CTTS, Inc.
toxic technology services

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93-1-21

January 21, 1993
Project No. 93-1

Mr. Dave Delamotte
Durham Transportation
9171 Capitol of Texas Highway, North
Travis Building, Suite 200
Austin, Texas 78759

Subject: Progress Report #17
Period Covering
October 1, 1992 - December 31, 1992
19984 Meekland Avenue, Hayward, CA

Dear Mr. Delamotte:

Enclosed is the seventeenth progress report for the Phase II investigation to evaluate the extent of soil and groundwater contamination at 19984 Meekland Avenue in the unincorporated area of Alameda County, near Hayward, California.

This report covers the following topics:

Introduction
Monthly Monitoring of Groundwater Elevations
Quarterly Monitoring Well Sampling and Analysis
Summary
Future Reporting Format

After you review this document, it is recommended that copies be sent to Ms. Juliete Shin of the Alameda County Health Care Services Department, Hazardous Materials Division and Mr. Eddy So of the Regional Water Quality Control Board. Extra copies of this report have been provided to you for this purpose.

Thank you for this opportunity to provide Durham Transportation with these environmental services. If you have any questions, please call either of the undersigned at (510) 799-1140.

Sincerely,

Lisa A. Polos, REA, CHMM
Senior Scientist
Toxic Technology Services
CTTS, Inc.

John N. Alt, CEG #1136
Consulting Geologist
Toxic Technology Services
CTTS, Inc.

Enclosure
LAP/JNA/lap

INTRODUCTION

The following is the seventeenth progress report of activities in the evaluation of the extent of soil and groundwater contamination at 19984 Meekland Avenue, in the unincorporated area of Alameda County, near Hayward, California. This report covers the period of October 1, 1992 - December 31, 1992.

The purpose of this on-going investigation is two fold; to assess the extent of soil and groundwater contamination and to characterize the contamination with regards to constituents and concentration. This investigation has resulted in the preparation of a remediation plan that recommends the excavation and treatment of contaminated soil and carbon treatment of contaminated groundwater. Treated groundwater will be discharged to the sanitary sewer with the approval of the Oro Loma Sanitary District.

MONTHLY MONITORING OF GROUNDWATER ELEVATIONS

As stated in previous reports, the groundwater gradient at the site is essentially flat. The elevation of the groundwater has been measured in the monitoring wells on site by surveying the elevation of the top of the casing and measuring the depth to groundwater using an electronic probe. The elevations are based on Alameda County benchmark BLO-MEEK located in the middle of the intersection of Blossom Way and Meekland Avenue. The depth to groundwater was measured in December of 1989, January of 1990, and then monthly since March of 1990.

The groundwater elevation data is presented on Table 1. Figure 1 is a graph showing monthly variations in the elevation of groundwater at the site over a two year period. In any given month, the groundwater elevation across the site generally varies within 0.1 feet. This variation is roughly within the range of error in the measuring techniques. The data indicate that the water table fluctuates in response to the various seasons of the year. Table 1a presents the monthly odor and sheen observations recorded concurrently with the elevations of groundwater.

Figure 2 is a gradient map depicting the interpolated groundwater gradient for the site over the reporting period. The data indicate that the site is essentially flat with a very low westward to northwestward gradient. This is consistent with the regional gradient.

QUARTERLY MONITORING WELL SAMPLING AND ANALYSIS

On October 21 and 22, 1992, the four two-inch diameter on site groundwater monitoring wells (Plate 1) were each purged of a minimum of 6 gallons of water and samples collected. The six four-inch diameter wells were each purged of a minimum of 25 gallons of water and samples collected. Bailing was conducted starting with the least contaminated well moving to wells that have historically shown the greatest levels of contamination, using a PVC Triloc

pump. The pump was rinsed between wells with tap water. Samples were collected using a new, disposable plastic bailer for each well. Purged water was contained in 55 gallon drums.

Sampling was conducted by Lisa Polos, REA, and John Alt, CEG, of Toxic Technology Services.

At the time of sample collection, the contents of the first bailer of water were inspected to assess the presence of any floating product. None of the wells, at the time of sample collection, contained floating product.

Collected samples were put into a cooled ice chest and transported to NET Pacific Laboratory in Santa Rosa California for analysis of Total Petroleum Hydrocarbons as Gasoline and Diesel, BTEX and Volatile Halogenated Hydrocarbons.

Table 2 summarizes the results from this sampling round. The NET analytical reports are presented under Appendix A.

The State of California Maximum Contaminant Level (MCL) in drinking water is 0.5 ppb for 1,2-Dichloroethane, 1750 ppb for Xylenes and 1 ppb for Benzene. The recommended drinking water action level for Toluene is 100 ppb.

SUMMARY

In summary, all wells except MW-4, MW-8 and MW-11 are over the MCL in drinking water for 1,2-Dichloroethane. All wells except MW-8 and MW-10 are over the MCL for Benzene. MW-1 is over the MCL for Xylenes. MW-1 and MW-5 are over the recommended drinking water action level for Toluene.

Trace levels of Tetrachloroethane were found in MW-7 and MW-8. The highest level of gasoline was found in MW-1. Petroleum hydrocarbons heavier than gasoline, but lighter than diesel, were found in every well except MW-4 and MW-8. This seems to indicate the presence of very old gasoline.

MW-8, the on site up gradient well, contains trace levels of Tetrachloroethene. Levels of contamination in MW-8, when present, are substantially lower than in the rest of the wells and still seem to indicate that the source of contamination was located on site.

