EXON COMPANY, U.S.A.

POST OFFICE BOX 4032 - CONCORD, CA. 94524-2032 - 415 246-8760 PM 2: 07

MARKETING DEPARTMENT

ENVIRONMENTAL ENGINEERING

G. D. GIBSON SENIOR ENVIRONMENTAL ENGINEER

February 6, 1990

Exxon RAS 7-0104 1725 High Street Alameda, California PARK

Mr. Ariu Levy Alameda County Environmental Health Department Hazardous Materials Division 80 Swan Way, Suite 200 Oakland, California 94621

Dear Mr. Levy:

The attached report presents the results of the third round of quarterly monitoring of six groundwater monitoring wells at the referenced site in the City of Alameda. This report, by Harding Lawson Associates of Novato, California, shows elevated levels of hydrocarbons in comparison to the immediately previous sampling events. A work plan to perform a Phase III Groundwater Investigation aquifer testing program was submitted to your office on January 23, 1990 as part of the further work being planned for this site.

Should you have any comments or concerns please contact me at (415) 246-8768. Thank you.

Gary D. Gibson

incerply

GDG:vv 0649E Attachments

c - w/attachment:

Mr. J. K. Hunter

Mr. S. R. Ritchie - San Francisco Bay Region Water Quality Control Board

w/o attachment:

Mr. J. R. Hastings Mr. L. W. Lindeen

Ms. S. M. Watson - Harding Lawson Associates



January 8, 1990

04167,284.02

Exxon Company, U.S.A. Post Office Box 4415 Houston, Texas 77210-4415

Attention: Mr. J. Kevin Hunter

Gentlemen:

Third Quarter Ground-Water Sampling Exxon Station #7-0104 Alameda, California

This letter presents the results of Harding Lawson Associates' (HLA) December 1989 monitoring of six ground-water monitoring wells at Exxon Station 7-0104, 1725 Park Street, Alameda, California (site). The site history and detailed monitoring well sampling procedures are described in HLA's Phase II Evaluation of Petroleum Hydrocarbons, Exxon Service Station R/S #7-0104, 1725 Park Street, Alameda, California, dated March 21, 1989. The first, second, and third rounds of quarterly sampling were conducted on June 1, September 18, and December 11, 1989, respectively.

Water-Level Monitoring and Ground-Water Sampling

HLA has been obtaining monthly water level and free phase hydrocarbon measurements from the six monitoring wells on site. All measurements were performed with an oil-interface probe. No free-phase product was measured in any of the wells. Prior to ground-water sample collection, the six monitoring wells were purged a minimum of three well volumes by hand bailing or with a centrifugal pump. The purge water was stored in 55 gallon drums on site. Measurements of pH, conductivity, and temperature were taken during purging of the wells. Copies of HLA's Ground-Water Sampling Forms documenting sampling activities are attached. All water-level measurement and sampling equipment was decontaminated prior to use by steam cleaning.

Ground-water samples from each of the monitoring wells were collected using a stainless steel bailer and decanted into 40-milliliter volatile organic analysis (VOA) vials. The samples were labeled, placed in a cooler and transported under chain of custody procedures to NET Pacific Laboratory, Santa Rosa, California (NET). NET is a California state-certified laboratory for the analyses requested.

January 8, 1990 04167,284.02 Exxon Company, U.S.A. Mr. J. Kevin Hunter Page 2

Laboratory Analysis

The ground-water samples were analyzed for total petroleum hydrocarbons (TPH) calibrated to gasoline, and for benzene, ethylbenzene, toluene, and xylenes (BETX). Ground-water analytical results are listed in Table 1, along with analytical results from HLA's previous ground-water sampling rounds. Copies of the original laboratory reports are attached.

Ground-Water Gradient and Flow Direction

Ground-water elevations from the December 1989 water-level survey are presented in Table 2, along with previously measured ground-water elevations. In comparison to previous measurements, water-level elevations at the site have increased over the past three months. The water table appears to be fluctuating in response to seasonal precipitation and precipitation induced recharge. Ground-water contours are shown on Plate 1. As shown, the direction of ground-water flow is toward the east at a gradient of approximately 0.01 ft/ft. This flow direction is consistent with previous water-level data obtained throughout this investigation.

Conclusions

Review of laboratory analytical results indicates that the highest concentrations of petroleum hydrocarbon constituents are in ground-water samples collected from wells located adjacent to and downgradient of the tank field area.

As presented in Table 1, the levels of petroleum hydrocarbon constituents at the site appear to have increased in comparison with concentrations detected during the previous sampling event. The concentrations of benzene, toluene, and xylenes detected in all monitoring wells at the site (with the exception of toluene in MW-1) are in excess of the California State Department of Health Services (DHS) action levels established for these parameters (0.7, 100, and 620 parts per billion, respectively).

Low levels of BTEX were detected in the field blank obtained at the site. Since the site is an active gasoline station, ambient concentrations of BTEX in the air are not uncommon. The sample analytical results are, in general, several orders of magnitude higher than the concentrations detected in the field blank and therefore sample contamination from volatiles in the ambient air does not appear to be an issue.

The fourth sampling event is scheduled for mid-March 1990. HLA will submit a written report to Exxon following the next quarterly sampling event. The report will include laboratory analytical results and a description of the ground-water conditions at the site. HLA recommends that this report be submitted to the Regional Water Quality Control Board and the Alameda County Health Agency.

January 8, 1990 04167,284.02 Exxon Company, U.S.A. Mr. J. Kevin Hunter Page 3

Please call us at 415/892-0821 if you have any questions.

Yours very truly,

HARDING LAWSON ASSOCIATES

5 Michelle Watson

S. Michelle Watson

Staff Geologist

Michael L. Siembieda

Associate Geologist - RG 4007

SMW/MLS/ere/F10772-CT

Attachments:

Table 1 Table 2 Plate I

Ground-Water Sampling Forms Laboratory Analytical Reports

No: 4007

Table 1. Analytical Results
HLA Ground-Water Sampling (ppb)*
Exxon Station #7-0104

Well Number	Date	TPH Gasoline	Benzene	Toluene	Ethyl- benzene	Xylenes
MW-1	06/07/88	27,000	5,000	77	1,100	2,700
MW-1	01/17/89	6,800	2,000	91	800	1,600
MW-1	06/01/89	1,700	170	6.9	13	230
MW-1	09/18/89	2,100	9.0	53	18	130
MW -1	12/11/89	5,800	200	42	290	330
MW-2	06/07/88	110,000	12,000	12,000	2,100	12,000
MW-2	01/17/89	30,000	6,600	3,300	1,600	7,700
MW-2	06/01/89	8,700	330	280	680	1,200
MW-2	09/18/89	17,000	580	280	570	220
MW-2	12/11/89	32,000	1,000	850	310	1,200
MW-3	06/07/88	28,000	6,000	80	940	1,900
MW-3	01/17/89	5,300	2,500	230	590	1,100
MW-3	06/01/89	5,400	330	300	570	680
MW-3	09/18/89	12,000	680	170	350	860
MW-3	12/11/89	14,000	1,100	150	670	690
MW-4	01/17/89	19,000	1,000	1,500	360	2,200
MW-4	06/01/89	3,600	180	240	63	810
MW-4	09/18/89	6,000	290	200	28	510
MW-4	12/11/89	13,000	750	910	510	1,200
MW-5	01/17/89	26,000	8,700	3,900	990	5,900
MW-5	06/01/89	5,200	240	220	130	690
MW-5	09/18/89	8,000	340	150	140	460
MW-5	12/11/89	15,000	720	320	450	870
MW-6	01/17/89	38,000	7,400	9,300	2,000	9,900
MW-6	06/01/89	23,000	1,900	2,500	2,000	6,000
MW-6	09/18/89	17,000	650	410	650	320
MW-6	12/11/89	29,000	1,100	810	330	1,500
Field						
Blank	12/11/89	<50	0.88	0.95	0.62	1.7

^{*} ppb - parts per billion

<: Numbers preceded by "<" indicate that sample was below the indicated detection limit.

Table 2. Exxon Station R/S #7-0104 Ground-Water Elevations (feet)

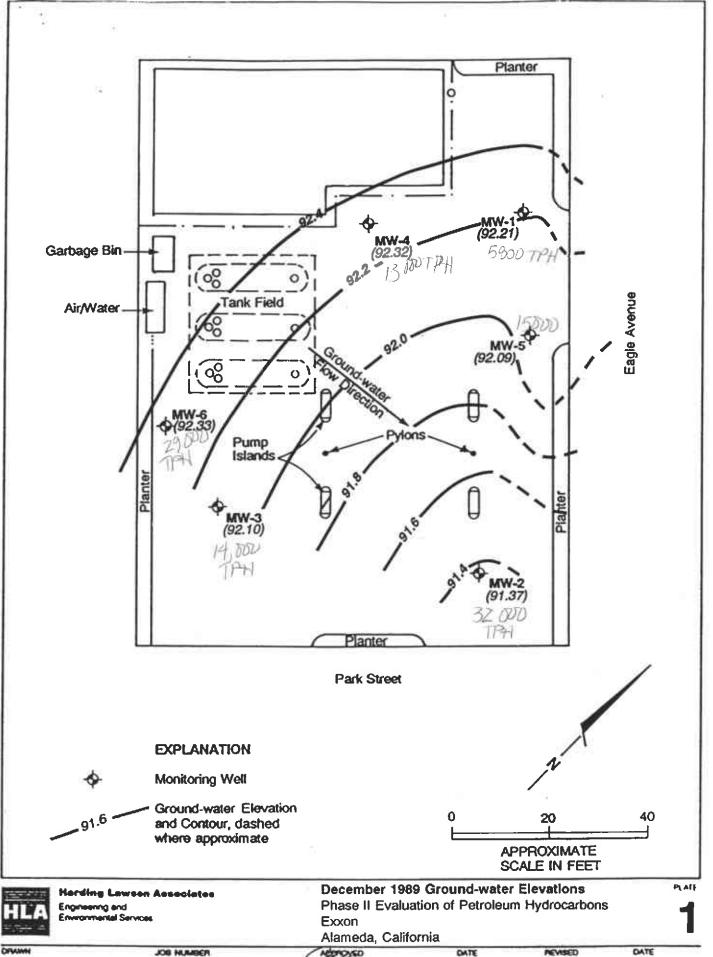
Well Number	Elevation Top of Well Casing*	Date	Depth Water BTOC**	Depth to Product	Product Thickness	Ground- water Elevation
MW-1	98.81	06-01-89	6.27	NP	Sheen	92,54
1.11	30.01	09-18-89	7.11	NP	NP	91.70
		10-20-89	7.28	NP	NP	91.53
		11-22-89	7.02	NP	NP	91.79
		12-11-89	6.60	NP	NP	92.21
MW-2	97.94	06-01-89	6.32	NP	Sheen	91.62
		09-18-89	6.73	NP	NP	91.21
		10-20-89	6.87	NP	NP	91.07
		11-22-89	6.80	NP	NP	91.14
•		12-11-89	6.57	NP	NP	91.37
MW-3	98.47	06-01-89	5.96	NP	NP	92.51
		09-18-89	6.65	NP	NP	91.82
		10-20-89	6.88	NP	NP	91.59
		11-22-89	6.74	NP	NP	91.73
		12-11-89	6.37	NP	NP	92.10
MW-4	98.69	06-01-89	6.01	NP	NP	92.68
		09-18-89	6.80	NP	NP	91.89
		10-20-89	7.08	NP	NP	91.61
		11-22-89	6.82	NP	NP	91.87
		12-11-89	6.37	NP	NP	92.32
MW-5	98.30	06-01-89	5.83	NP	Sheen	92.47
		09-18-89	6.52	NP	NP	91.78
		10-20-89	6.72	NP	NP	91.58
		11-22-89	6.54	NP	NP	91.76
		12-11-89	6.21	NP	NP	92.09
MW-6	98.96	06-01-89	6.25	NP	Sheen	92.71
		09-18-89	6.95	NP	NP	92.01
		10-20-89	7.24	NP	NP	91.72
		11-22-89	7.05	NP	NP	91.91
		12-11-89	6.63	NP	NP	92.33

