TANK PROTECT ENGINEERING
Of Northern California

TANK PROTECT ENGINEERING
2821 Whipple Road
Union City, CA 94587
(415) 429-8088 • (800) 523-8088
FAX (415) 429-8089

April 19, 1991

Mr. Scott O. Seery
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94612

RE: Quarterly Report, March 31, 1991, Anthony's Auto service, 19592 Center Street, Castro Valley, CA 94546

Dear Mr. Seery:

This letter report is submitted to meet the quarterly reporting requirements of your August 16, 1990 letter to Mr. Anthony Pettiti and outlines all work performed during the subject quarter. Details of the work performed have been previously submitted in Tank Protect Engineering's (TPE) March 29, 1991 Site Assessment Report.

BACKGROUND

Work Performed by TPE during fourth quarter 1990:

- Conducted additional soil excavation on the sidewalls and base of the underground gasoline tank excavation.

- Conducted verification soil sampling to document cleanup level of overexcavation.

- Remediated soil excavated during tank removal activities and overexcavation by chemical oxidation.

Details of the above scope of work were presented in TPE's January 25, 1991 quarterly report.

WORK PERFORMED FIRST QUARTER 1991

Work performed by TPE during first quarter 1991:

- Collected 1 discrete verification soil sample from each 20 cubic yards of remediated stockpiled soil for chemical analysis for TPHG and BTEX.

- After verifying remediation and with approval of the Alameda County Health Care Services Agency, reused the remediated stockpiled soil for backfill and closure of the underground fuel tank and waste oil excavations.

- Installed 3 groundwater monitoring wells.

- Developed, purged, and sampled groundwater from each monitoring well for chemical analysis for TPHG and BTEX and, additionally, for industrial solvents scan in well MW-1.

- Surveyed top-of-well casings for elevation and determined groundwater flow direction and gradient.

- Wrote a Site Assessment Report documenting work performed and analytical results with conclusions and recommendations, and delivered the report to the client for his submittal to the ACHCSA.

Details of the above work performed, including boring and well construction logs, water level data, chains-of-custody, laboratory analyses for soil and groundwater samples, a geologic cross section, and groundwater gradient map is included in the above referenced Site Assessment Report dated March 29, 1991.

RECOMMENDATIONS FOR ADDITIONAL WORK

Tank Protect Engineering recommends that quarterly, groundwater monitoring be conducted for iso-Octane (the only apparent contaminant detected by the chemical analyses performed) until 4 consecutive quarters of nondetectable analytical results are documented.

The next quarterly sampling is due in May 1991.

If you have any questions, please call TPE at (415) 429-8088.

Sincerely,

John V. Mrakovich

John V. Mrakovich

cc: file

reviewed 2/13/92
SDS

TANK PROTECT ENGINEERING
2821 Whipple Road
Union City, CA 94587
(415) 429-8088 • (800) 523-8088
FAX (415) 429-8089

January 21, 1992

Mr. Anthony Pettiti
Anthony's Auto Service
19592 Center Street
Castro Valley, CA 94546

RE: Fourth Quarter Report, 1991, Estate of John G. Pettiti, Anthony's Auto Service, 19592 Center Street, Castro Valley, CA 94546

Dear Mr. Pettiti:

This letter report is submitted to meet the quarterly reporting requirements of Mr. Seery's May 30, 1991 letter to you (attached). Previous work conducted at the site is summarized and work conducted during the subject quarter is presented in detail.

BACKGROUND

Work performed by Tank Protect Engineering (TPE) during fourth quarter, 1990:

- Conducted overexcavation of contaminated soil on the sidewalls and base of the underground gasoline tank excavation.
- Conducted verification soil sampling of the sidewalls and base of the underground gasoline tank excavation after the above overexcavation was completed to document cleanup levels and remediation.
- Remediated soil stockpiled during tank removal and overexcavation activities by chemical oxidation.

Details of the above scope of work were presented in TPE's January 25, 1991 Quarterly Report.

Work performed by TPE during first quarter, 1991:

- Collected 1 discrete verification soil sample from each 20 cubic yards of remediated stockpiled soil for chemical analysis for total petroleum hydrocarbons as gasoline (TPHG) and for benzene, toluene, ethylbenzene, and xylenes (BTEX).

- After verifying remediation, and with approval of the Alameda County Health Care Services Agency (ACHCSA), reused the remediated stockpiled soil for backfill and closed the underground fuel tank and waste oil tank excavations.

- Installed 3 groundwater monitoring wells.

- Developed, purged, and sampled groundwater from each monitoring well for chemical analysis for TPHG, BTEX, and organic lead; additionally, analyzed the groundwater sample from well MW-1 for industrial solvents scan.

- Surveyed top-of-casings (TOC's) for elevation and determined groundwater flow direction and gradient.

- Wrote a Site Assessment Report (dated March 29, 1991) documenting work performed and analytical results with conclusions and recommendations, and delivered the report to the client for his submittal to the ACHCSA.

Details of the above scope of work were presented in TPE's March 29, 1991 Site Assessment Report.

Work performed by TPE during second quarter, 1991:

- Began collecting 1 year of monthly groundwater elevation data on May 17, 1991. Collected second month of groundwater elevation data on June 14, 1991.

- Calculated groundwater flow direction and gradient for May 17 and June 14, 1991 and constructed 2 groundwater gradient maps.

- Collected 3 groundwater samples on May 17, 1991 and analyzed the samples for TPHG and BTEX.

Details of the above scope of work were presented in TPE's July 22, 1991 Second Quarterly Report.

Work performed by TPE during third quarter, 1991:

- Collected monthly groundwater elevation data on July 15, August 23, and September 16, 1991.

- Calculated groundwater flow direction and gradient for July 15, August 23, and September 16, 1991 and constructed 3 groundwater gradient maps.

- Collected 3 groundwater samples from wells MW-1, MW-2, and MW-3 on August 19, 1991 and analyzed the samples for TPHG and BTEX.

- Redeveloped wells MW-2 and MW-3 in order to remove any contaminants which may have been introduced by moisture sensitive paste used to measure depth to water in the last sampling event.

- Collected 2 groundwater samples from wells MW-2 and MW-3 on September 9, 1991 to confirm that redevelopment of these wells successfully purged any contaminants which may have been introduced by the above moisture sensitive paste.

Details of the above scope of work were presented in TPE's October 22, 1991 Third Quarterly Report.

WORK PERFORMED FOURTH QUARTER, 1991

Work performed by TPE during fourth quarter, 1991:

- Collected monthly groundwater elevation data on October 14, November 20, and December 17, 1991.
- Calculated groundwater flow direction and gradient for October 14, November 20, and December 17, 1991, and constructed 3 groundwater gradient maps.
- Collected groundwater samples from wells MW-1 through MW-3 on November 20, 1991 and analyzed the samples for TPHG and BTEX; additionally, analyzed the groundwater sample collected from well MW-3 by United States Environmental Protection Agency (EPA) Method 8240 and 8240 & "Open Scan".

Details of the above scope of work are presented below.

Groundwater Gradient

On October 14, November 20, and December 17, 1991, depth to stabilized water was measured from TOC in wells MW-1, MW-2, and MW-3 to the nearest 0.01 foot using an electronic Solinst water level meter. A minimum of 3 repetitive measurements were made for each level determination to ensure accuracy. Depth to water was subtracted from the TOC elevation, measured relative to mean sea level, to calculate the elevation of the stabilized water level for each well (see attached Table 1). Groundwater flow directions, gradients, average elevations, and changes in average elevation are tabulated in attached Table 2.

Attached Figures 1, 2, and 3 are groundwater gradient maps constructed for the data collected on October 14, November 20, and December 17, 1991, respectively.

Groundwater flow direction for the above dates is west-southwest. Gradient for October 14, November 20, and December 17, 1991 is .1034 feet per foot, .1071 feet per foot, and .1081 feet per foot, respectively. All of these groundwater flow directions are consistent with each other and the flow directions determined in previous months.

Based on the above groundwater flow directions, well MW-3 is directly downgradient from the center of the former underground fuel tank complex; and wells MW-1 and MW-2 are, respectively, down and cross-gradient, and upgradient of the complex.

Groundwater Sampling and Analytical Results

On November 20, 1991, prior to collecting groundwater samples, depth-to-water was measured in wells MW-1 through MW-3 from the TOC to the nearest 0.01 foot using an electronic Solinst water level meter as described above under Groundwater Gradient. Next, all 3 wells were purged a minimum of 3 wetted well volumes and until the temperature, conductivity, and pH of the water in the wells had stabilized. The wells were sampled with dedicated polyethylene bailers to minimize the potential for cross contamination. Since dedicated bailers were used for each well sampled, no decontamination was necessary between sampling events.

Purge water is stored on site in labeled 55-gallon drums.

The water samples were collected in sterilized 40 milliliter glass vials; immediately sealed with teflon-lined screw caps; measured for turbidity; and labeled with project name, date, time collected, sample number, and sampler. The samples were immediately stored on ice for transport to State-certified Sequoia Analytical laboratory (Sequoia) in Concord, California accompanied by chain-of-custody documentation. All samples were analyzed for TPHG and BTEX by EPA Methods GCFID 5030/8015 (Modified) and 5030/8020 (Modified), respectively. The groundwater sample from well MW-3 was additionally analyzed by EPA Method 8240 and 8240 & "Open Scan".

See attached protocols for TPE's sample handling, groundwater sampling, waste handling and decontamination, and quality assurance and quality control procedures.

Chemical analyses of groundwater samples from wells MW-1 and MW-3 detected TPHG at concentrations of 220 parts per billion (ppb) and 140 ppb, respectively. Sequoia noted that the samples do not appear to contain gasoline (see attached certified analytical report). Benzene and toluene were detected in the groundwater sample from well MW-1 at concentrations of .33 ppb and .90 ppb, respectively. No TPHG or BTEX were detected in well MW-2 and no BTEX was detected in well MW-3.

Based on Sequoia's observation, the groundwater sample from well MW-3 was additionally analyzed by EPA Method 8240 and 8240 & "Open Scan" as an attempt to identify the chemical detected in the TPHG test. The chemical analyses detected Propane,2-Methoxy-2-Methyl; Butane,2,2,3,3-Tetramethyl; Hexane,2,3,4-Tetramethyl; and 1,2-Dichloroethane, at concentrations of 750 ppb, 110 ppb, 9.6 ppb, and 4.2 ppb, respectively. Sequoia noted that identifications by EPA Method 8240 & "Open Scan" are tentative and concentrations are estimates based upon spectral comparisons to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

According to Sequoia, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals describes that Propane,2-Methoxy-2-Methyl, also known as MTBE, is used as an octane booster in gasoline and as a chromatographic eluent; 1,2-Dichloroethane is used as a solvent for fats, oils, waxes, gums, resins, and particularly for rubber; also used in manufacturing acetyl cellulose, as a tobacco extract, etc. and fumigant. Sequoia verbally informed TPE that Hawley's Condensed Chemical Dictionary describes that Hexane,2,3,4-Tetramethyl is used for synthesis and as a motor fuel additive.

Uses for Butane,2,2,3,3-Tetramethyl could not be determined.

Results of chemical analyses are summarized in attached Table 3 and documented in attached certified analytical reports and chain-of-custodies.

DISCUSSION AND RECOMMENDATIONS

A review of all groundwater analytical data collected for the site to date (see attached Table 3), indicates no detectable concentrations of TPH as gasoline and BTEX are present in groundwater samples collected from the 3 on-site monitoring wells. On February 18, 1991, Iso-Octane was detected in wells MW-1 and MW-3. Sequoia verbally informed TPE that Iso-Octane, if present, would have been detected in the EPA Method 8240 & "Open Scan" discussed above.

An October 24, 1990 summary of California Drinking Water Standards includes a maximum contaminant level (MCL) of .5 ppb for 1,2-Dichloroethane. Also, TPE was verbally informed by a representative of the California Department of Health Services (DHS) that any interim action level of 35 ppb has been established for MTBE. Both of the DHS levels are exceeded by concentrations detected in the groundwater sample from well MW-3.

Due to the sporadic occurrences of chemicals occurring in the groundwater beneath the site. TPE recommends that quarterly groundwater monitoring be conducted for TPHG, BTEX, and for chemicals detectable by an EPA Method 8240 and 8240 & "Open Scan" until 4 consecutive quarters of nondetectable analytical results are documented. Also, consecutive monthly determination of groundwater gradient and flow direction is recommended for a period of 1 year.

The next quarterly sampling event is due about February 17, 1991.

An additional two copies of the report have been included for your delivery to:

Mr. Scott O. Seery
Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94612

Mr. Lester Feldman
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612

Mr. Seery has requested that this quarterly report be submitted to him by February 1, 1992. We recommend that this letter report be submitted with a cover letter from Anthony's Auto Service and signed by an authorized representative.

If you have any questions, please call TPE at (510) 429-8088.

Sincerely,

John V. Mrakovich

Jeff Farhoomand
Civil Engineer

cc: file
Attachments

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
Hazardous Materials Program
80 Swan Way, Rm. 200
Oakland, CA 94621
(415)

Certified Mailer #P 062 127 781

May 30, 1991

Mr. Anthony Pettiti
Anthony's Auto Service
19592 Center Street
Castro Valley, CA 94546

RE: RESULTS OF PRELIMINARY SITE ASSESSMENT

Dear Mr. Pettiti:

This Department is in receipt and has completed review of the March 31, 1991 Tank Protect Engineering (TPE) report entitled, "Site Assessment Report," and the April 19, 1991 TPE letter report which discussed activities occurring during the 4th quarter of 1990 and 1st quarter of 1991.

At this time, the following well sampling and water level monitoring shall be instituted:

- Water levels are to be measured and recorded monthly for the first year, beginning with the May 1991 measurement, and then quarterly thereafter.

- Water samples are to be collected quarterly until otherwise notified. This frequency may change due to the results of future analyses. Samples are to be analyzed presently for BTXE and TPH-G. Continue to record the presence of apparent "non-gasoline" peaks which have been characterized as iso-Octane in the March 1991 TPE report.

- Reports are to be submitted quarterly until this site qualifies for final RWQCB "sign-off." Such quarterly reports are due the first day of the second month of each subsequent quarter (i.e., August 1, November 1, February 1, and May 1). The next quarterly report is due August 1, 1991, and should describe activities occurring during the 2nd quarter of 1991.

  Among other elements, water level gradient maps for each month, free and dissolved product plume definition maps for target compounds, tabulated laboratory analyses results, QA/QC procedures, etc., are to be included in each report.

Please be advised that, based upon the apparent ground water flow direction identified during the preliminary stages of work at the site, additional wells downgradient of the present well network may be required in the future to determine the limit of the contaminant plume (i.e., to determine the "zero line" of contamination). Wells MW-1 and -3 are both impacted by contaminants, yet neither are directly downgradient of the perceived source (tank pit). The determination for additional wells can only be made after more data is collected and interpreted in the ensuing months.

Please feel free to call me at 415/271-4320 should you have any questions.

Sincerely,

Scott O. Seery, CHMM
Hazardous Materials Specialist

cc: Rafat A. Shahid, Assistant Agency Director, Environmental Health
Edgar Howell, Chief, Hazardous Materials Division
Gil Jensen, Alameda County District Attorney's Office
Howard Hatayama, DHS
Lester Feldman, RWQCB
Bob Bohman, Castro Valley Fire Department
Marc Zomorodi, Tank Protect Engineering
files

TABLE 1
GROUNDWATER ELEVATION

Well Name	Elevation TOC[1] (feet MSL[2])	Date	Depth to Water from TOC	Groundwater Elevation (feet MSL)
MW-1	249.72	03/22/91	34.64	215.08
		05/17/91	33.77	215.95
		06/14/91	33.63	216.09
		07/15/91	33.68	216.04
		08/23/91	33.82	215.90
		09/16/91	33.95	215.77
		10/14/91	34.16	215.56
		11/20/91	34.41	215.31
		12/17/91	34.42	215.30
MW-2	250.18	03/22/91	31.00	219.18
		05/17/91	30.29	219.89
		06/14/91	30.31	219.87
		07/15/91	30.41	219.77
		08/23/91	30.50	219.68
		09/16/91	30.60	219.58
		10/14/91	30.76	219.42
		11/20/91	30.87	219.31
		12/17/91	30.86	219.32
MW-3	250.11	03/22/91	35.09	215.02
		05/17/91	34.22	215.89
		06/14/91	34.11	216.00
		07/15/91	34.12	215.99
		08/23/91	34.27	215.84
		09/16/91	34.40	215.71
		10/14/91	34.63	215.48
		11/20/91	34.83	215.28
		12/17/91	34.88	215.23

[1] TOC = TOP OF CASING
[2] MSL = MEAN SEA LEVEL

TABLE 2
GROUNDWATER GRADIENT, FLOW DIRECTION,
AND ELEVATION DATA

Date	Average Groundwater Elevation (Feet-MSL[1])	Change in Average Groundwater Elevation	Groundwater Flow Direction	Groundwater Gradient
03/22/91	216.43		SW	.109
05/17/91	217.24	+.81	WSW	.1053
06/14/91	217.32	+.08	WSW	.1000
07/15/91	217.27	-.05	WSW	.0976
08/23/91	217.14	-.13	WSW	.1017
09/16/91	217.02	-.12	WSW	.1015
10/14/91	216.82	-.20	WSW	.1034
11/20/91	216.63	-.19	WSW	.1071
12/17/91	216.62	-.01	WSW	.1081

[1] MSL = MEAN SEA LEVEL

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
(ppb)

Sample ID Name	Date Sampled	TPHG	Benzene	Toluene	Ethyl-Benzene	Xylenes	Organic Lead
MW-1	02/18/91	160[1]	<0.30	<0.30	<0.30	<0.30	<5
	05/17/91[4]	<30	<0.30	<0.30	<0.30	<0.30	NA[3]
	08/19/91	<30	<0.30	<0.30	<0.30	<0.30	NA
	11/20/91	220[5]	0.33	0.90	<0.30	<0.30	NA
MW-2	02/18/91	<30	<0.30	<0.30	<0.30	<0.30	<5
	05/17/91	<30	<0.30	<0.30	<0.30	<0.30	NA
	08/19/91	28[2]	<0.30	<0.30	<0.30	<0.30	NA
	09/09/91	<50	<0.50	<0.50	<0.50	<1.5	NA
	11/20/91	<30	<0.30	<0.30	<0.30	<0.30	NA
MW-3	02/18/91	120[1]	<0.30	<0.30	<0.30	<0.30	<5
	05/17/91	<30	<0.30	<0.30	<0.30	<0.30	NA
	08/19/91	32[2]	<0.30	<0.30	<0.30	<0.30	NA
	09/09/91	<50	<0.50	<0.50	<0.50	<1.5	NA
	11/20/91	140[5]	<0.30	<0.30	<0.30	<0.30	NA