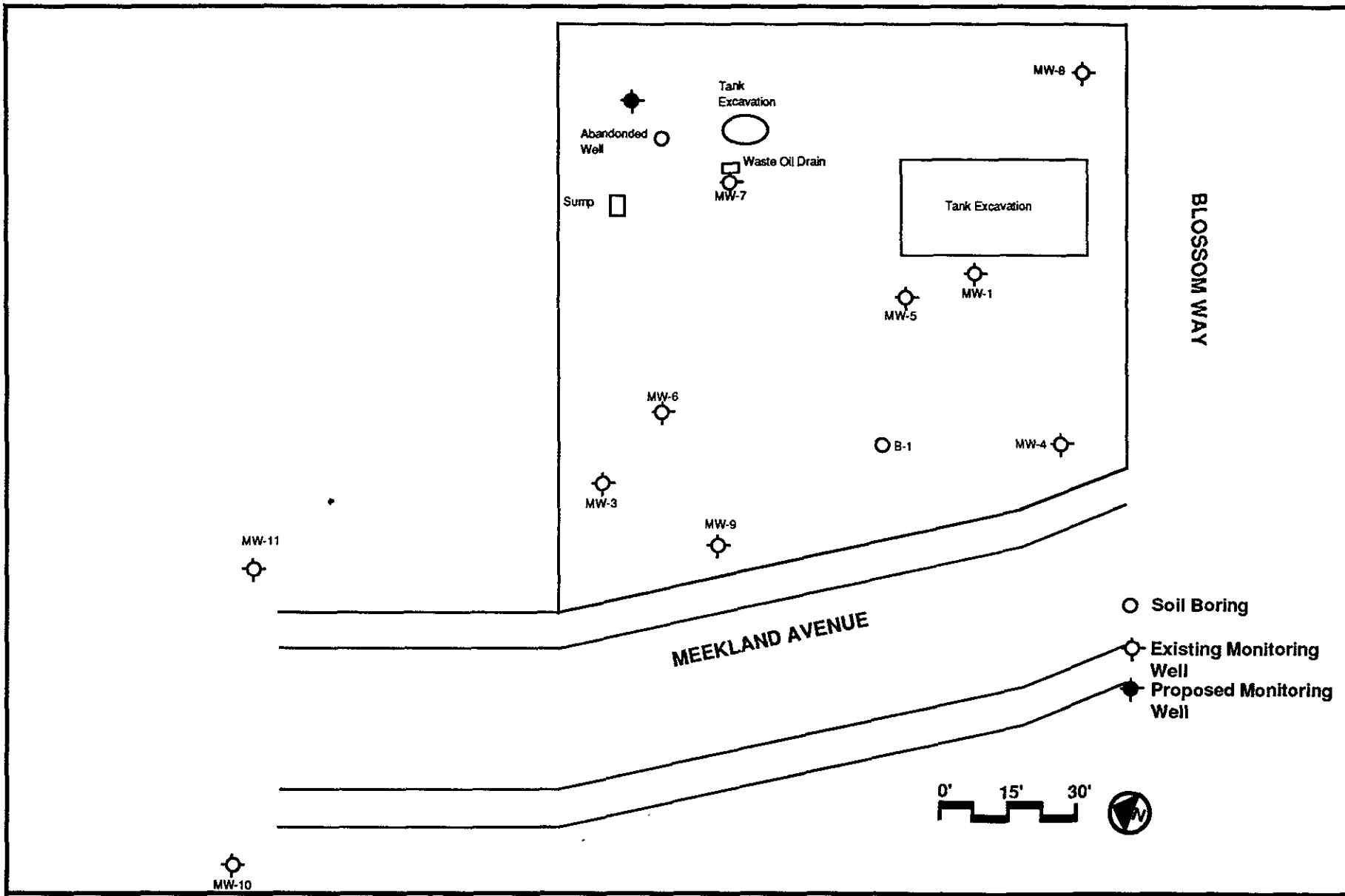
Data from MW-10 and MW-11 indicate that groundwater contamination has migrated off site. However, levels of contamination in MW-10 seem to suggest the possibility of additional off site sources contributing to the contaminant plume. In the sampling episodes that have included MW-10 and MW-11, results indicate that levels in MW-10 are substantially higher than levels in MW-11. MW-11 is closer to the site yet contaminant levels in MW-10 have been among the highest values noted.

Although MW-11 is closer to site, its more cross gradient than downgradient from site, whereas MW10 is more directly d.g.

FUTURE REPORTING FORMAT

A workplan for the delineation, containment and remediation of soil and groundwater contamination was submitted to Alameda County and the Water Quality Control Board in November 1992. Activities detailed in this workplan commenced in December 1992 and will be reported on a monthly basis starting in January 1993.

The January report will be Remediation Progress Report 1.



CTTS , Inc.
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P.O. Box 515 • Rodeo, California 94572
(510) 799-1140

SITE PLAN (Current)

Durham Transportation
Meekland Avenue, Hayward, California

Plate
1
1" = 30 '

TABLE 1

GROUNDWATER ELEVATIONS (feet above MSL)
DURHAM TRANSPORTATION--MEEKLAND PROJECT

DATE	MW1	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	MW11
Jan-91	25.18	25.16	25.22	25.54	25.16	25.21	.	.	.	.
Feb-91	25.44	25.38	25.45	25.39	25.40	25.46	25.48	25.40	.	.
Mar-91	27.48	27.45	29.56	26.62	27.46	27.50	27.40	27.40	.	.
Apr-91	28.15	28.09	27.99	28.04	28.00	28.02	28.06	27.99	.	.
May-91	27.18	27.12	27.16	27.17	27.11	27.19	27.19	27.13	.	.
Jun-91	26.54	26.45	26.56	26.77	26.46	26.53	26.57	26.58	.	.
Jul-91	26.12	26.04	26.05	26.13	26.04	26.10	26.13	26.04	.	.
Aug-91	25.59	25.49	25.62	25.37	25.50	25.59	25.60	25.52	.	.
Sep-91	25.15	25.18	25.18	25.49	25.06	25.16	25.18	25.15	.	.
Oct-91	24.88	24.86	24.92	25.00	24.82	24.97	24.94	24.84	.	.
Nov-91	24.96	24.90	24.97	24.94	24.87	24.94	24.96	24.89	.	.
Dec-91	24.76	24.69	24.78	24.89	24.67	24.76	24.79	24.70	.	.
Jan-92	25.39	25.31	25.28	25.48	25.31	25.37	25.37	25.32	25.16	25.90
Feb-92	28.24	28.23	28.22	28.24	28.15	28.24	28.26	28.19	28.37	28.18
Mar-92	28.46	28.54	28.46	28.49	28.40	28.46	28.59	28.42	28.32	28.41
Apr-92	28.49	28.43	28.48	28.39	28.43	28.49	28.51	28.44	28.32	28.44
May-92	27.77	27.76	27.75	27.79	27.56	27.75	27.79	27.70	27.67	27.68
Jun-92	26.91	26.92	26.87	26.88	26.81	26.87	26.92	26.81	26.64	26.76
Jul-92	26.50	26.40	26.47	26.49	26.41	28.16	26.53	26.41	26.23	26.37
Aug-92	25.86	25.88	25.85	25.81	25.76	25.83	25.88	25.79	25.26	26.07
Sep-92	25.65	25.68	25.64	25.60	25.56	25.61	25.67	25.56	25.39	25.54
Oct-92	25.28	25.30	25.27	25.29	25.17	25.23	25.32	25.19	25.00	25.14
Nov-92	25.26	25.17	25.25	25.25	25.17	25.25	25.29	25.19	25.01	25.13
Dec-92	26.07	26.10	26.06	26.03	26.02	26.05	26.10	26.02	25.92	26.08

TABLE 1a

GROUNDWATER ODOR AND SHEEN OBSERVATIONS
DURHAM TRANSPORTATION--MEEKLAND PROJECT

	MW1	MW3	MW4	MW5	MW6	MW7	MW8	MW9	MW10	MW11
Jan-91	O S	- -	- -	- -	o -	o -	. .	. .	. .	. .
Feb-91	O S	- -	- -	o -	o -	- -	- -	o -	. .	. .
Mar-91	X X	X X	X X	X X	X X	X X	X X	X X	. .	. .
Apr-91	O -	- -	- S	- -	- -	- -	- -	- -	. .	. .
May-91	- -	- -	- -	o -	- -	- -	- -	- -	. .	. .
Jun-91	o -	- -	- -	o -	- -	- -	- -	- -	. .	. .
Jul-91	O S	- -	- -	- -	o -	- -	- -	- -	. .	. .
Aug-91	O S	- -	o -	o -	o -	o -	- -	- -	. .	. .
Sep-91	O S	- -	- -	o -	o -	- -	- -	- -	. .	. .
Oct-91	O S	- -	- -	- -	- -	- -	- -	- -	. .	. .
Nov-91	O S	- -	- -	o -	o -	- -	- -	- -	. .	. .
Dec-91	O S	o -	- -	o -	o -	- -	- -	- -	. .	. .
Jan-92	O S	o -	- -	o -	o -	- -	- -	o -	o -	o -
Feb-92	O -	- -	- -	o -	- -	- -	- -	- -	O -	- -
Mar-92	O -	- -	- -	o S	- -	- -	- -	o -	o -	- -
Apr-92	o -	o -	- -	o -	o -	- -	- -	- -	o -	- -
May-92	O S	o -	- -	o -	- -	o -	- -	- -	o -	o -
Jun-92	O -	- -	- -	- -	- -	- -	- -	- -	O -	- -
Jul-92	O -	- -	- -	o -	- -	- -	- -	- -	- -	- -
Aug-92	O -	- -	- -	o -	- -	- -	- -	- -	- -	- -
Sep-92	O -	- -	- -	o -	- -	- -	- -	- -	o -	- -
Oct-92	O S	- -	- -	o -	o -	- -	- -	- -	O -	- -
Nov-92	O S	- -	- -	o -	o -	- -	- -	o -	o -	o -
Dec-92	O -	- -	- -	- -	- -	- -	- -	- -	- -	- -

O=Strong Odor **o**=Slight Odor **S**=Sheen -=None Present **X**= No Observation Made