^{*} Elevations surveyed relative to an assumed common datum of 100 feet

NP: No product

F10772-CT January 8, 1990

^{**} BTOC - Below top of casing





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GROUND-WATER SAMPLING FORM Harding Lawson Associates Engineers and Geoscientists Well No. __mw-Well Type: ☑Monitor □ Extraction □ Other □ Job Name Exxen Alamenta Job Number 04167 284 02 Well Material: ⊕PVC □ St. Steel □ Other _ Date 12 1/ 89 Time 1555 Sampled by CMC Recorded by Bailer - Type:_ Casing Diameter (D_in-inches): Submersible @Centrifugal Bladder; Pump No.: __ 2-inch 24-inch 5-inch Other_ Other - Type:_ Total Depth of Casing (TD in feet BTOC);____ Water Level Depth (WL in feet BTOC): _____ ☐ Near Bottom ☐ Near Top Number of Well Volumes to be purged (# Vols) Other_ Depth in feet (BTOC); ______ Screen Interval in feet (BTOC): ☐ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other_ PURGE VOLUME CALCULATION: from _____ to _ X 3 X 0.0408 = ACTUAL PURGE VOLUME BURICE TAKE 1425 Start 1445 Stop Initial 2 Elapsed .gpm Final_ Minutes Since Pumping Began -Minutes Since Pumping Began Cond. (µmhos/cm) Cond. (umhos/cm) TES Other NIC PΗ Other. 600 7100 600 7100 20 6.0 100 65 21 60a 60 45E #15855 PH# 2867 Observations During Purging (Well Condition, Turbidity, Color, Odor): Dether _ Discharge Water Disposal: Sanitary Sewer Storm Sewer WELL SAMPLING SAMPLING ME LEGIS ☐ Same As Above Baller - Type:__ Grab - Type: __ ☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: — ☐ Other - Type:— Walle Distriction of Sample Series: <u>89/2</u> Sample No. Volume/Cont. Analysis Requested Preservatives Comments NET IPITL BILL 1107 3 VOL'S

Duplicate Samples	Blank	Samples	Other	Samples
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gallons

Job Name Exyan Alamond Job Number 04/67 284 Recorded by Casing Diameter (D in inches): ☐ 2-inch ☐ 6-inch ☐ Other Total Depth of Casing (TD in feet BTOC): Water Level Depth (WL in feet BTOC):_ Number of Well Volumes to be purged (# Vols)

Harding Lawson Associates Engineers and Geoscientists

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Harding Lawson Associates Engineers and Geoscientists

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Sample No. Volume/Cont. Analysis Requested U03 3 VOA'S TPHL BTXE	Preservatives Lab Comments None NET
QUALITY CONTROL SAMPLES Duplicate Samples	Blank Samples Other Samples
Original Sample No. Duplicate Sample No. Type	Sample No. Type Sample No.

Harding Lawson Associates **Engineers and Geoscientists**

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GROUND-WATER SAMPLING FORM

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10	6.2 550	20 7100			
18	62 600	20 7100			
23	62 650	23 >100			
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Observations Du	uring Purging (Well C	Condition, Turbidity, Color,	Odor): Foama	ul product	ador
Discharge Water	r Disposal: Sanit	ary Sewer Storm Sev	ver (2) Other	Dram @ 4to	
STANSANT.			LSAMPLING		设工新出版
SAMPLINGIN	METRODI		☐ Same As /	lhous	
Bailer - Type:				xe:	
		dder; Pump No.:		pe:	
SAMPLE DIS		Sample Series: 89/2			
Sample No.	SECTION SECTIO	Analysis Requested	Preservatives	Lab	Comments
1/04	3 V94'S	Telf L BTKE	None	NET	
				1200,000	
			= 2		
THE STREET, SHIPLINGS AND ADDRESS.	INTROL SAMPLE	HETACO,		***	
Du	plicate Samples	8	lank Samples		her Samples

Original Sample No. Duplicate Sample No. Type Sample No. Type Sample No.



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

DEC 89 10: 09

Michelle Watson Harding Lawson Associates 7655 Redwood Blvd. PO Box 578 Novato, CA 94948 Date: 12-20-89

NET Client Acct. No: 281 NET Pacific Log No: 8897 Received: 12-11-89 1550

Client Reference Information

EXXON, Alameda

Dear Ms. Watson:

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

Enclosure(s)



NET Pacific, Inc.

Client: 281

NET Log No: 8897

Date: 12-20-89

Page: 2

1330 SAMPLE DESCRIPTION: 89121104 12-11-89

LAB Job No: (-41707)

Parameter	Reporting <u>Limit</u>	Results	<u>Units</u>
PETROLEUM HYDROCARBONS			
VOLATILE (WATER)			
DILUTION FACTOR *		10	
DATE ANALYZED		12-19-89	
METHOD GC FID/5030			
as Gasoline	0.05	29	mg/L
METHOD 602			
Benzene	0.5	1,100	ug/L
Ethylbenzene	0.5	330	ug/L
Toluene	0.5	810	ug/L
	0.5	1,500	ug/L
Xylenes, total	0.5	1,500	ug/ L

1500 12-11-89 SAMPLE DESCRIPTION: 89121101

LAB Job No: (-41708)

Parameter	Reporting <u>Limit</u>	Results	Units
PETROLEUM HYDROCARBONS			
VOLATILE (WATER)			
DILUTION FACTOR *		10	
DATE ANALYZED		12-19-89	
METHOD GC FID/5030			
as Gasoline	0.05	15	mg/L
METHOD 602			•
Benzene	0.5	720	ug/L
Ethylbenzene	0.5	450	ug/L
Toluene	0.5	320	ug/L
Xylenes, total	0.5	870	ug/L

SAMPLE DESCRIPTION: 89121102 12-11-89 1510

Toluene

Xylenes, total

LAB JOD NO: (-41/09)	Danautina		
<u>Parameter</u>	Reporting <u>Limit</u>	Results	Units
PETROLEUM HYDROCARBONS			
VOLATILE (WATER)			
DILUTION FACTOR *		10	
DATE ANALYZED		12 - 19-89	
METHOD GC FID/5030			
as Gasoline	0.05	32	mg/L
METHOD 602		- -	•
Benzene	0.5	1,000	ug/L
Ethylbenzene	0.5	310	ug/L
conjugate	~·~		

0.5

0.5

850

1,200

ug/L

ug/L



NET Pacific, Inc.

Client: 281

NET Log No: 8897

Date: 12-20-89

Page: 3

SAMPLE DESCRIPTION: 89121103 12-11-89 1520

LAB Job No: (-41710)

Parameter	Reporting <u>Limit</u>	Results	<u>Units</u>
PETROLEUM HYDROCARBONS VOLATILE (WATER) DILUTION FACTOR * DATE ANALYZED METHOD GC FID/5030	,	 10 12-19-89	
as Gasoline METHOD 602	0.05	14.0	mg/L
Benzene Ethylbenzene Toluene Xylenes, total	0.5 0.5 0.5 0.5	1,100 670 150 690	ug/L ug/L ug/L ug/L

SAMPLE DESCRIPTION: 89121105 12-11-89 1535

LAB Job No: (-41711)

<u>Parameter</u>	Reporting <u>Limit</u>	Results	<u>Units</u>
PETROLEUM HYDROCARBONS			
VOLATILE (WATER)			
DILUTION FACTOR *		10	
DATE ANALYZED		12-19-89	
METHOD GC FID/5030			
as Gasoline	0.05	13	mg/L
METHOD 602			
Benzene	0.5	750	ug/L
Ethylbenzene	0.5	510	ug/L
Toluene	0.5	910	ug/L
Xylenes, total	0.5	1,200	ug/L

SAMPLE DESCRIPTION: 89121106 12-11-89 1545

LAB Job No: (-41712)

Parameter	Reporting <u>Limit</u>	Results	Units
DETECT SUM TO DECOMPOSE			
PETROLEUM HYDROCARBONS			
VOLATILE (WATER)			
DILUTION FACTOR *		1	
DATE ANALYZED		12-16-89	
METHOD GC FID/5030			
as Gasoline	0.05	ND	mg/L
METHOD 602			•
Benzene	0.5	0.88	ug/L
Ethylbenzene	0.5	0.62	ug/L
Toluene	0.5	0.95	ug/L
Xylenes, total	0.5	1.7	ug/L



Client: 281 NET Log No: 8897

Date: 12-20-89

Page: 4

NET Pacific, Inc.

SAMPLE DESCRIPTION: 89121107 LAB Job No: (-41713)	12-11-89	1555	
Parameter	Reporting <u>Limit</u>	Results	<u>Units</u>
PETROLEUM HYDROCARBONS			
VOLATILE (WATER)	•		
DILUTION FACTOR *		5	
DATE ANALYZED	•	12-19 - 89	
METHOD GC FID/5030			
as Gasoline	0.05	5.8	mg/L
METHOD 602			
Benzene	0.5	200	ug/L
Ethylbenzene	0.5	290	ug/L
Toluene	0.5	42	ug/L
Xylenes, total	0.5	330	ug/L
▼			



Client: 281 NET Log No: 8897

Date: 12-20-89

Page: 5

QUALITY CONTROL RESULTS - TOTAL PETROLEUM HYDROCARBONS (water)

				Lab No. Spike and Spike Replicate Results (% Recovery)		
<u>Parameter</u>	Reporting <u>Limits</u>	<u>Units</u>	Blank <u>Results</u>	<u>(-41545S)</u>	(-41545SR)	_RPD
Benzene	0.5	ug/L	ND	88	90	2
Toluene	0.5	ug/L	ND	89	93	4
Ethylbenzene	1.5	ug/L	ND	90	95	5
Xylenes	1.5	ug/L	ND	92	100	8
Gasoline	0.05	mg/L	ND	99	103	2



KEY TO ABBREVIATIONS and METHOD REFERENCES

: Less than: When appearing in results column indicates analyte not detected at the value following, which supercedes the listed reporting limit.

mean

: Average: sum of measurements divided by number of measurements.

mg/Kg (pom) : 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.

MU

: Nephelametric turbidity units.

RPD

: Relative percent difference, 100 [Value 1 - Value 2]/mean value.

AVZ

: 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.

unhos/cm

: Micromhos per centimeter.

Method References

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.

^{*} 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.

1	

Harding Lawson Associates 200 Rush Landing Road

CHAIN	OF	CUST	ODY	FORM
OHABI	\sim 1	~~~	\mathbf{v}	. • 1

4
98 9 7
•

Lab: NET

RECEIVED BY: (Signature)

DATE/TIME

RECEIVED FOR LAB BY:

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Job	Number:	04167 8	184 02				
Nam	e/Locatio	n: Excon A	lamenda		The second second		
Proj	ect Mana	ger: Mich	elle Water	Recorder:	Signature Required)	EPA 601/8010 EPA 602/8020 EPA 624/8240 EPA 625/8270 Priority Plitnt. Metals Benzene/Toluene/Xylene Total Petrol. Hydrocarb.	
	MATRIX	#CONTAINERS & PRESERV.	S SAMPLE NUMBER OR	DATE	STATION DESCRIPTION/	/8010 /8020 /8240 /8270 /8270 /8270 rof. H	
SOURCE CODE	Water Sediment Soil Oil	Unpres. H ₂ SO ₄ HNO ₃	LAB NUMBER		Later Control NOTES	EPA 601/8010 EPA 602/8020 EPA 624/8240 EPA 625/8270 Priority Plltnt. A Benzene/Toluen Total Petrol. Hy	
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METHOD OF SHIPMENT