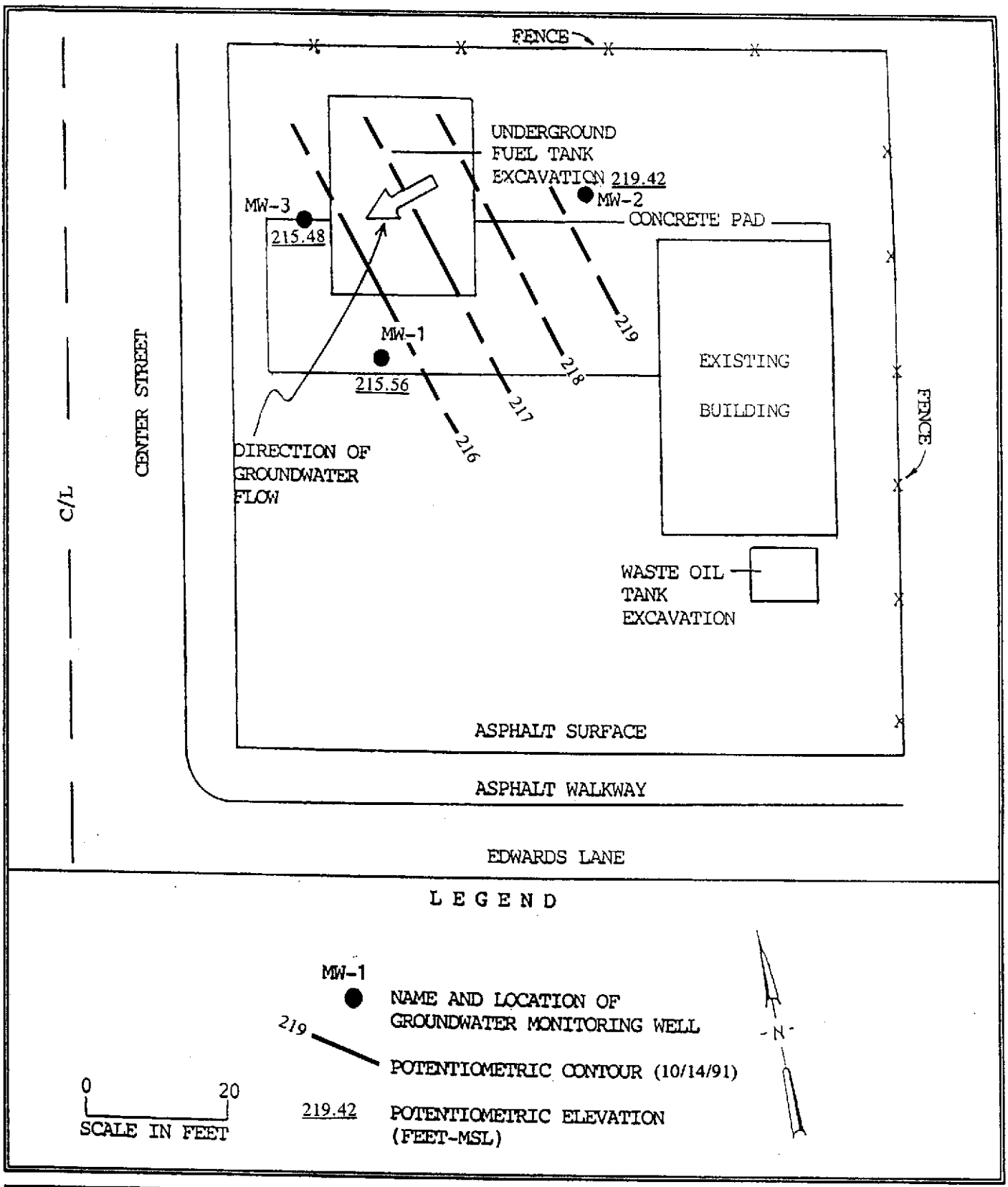
1 ACCORDING TO SEQUOIA ANALYTICAL THESE SAMPLES DO NOT APPEAR TO CONTAIN GASOLINE. AN INDUSTRIAL SOLVENTS SCAN BY EPA MODIFIED METHOD 3810/8015 DETECTED ISO-OCTANE AT A CONCENTRATION OF 150 ppb. SEE CERTIFIED ANALYTICAL REPORT IN APPENDIX B OF TPE'S MARCH 29, 1991 SITE ASSESSMENT REPORT.

2 ACCORDING TO SEQUOIA ANALYTICAL, THESE SAMPLES DO NOT APPEAR TO CONTAIN GASOLINE. SEE ATTACHED CERTIFIED ANALYTICAL REPORT IN TPE's OCT. 22, 1991 THIRD QUARTERLY REPORT. TPE BELIEVES THE SOURCE OF CONTAMINATION IS MOISTURE SENSITIVE PASTE USED FOR MEASURING DEPTH-TO-WATER; SEE DISCUSSION UNDER "GROUNDWATER SAMPLING AND ANALYTICAL RESULTS".

3 NA = NOT ANALYZED

4 CHAIN-OF-CUSTODY AND ANALYTICAL REPORTS ARE MISTAKENLY DATED 5/20/91.

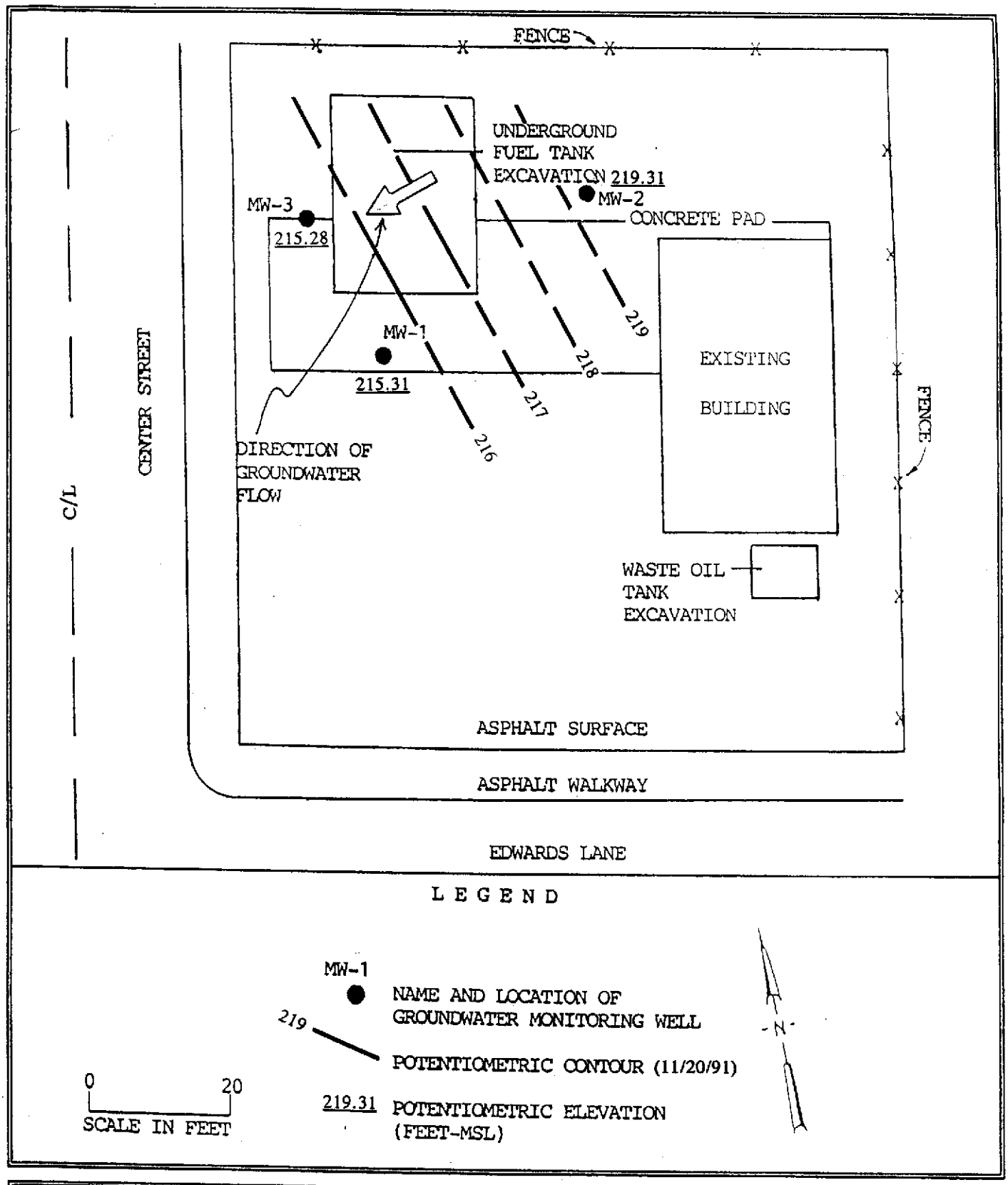
5 ACCORDING TO SEQUOIA ANALYTICAL, THESE SAMPLES DO NOT APPEAR TO CONTAIN GASOLINE. AN EPA METHOD 8240 AND 8240 & "OPEN SCAN" OF THE GROUNDWATER SAMPLE FROM WELL MW-3 DETECTED 4.2 ppb 1,2-DICHLOROETHANE, 750 ppb PROPANE,2-METHOXY-2-METHYL, 110 ppb BUTANE,2,2,3,3-TETRAMETHYL, AND 9.6 ppb HEXANE,2,3,4-TETRAMETHYL. SEE ATTACHED CERTIFIED ANALYTICAL REPORTS.



TANK PROTECT ENGINEERING
Of Northern California, Inc.

GROUNDWATER GRADIENT MAP
ANTHONY'S AUTO SERVICE
19592 CENTER STREET
CASTRO VALLEY, CALIFORNIA

FIGURE
1



LEGEND

MW-1 ● NAME AND LOCATION OF GROUNDWATER MONITORING WELL

219 POTENTIOMETRIC CONTOUR (11/20/91)

219.31 POTENTIOMETRIC ELEVATION (FEET-MSL)

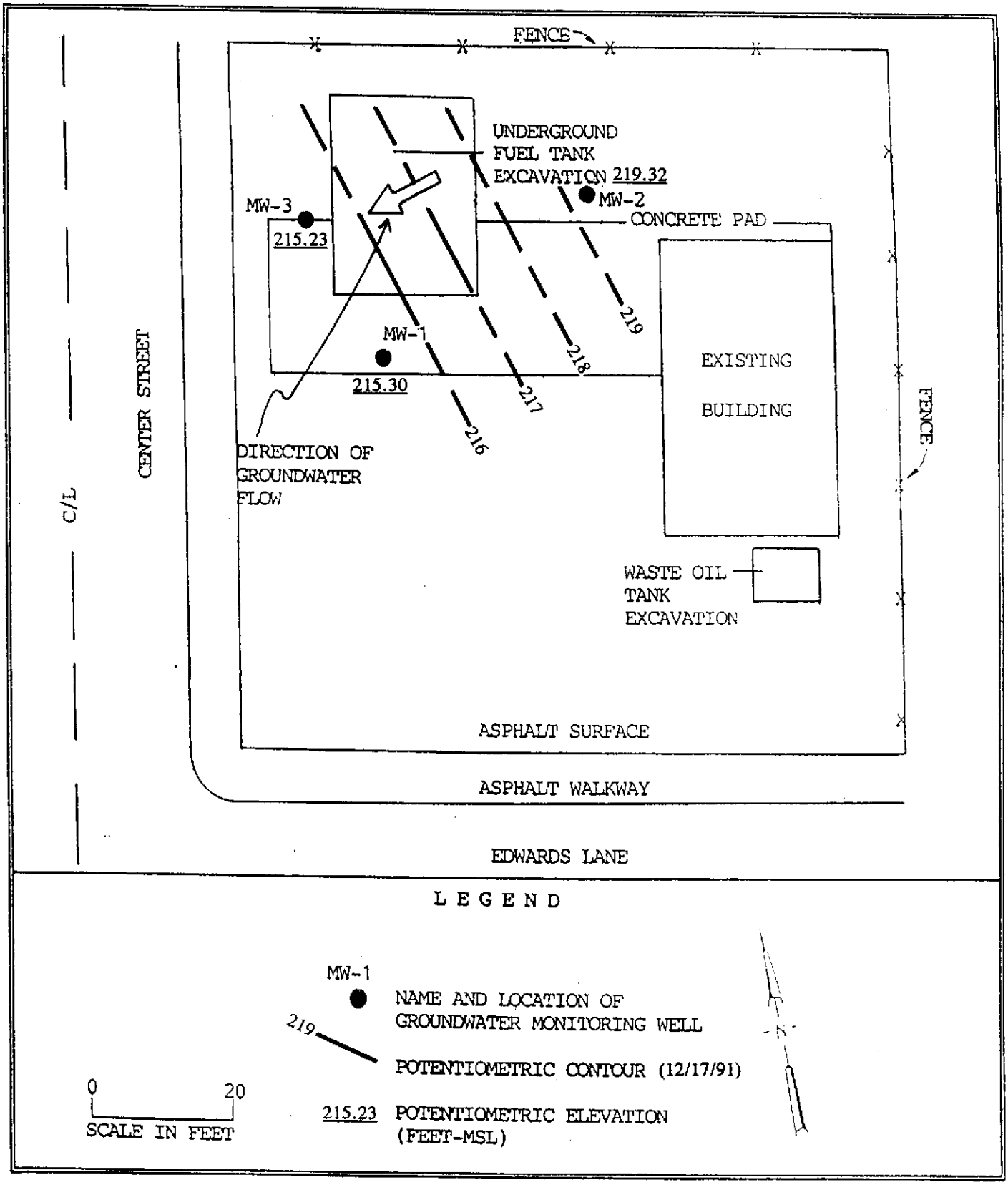
0 20
SCALE IN FEET

N

TANK PROTECT ENGINEERING
Of Northern California, Inc.

GROUNDWATER GRADIENT MAP
ANTHONY'S AUTO SERVICE
19592 CENTER STREET
CASTRO VALLEY, CALIFORNIA

FIGURE
2



TANK PROTECT ENGINEERING
Of Northern California, Inc.

GROUNDWATER GRADIENT MAP
ANTHONY'S AUTO SERVICE
19592 CENTER STREET
CASTRO VALLEY, CALIFORNIA

FIGURE
3

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Tank Protect Engineering of N. Calif.	Client Project ID:	121B-112091, Anthony's Auto Service	Sampled:	Nov 20, 1991
2821 Whipple Road	Matrix Descript:	Water	Received:	Nov 21, 1991
Union City, CA 94587	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Nov 25, 1991
Attention: John Mrakovich	First Sample #:	111-1108	Reported:	Dec 9, 1991

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons µg/L (ppb)	Benzene µg/L (ppb)	Toluene µg/L (ppb)	Ethyl Benzene µg/L (ppb)	Xylenes µg/L (ppb)
111-1108	MW-1*	220	0.33	0.90	N.D.	N.D.
111-1109	MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
111-1110	MW-3*	140	N.D.	N.D.	N.D.	N.D.
Detection Limits:		**30**	**0.30**	**0.30**	**0.30**	**0.30**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

Please Note:
*The above sample does not appear to contain gasoline.

1111108.TPE <1>

SEQUOIA ANALYTICAL
1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Tank Protect Engineering of N. Calif.
2821 Whipple Road
Union City, CA 94587
Attention: John Mrakovich

Client Project ID: 121B-112091, Anthony's Auto Service
QC Sample Group: 1111108-10
Reported: Dec 9, 1991

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	R.H./J.F.	R.H./J.F.	R.H./J.F.	R.H./J.F.
Reporting Units:	ug/L	ug/L	ug/L	ug/L
Date Analyzed:	Nov 25, 1991	Nov 25, 1991	Nov 25, 1991	Nov 25, 1991
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	21	21	21	65
Matrix Spike % Recovery:	105	105	105	108
Conc. Matrix Spike Dup.:	22	22	23	69
Matrix Spike Duplicate % Recovery:	110	110	115	115
Relative % Difference:	4.7	4.7	9.0	6.0

Laboratory blank contained the following analytes: None Detected

SEQUOIA ANALYTICAL

Scott A. Chieffo
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

TANK PROTECT ENGINEERING
2021 WHIPPLE ROAD
UNION CITY, CA 94587
(415)429-8088
(800)523-8088
FAX(415)429-8089

LAB: Sequoia Analytical
TURNAROUND: NORMAL
P.O. #: 0339

PAGE 1 OF 1

CHAIN OF CUSTODY

PROJECT NO.: 121B-112091

SITE NAME & ADDRESS: Anthony's Auto Service, 19542 Center Street, Castro Valley, CA

SAMPLER NAME, ADDRESS AND TELEPHONE NUMBER:
Michael Casso
2821 WHIPPLE ROAD, UNION CITY, CA 94587 (510) ~~(415)~~ 429-8088

ID NO.	DATE	TIME	SOIL	WATER	SAMPLING LOCATION	(1) TYPE OF CONTAINER	ANALYTES REQUESTED: TOTAL LIGHT HC	AROMATIC HC (BTX)	TOTAL HEAVY HC	OIL & GREASE	VOC SCAN (624's)	OTHER	REMARKS
MW-1	11/20/91	3:50		✓	MONITORING WELL MW-1	2-40ml VIALS	✓	✓					111108
MW-2	↓	4:19		↓	MONITORING WELL MW-2	↓	↓	↓					111109
MW-3	↓	2:54		↓	MONITORING WELL MW-3	↓	↓	↓					111110

Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Joe D. Rutherford	11/21 12:35	Keir Van Stewart			
Relinquished by : (Signature)	Date / Time	Received by : (Signature)	Relinquished by : (Signature)	Date / Time	Received by : (Signature)
Relinquished by : (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	

DATE: 11/21/91

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Tank Protect Engineering of N. Calif	Client Project ID:	121B-112091	Sampled: Nov 20, 1991
2821 Whipple Road	Sample Descript:	Water, MW-3	Received: Nov 25, 1991
Union City, CA 94587	Analysis Method:	EPA 8240 & "Open Scan"	Analyzed: Dec 17, 1991
Attention: Michael Casso	Lab Number:	111-1110	Reported: Dec 20, 1991

VOLATILE ORGANICS by GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Detection Limit µg/L	Sample Results µg/L
Propane,2-Methoxy-2-Methyl	5.0	750
Butane,2,2,3,3-Tetramethyl	5.0	110
Hexane,2,3,4-Tetramethyl	5.0	9.6

No additional peaks > 5 µg/L were identified by the Mass Spectral Library.

SEQUOIA ANALYTICAL

per Scott A. Chieffo
Project Manager

Please Note:
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA NIST library. Positive identification or specification between isomers cannot be made without retention time standards.

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Tank Protect Engineering of N. Calif	Client Project ID:	121B-112091	Sampled:	Nov 20, 1991
2821 Whipple Road	Sample Descript:	Water,MW-3	Received:	Nov 25, 1991
Union City, CA 94587	Analysis Method:	EPA 8240	Analyzed:	Dec 19, 1991
Attention: Michael Casso	Lab Number:	111-1110	Reported:	Dec 20, 1991

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acetone	10	N.D.
Benzene	2.0	N.D.
Bromodichloromethane	2.0	N.D.
Bromoform	2.0	N.D.
Bromomethane	2.0	N.D.
2-Butanone	10	N.D.
Carbon disulfide	2.0	N.D.
Carbon tetrachloride	2.0	N.D.
Chlorobenzene	2.0	N.D.
Chloroethane	2.0	N.D.
2-Chloroethyl vinyl ether	10	N.D.
Chloroform	2.0	N.D.
Chloromethane	2.0	N.D.
Dibromochloromethane	2.0	N.D.
1,1-Dichloroethane	2.0	N.D.
1,2-Dichloroethane	2.0	4.2
1,1-Dichloroethene	2.0	N.D.
cis-1,2-Dichloroethene	2.0	N.D.
trans-1,2-Dichloroethene	2.0	N.D.
1,2-Dichloropropane	2.0	N.D.
cis-1,3-Dichloropropene	2.0	N.D.
trans-1,3-Dichloropropene	2.0	N.D.
Ethylbenzene	2.0	N.D.
2-Hexanone	10	N.D.
Methylene chloride	2.0	N.D.
4-Methyl-2-pentanone	10	N.D.
Styrene	2.0	N.D.
1,1,2,2-Tetrachloroethane	2.0	N.D.
Tetrachloroethene	2.0	N.D.
Toluene	2.0	N.D.
1,1,1-Trichloroethane	2.0	N.D.
1,1,2-Trichloroethane	2.0	N.D.
Trichloroethene	2.0	N.D.
Trichlorofluoromethane	2.0	N.D.
Vinyl acetate	2.0	N.D.
Vinyl chloride	2.0	N.D.
Total Xylenes	2.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

for Scott A. Chieffo
Project Manager

SEQUOIA ANALYTICAL
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Tank Protect Engineering of N. Calif	Client Project ID:	121B-112091	
2821 Whipple Road	Method (units):	EPA 8240 (µg/L purged)	Q.C. Sample Dates
Union City, CA 94587	Analyst(s):	M.L.	
Attention: Michael Casso	QC Sample #:	BLK121391	Analyzed: Dec 13, 1991
			Reported: Dec 20, 1991

QUALITY CONTROL DATA REPORT

Analyte	Sample Conc.	Spike Conc. Added	Conc. Matrix Spike	Matrix Spike % Recovery	Conc. Matrix Spike Duplicate	Matrix Spike Duplicate % Recovery	Relative % Difference
1,1-Dichloro-ethene	N.D.	50	50	100	50	100	0.0
Trichloroethene	N.D.	50	59	118	61	122	3.3
Benzene	N.D.	50	50	100	50	100	0.0
Toluene	N.D.	50	54	108	58	116	7.1
Chlorobenzene	N.D.	50	57	114	55	110	3.6

SEQUOIA ANALYTICAL

for Scott A. Chieffo
Project Manager

% Recovery:	Conc. of M.S. - Conc. of Sample / Spike Conc. Added	x 100
Relative % Difference:	Conc. of M.S. - Conc. of M.S.D. / (Conc. of M.S. + Conc. of M.S.D.) / 2	x 100

SAMPLE HANDLING TECHNIQUES

Soil and groundwater samples will be packaged carefully to avoid breakage or contamination, and will be delivered to the laboratory at proper storage temperatures. The following sample packaging requirements will be followed.

- Sample bottle/sleeve lids will not be mixed. All sample lids will stay with the original containers and have custody seals affixed to them.

- Samples will be secured in coolers to maintain custody, control temperature, and prevent breakage during transportation to the laboratory.

- A chain-of-custody form will be completed for all samples and accompany the sample cooler to the laboratory.

- Ice, blue ice, or dry ice (dry ice will be used for preserving soil samples collected for the Alameda County Water District) will be used to keep samples at a constant temperature during transport to the laboratory.

- Each sample will be identified by affixing a pressure sensitive, gummed label, or standardized tag on the container(s). This label will contain the site identification, sample identification number, date and time of sample collection, and the collector's initials.

All groundwater sample containers will be precleaned and will be obtained from a State Department of Health Services certified analytical laboratory.

Sample Control/Chain-of-Custody: All field personnel will refer to this work plan to verify the methods to be employed during sample collection. All sample gathering activities will be recorded in the site log book; all sample transfers will be documented in the site logbook; samples are to be identified with TPE labels and all sample bottles are to be custody-sealed. All information is to be recorded in waterproof ink. All TPE field personnel are personally responsible for sample collection and the care

and custody of collected samples until the samples are transferred or properly dispatched.

The custody record will be completed by the field technician who has been designated by the TPE project manager as being responsible for sample shipment to the appropriate laboratory. The custody record will include, among other things, the following information: site identification, name of person collecting the samples, date and time samples were collected, type of sampling conducted (composite/grab), location of sampling station, number and type of containers used, and signature of the TPE person relinquishing samples to a non-TPE person with the date and time of transfer noted. The relinquishing individual will also put all the specific shipping data on the custody record.

Site log books will be maintained by a designated TPE field employee to record, for each sample, site identification, sampling locations, station numbers, dates, times, sampler's name, designation of the samples as a grab or composite, notation of the type of sample (e.g. groundwater, soil boring, etc.), preservatives used, on-site measurement data, and other observations or remarks.

GROUNDWATER SAMPLING PROCEDURES

Groundwater monitoring wells will not be sampled until at least 72 hours after well development. Groundwater samples will be obtained using either a bladder pump, clear Teflon bailer, or dedicated polyethylene bailer. Prior to collecting samples, the sampling equipment will be thoroughly decontaminated to prevent introduction of contaminants into the well and to avoid cross-contamination. Monitoring wells will be sampled after 4 to 10 wetted casing volumes of groundwater have been evacuated and pH, electrical conductivity, and temperature have stabilized as measured with a Hydac Digital Tester. If the well is emptied before 4 to 10 well volumes are removed, the sample will be taken when the water level in the well recovers to 80% of its initial water level or more.

When a water sample is collected, turbidity of the water will be measured and recorded with a digital turbidimeter. Degree of turbidity will be measured and recorded in nephelometric turbidity units (NTU).

TPE will also measure the thickness of any floating product in the monitoring wells using a probe, clear Teflon, or polyethylene bailer. The floating product will be measured after well development but prior to the collection of groundwater samples. If floating product is present in the well, TPE will recommend to the client that product removal be commenced immediately and reported to the appropriate regulatory agency.

Unless specifically waived or changed by the local, prevailing regulatory agency, water samples shall be handled and preserved according to the latest EPA methods as described in the Federal Register (Volume 44, No.233, Page 69544, Table ll) for the type of analysis to be performed.

MEASUREMENTS

Purged Water Parameter: During purging, discharged water will be measured for the following parameters.

Parameter	Units of Measurement
pH	None
Electrical Conductivity	Micromhos
Temperature	Degrees F or C
Depth to Water	Feet/Tenths
Volume of Water Discharged	Gallons
Turbidity	NTU

Documentation: All parameter measurements shall be documented in writing on TPE development logs.

WASTE HANDLING AND DECONTAMINATION PROCEDURES

Decontamination: Any drilling, sampling or field measurement equipment that comes into contact with soils or groundwater will be properly decontaminated prior to its use at the site and after each incident of contact with the soils or groundwater being investigated. Proper decontamination is essential to obtain samples that are representative of environmental conditions and to accurately characterize the extent of soil and groundwater contamination. Hollow-stem auger flights and the drill bit will be steam-cleaned between the drilling of each well.

All sample equipment, including the split-tube sampler and brass tubes, will be cleaned by washing with tri-sodium phosphate detergent, followed by sequential rinsing with tap water, and deionized water.

Waste Handling: Waste materials generated during site characterization activities will be handled and stored as hazardous waste and will be stored on site in appropriately labeled containers. Waste materials anticipated include drill cuttings, development and purge water, water generated during aquifer testing, water generated during decontamination, and used personnel protection equipment such as gloves and Tyvek. The site owner will be responsible for providing the storage containers and will be responsible for the disposal of the waste materials. Drill cuttings from individual borings will be stored separately in drums or covered by plastic sheeting and the appropriate disposal procedure will be determined by the site owner or TPE following receipt of the soil sample analytical results. Drums or plastic sheeting will be labeled to show material stored, known or suggested contaminant, date stored, expected removal date, company name, contact, and telephone number.

QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

The overall objectives of the field sampling program include generation of reliable data that will support development of a remedial action plan. Sample quality will be checked by the use of proper sampling, handling, and testing methods. Additional sample quality control methods may include the use of background samples, equipment rinsate samples, and trip and field blanks. Chain-of-custody forms, use of a qualified laboratory, acceptable detection limits, and proper sample preservation and holding times also provide assurance of accurate analytical data.

TPE will follow a QA/QC program in the field to ensure that all samples collected and field measurements taken are representative of actual field and environmental conditions and that data obtained are accurate and reproducible. These activities and laboratory QA/QC procedures are described below.

Field Samples: Additional samples taken in the field are used to evaluate both sampling and analytical methods. Three basic categories of QA/QC samples that may be collected are trip samples, field blanks, and duplicate samples.

Trip blanks are a check for cross-contamination during sample collection, shipment, and in the laboratory. Analytically confirmed organic-free water shall be used for organic parameters and deionized water for metal parameters. Blanks will be prepared by the laboratory supplying the sample containers. The blank shall be numbered, packaged, and sealed in the same manner as the other samples. One trip blank will be used for each sample set of less than 20 samples. At least 5% blanks will be used for sets greater than 20 samples. The trip blank is a water sample that remains with the collected samples during transportation and is analyzed along with the field samples to check for residual contamination. The trip blank is not to be opened by either the sample collectors or the handlers.

The field blank is a water sample that is taken into the field and is opened and exposed at the sampling point to detect contamination from air exposure. The water

sample is poured into appropriate containers to simulate actual sampling conditions. Contamination for air exposure can vary considerably from site to site.

The laboratory will not be informed about the presence of field and trip blanks and a false identifying number will be put on the label. Full documentation of these collection and decoy procedure will be made in the site logbook.

Duplicate samples are identical sample pairs (collected in the same place and at the same time), placed in identical containers. For soils, adjacent sample liners will be analyzed. For the purpose of data reporting, one is arbitrarily designated the sample, and the other is designated as a duplicate sample. Both sets of results are reported to give an indication of the precision of sampling and analytical methods.

The laboratory's precision will be assessed without the laboratory's knowledge by labeling one of the duplicates with false identifying information. Data quality will be evaluated on the basis of the duplicate results.

Laboratory QA/QC: Execution of a strict QA/QC program is an essential ingredient in high-quality analytical results. By using accredited laboratory techniques and analytical procedures, estimates of the experimental values can be very close to the actual value of the environmental sample. The experimental value is monitored for its precision and accuracy by performing QC test designed to measure the amount of random and systematic errors and to signal when correction of these errors is needed.

The QA/QC program describes methods for performing QC tests. These methods involve analyzing method blanks, calibration standards, check standards (both independent and EPA-certified standards), duplicates, replicates, and sample spikes. Internal QC also requires adherence to written methods, procedural documentation, and record keeping, and the observance of good laboratory practices.