TABLE 2

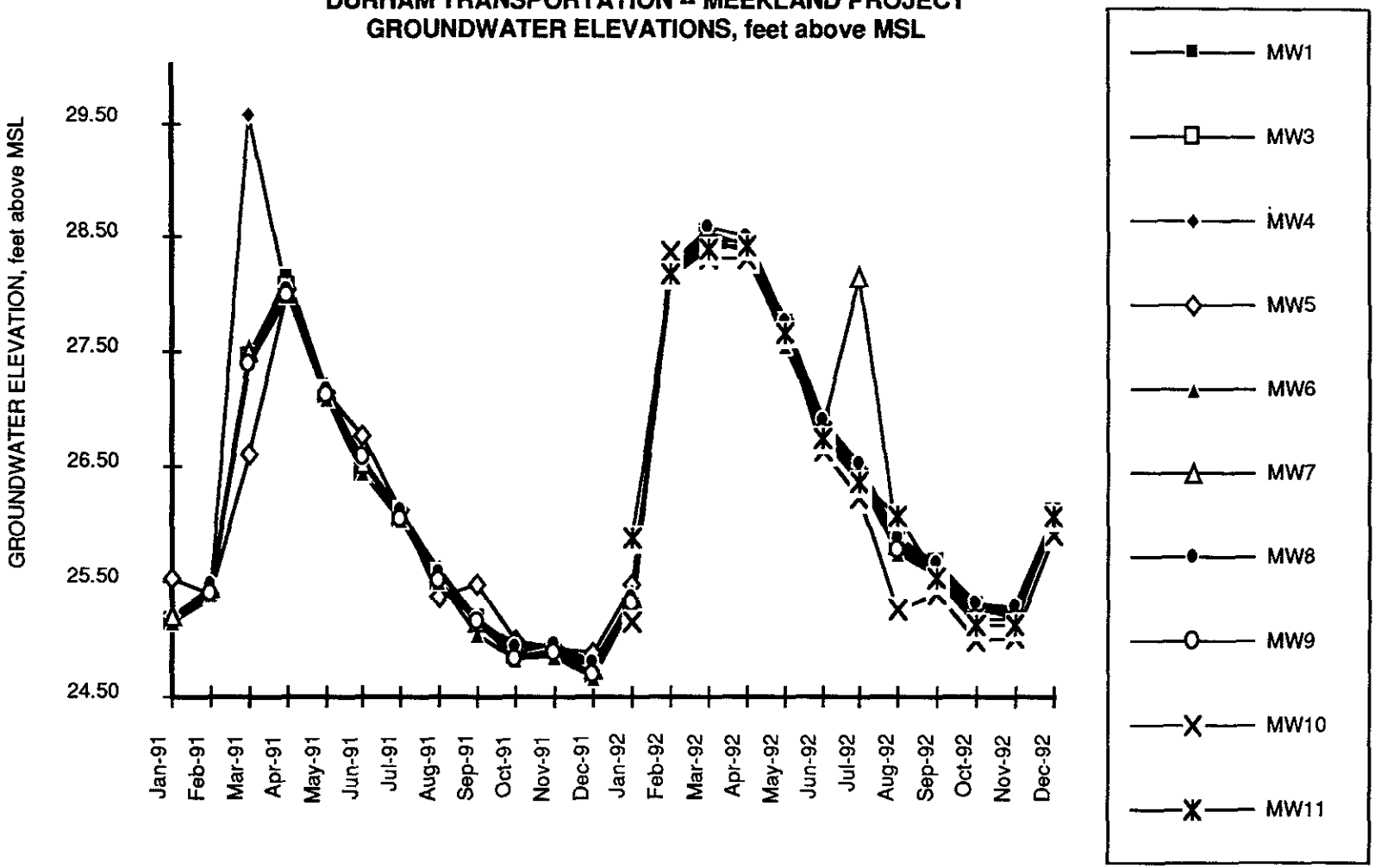
GROUNDWATER CHEMICAL DATA--OCTOBER 1992
DURHAM TRANSPORTATION--MEEKLAND PROJECT

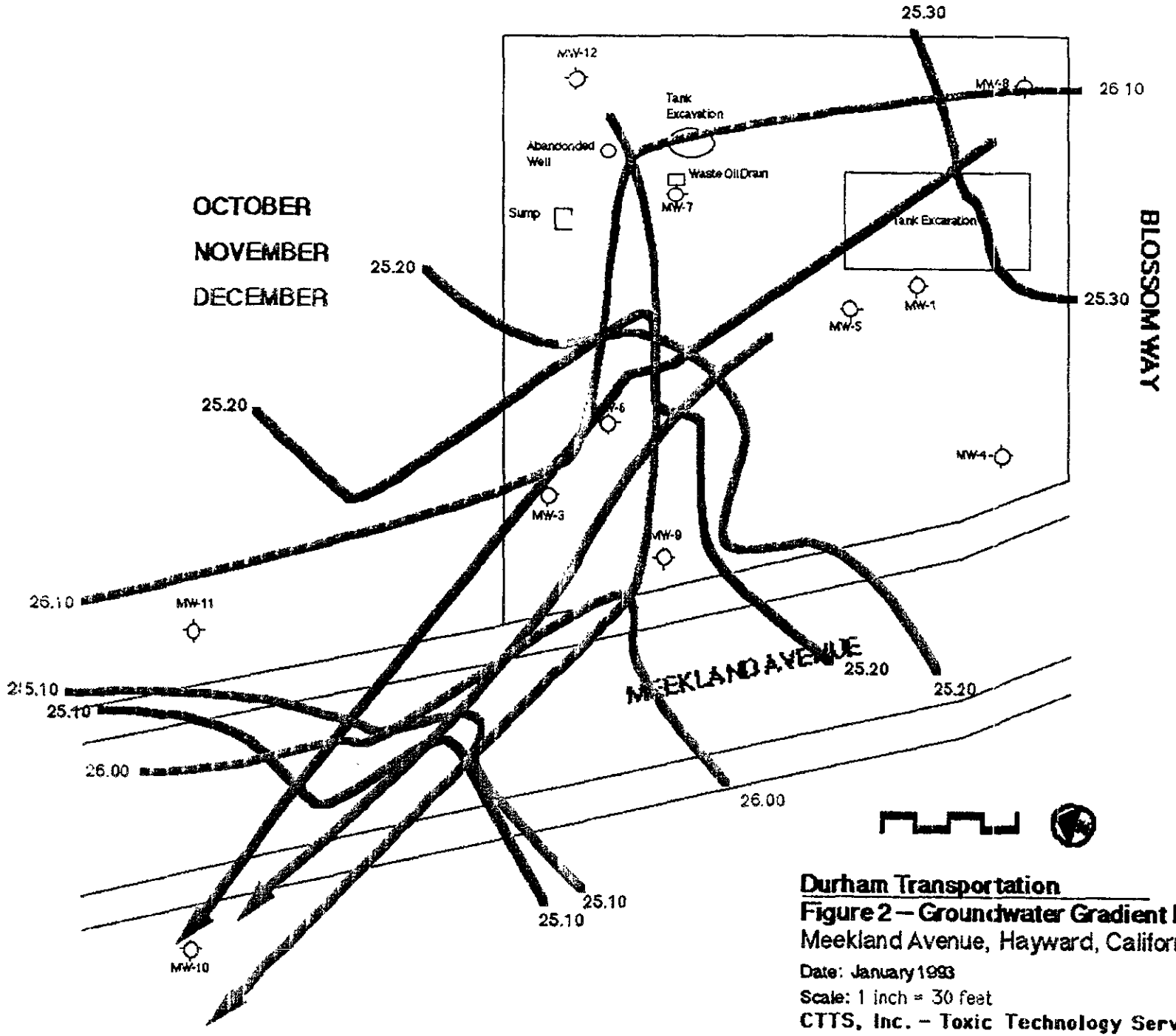
PARAMETER	UNITS	MW-1	MW-3	MW-4	MW-5	MW-6	MW-7
Gasoline	mg/L	33	5.0	0.10	13	1.6	1.8
Diesel	mg/L	*3.5	*0.97	ND	*2.1	*0.11	*0.32
Benzene	ug/L	4400	1300	9.5	4600	230	410
Ethylbenzene	ug/L	1200	320	ND	140	70	31
Toluene	ug/L	2100	45	ND	470	20	11
Xylenes	ug/L	4000	340	2.6	550	88	75
1,2-Dichloroethane	ug/L	61	26	ND	59	24	7.4
Tetrachloroethene	ug/L	ND	ND	ND	ND	ND	1.0

		MW-8	MW-9	MW-10	MW-11	MW-11 DUP	BLANK
Gasoline	mg/L	ND	0.20	3.2	0.66	0.77	ND
Diesel	mg/L	ND	*0.29	*1.5	*0.22	*0.23	ND
Benzene	ug/L	ND	6.8	ND	2.9	3.2	ND
Ethylbenzene	ug/L	ND	1.4	ND	19	26	ND
Toluene	ug/L	ND	2.1	ND	ND	ND	ND
Xylenes	ug/L	ND	7.8	320	3.8	5.7	ND
1,2-Dichloroethane	ug/L	ND	12	25	ND	ND	ND
Tetrachloroethene	ug/L	1.4	ND	ND	ND	ND	ND

* The positive result for the Petroleum Hydrocarbon as Diesel analysis on this sample appears to be a lighter hydrocarbon than Diesel.

FIGURE 1
DURHAM TRANSPORTATION -- MEEKLAND PROJECT
GROUNDWATER ELEVATIONS, feet above MSL





Durham Transportation

Figure 2 – Groundwater Gradient Map

Meekland Avenue, Hayward, California

Date: January 1993

Scale: 1 inch = 30 feet

CTTS, Inc. – Toxic Technology Services

APPENDIX A

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Lisa A. Polos
Toxic Technology Services
PO Box 515
Rodeo, CA 94572

Date: 11/12/1992
NET Client Acct No: 70700
NET Pacific Job No: 92.48962
Received: 10/23/1992

Client Reference Information

19984 Meekland-Durham, Project No: 92-1Q4

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

JS:rct
Enclosure(s)

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-1	MW-3	
			10/21/1992	10/21/1992	
Parameter	Method	Reporting Limit	141323	141324	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			10-30-92	10-30-92	
DILUTION FACTOR*			100	10	
as Gasoline	5030	0.05	33	5.0	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			10-30-92	10-30-92	
DILUTION FACTOR*			100	10	
Benzene	8020	0.5	4,400	1,300	ug/L
Ethylbenzene	8020	0.5	1,200	320	ug/L
Toluene	8020	0.5	2,100	45	ug/L
Xylenes (Total)	8020	0.5	4,000	340	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		88	92	% Rec.
METHOD 3510 (GC,FID)					
DILUTION FACTOR*			1	1	
DATE EXTRACTED			10-26-92	10-26-92	
DATE ANALYZED			10-29-92	10-29-92	
as Diesel	3510	0.05	3.5**	0.97**	mg/L

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of lighter hydrocarbon rather than Diesel.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-1	MW-3	
			10/21/1992	10/21/1992	
Parameter	Method	Reporting Limit	141323	141324	Units
METHOD 601 (GC,Liquid)					
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
Bromodichloromethane	601	0.4	ND	ND	ug/L
Bromoform	601	0.4	ND	ND	ug/L
Bromomethane	601	0.4	ND	ND	ug/L
Carbon tetrachloride	601	0.4	ND	ND	ug/L
Chlorobenzene	601	0.4	ND	ND	ug/L
Chloroethane	601	0.4	ND	ND	ug/L
2-Chloroethylvinyl ether	601	1.0	ND	ND	ug/L
Chloroform	601	0.4	ND	ND	ug/L
Chloromethane	601	0.4	ND	ND	ug/L
Dibromochloromethane	601	0.4	ND	ND	ug/L
1,2-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,3-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,4-Dichlorobenzene	601	0.4	ND	ND	ug/L
Dichlorodifluoromethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethane	601	0.4	ND	ND	ug/L
1,2-Dichloroethane	601	0.4	61	26	ug/L
1,1-Dichloroethene	601	0.4	ND	ND	ug/L
trans-1,2-Dichloroethene	601	0.4	ND	ND	ug/L
1,2-Dichloropropane	601	0.4	ND	ND	ug/L
cis-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
trans-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
Methylene chloride	601	10	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	601	0.4	ND	ND	ug/L
Tetrachloroethene	601	0.4	ND	ND	ug/L
1,1,1-Trichloroethane	601	0.4	ND	ND	ug/L
1,1,2-Trichloroethane	601	0.4	ND	ND	ug/L
Trichloroethene	601	0.4	ND	ND	ug/L
Trichlorofluoromethane	601	0.4	ND	ND	ug/L
Vinyl chloride	601	0.4	ND	ND	ug/L
SURROGATE RESULTS			--	--	
1,4-Difluorobenzene	601		MI	MI	% Rec.
Bromochloromethane	601		90	93	% Rec.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-4	MW-6	
			10/21/1992	10/21/1992	
Parameter	Method	Reporting Limit	141325	141326	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	0.05	0.10	1.6	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
Benzene	8020	0.5	9.5	230	ug/L
Ethylbenzene	8020	0.5	ND	70	ug/L
Toluene	8020	0.5	ND	20	ug/L
Xylenes (Total)	8020	0.5	2.6	88	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		81	121	% Rec.
METHOD 3510 (GC,FID)					
DILUTION FACTOR*			1	1	
DATE EXTRACTED			10-26-92	10-26-92	
DATE ANALYZED			10-29-92	10-29-92	
as Diesel	3510	0.05	ND	0.11**	mg/L

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of lighter hydrocarbon rather than Diesel.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-4	MW-6	
			10/21/1992	10/21/1992	
Parameter	Method	Reporting Limit	141325	141326	Units
METHOD 601 (GC,Liquid)					
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
Bromodichloromethane	601	0.4	ND	ND	ug/L
Bromoform	601	0.4	ND	ND	ug/L
Bromomethane	601	0.4	ND	ND	ug/L
Carbon tetrachloride	601	0.4	ND	ND	ug/L
Chlorobenzene	601	0.4	ND	ND	ug/L
Chloroethane	601	0.4	ND	ND	ug/L
2-Chloroethylvinyl ether	601	1.0	ND	ND	ug/L
Chloroform	601	0.4	ND	ND	ug/L
Chloromethane	601	0.4	ND	ND	ug/L
Dibromochloromethane	601	0.4	ND	ND	ug/L
1,2-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,3-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,4-Dichlorobenzene	601	0.4	ND	ND	ug/L
Dichlorodifluoromethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethane	601	0.4	ND	ND	ug/L
1,2-Dichloroethane	601	0.4	ND	24	ug/L
1,1-Dichloroethene	601	0.4	ND	ND	ug/L
trans-1,2-Dichloroethene	601	0.4	ND	ND	ug/L
1,2-Dichloropropane	601	0.4	ND	ND	ug/L
cis-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
trans-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
Methylene chloride	601	10	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	601	0.4	ND	ND	ug/L
Tetrachloroethene	601	0.4	ND	ND	ug/L
1,1,1-Trichloroethane	601	0.4	ND	ND	ug/L
1,1,2-Trichloroethane	601	0.4	ND	ND	ug/L
Trichloroethene	601	0.4	ND	ND	ug/L
Trichlorofluoromethane	601	0.4	ND	ND	ug/L
Vinyl chloride	601	0.4	ND	ND	ug/L
SURROGATE RESULTS			--	--	
1,4-Difluorobenzene	601		72	MI	% Rec.
Bromochloromethane	601		96	91	% Rec.

Client No: 70700 Date: 11/12/1992
Client Name: Toxic Technology Services
NET Job No: 92.48962 Page: 6

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-7	MW-8	
			10/21/1992	10/21/1992	
Parameter	Method	Reporting Limit	141327	141328	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	0.05	1.8	ND	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
Benzene	8020	0.5	410	ND	ug/L
Ethylbenzene	8020	0.5	31	ND	ug/L
Toluene	8020	0.5	11	ND	ug/L
Xylenes (Total)	8020	0.5	75	ND	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		121	76	% Rec.
METHOD 3510 (GC,FID)					
DILUTION FACTOR*			1	1	
DATE EXTRACTED			10-26-92	10-26-92	
DATE ANALYZED			10-29-92	10-29-92	
as Diesel	3510	0.05	0.32**	ND	mg/L

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of lighter hydrocarbon rather than Diesel.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

Descriptor, Lab No. and Results

Parameter	Method	Reporting Limit	MW-7 10/21/1992 141327	MW-8 10/21/1992 141328	Units
METHOD 601 (GC,Liquid)					
DATE ANALYZED			10-29-92	10-29-92	
DILUTION FACTOR*			1	1	
Bromodichloromethane	601	0.4	ND	ND	ug/L
Bromoform	601	0.4	ND	ND	ug/L
Bromomethane	601	0.4	ND	ND	ug/L
Carbon tetrachloride	601	0.4	ND	ND	ug/L
Chlorobenzene	601	0.4	ND	ND	ug/L
Chloroethane	601	0.4	ND	ND	ug/L
2-Chloroethylvinyl ether	601	1.0	ND	ND	ug/L
Chloroform	601	0.4	ND	ND	ug/L
Chloromethane	601	0.4	ND	ND	ug/L
Dibromochloromethane	601	0.4	ND	ND	ug/L
1,2-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,3-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,4-Dichlorobenzene	601	0.4	ND	ND	ug/L
Dichlorodifluoromethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethane	601	0.4	ND	ND	ug/L
1,2-Dichloroethane	601	0.4	7.4	ND	ug/L
1,1-Dichloroethene	601	0.4	ND	ND	ug/L
trans-1,2-Dichloroethene	601	0.4	ND	ND	ug/L
1,2-Dichloropropane	601	0.4	ND	ND	ug/L
cis-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
trans-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
Methylene chloride	601	10	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	601	0.4	ND	ND	ug/L
Tetrachloroethene	601	0.4	1.0	1.4	ug/L
1,1,1-Trichloroethane	601	0.4	ND	ND	ug/L
1,1,2-Trichloroethane	601	0.4	ND	ND	ug/L
Trichloroethene	601	0.4	ND	ND	ug/L
Trichlorofluoromethane	601	0.4	ND	ND	ug/L
Vinyl chloride	601	0.4	ND	ND	ug/L
SURROGATE RESULTS			--	--	
1,4-Difluorobenzene	601		MI	122	% Rec.
Bromochloromethane	601		81	91	% Rec.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-9	MW-5	
			10/21/1992	10/22/1992	
Parameter	Method	Reporting Limit	141329	141330	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			11-02-92	11-02-92	
DILUTION FACTOR*			1	50	
as Gasoline	5030	0.05	0.20	13	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			11-02-92	11-02-92	
DILUTION FACTOR*			1	50	
Benzene	8020	0.5	6.8	4,600	ug/L
Ethylbenzene	8020	0.5	1.4	140	ug/L
Toluene	8020	0.5	2.1	470	ug/L
Xylenes (Total)	8020	0.5	7.8	550	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		89	86	% Rec.
METHOD 3510 (GC,FID)					
DILUTION FACTOR*			1	1	
DATE EXTRACTED			10-26-92	10-26-92	
DATE ANALYZED			10-29-92	10-29-92	
as Diesel	3510	0.05	0.29**	2.1**	mg/L

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of lighter hydrocarbon rather than Diesel.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-9	MW-5	
			10/21/1992	10/22/1992	
Parameter	Method	Reporting Limit	141329	141330	Units
METHOD 601 (GC,Liquid)					
DATE ANALYZED			10-29-92	11-02-92	
DILUTION FACTOR*			1	1	
Bromodichloromethane	601	0.4	ND	ND	ug/L
Bromoform	601	0.4	ND	ND	ug/L
Bromomethane	601	0.4	ND	ND	ug/L
Carbon tetrachloride	601	0.4	ND	ND	ug/L
Chlorobenzene	601	0.4	ND	ND	ug/L
Chloroethane	601	0.4	ND	ND	ug/L
2-Chloroethylvinyl ether	601	1.0	ND	ND	ug/L
Chloroform	601	0.4	ND	ND	ug/L
Chloromethane	601	0.4	ND	ND	ug/L
Dibromochloromethane	601	0.4	ND	ND	ug/L
1,2-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,3-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,4-Dichlorobenzene	601	0.4	ND	ND	ug/L
Dichlorodifluoromethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethane	601	0.4	ND	ND	ug/L
1,2-Dichloroethane	601	0.4	12	59	ug/L
1,1-Dichloroethene	601	0.4	ND	ND	ug/L
trans-1,2-Dichloroethene	601	0.4	ND	ND	ug/L
1,2-Dichloropropane	601	0.4	ND	ND	ug/L
cis-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
trans-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
Methylene chloride	601	10	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	601	0.4	ND	ND	ug/L
Tetrachloroethene	601	0.4	ND	ND	ug/L
1,1,1-Trichloroethane	601	0.4	ND	ND	ug/L
1,1,2-Trichloroethane	601	0.4	ND	ND	ug/L
Trichloroethene	601	0.4	ND	ND	ug/L
Trichlorofluoromethane	601	0.4	ND	ND	ug/L
Vinyl chloride	601	0.4	ND	ND	ug/L
SURROGATE RESULTS			--	--	
1,4-Difluorobenzene	601		104	MI	% Rec.
1,4-Dichlorobutane	601		NA	101	% Rec.
Bromochloromethane	601		92	NA	% Rec.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-10	MW-11	
			10/22/1992	10/22/1992	
Parameter	Method	Reporting Limit	141331	141332	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			11-03-92	10-30-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	0.05	3.2	0.66	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			11-03-92	10-30-92	
DILUTION FACTOR*			1	1	
Benzene	8020	0.5	ND	2.9	ug/L
Ethylbenzene	8020	0.5	ND	19	ug/L
Toluene	8020	0.5	ND	ND	ug/L
Xylenes (Total)	8020	0.5	320	3.8	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		79	125	% Rec.
METHOD 3510 (GC,FID)					
DILUTION FACTOR*			1	1	
DATE EXTRACTED			10-26-92	10-26-92	
DATE ANALYZED			10-29-92	10-29-92	
as Diesel	3510	0.05	1.5**	0.22**	mg/L

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of lighter hydrocarbon rather than Diesel.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			MW-10	MW-11	
			10/22/1992	10/22/1992	
Parameter	Method	Reporting Limit	141331	141332	Units
METHOD 601 (GC,Liquid)					
DATE ANALYZED			11-02-92	11-02-92	
DILUTION FACTOR*			1	1	
Bromodichloromethane	601	0.4	ND	ND	ug/L
Bromoform	601	0.4	ND	ND	ug/L
Bromomethane	601	0.4	ND	ND	ug/L
Carbon tetrachloride	601	0.4	ND	ND	ug/L
Chlorobenzene	601	0.4	ND	ND	ug/L
Chloroethane	601	0.4	ND	ND	ug/L
2-Chloroethylvinyl ether	601	1.0	ND	ND	ug/L
Chloroform	601	0.4	ND	ND	ug/L
Chloromethane	601	0.4	ND	ND	ug/L
Dibromochloromethane	601	0.4	ND	ND	ug/L
1,2-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,3-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,4-Dichlorobenzene	601	0.4	ND	ND	ug/L
Dichlorodifluoromethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethane	601	0.4	ND	ND	ug/L
1,2-Dichloroethane	601	0.4	25	ND	ug/L
1,1-Dichloroethene	601	0.4	ND	ND	ug/L
trans-1,2-Dichloroethene	601	0.4	ND	ND	ug/L
1,2-Dichloropropane	601	0.4	ND	ND	ug/L
cis-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
trans-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
Methylene chloride	601	10	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	601	0.4	ND	ND	ug/L
Tetrachloroethene	601	0.4	ND	ND	ug/L
1,1,1-Trichloroethane	601	0.4	ND	ND	ug/L
1,1,2-Trichloroethane	601	0.4	ND	ND	ug/L
Trichloroethene	601	0.4	ND	ND	ug/L
Trichlorofluoromethane	601	0.4	ND	ND	ug/L
Vinyl chloride	601	0.4	ND	ND	ug/L
SURROGATE RESULTS			--	--	
1,4-Difluorobenzene	601		99	99	% Rec.
1,4-Dichlorobutane	601		103	85	% Rec.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			Trip Blank	MW-11D	
			10/22/1992	10/22/1992	
Parameter	Method	Reporting Limit	141333	141334	Units
TPH (Gas/BTXE,Liquid)					
METHOD 5030 (GC,FID)			--	--	
DATE ANALYZED			10-30-92	10-30-92	
DILUTION FACTOR*			1	1	
as Gasoline	5030	0.05	ND	0.77	mg/L
METHOD 8020 (GC,Liquid)			--	--	
DATE ANALYZED			10-30-92	10-30-92	
DILUTION FACTOR*			1	1	
Benzene	8020	0.5	ND	3.2	ug/L
Ethylbenzene	8020	0.5	ND	26	ug/L
Toluene	8020	0.5	ND	ND	ug/L
Xylenes (Total)	8020	0.5	ND	5.7	ug/L
SURROGATE RESULTS			--	--	
Bromofluorobenzene	5030		101	133	% Rec.
METHOD 3510 (GC,FID)					
DILUTION FACTOR*			1	1	
DATE EXTRACTED			10-26-92	10-26-92	
DATE ANALYZED			10-29-92	10-29-92	
as Diesel	3510	0.05	ND	0.23**	mg/L

** The positive result for Petroleum Hydrocarbons as Diesel appears to be due to the presence of lighter hydrocarbon rather than Diesel.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

			Descriptor, Lab No. and Results		
			Trip Blank	MW-11D	
			10/22/1992	10/22/1992	
Parameter	Method	Reporting Limit	141333	141334	Units
METHOD 601 (GC,Liquid)					
DATE ANALYZED			11-02-92	11-02-92	
DILUTION FACTOR*			1	1	
Bromodichloromethane	601	0.4	ND	ND	ug/L
Bromoform	601	0.4	ND	ND	ug/L
Bromomethane	601	0.4	ND	ND	ug/L
Carbon tetrachloride	601	0.4	ND	ND	ug/L
Chlorobenzene	601	0.4	ND	ND	ug/L
Chloroethane	601	0.4	ND	ND	ug/L
2-Chloroethylvinyl ether	601	1.0	ND	ND	ug/L
Chloroform	601	0.4	ND	ND	ug/L
Chloromethane	601	0.4	ND	ND	ug/L
Dibromochloromethane	601	0.4	ND	ND	ug/L
1,2-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,3-Dichlorobenzene	601	0.4	ND	ND	ug/L
1,4-Dichlorobenzene	601	0.4	ND	ND	ug/L
Dichlorodifluoromethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethane	601	0.4	ND	ND	ug/L
1,2-Dichloroethane	601	0.4	ND	ND	ug/L
1,1-Dichloroethene	601	0.4	ND	ND	ug/L
trans-1,2-Dichloroethene	601	0.4	ND	ND	ug/L
1,2-Dichloropropane	601	0.4	ND	ND	ug/L
cis-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
trans-1,3-Dichloropropene	601	0.4	ND	ND	ug/L
Methylene chloride	601	10	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	601	0.4	ND	ND	ug/L
Tetrachloroethene	601	0.4	ND	ND	ug/L
1,1,1-Trichloroethane	601	0.4	ND	ND	ug/L
1,1,2-Trichloroethane	601	0.4	ND	ND	ug/L
Trichloroethene	601	0.4	ND	ND	ug/L
Trichlorofluoromethane	601	0.4	ND	ND	ug/L
Vinyl chloride	601	0.4	ND	ND	ug/L
SURROGATE RESULTS			--	--	
1,4-Difluorobenzene	601		73	97	% Rec.
1,4-Dichlorobutane	601		77	96	% Rec.

Ref: 19984 Meekland-Durham, Project No: 92-1Q4

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Diesel	0.05	mg/L	99	ND	76	81	6.7
Gasoline	0.05	mg/L	80	ND	85	76	11
Benzene	0.5	ug/L	89	ND	106	93	14
Toluene	0.5	ug/L	104	ND	103	97	6.0
Gasoline	0.05	mg/L	99	ND	91	88	3.0
Benzene	0.5	ug/L	86	ND	90	86	5.5
Toluene	0.5	ug/L	96	ND	95	92	3.3
Gasoline	0.05	mg/L	90	ND	82	82	<1
Benzene	0.5	ug/L	92	ND	92	92	<1
Toluene	0.5	ug/L	92	ND	97	98	<1

COMMENT: Blank Results were ND on other analytes tested.

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Benzene	0.5	ug/L	110	ND	106	102	4.2
Toluene	0.5	ug/L	102	ND	97	95	2.1
1,1-Dichloroethene	0.4	ug/L	87	ND	97	99	2.1
Trichloroethene	0.4	ug/L	99	ND	105	106	<1
Chlorobenzene	0.4	ug/L	100	ND	105	106	<1
Benzene	0.5	ug/L	95	ND	82	96	15
Toluene	0.5	ug/L	92	ND	77	87	12
1,1-Dichloroethene	0.4	ug/L	100	ND	92	104	13
Trichloroethene	0.4	ug/L	100	ND	87	98	11
Chlorobenzene	0.4	ug/L	100	ND	87	99	12

COMMENT: Blank Results were ND on other analytes tested.

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
ICVS	:	Initial Calibration Verification Standard (External Standard).
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

SANTA ROSA DIVISION, 435 TESCONI CIRCLE, SANTA ROSA, CA 95401
(707) 526-7200 PHONE (707) 526-9623 FAX

9429

CHAIN OF CUSTODY RECORD

COMPANY CTTS (Toxic Technology Services)
ADDRESS PO Box 515 Rodeo 94572
PHONE (510) 799-1140 FAX same
PROJECT NAME/LOCATION 19984 Meekland-Durham
PROJECT NUMBER 92-104
PROJECT MANAGER Lisa Polos

Polos & Alt

SAMPLED BY
Lisa Polos (PRINT NAME) — Lisa Polos (SIGNATURE)
John Alt (PRINT NAME) — John Alt (SIGNATURE)

ANALYSES

TURNAROUND TIME 14 DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-G	TPH-D	BTEX	Gel Chloros	COMMENTS
10/21/92		MW-1	X		5	Aq		X	X	X	X	
		MW-3						X	X	X	X	
		MW-4						X	X	X	X	
		MW-6						X	X	X	X	
		MW-7						X	X	X	X	
		MW-8						X	X	X	X	
10/21/92		MW-9						X	X	X	X	
10/22/92		MW-5						X	X	X	X	
		MW-10						X	X	X	X	
		MW-11						X	X	X	X	
		Trip Blank						X	X	X	X	
10/22/92		MW-11D						X	X	X	X	

CUSTODY SEALED 10/22/92 @1900 MW seals intact. A.L.

RESULTS TO: Lisa Polos

INVOICE TO: Lisa Polos

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
John Alt	10/22/92 3:15pm	Mike Tarani	Mike Tarani	10/22/92 1900	
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY	DATE/TIME	RECEIVED FOR LABORATORY BY:
					A. Lopez 10/23/92 0800

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK