(→ Folg)

ERM EnviroClean

915-118th Avenue, S.E.
Suite 130
Bellevue, WA 98005
(425) 462-8591
(425) 455-3573 (Fax)

30 July 1998

Mr. Mark Peterschmidt
Toxics Cleanup Program
Department of Ecology, Central Region Office
15 West Yakima Avenue; Suite 200
Yakima, Washington 98902-3401

ERM®

SUBJECT: June 1998 Quarterly Monitoring Report, Birchmount Orchard Facility, Wenatchee, Washington

Dear Mr. Peterschmidt:

Enclosed please find one copy of the ERM EnviroClean-West, Incorporated's *June 1998Quarterly Monitoring Report, Groundwater Remediation System, Birchmount Orchard Facility, Wenatchee, Washington.* This document is being submitted to fulfill the Washington State Department of Ecology's reporting requirements for operation of the remediation system at the site.

Should you have any questions regarding this submittal, please call me at (425) 462-8591.

Sincerely,

A. Michael Arnold
Project Manager

enclosure
cc: Mr. Martin Barron - Wells & Wade Fruit Company w/3 enclosures

ERM EnviroClean

915-118th Avenue, S.E.
Suite 130
Bellevue, WA 98005
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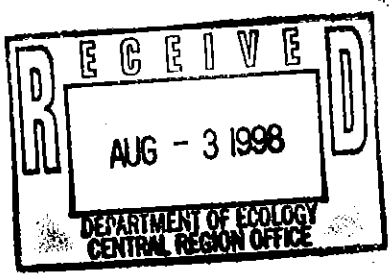


Mr. Martin Barron
Wells & Wade Fruit Company
P.O. Box 78
Wenatchee, Washington 98807

ERM®

Subject: June 1998 Quarterly Monitoring Groundwater Remediation System, Birchmount Orchard Facility, Wenatchee, Washington

Dear Mr. Barron:

ERM EnviroClean, (ERM) is providing the following summary of quarterly monitoring and maintenance completed on 17 June 1998 for the groundwater remediation system in operation at the Wells & Wade Fruit Company (Wells & Wade) Birchmount Orchard facility in Wenatchee, Washington. This facility is located at 3717 Crestview Road, approximately one mile north of Highway 97. The physical features of the site vicinity are shown in Figure 1. A Site Plan Map is shown in Figure 2.

A description of the remediation system has been previously presented in ERM's Groundwater Remediation System Installation and Preliminary Operational Testing report, dated March 31, 1995.

SCOPE OF SERVICES

System operation monitoring was performed in June 1998 for the period from 17 March 1998 through 17 June 1998. An ERM representative completed the following specific tasks during this monitoring event:

- Measured water levels in monitoring wells MW-1, MW-2, and MW-3;
- Started system operation and evaluated system operation and completed necessary system maintenance;
- Collected water samples from the system effluent stream, system influent stream, and monitoring well MW-3 and submitted the water

samples for laboratory analysis of gasoline-range hydrocarbons (TPH-G) by Washington State Department of Ecology (Ecology) Method WTPH-G and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020;

- Recorded system air pressure and stack pressure; and
- Checked for free (floating) product in the recovery well.

During the operating period from 3 April 1998 and 17 June 1998, the remedial system at the site was cycled on and off at approximately two-week intervals. When the system was off, oxygen releasing compound (ORC) socks were placed in monitoring well MW-3 and recovery well RW-1.

QUARTERLY SYSTEM MONITORING

Quarterly remediation system monitoring at the site was performed on 17 March 1998. Operational parameters were recorded from the system gauges, water levels were measured in the monitoring wells, and system influent, effluent, and monitoring well water samples were collected.

System Operation

Between 17 March 1998 and 17 June 1998 the remediation system pumped and treated approximately 23,114 gallons of water. The groundwater recovery pump operated a total of 105.8 hours during this period. The internal air pressure of the air stripper was approximately 18.5 inches of water with an air flow rate of approximately 230 cubic feet per minute. During this monitoring period, the remediation system was cycled on and off at approximately two-week intervals in order to flush residual hydrocarbons sorbed to soils within the groundwater cone of depression, and to encourage new groundwater flow pathways to develop.

Water Levels

Water levels were measured in monitoring wells MW-1, MW-2, and MW-3 on 17 June 1998 using an electric water level indicator. A summary of water level measurements is included in Table 1.

Floating Product

On 17 June 1998 a bailer was lowered into recovery well RW-1 to observe conditions at the water table interface. No floating product was observed in the bailer.

System Maintenance

A check of groundwater recovery and treatment system operation was made on 17 June 1998. No system maintenance was required during this monitoring event.

Water Samples

One sample of air stripper influent water (I-061798), one sample of air stripper effluent water (E-061798), and one groundwater sample from monitoring well MW-3 were collected on 17 June 1998.

The influent and effluent samples were collected by filling laboratory-prepared sample containers directly from the sampling ports on the air stripper system. The influent sample was collected immediately after the end of a pumping cycle. The monitoring well sample was obtained after at least three well casing volumes had been evacuated from the well. Monitoring well purging and sampling were completed using a PVC bailer and new nylon rope. Purge water from the monitoring well was transferred to the air stripper system.

Each sample container was labeled with the sample location, sample number, date, time, and sampler's initials. The samples were chilled during transport to MultiChem Analytical Services (MAS) in Renton, Washington, for analysis. Chain-of-Custody procedures were followed during sample preparation, shipment, and handing. Chain-of-Custody and laboratory quality assurance/quality control (QA/QC) documentation is included with the laboratory data sheets in Attachment A.

Water Sample Analytical Results

MAS analyzed each water sample for TPH-G and BTEX. Laboratory data sheets for the water samples are included in Attachment A. Analytical results for all influent and effluent water samples are included in Table 2. Analytical results for samples collected from monitoring well MW-3 are

included in Table 3. The analytical results for samples collected in June 1998 are summarized below:

Sample Number	Results
E-112097	TPH-G and BTEX all less than MTCA Method A cleanup levels
I-112097	Benzene greater than MTCA Method A cleanup level
MW-3	TPH-G, benzene, and total xylenes greater than MTCA Method A cleanup levels

OXYGEN RELEASING COMPOUND SOCK PLACEMENT

ORC socks were placed in monitoring well MW-3 and recovery well RW-1 in April 1998 to enhance natural attenuation at the site. One 10-foot long, 1-½ inch diameter sock containing 3.6 kilograms of ORC (0.36 kilograms releasable oxygen equivalent) was placed below the water level in each of the noted wells during periods of time when the system was not operating.

By increasing the amount of available oxygen in groundwater, ORC encourages aerobic bioremediation of petroleum products by naturally-occurring bacteria. Although anaerobic biologic processes contribute to petroleum bioremediation in groundwater, aerobic processes typically degrade the hydrocarbons much more rapidly. Placement of the ORC socks in the wells during periods that the system is not operating will increase available oxygen in soils and groundwater near the wells, especially in the cone of depression normally present during pumping. The ORC will also aid in oxygenating groundwater migrating downgradient out of the remedial system capture zone while the system is turned off.

CONCLUSIONS

During the period of 17 March 1998 to 17 June 1998, the remediation system at the Birchmount Orchard facility successfully removed

petroleum hydrocarbons from groundwater at the site and operated within system discharge limitations established by Ecology.

Based on the general increase of TPH-G and BTEX concentrations in monitoring well MW-3 as compared to recent monitoring events, it appears that cycling the remedial system has been effective in mobilizing residual petroleum hydrocarbons in the vicinity of the recovery well.

LIMITATIONS

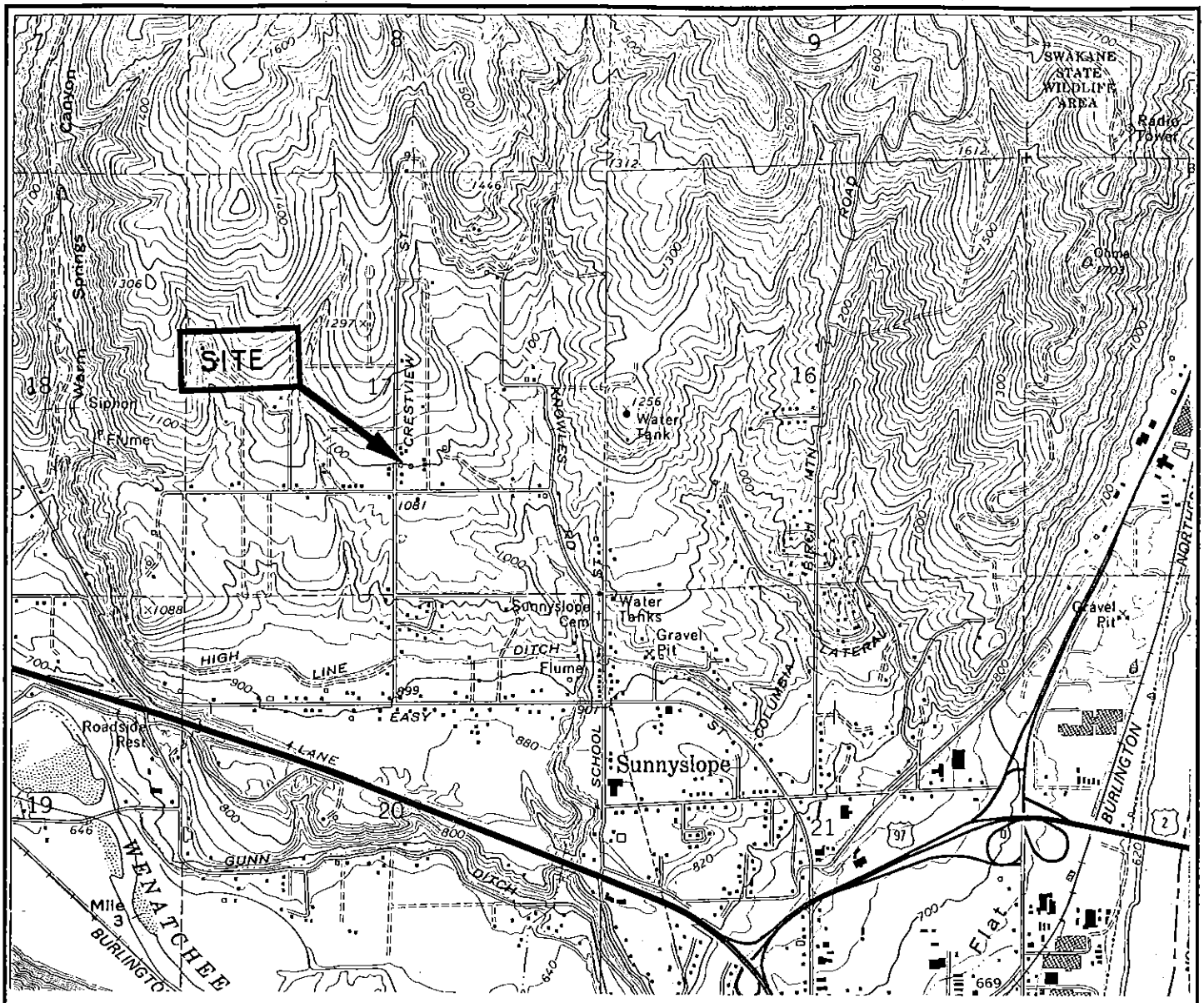
This report is based on applications of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based on the facts currently available within the limits of project scope of work, schedule, and budget. To the extent that more definitive conclusions are desired by the client than are warranted by the currently available facts, it is specifically ERM's intent that the conclusions and recommendations stated in our report will be intended as guidance and not necessarily a firm course of action except where explicitly stated as such. In addition, the information provided in this report is not to be construed as legal advice.

Sincerely,

A. Michael Arnold
Senior Geologist

David A. Buecker
Principal

AMA/DAB/dkj/2624.08
attachment



Scale 1:24000

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

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WELLS & WADE BIRCHMOUNT ORCHARD FACILITY: Wenatchee, Washington

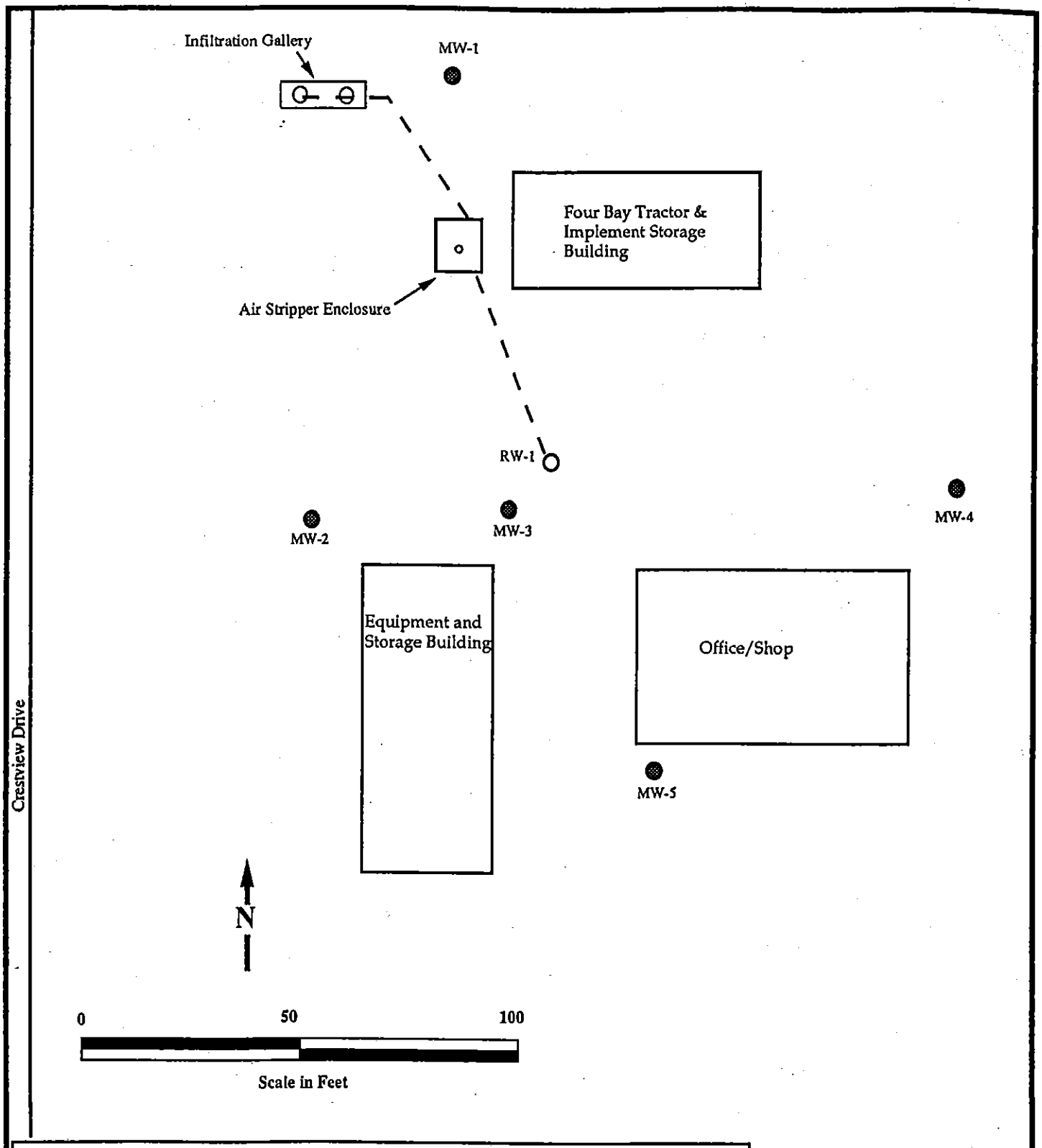
Groundwater Remediation Project - May, 1995 Quarterly Monitoring Event

ERM-Enviroclean West, Inc. July, 1995

Figure 1. Site Vicinity Map

Base: USGS Wenatchee 7.5' Topographic Quadrangle 1966 (Photorevised 1987)

E R M



WELLS & WADE BIRCHMOUNT ORCHARD FACILITY

Wenatchee, Washington

Groundwater Remediation Project - June 1998 Quarterly Monitoring Event

ERM EnviroClean-West, Inc. July 1998

● MW-1 = Monitoring Well Location

○ RW-1 = Recovery Well Location

Note: All locations shown are approximate.

ERM

Figure 2
Site Plan Map

TABLE 1

Summary of Groundwater Elevation Data
Monitoring Wells
Birchmount Orchard Facility
Wenatchee, Washington

Well Number	Date Measured	Top of Casing Elevation(1) (feet)	Depth to Water(2) (feet)	Water Level Elevation(1) (feet)
MW-1	6/17/94	97.30	20.09	77.21
	5/19/95	97.30	19.78	77.52
	8/23/95	97.30	18.64	78.66
	11/20/95	97.30	19.61	77.69
	3/18/96(3)	97.30	19.16	78.14
	5/24/96	97.30	19.85	77.45
	8/19/96	97.30	20.44	76.86
	3/7/97(3)	97.30	17.74	79.56
	5/30/97	97.30	18.60	78.70
	8/13/97	97.30	19.16	78.14
	11/20/97	97.30	19.64	77.66
	3/17/1998(3)	97.30	18.10	79.20
	6/17/98	97.30	17.18	80.12
MW-2	6/17/94	90.53	28.51	62.02
	5/19/95	90.53	28.68	61.85
	8/23/95	90.53	29.02	61.51
	11/20/95	90.53	27.44	63.09
	3/18/96(3)	90.53	23.55	66.98
	5/24/96	90.53	27.83	62.70
	8/19/96	90.53	29.90	60.63
	3/7/97(3)	97.30	17.74	79.56
	5/30/97	97.30	24.90	72.40
	8/13/97	97.30	26.40	70.90
	11/20/97	97.30	27.05	70.25
	3/17/1998(3)	97.30	25.19	72.11
	6/17/98	97.30	26.34	70.96
MW-3	6/17/94	91.06	25.40	65.66
	5/19/95	91.06	31.18	59.88
	8/23/95	91.06	29.95	61.11
	11/20/95	91.06	30.24	60.82
	3/18/96(3)	91.06	21.66	69.40
	5/24/96	91.06	29.68	61.38
	8/19/96	91.06	30.82	60.24
	3/7/97(3)	91.06	21.30	69.76
	5/30/97	91.06	27.58	63.48
	8/13/97	91.06	29.04	62.02
	11/20/97	91.06	29.10	61.96
	3/17/1998(3)	91.06	22.15	68.91
	6/17/98	91.06	28.28	62.78

Notes:

(1) Reported elevations are relative to a site-specific datum of 100.00 feet.

(2) Measured from the top of the well casing.

(3) Water levels measured prior to system startup on this date.

TABLE 2

Summary of Water Analytical Data
Air Stripper Influent and Effluent
Birchmount Orchard Facility
Wenatchee, Washington

