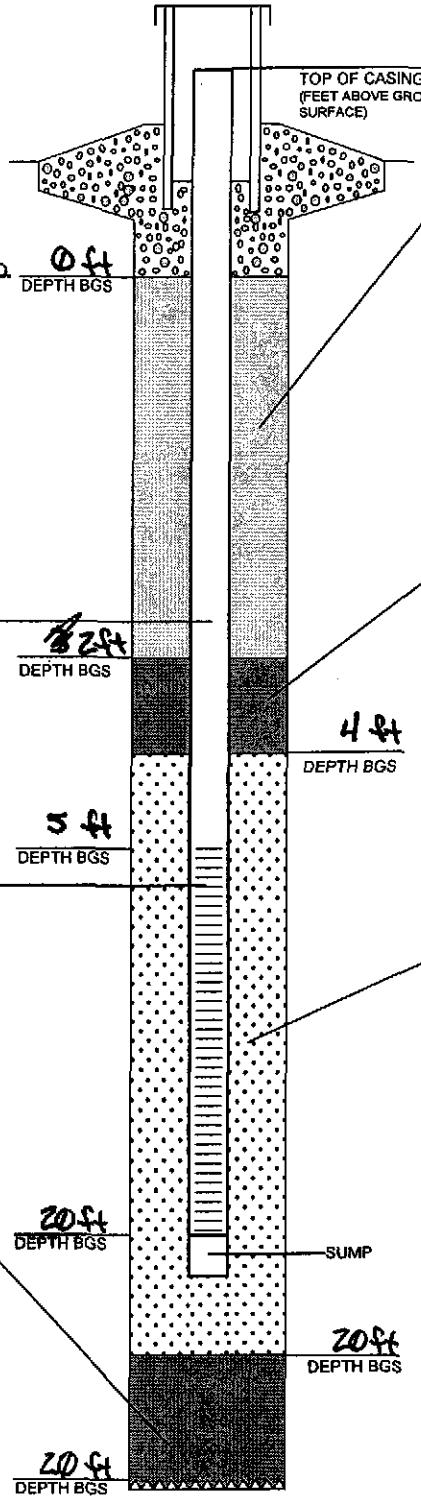
SURVEY INFORMATION
TOC ELEVATION: _____
GROUND SURFACE ELEVATION: _____
NORTHING: _____
EASTING: _____
DATE SURVEYED: _____
SURVEY CO.: _____

DRILLING INFORMATION
DRILLING BEGAN:
DATE: 12/12/00 TIME: 1100
WELL INSTALLATION BEGAN:
DATE: 12/12/00 TIME: 1130
WELL INSTALLATION FINISHED:
DATE: 12/12/00 TIME: 1320
DRILLING CO.: Weeks Drilling + Pump Co.
DRILLER: Gary Meyers
LICENSE: C57177681
DRILL RIG: _____
DRILLING METHOD:
☒ HOLLOW STEM AUGER
☐ AIR ROTARY
☐ OTHER: _____
DIAMETER OF AUGERS:
ID: _____ OD: 6 inch

WELL CASING
☒ SCHEDULE 40 PVC
☐ OTHER: _____
PRODUCT: _____
MFG. BY: Long year
CASING DIAMETER:
ID: _____ OD: 2 inch
LENGTH OF CASING: 20 feet

WELL SCREEN
☒ SCHEDULE 40 PVC
☐ OTHER: _____
PRODUCT: _____
MFG. BY: Long year
CASING DIAMETER:
ID: _____ OD: 2 inch
SLOT SIZE: 0.01 inch
LENGTH OF SCREEN: 15 feet

BOREHOLE BACKFILL
AMOUNT CALCULATED: _____
AMOUNT USED: _____
☐ BENTONITE CHIPS, SIZE: _____
☐ BENTONITE PELLETS, SIZE: _____
☐ SLURRY: _____
☐ FORMATION COLLAPSE: _____
☐ OTHER: _____
PRODUCT: _____
MFG. BY: _____
METHOD INSTALLED:
☐ POURED ☐ TREMIE
☐ OTHER: _____



ANNULAR SEAL
VOLUME CALCULATED: _____
AMOUNT USED: _____
☒ GROUT FORMULA (PERCENTAGES)
PORTLAND CEMENT: 1 100 lb bag
BENTONITE: _____
WATER: _____
☐ PREPARED MIX
PRODUCT: _____
MFG. BY: _____
METHOD INSTALLED:
☒ POURED ☐ TREMIE
☐ OTHER: _____

BENTONITE SEAL
VOLUME CALCULATED: _____
AMOUNT USED: 50 lbs
☐ PELLETS, SIZE: _____
☒ CHIPS, SIZE: _____
☐ OTHER: _____
PRODUCT: Hydro Plug 3/8
MFG. BY: _____
METHOD INSTALLED:
☒ POURED ☐ TREMIE
☐ OTHER: _____
AMOUNT OF WATER USED: _____

FILTER PACK
☐ PREPACKED FILTER
VOLUME CALCULATED: _____
AMOUNT USED: 4 100 lb bags
☒ SAND, SIZE: 2/12
PRODUCT: Lapis Lustre
MFG. BY: RMC Pacific Materials
METHOD INSTALLED:
☒ POURED ☐ TREMIE
☐ OTHER: _____
WATER LEVEL: _____
(BTOC AFTER WELL INSTALLATION)

CENTRALIZERS USED?
☐ YES ☒ NO;
CENTRALIZER DEPTHS: _____

LEGEND
BGS = BELOW GROUND SURFACE
BTOC = BELOW TOP OF CASING
N/A = NOT APPLICABLE
NR = NOT RECORDED
TOC = TOP OF CASING

APPENDIX D

MONITORING WELL DEVELOPMENT FORMS

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-2

Project Site/Subsite: 444 Hegenberger Rd

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	19.5 ft	
Water Level (ft) (Below TOC)*	5.0 ft	

Development Technique: Purged w/ bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump
☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 1520 Development End Time: 1535

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1526	1528	1531				
Volume Purged							
pH	6.8	6.8	6.7				
Temperature (°C)	19	19	19				
Specific Conductance (mmhos/cm²)	1.3	1.2	1.0				
Turbidity (NTU)							
Gallons Purged	1	3	6				

Water Removed During Development: 8 Gallons

Development Duration: 15 mins Hour(s)

Description of Water Removed During Development:

Color clear Turbidity low Odor hydrocarbon Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-3

Project Site/Subsite: _____

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	16.55	
Water Level (ft) (Below TOC)*	4.85	

Development Technique: Purged w/ bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump ☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 1649 Development End Time: 1705

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1653	1657	1702	1707			
Volume Purged							
pH	6.7	6.7	6.7	6.7			
Temperature (°C)	19	19	19	19			
Specific Conductance (mmhos/cm²)	0.9	.81	.74	.74			
Turbidity (NTU)							
Gallons Purged	1	3	5	7			

Water Removed During Development: 8 Gallons

Development Duration: 9 mins Hour(s)

Description of Water Removed During Development:

Color brown Turbidity medium Odor hydrocarbon Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-4

Project Site/Subsite: 444 Hagenberger Rd

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	19.55 ft	
Water Level (ft) (Below TOC)*	4.6 ft	

Development Technique: Purged w/ bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump
☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 1600 Development End Time: 1617

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1607	1610	1613	1616			
Volume Purged							
pH	6.7	6.7	6.7	6.7			
Temperature (°C)	19	19	19	19			
Specific Conductance (mmhos/cm²)	.88	.73	.72	.74			
Turbidity (NTU)							
Gallons Purged	1	3	6	8			

Water Removed During Development: 8 Gallons

Development Duration: 9 mins Hour(s)

Description of Water Removed During Development:

Color brown Turbidity medium Odor _____ Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-5

Project Site/Subsite: 449 Hagenbarger Rd

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	19.75 ft	
Water Level (ft) (Below TOC)*	5.1 ft	

Development Technique: Purged w/ bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump
☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 1740 Development End Time: 1800

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1741	1745	1749	1750			
Volume Purged							
pH	6.8	6.7	6.7	6.7			
Temperature (°C)	19	18	18	19			
Specific Conductance (mmhos/cm²)	1.1	.84	.77 ~~.82~~	.77			
Turbidity (NTU)							
Gallons Purged	1	4	6	8			

Water Removed During Development: 8 Gallons

Development Duration: 9 min Hour(s)

Description of Water Removed During Development:

Color clear Turbidity low Odor — Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-6

Project Site/Subsite: 444 Heyenbergen Rd

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	14.25 ft	
Water Level (ft) (Below TOC)*	5.13 ft	

Development Technique: Purged w/ bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump
☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 1430 Development End Time: 1449

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1433	1437	1440	1443	1445	1448	
Volume Purged							
pH	6.89	6.79	6.87	6.77	6.84	6.82	
Temperature (°C)	18.5	18.7	18.4	19.2	18.7	18.9	
~~Specific Conductance (mmhos/cm)~~ conductivity mS/cm	1.25	1.05	1.09	.879	.914	.885	
Turbidity (NTU)							
Gallons Purged	1	4	6	8	10	12	

Water Removed During Development: 12 Gallons

Development Duration: 15 mins Hour(s)

Description of Water Removed During Development:

Color brown Turbidity high Odor none Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-7

Project Site/Subsite: 444 Hagenberger Rd

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	18.75'	20.15'
Water Level (ft) (Below TOC)*	3.48'	4.80'

Development Technique: surge block and bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump
☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 9:30 Development End Time: 1115

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1017	1039	1051	1104	1110		
Volume Purged							
pH	7.09	7.03	6.82	6.79	6.81		
Temperature (°C)	17.6	18.3	19.0	19.1	19.3		
~~Specific~~ conductivity ~~Conductance (mmhos/cm²)~~ mS/cm	1.70	1.52	1.15	1.10	1.08		
Turbidity (NTU)							
Gallons Purged	20	30	38	50	55		

Water Removed During Development: 55 Gallons

Development Duration: 1 hour 45 min Hour(s)

Description of Water Removed During Development:

Color brown Turbidity high Odor none Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

PRC Environmental Management, Inc.

MONITORING WELL DEVELOPMENT FORM

Date: 12/14/00 Monitoring Well Number: MW-8

Project Site/Subsite: 444 Hagenberger Rd

	PRE-DEVELOPMENT	POST-DEVELOPMENT
Depth to Well Bottom (ft) (Below TOC)*	20.15 ft	20.5 ft
Water Level (ft) (Below TOC)*	5.1 ft	4.9 ft

Development Technique: surge block and bailer

Method of Purging: ☐ Bladder Pump ☐ Submersible Pump
☒ Bailer ☐ _____

Pump Depth During Purging: _____ ft. Below Top of Casing

Development Start Time: 1220 Development End Time: 1337

PHYSIO-CHEMICAL PARAMETERS DURING DEVELOPMENT							
Time	1227	1246	1303	1311	1317	1325	1332
Volume Purged							
pH	6.88	6.68	6.87	6.72	6.70	6.68	6.64
Temperature (°C)	18.6	18.8	17.9	18.5	17.5	17.2	17.5
~~Specific~~ Conductivity mS/cm ~~Conductance (mmhos/cm²)~~	2.29	2.57	2.81	2.41	3.61	4.50	4.32
Turbidity (NTU)							
Gallons Purged	3	15	20	30	36	42	50

Water Removed During Development: 55 Gallons

Development Duration: 1 hr 17 mins Hour(s)

Description of Water Removed During Development:

Color brown Turbidity high Odor none Other _____

Yield: _____ Gallons Per Minute

* TOC = Top of Casing

NCS STOCKTON

FIGURE 3-7
MONITORING WELL DEVELOPMENT FORM

PRC ENVIRONMENTAL MANAGEMENT, INC.

APPENDIX E

SURVEYOR'S REPORT

Virgil Chavez Land Surveying
312 Georgia Street, Suite 225
Vallejo, California 94590-5907
(707) 553-2476 • Fax (707) 553-8698

January 30, 2001
Project No. 1911-00

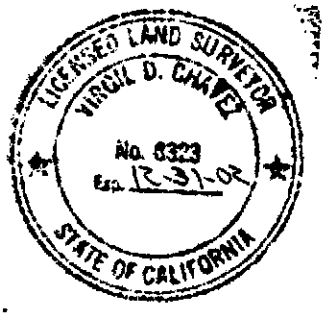
John Lane
Tetra Tech EM, Inc.
10670 White Rock Road. #100
Rancho Cordova, CA 95670

Subject: Monitoring Well Survey
444 Hegenberger Road
Oakland, CA

Dear Mr. Lane:

This is to confirm that we have proceeded at your request to survey the wells located at the above referenced location. The survey was completed on January 25, 2001. The benchmark used for the survey was a City of Oakland benchmark being a cut square at the easterly return, southeast corner of Hegenberger Road at Hegenberger Loop. The station and offset data are relative to face of curb, beginning at the north end of return on Hegenberger Road. Measurements taken at approximate north side of top of box and top of casings were marked at location of measurements.
Benchmark Elev. = 8.937 feet, NGVD 29.

Well No.	Rim Elevation	TOC Elevation	Station	Offset
MW - 2	9.82′	9.05′	0+69.17	71.56(RT)
MW - 3	9.01′	8.60′	0-22.06	41.06(RT)
MW - 4	9.32′	8.50′	0+83.70	19.95(RT)
MW - 5	9.44′	8.84′	0-20.01	122.23(RT)
MW - 6	9.95′	9.19′	0+52.30	100.40(RT)
MW - 7	8.37′	8.10′	-(1+16.82)	-5.86(LT)
MW - 8	8.92′	8.68′	0-56.41	-125.06(LT)
Face of Curb Ret on Hegenberger Rd.			0+00	0.00



Sincerely,

Virgil D. Chavez, PLS 6323

APPENDIX F

LABORATORY ANALYTICAL REPORTS
AND
CHAIN-OF-CUSTODY FORMS

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Walter Kim
Tetra Tech EM Inc.
10670 White Rock Road, Suite 100
Rancho Cordova, CA 95670

Subject : 7 Water Samples and 8 Soil Samples
Project Name : McMorgan+Company
Project Number : P138904

Dear Mr. Kim,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

Joel Kiff

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Subject : 7 Water Samples and 8 Soil Samples
Project Name : McMorgan+Company
Project Number : P138904

Case Narrative

The Method Reporting Limit for TPH as Diesel has been increased due to interference from Gasoline-Range Hydrocarbons for the following sample:

W-MW-3

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 916-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **121200-01** Matrix : Soil Lab Number : 18686-01
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/25/00
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	12/25/00
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	12/25/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	106		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686

Date : 1/8/01

Project Name : **McMorgan+Company**

Project Number : **P138904**

Sample : **121200-02** Matrix : Soil Lab Number : 18686-02

Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/25/00
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	12/25/00
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	12/25/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	102		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **121200-03** Matrix : Soil Lab Number : 18686-03
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/20/00
Toluene - d8 (Surr)	95.4		% Recovery	EPA 8260B	12/20/00
4-Bromofluorobenzene (Surr)	98.1		% Recovery	EPA 8260B	12/20/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	92.9		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **121200-04** Matrix : Soil Lab Number : 18686-04
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/25/00
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/25/00
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	12/25/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	99.2		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **121200-05** Matrix : Soil Lab Number : 18686-05
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/20/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/20/00
Toluene - d8 (Surr)	94.3		% Recovery	EPA 8260B	12/20/00
4-Bromofluorobenzene (Surr)	99.6		% Recovery	EPA 8260B	12/20/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	106		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **121200-06** Matrix : Soil Lab Number : 18686-06
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-Butanol	**< 0.010**	0.010	mg/Kg	EPA 8260B	12/25/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/25/00
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/25/00
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	12/25/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	102		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **121200-07** Matrix : Soil Lab Number : 18686-07
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/25/00
Toluene - d8 (Surr)	99.5		% Recovery	EPA 8260B	12/25/00
4-Bromofluorobenzene (Surr)	99.9		% Recovery	EPA 8260B	12/25/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	106		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : ***121200-08*** Matrix : Soil Lab Number : 18686-08
Sample Date :12/12/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Toluene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethylbenzene	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Total Xylenes	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Methyl-t-butyl ether (MTBE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Diisopropyl ether (DIPE)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Ethyl-t-butyl ether (ETBE)	**< 0.0050**	*0.0050*	*mg/Kg*	EPA 8260B	12/25/00
Tert-amyl methyl ether (TAME)	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
Tert-Butanol	**< 0.0050**	0.0050	mg/Kg	EPA 8260B	12/25/00
TPH as Gasoline	**< 1.0**	1.0	mg/Kg	EPA 8260B	12/25/00
Toluene - d8 (Surr)	99.8		% Recovery	EPA 8260B	12/25/00
4-Bromofluorobenzene (Surr)	99.8		% Recovery	EPA 8260B	12/25/00
TPH as Diesel	**< 1.0**	1.0	mg/Kg	M EPA 8015	1/6/01
1-Chlorooctadecane (Diesel Surrogate)	101		% Recovery	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686

Date : 1/8/01

Project Name : **McMorgan+Company**

Project Number : **P138904**

Sample : **W-MW-2** Matrix : Water Lab Number : 18686-09

Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**450**	2.0	ug/L	EPA 8260B	12/27/00
Toluene	**18**	2.0	ug/L	EPA 8260B	12/27/00
Ethylbenzene	**61**	2.0	ug/L	EPA 8260B	12/27/00
Total Xylenes	**26**	2.0	ug/L	EPA 8260B	12/27/00
Methyl-t-butyl ether (MTBE)	**< 2.0**	2.0	ug/L	EPA 8260B	12/27/00
Diisopropyl ether (DIPE)	**< 2.0**	2.0	ug/L	EPA 8260B	12/27/00
Ethyl-t-butyl ether (ETBE)	**< 2.0**	2.0	ug/L	EPA 8260B	12/27/00
Tert-amyl methyl ether (TAME)	**< 2.0**	2.0	ug/L	EPA 8260B	12/27/00
Tert-Butanol	**< 20**	20	ug/L	EPA 8260B	12/27/00
TPH as Gasoline	**1600**	200	ug/L	EPA 8260B	12/27/00
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/27/00
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	12/27/00
TPH as Diesel	**470**	50	ug/L	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **W-MW-3** Matrix : Water Lab Number : 18686-10
Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**140**	0.50	ug/L	EPA 8260B	12/27/00
Toluene	**2.2**	0.50	ug/L	EPA 8260B	12/26/00
Ethylbenzene	**3.3**	0.50	ug/L	EPA 8260B	12/26/00
Total Xylenes	**1.2**	0.50	ug/L	EPA 8260B	12/26/00
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/26/00
TPH as Gasoline	**710**	50	ug/L	EPA 8260B	12/26/00
Toluene - d8 (Surr)	98.9		% Recovery	EPA 8260B	12/26/00
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	12/26/00
TPH as Diesel	**< 100**	100	ug/L	M EPA 8015	1/6/01

Approved By: Joel Kiff

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KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **W-MW-4** Matrix : Water Lab Number : 18686-11
Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**15**	0.50	ug/L	EPA 8260B	12/26/00
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/26/00
TPH as Gasoline	**96**	50	ug/L	EPA 8260B	12/26/00
Toluene - d8 (Surr)	97.1		% Recovery	EPA 8260B	12/26/00
4-Bromofluorobenzene (Surr)	104		% Recovery	EPA 8260B	12/26/00
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686

Date : 1/8/01

Project Name : **McMorgan+Company**

Project Number : **P138904**

Sample : **W-MW-5** Matrix : Water Lab Number : 18686-12

Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**17**	0.50	ug/L	EPA 8260B	12/26/00
Toluene	**0.63**	0.50	ug/L	EPA 8260B	12/26/00
Ethylbenzene	**1.7**	0.50	ug/L	EPA 8260B	12/26/00
Total Xylenes	**1.1**	0.50	ug/L	EPA 8260B	12/26/00
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/26/00
TPH as Gasoline	**220**	50	ug/L	EPA 8260B	12/26/00
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/26/00
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	12/26/00
TPH as Diesel	***< 50***	*50*	*ug/L*	*M EPA 8015*	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **W-MW-6** Matrix : Water Lab Number : 18686-13
Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**0.51**	0.50	ug/L	EPA 8260B	12/27/00
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Total Xylenes	**0.94**	0.50	ug/L	EPA 8260B	12/27/00
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/00
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/00
Toluene - d8 (Surr)	100		% Recovery	EPA 8260B	12/27/00
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	12/27/00
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686
Date : 1/8/01

Project Name : **McMorgan+Company**
Project Number : **P138904**

Sample : **W-MW-7** Matrix : Water Lab Number : 18686-14
Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/26/00
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/26/00
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/26/00
Toluene - d8 (Surr)	99.3		% Recovery	EPA 8260B	12/26/00
4-Bromofluorobenzene (Surr)	99.9		% Recovery	EPA 8260B	12/26/00
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

KIFF ANALYTICAL LLC

Report Number : 18686

Date : 1/8/01

Project Name : **McMorgan+Company**

Project Number : **P138904**

Sample : **W-MW-8** Matrix : Water Lab Number : 18686-15

Sample Date :12/14/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Methyl-t-butyl ether (MTBE)	**0.52**	0.50	ug/L	EPA 8260B	12/27/00
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/00
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/00
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/00
Toluene - d8 (Surr)	99.9		% Recovery	EPA 8260B	12/27/00
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	12/27/00
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	1/6/01

Approved By: Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

TABLE 4

GROUNDWATER ANALYTICAL DATA
444 HEGENBERGER ROAD
OAKLAND, CALIFORNIA

		d	g	B	T	e	X	Add.
MW-5	12/02/98(a)	620	ND(50)	**1.1**	0.37	ND(0.3)	2	---
	03/08/99	ND(50)	58	**23**	0.31	ND(0.3)	1.8	---
	07/01/99	64*	1,900	**160**	10	13	22	---
	09/15/99	ND(50)	410	**64**	2.1	1.3	2.7	---
	12/27/99	ND(50)	130	**15**	0.73	ND(0.5)	ND(0.5)	---
	03/24/00	460	2,500	**560**	57	18	87	---
	06/09/00	140	2,600	**770**	63	15	71	---
	12/14/00	ND(50)	220	**17**	0.63	1.7	1.1	ND(0.5/5)
MW-6	03/24/00	470	2,400	**430**	16	340	73	---
	06/09/00	ND(50)	540	**190**	1.2	3.7	4.5	---
	12/14/00	ND(50)	ND(50)	0.51	ND(0.5)	ND(0.5)	0.94	ND(0.5/5)
MW-7	12/14/00	ND(50)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5/5)
MW-8	12/14/00	ND(50)	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.52 MTBE***
	MCLs	NE	NE	1	100	680	1750	MTBE - 5 ALL OTHER FUEL ADDITIVES - NE

Notes:
All results are reported in micrograms per Liter
Bold values exceed MCLs

(a) Reporting limit for this monitoring event are elevated 10 times due to matrix interference.
(b) Reporting limit is elevated 100 times due to matrix interference.
(c) Reporting limit is elevated 5 times due to matrix interference.
* Analytical results within quantitation range for diesel; however, chromatographic pattern not typical of fuel
** Analytical results within quantitation range for gasoline; however, chromatographic pattern not typical of fuel
*** Remaining fuel additives were not detected at or above respective laboratory reporting limits
--- Not available/not analyzed
MCL Maximum Contaminant Levels per State Office of Drinking Water Standards
ND Not detected at or above indicated laboratory reporting limit
NE No MCL or Action Level has been established.
TPH-d Total petroleum hydrocarbons as diesel
TPH-g Total petroleum hydrocarbons as gasoline
Fuel Additives include methyl tertiary butyl ether (MTBE), di-isopropyl ether, ethyl tertiary butyl ether, tertiary amyl methyl ether, and tertiary butyl alcohol

CHAIN OF CUSTODY RECORD

Tetra Tech EM Inc.
10670 White Rock Road, Suite 100
Rancho Cordova, CA 95670
(916) 852-8300 FAX (916) 852-8307

DATE: 12/14/00
CHAIN OF CUSTODY NUMBER: No. 4477
LABORATORY NUMBER: 18686
PAGE 1 OF 2

PROJECT NAME: McMorgan + Company	PROJECT MANAGER: Walter Kim
PROJECT NUMBER: P138904	TELEPHONE NUMBER: 916 853 4500
PROJECT LOCATION: 444 Hegenberger Rd	DESTINATION LABORATORY:
SAMPLER(S): M. Buchalski	ADDRESS:
SAMPLER SIGNATURE(S): Michael Buchalski	CITY / STATE / ZIP:
SITE CONTACT/ TELEPHONE NUMBER: J. Lane / 916 853 4570	LABORATORY TELEPHONE NUMBER:

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE	TIME	MATRIX TYPE	NO./TYPE OF CONTAINERS	TURN AROUND TIME	TPH - Gasoline	TPH - Diesel	VOA w/ oxygenates	REMARKS (GRAB, COMPOSITE, ETC.)
121200-01	12/12	1105	soil	1/brass tube					-01
121200-02	12/12	1110	"	"					-02
121200-03	"	1115	"	"					-03
121200-04	"	1130	"	"					-04
121200-05	"	1345	"	"					-05
121200-06	"	1352	"	"					-06
121200-07	"	1405	"	"					-07
121200-08	"	1415	"	"					-08
W-MW-2	12/14	1540	GW 40mL Vials 1L Bottle			X	X	X	-09
W-MW-3	"	1710	H2O			X	X	X	-10
W-MW-4	"	1622	H2O			X	X	X	-11

SHIPPED VIA: AIRBILL #:

SPECIAL INSTRUCTIONS: Call John Lane for instructions on soil analysis.

RELINQUISHED BY (SIGNATURE)	PRINT NAME/ COMPANY	DATE	TIME	RECEIVED BY (SIGNATURE)	PRINT NAME/ COMPANY	DATE	TIME
Michael Buchalski	M. Buchalski / TtEMI	12/15/00	1200				
				RECEIVED AT LAB BY (PRINT AND SIGN)	Scott Olmsted / SCOTT OLMSTED	121500	1208

DISTRIBUTION: WHITE = LABORATORY YELLOW = PROJECT MANAGER PINK = FILE

CHAIN OF CUSTODY RECORD

Tetra Tech EM Inc.
10670 White Rock Road, Suite 100
Rancho Cordova, CA 95670
(916) 852-8300 FAX (916) 852-8307

DATE: 12/14/00
CHAIN OF CUSTODY NUMBER: No 4455
LABORATORY NUMBER: 18686
PAGE 2 OF 2

PROJECT NAME: McMorgan + Company	PROJECT MANAGER: Walter Kim
PROJECT NUMBER: P138904	TELEPHONE NUMBER: 916 853 4500
PROJECT LOCATION: 444 Hegenberger Rd.	DESTINATION LABORATORY:
SAMPLER(S): M. Buchalski	ADDRESS:
SAMPLER SIGNATURE(S): Michael Buchalski	CITY / STATE / ZIP:
SITE CONTACT/ TELEPHONE NUMBER: John Lang / 916 853 4570	LABORATORY TELEPHONE NUMBER:

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE	TIME	MATRIX TYPE	NO./TYPE OF CONTAINERS	TURN AROUND TIME	TPH - Gasoline	TPH - Diesel	VOA w/ oxygenates	REMARKS (GRAB, COMPOSITE, ETC.)
W-MW-5	12/14	1802	H_2O	6/40ml vials 1/1L Bottle		X	X	X	-12
W-MW-6	"	1454	"	"		X	X	X	-13
W-MW-7	"	1115	"	"		X	X	X	-14
W-MW-8	"	1345	"	"		X	X	X	-15

SHIPPED VIA: AIRBILL #:

SPECIAL INSTRUCTIONS:

RELINQUISHED BY (SIGNATURE)	PRINT NAME/ COMPANY	DATE	TIME
Michael Buchalski	M. Buchalski / TtEMI	12/15/00	1200

RECEIVED BY (SIGNATURE)	PRINT NAME/ COMPANY	DATE	TIME
RECEIVED AT LAB BY (PRINT AND SIGN): Scott Olmsted	/SCOTT OLMSTED	12/15/00	1208

DISTRIBUTION: WHITE = LABORATORY YELLOW = PROJECT MANAGER PINK = FILE