Sample Number	Date Sampled	Gasoline-range Hydrocarbons(1) (µg/l)	BTEX(2) (µg/l)			
			B	T	E	X
Effluent						
E-121594	12/15/94	200	<1	<1	<1	1
E-122994	12/29/94	<50	<1	<1	<1	<1
E-051995	5/19/95	120	<1	<1	<1	<1
E-082395	8/23/95	220	3.1	1.6	<1	19.5
E-112095	11/20/95	<100	<0.50	<0.50	<0.50	1.5
E-031896	3/18/96	1,800	0.50	1.4	3.9	9.4
E-033096	3/30/96	<100	<0.50	<0.50	<0.50	<0.50
E-052496	5/24/96	<100	<0.50	<0.50	<0.50	<0.50
E-081996	8/19/96	<100	<0.50	<0.50	<0.50	<0.50
E-030797	3/7/97	640	<0.50	1.6	1.9	5.5
E-053097	5/30/97	<100	<0.50	<0.50	<0.50	<0.50
E-081397	8/13/97	<100	<0.50	<0.50	<0.50	<0.50
E-112097	11/20/97	<100	<0.50	<0.50	<0.50	<0.50
E-031798	3/17/98	<100	<0.50	<0.50	<0.50	<0.50
E-061798	6/17/98	<100	<0.50	<0.50	<0.50	<0.50
Influent						
I-122994	12/29/94	3,000	14	19	9	151
I-022795-1	2/27/95	2,100	16	15	13	73
I-022795-2	2/27/95	3,800	36	14	28	164
I-022795-3	2/27/95	4,000	49	35	32	185
I-030695-1	3/6/95	2,800	16	22	4	110
I-030695-2	3/6/95	2,800	16	23	4	109
I-030695-3	3/6/95	4,500	15	26	7	120
I-051995	5/19/95	2,200	<1	14	5.3	57
I-082395	8/23/95	1,600	11	5.9	2.7	56.5
I-112095	11/20/95	2,000	14	7.7	3.9	74
I-031896	3/18/96	17,000	72	43	77	100
I-052496	5/24/96	1,500	2.5	1.8	3.1	17
I-081996	8/19/96	1,500	20	3.8	8.8	31
I-030797	3/7/97	2,500	26	22	17	70
I-053097	5/30/97	1,900	32	2.2	5.1	43
I-081397	8/13/97	880	5.0	1.9	1.1	19
I-112097(3)	11/20/97	360	0.6	<0.50	<0.50	4.5
I-031798	3/17/98	1,300	16.0	4.8	3.6	32
I-061798	6/17/98	410	7.9	3.4	1.4	14
MTCA Method A cleanup level		1,000	5	40	30	20

Notes:

Chemical analytical services prior to October 1995 provided by Pacific Northern Analytical, Inc., of Redmond, Washington.

Chemical analytical services between October 1995 and March 1996 provided by Analytical Technologies, Inc., of Renton, Washington.

Chemical analytical services after March 1996 provided by MultiChem Analytical Services, Inc., of Renton, Washington.

(1) By Ecology Method WTPH-G.

(2) By EPA Method 8020. B = benzene, T = toluene, E= ethylbenzene, and X = total xylenes.

(3) Sample analyzed after recommended hold time. Sample results should be considered estimated.

µg/l = micrograms per liter

TABLE 3

Summary of Groundwater Analytical Data
Monitoring Well MW-3
Birchmount Orchard Facility
Wenatchee, Washington

Well Number	Date Sampled	Gasoline-range Hydrocarbons(1) (µg/l)	BTEX(2) (µg/l)			
			B	T	E	X
MW-3	7/8/94	30,000	-	-	-	-
	12/29/94	74,000	<1	<20	52	130
	5/19/95	21,000	<5	100	36	160
	8/23/95	37,000	<1	44	26	115
	11/20/95	3,300	9.3	6.2	5.6	26
	3/18/96	1,900	25	20	7.4	35
	5/24/96	2,700	<0.50	4.5	9.0	22
	8/19/96	4,500	24	19	18	37
	3/7/97	11,000	<5.0	14	19	65
	5/30/97	2,700	16	12	5.3	18
	8/13/97	4,200	<0.50	7.7	6.2	27
	11/20/97	5,600	<0.50	12	6.9	28
	3/17/98	2,100	1.2	4.1	3.2	14
	6/17/98	6,100	21	7.8	13	28
MTCA Method A cleanup level		1,000	5	40	30	20

Notes:

Chemical analytical services prior to October 1995 provided by Pacific Northern Analytical, Inc., of Redmond, Washington.
Chemical analytical services between October 1995 and March 1996 provided by Analytical Technologies, Inc., of Renton, Washington.
Chemical analytical services after March 1996 provided by MultiChem Analytical Services, Inc., of Renton, Washington.
(1) By Ecology Method WTPH-G.
(2) By EPA Method 8020. B = benzene, T = toluene, E= ethylbenzene, and X = total xylenes.
µg/l = micrograms per liter
- = Not tested

Attachment A
Chemical Analytical Data

ATTACHMENT A

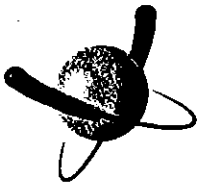
CHEMICAL ANALYTICAL DATA

ATTACHMENT A

CHEMICAL ANALYTICAL DATA

Laboratory chemical analyses for water samples included in this report were completed by MultiChem Analytical Services (MAS) in Renton, Washington. MAS performed quality control/quality assurance (QA/QC) tests on all sample batches completed for this report. Laboratory data sheets, including QA/QC data and chain-of-custody tracking forms, are included in this Attachment.

Our review of the QA/QC data provided by MAS for this report did not identify any significant QA/QC exceptions. Based on our review of the QA/QC data supplied by MAS, the data presented in this Attachment are suitable for intended use in this report.



MultiChem
ANALYTICAL SERVICES

MAS I.D. # 806058

July 1, 1998

ERM EnviroClean West
915 118th Avenue S.E.
Suite 130
Bellevue WA 98005

Attention : Mike Arnold

Project Number : 2624.08

Project Name : Birchmount Orchard

Dear Mr. Arnold:

On June 18, 1998, MultiChem Analytical Services received three samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Elaine M. Walker

Elaine M. Walker
Project Manager

EMW/hal/trm

Enclosure

560 Naches Avenue SW, Suite 101, Renton, Washington 98055-2200 • 425-228-8335 • FAX 425-228-8336 • 1-800-609-0580 • info@multichem.com

MAS I.D. # 806058

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ANALYTICAL SERVICES

SAMPLE CROSS REFERENCE SHEET

CLIENT : ERM ENVIROCLEAN WEST
PROJECT # : 2624.08
PROJECT NAME : BIRCHMOUNT ORCHARD

MAS #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
806058-1	E-061798	06/17/98	WATER
806058-2	I-061798	06/17/98	WATER
806058-3	MW-3	06/17/98	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	3

MAS STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

MAS I.D. # 806058

MultiChem
ANALYTICAL SERVICES

ANALYTICAL SCHEDULE

CLIENT : ERM ENVIROCLEAN WEST
PROJECT # : 2624.08
PROJECT NAME : BIRCHMOUNT ORCHARD

ANALYSIS	TECHNIQUE	REFERENCE	LAB
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS: GAS	GC/FID	WA DOE WTPH-G	R

R = MAS - Renton
ANC = MAS - Anchorage
SUB = Subcontract

MAS I.D. # 806058

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : ERM ENVIROCLEAN WEST
PROJECT # : 2624.08
PROJECT NAME : BIRCHMOUNT ORCHARD

CASE NARRATIVE: BETX - GASOLINE ANALYSIS

There were no anomalies associated with the preparation and/or analysis of the samples in this accession.

MAS I.D. # 806058

MultiChem
ANALYTICAL SERVICES

BETX - GASOLINE
DATA SUMMARY

CLIENT	: ERM ENVIROCLEAN WEST	DATE SAMPLED	: N/A
PROJECT #	: 2624.08	DATE RECEIVED	: N/A
PROJECT NAME	: BIRCHMOUNT ORCHARD	DATE EXTRACTED	: N/A
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 06/22/98
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.50
ETHYLBENZENE	<0.50
TOLUENE	<0.50
TOTAL XYLENES	<0.50
FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE THROUGH C12
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	103	77 - 120
TRIFLUOROTOLUENE	101	80 - 120

MAS I.D. # 806058-1

MultiChem
ANALYTICAL SERVICES

BETX - GASOLINE
DATA SUMMARY

CLIENT	: ERM ENVIROCLEAN WEST	DATE SAMPLED	: 06/17/98
PROJECT #	: 2624.08	DATE RECEIVED	: 06/18/98
PROJECT NAME	: BIRCHMOUNT ORCHARD	DATE EXTRACTED	: N/A
CLIENT I.D.	: E-061798	DATE ANALYZED	: 06/22/98
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.50
ETHYLBENZENE	<0.50
TOLUENE	<0.50
TOTAL XYLENES	<0.50
FUEL HYDROCARBONS	<100
HYDROCARBON RANGE	TOLUENE THROUGH C12
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	105	77 - 120
TRIFLUOROTOLUENE	101	80 - 120

MAS I.D. # 806058-2

MultiChem
ANALYTICAL SERVICES

BETX - GASOLINE
DATA SUMMARY

CLIENT	: ERM ENVIROCLEAN WEST	DATE SAMPLED	: 06/17/98
PROJECT #	: 2624.08	DATE RECEIVED	: 06/18/98
PROJECT NAME	: BIRCHMOUNT ORCHARD	DATE EXTRACTED	: N/A
CLIENT I.D.	: I-061798	DATE ANALYZED	: 06/22/98
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	7.9
ETHYLBENZENE	1.4
TOLUENE	3.4
TOTAL XYLENES	14
FUEL HYDROCARBONS	410
HYDROCARBON RANGE	TOLUENE THROUGH C12
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	106	77 - 120
TRIFLUOROTOLUENE	102	80 - 120

MAS I.D. # 806058-3

MultiChem
ANALYTICAL SERVICES

BETX - GASOLINE
DATA SUMMARY

CLIENT	: ERM ENVIROCLEAN WEST	DATE SAMPLED	: 06/17/98
PROJECT #	: 2624.08	DATE RECEIVED	: 06/18/98
PROJECT NAME	: BIRCHMOUNT ORCHARD	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-3	DATE ANALYZED	: 06/22/98
SAMPLE MATRIX	: WATER	UNITS	: ug/L
METHOD	: WA DOE WTPH-G/8020(BETX)	DILUTION FACTOR	: 10

COMPOUNDS	RESULTS
BENZENE	21
ETHYLBENZENE	13
TOLUENE	7.8
TOTAL XYLENES	28
FUEL HYDROCARBONS	6100
HYDROCARBON RANGE	TOLUENE THROUGH C12
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
BROMOFLUOROBENZENE	106	77 - 120
TRIFLUOROTOLUENE	101	80 - 120

MAS I.D. # 806058

MultiChem
ANALYTICAL SERVICES

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT	: ERM ENVIROCLEAN WEST	SAMPLE I.D. #	: BLANK
PROJECT #	: 2624.08	DATE EXTRACTED	: N/A
PROJECT NAME	: BIRCHMOUNT ORCHARD	DATE ANALYZED	: 06/22/98
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: WA DOE WTPH-G/8020(BETX)		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<0.500	20.0	21.6	108	N/A	N/A	N/A
TOLUENE	<0.500	20.0	21.8	109	N/A	N/A	N/A
TOTAL XYLENES	<0.500	60.0	66.3	111	N/A	N/A	N/A
GASOLINE	<100	1000	1030	103	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
BENZENE	80 - 120	20
TOLUENE	80 - 120	20
TOTAL XYLENES	80 - 120	20
GASOLINE	80 - 120	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	104	N/A	77 - 120
TRIFLUOROTOLUENE	102	N/A	80 - 120

MAS I.D. # 806058

MultiChem
ANALYTICAL SERVICES

BETX - GASOLINE
QUALITY CONTROL DATA

CLIENT	: ERM ENVIROCLEAN WEST	SAMPLE I.D. #	: 806058-1
PROJECT #	: 2624.08	DATE EXTRACTED	: N/A
PROJECT NAME	: BIRCHMOUNT ORCHARD	DATE ANALYZED	: 06/22/98
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: WA DOE WTPH-G/8020(BETX)		

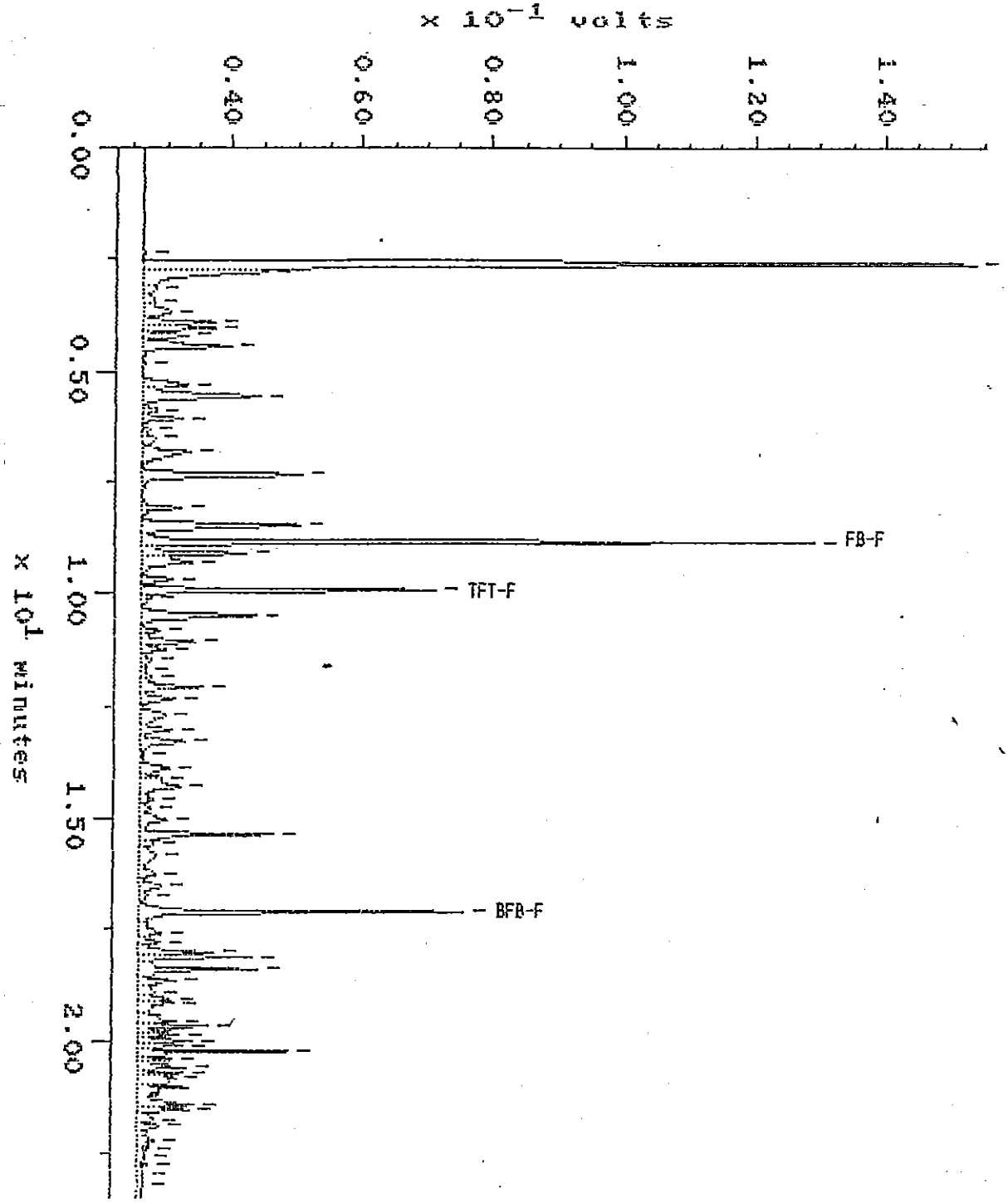
COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE	<0.500	N/A	N/A	20.0	21.1	106	22.3	112	6
TOLUENE	<0.500	N/A	N/A	20.0	21.1	106	22.2	111	5
TOTAL XYLENES	<0.500	N/A	N/A	60.0	64.0	107	67.6	113	5
GASOLINE	<100	<100	NC	1000	1020	102	1020	102	0

CONTROL LIMITS	% REC.	RPD
BENZENE	80 - 120	20
TOLUENE	80 - 120	20
TOTAL XYLENES	80 - 120	20
GASOLINE	80 - 120	20

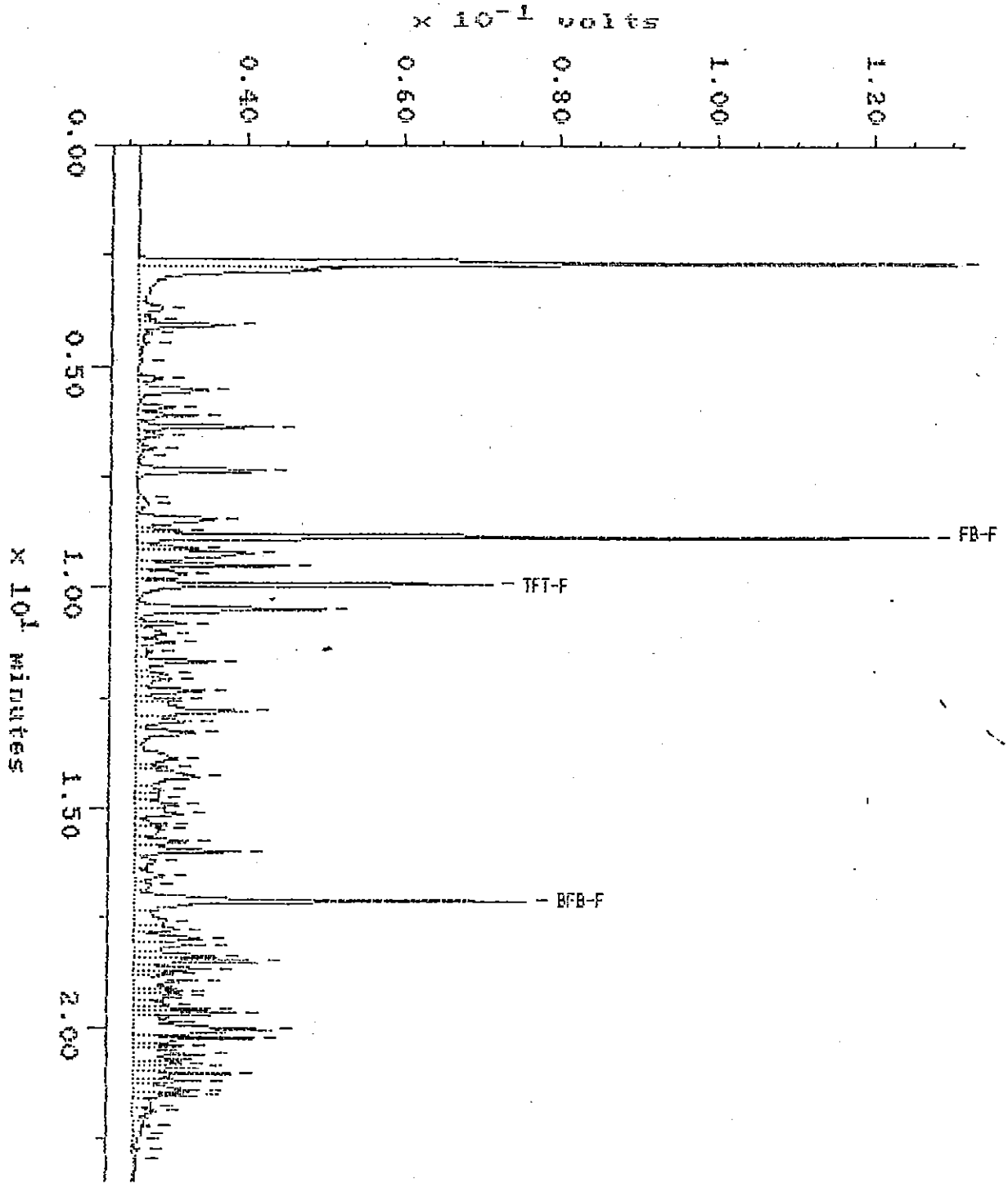
SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
BROMOFLUOROBENZENE	104	105	77 - 120
TRIFLUOROTOLUENE	99	99	80 - 120

NC = Not calculable.

Sample: 806058-2 Channel: FID Filename: R6229G16
Acquired: 22-JUN-98 19:36 Method: X:\MAXDATA\GLAD2\062298GS Operator: MAS
Comments: MAS : TPHG / 8020 (BETX)



Sample: 806058-30L Channel: FID Filename: R6229G17
Acquired: 22-JUN-98 20:05 Method: X:\MAXDATA\GLADE\06229805 Operator: MAS
Dilution: 1 : 10.000
Comments: MAS : TPHG / 8020 (BETX)



Blank

Sample: A0622-WRB Channel: FID Filename: R6229B03
Acquired: 22-JUN-96 12:11 Method: X:\MAXDATA\GLAD2\062298GS Operator: MAS
Comments: MAS : TPHG / 8020 (BETX)

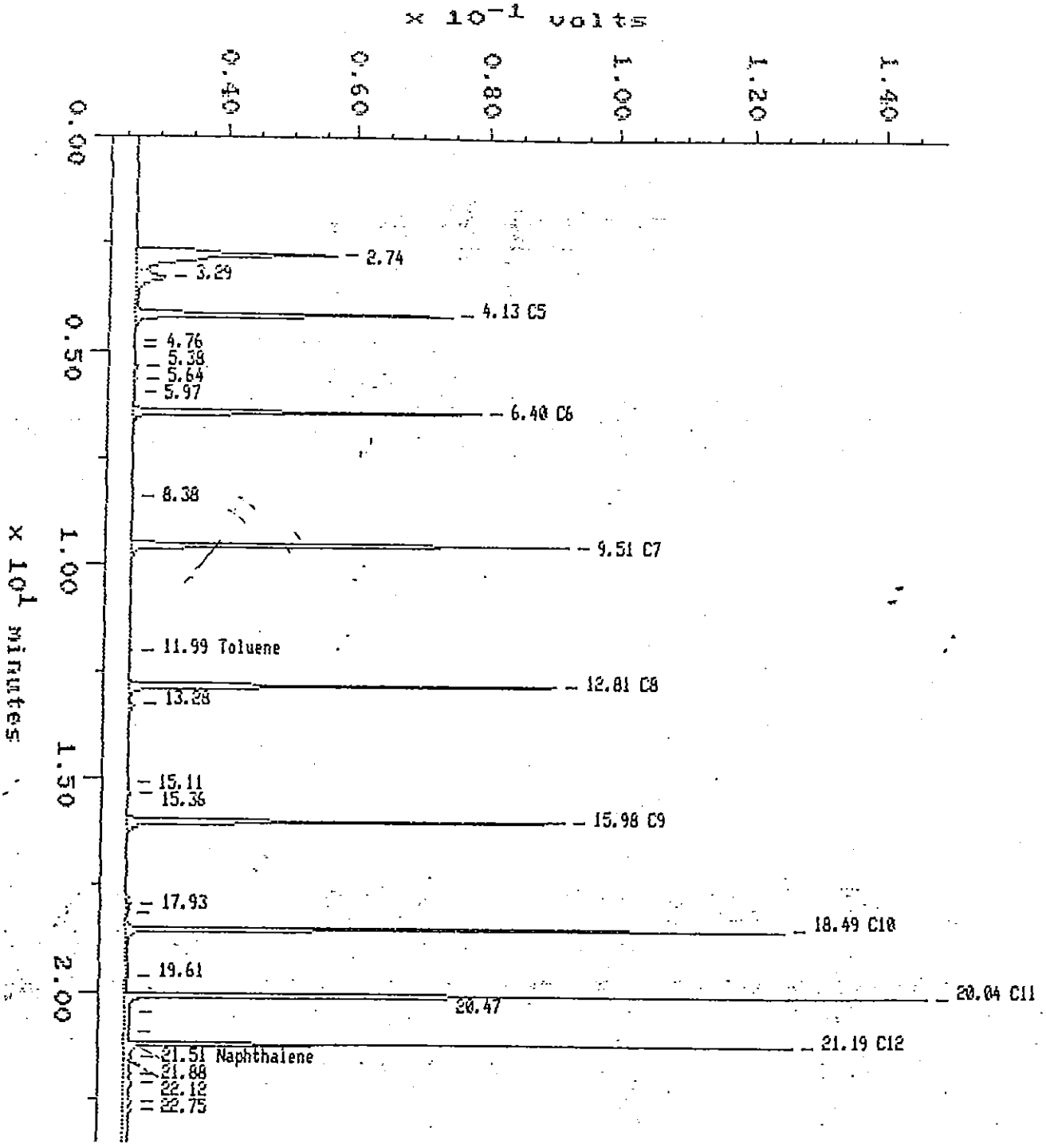
Alkane

RAN 6-22-98

Sample: GLAD ALKANE
Acquired: 22-JUN-98 9:51
Comments: MAS FUELS: TPHG / 8020 (BETX)

Channel: FID
Method: X:\MAXDATA\GLAD2\061998GS

Filename: 86199046
Operator: MAS



WA

Tol_{ST} : 11.89

C_{12ST} : 21.09

OR, 8015B

C_6 : 6.40

C_{10} : 18.49

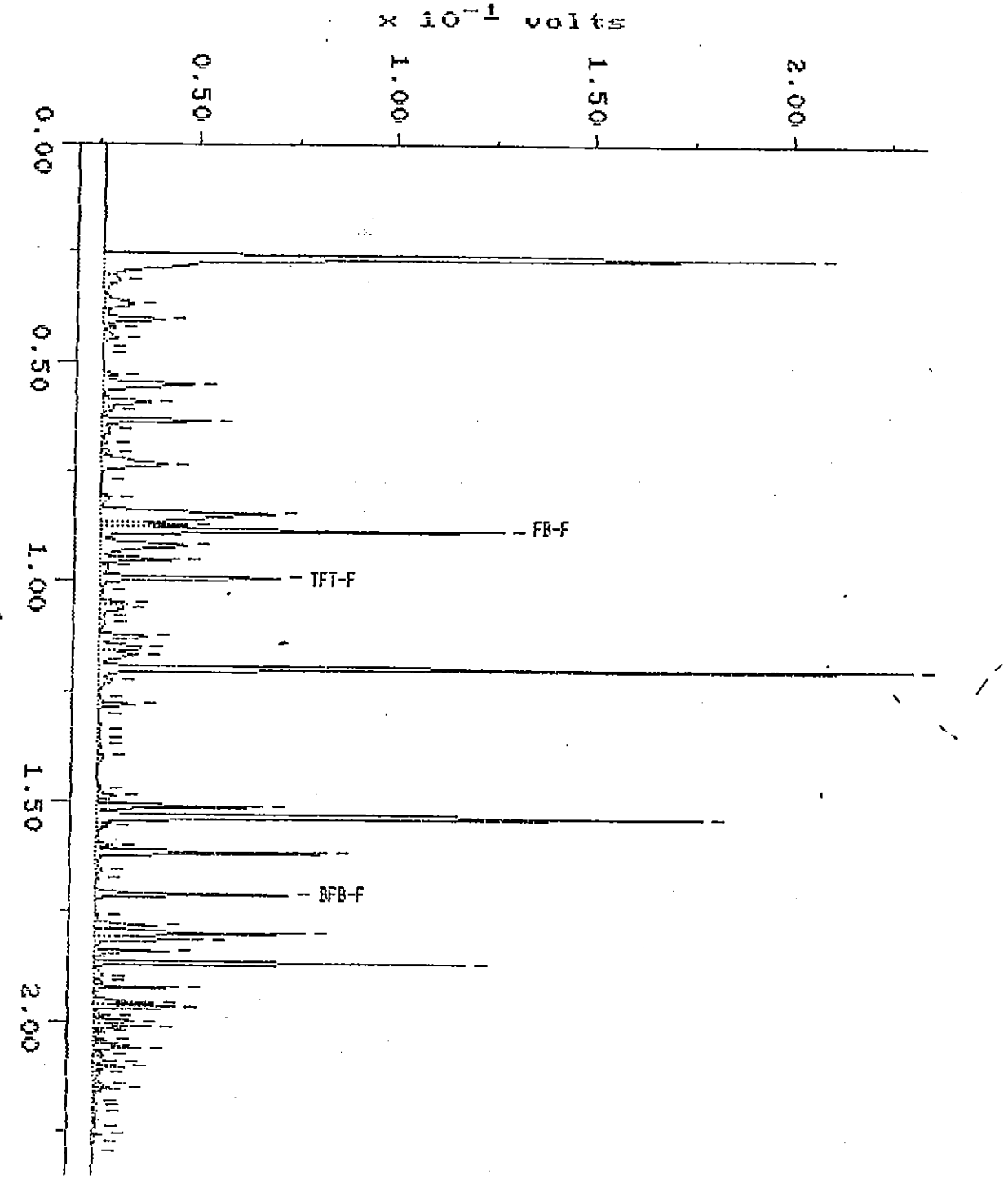
AK:

C_{6ST} : 6.30

C_{10ST} : 18.39

CONTINUING CALIBRATIO

Sample: GAS 1002 CCV Channel: FID Filename: R6229G02
Acquired: 22-JUN-98 11:29 Method: X:\MAXDATA\GLAD2\06229BGS Operator: MAS
Comments: MAS : TPHG / 8020 (BETX)



MultiChem ANALYTICAL SERVICES

560 Naches Ave. SW Suite 101 Renton, WA 98055
(800) 609-0580 ◆ (425) 228-8335 ◆ FAX (425) 228-8336

LAB NUMBER: A06058

DATE: 06/17/98
PAGE: 1 of 1

COMPANY: ERM EnviroClean
ADDRESS: 915 118th Ave SE Suite 130
Bellevue WA 98005

PHONE: (425) 462 8591 FAX (425) 455-3573
PROJ. MGR / CONTACT: MIKE ARNOLD
PROJECT NUMBER: 2624.08
PROJECT NAME: Birchmount Orchard
DISPOSAL: ☒ MAS ☐ HOLD ☐ RETURN

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TPH-HCID	BETX / TPH-G	BETX / AK101	BETX (by 8021)	TPH-G	TPH-D	TPHD-extended	8015 modified	418.1	413.2	AK-GRO AK101	AK-DRO AK102 / 103	8240 / 8260 GCMS Volatiles	8270 GCMS Semivolatiles	8081 Pesticides / PCBs	PCB only (by 8081) SID / II	8021 Halogenated VOCs	8021 Aromatic VOCs	8310 HPLC PAHs	8041 Phenols	8151 OC Herbicides	Metals indicate below*	Total / Dissolved Lead	RCRA Metals (8)	PP Metals (13)	TA Metals (23)	TCLP 8240 (/III)	TCLP 8270 Semivolatiles	TCLP 8081 Pesticides	TCLP 8151 Herbicides	TCLP Metals	Total # of Containers
E - 061798	6-17-98	0939	W	1		/																														3
I - 061798	6-17-98	0942	W	2		/																														3
MW-3	6-17-98	1012	W	3		/																														3

SAMPLE RECEIPT	
TOTAL # OF CONTAINERS	☐ YES ☐ NO
COC SEALS PRESENT	☐ YES ☐ NO
COC SEALS INTACT	☐ YES ☐ NO
RECEIVED GOOD COND.	☐ YES ☐ NO
RECEIVED INTACT	☐ YES ☐ NO
RECEIVED W/A	

TAT:
- ☐ 24 HOURS
- ☐ 48 HOURS
- ☐ 72 HOURS
- ☐ 7 DAYS
- ☐ SP
- ☒ STANDARD

SPECIAL INSTRUCTIONS/COMMENTS:

*METALS NEEDED:

RELINQUISHED BY	RELINQUISHED BY	RELINQUISHED BY
SIGNATURE: David A Thornsberry	SIGNATURE:	SIGNATURE:
PRINT NAME: DAVID A THORNSBERRY	PRINT NAME:	PRINT NAME:
DATE: 6-17-98 TIME: 1041	DATE: TIME:	DATE: TIME:
COMPANY: ERM - WEST	COMPANY:	COMPANY:
RECEIVED BY:	**RECEIVED BY:**	**RECEIVED BY:**
SIGNATURE: Michael Baldwin	SIGNATURE:	SIGNATURE:
PRINT NAME: Michael Baldwin	PRINT NAME:	PRINT NAME:
DATE: 06.18.98 TIME: 1050	DATE: TIME:	DATE: TIME:
COMPANY: MultiChem	COMPANY:	COMPANY:

MAS USE ONLY: SUBCONTRACT LAB:

Y N
(if Y see other side)

MultiChem Analytical Services

SAMPLE LOG-IN CHECKLIST

DATE: 06.18.98
TIME: 1050
INITIALS: MLB

ACCESSION NO. 806058
CLIENT: ~~EMW~~ MLB ERM
PROJECT: Birchmount Orchard

Shipping:

Type:
- ✓ Cooler
- Box
- Other

COC Seals:
- ✓ Ship. Cont.
- On Bottles
- None

Intact?
- (Y) N
- Y N

Packing Material:
- Styrofoam
- ✓ Bubble Bags
- Foam Vial Packs
- Other

Refrigerant:
- ✓ Gel Ice Pack
- ✓ Loose Ice
- Other
- None

Frozen?
- (Y) N
- (Y) N
- Y N

Received Via:
- ✓ Hand Delivery
- Federal Express
- Airborne
- Other:

- Courier
- UPS
- Taxi
- Goldstreak

Sample Information:

Samp. #	Bottle #
3	9

Type
- Soil
- Water
- Product
- Other

Soil VOAs
Water VOAs

0 headspace Y N N
0 headspace (Y) N N
Preserved? (Y) N
Trip blanks? (Y) N

Condition of Samples:
Containers:
Intact? (Bottle/Lid) (Y) N
Correct Type? (Y) N

CA #

Waters Preserved? (if needed) Y N N

ID's Match C.O.C. (Y) N N

Temperature: 3.5° C CA NO.
(See corrective action on reverse side for explanation if temperature is outside of the MAS recommended range.)

LAB USE ONLY: ☐ NO NOTICE ☐ SENDOUTS NEEDED BY
☐ COC/TAT DOES NOT MATCH NOTICE ☐ NEED TEST(S) VERIFIED BY CLIENT

COMMENTS: