



Sequoia Analytical

1551 Industrial Road
San Carlos, CA 94070-4111
(650) 232-9600
FAX (650) 232-9612

RECEIVED

1:02 pm, Apr 30, 2009

Alameda County
Environmental Health

November 19, 1999

RECEIVED

DEC 03 1999

GETTLER-RYAN INC.
GENERAL CONTRACTORS

Doug Lee
Gettler-Ryan/Geostrategies(1)
6747 Sierra Court, Suite D
Dublin, CA 94568

RE: Tosco(1)/L911064

Dear Doug Lee:

Enclosed are the results of analyses for sample(s) received by the laboratory on November 4, 1999. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Wayne Stevenson
Project Manager

CA ELAP Certificate Number I-2360



CRUZ BROTHERS

SUB-SURFACE LOCATORS, INC.
1-888-CRUZ-BRO
(278-9276)

#S043

ORIGINAL SAMPLE
FROM MLW-6

WESTERN REGION BOX: A

#9538

Store #	255043	Date:	11/19/99
Unit #	5003	Code:	LAB <input type="checkbox"/> Color <input type="checkbox"/>
Description:	LAB RESULTS		



November 29, 1999

ToxScan Number: T-17910

Sequoia Analytical
1551 Industrial Blvd.
San Carlos, CA 94070

Attn: Mike Gregory

Project Name: None
Project Number: L911064
Date Sampled: November 04, 1999
Date Received: November 09, 1999
Matrix: Water

Please find the enclosed test results for the parameters requested for analysis. The sample was analyzed within holding time using the following method:

Tributyltin in water by Gas Chromatography with a Flame Photometric Detector, (GC/FPD).

The sample was received intact and was handled with the proper chain-of-custody procedures. Appropriate QA/QC guidelines were employed during the analyses on a minimum of a 5% basis. QC results were within limits and are reported with or following the data for each analysis.

If you have any questions or require any additional information, please feel free to call.

Sincerely,



Philip D. Carpenter, Ph.D.
President

Enclosures

This cover letter is an integral part of the report.

Client: Sequoia Analytical
Method: EPA Method(s) GC/FPD
Date Completed: 11/23/99
Matrix: Water
Units: ng/L

ToxScan Number: T-17910

MW-6

<u>Client</u> <u>Sample ID</u>	<u>ToxScan</u> <u>Lab ID</u>	<u>Analyte</u>	<u>Sample</u> <u>Value</u>	<u>Reporting</u> <u>Limit</u>
L911064-02	17910-01	Tributyltin	4	2

EXPLANATION OF ACRONYMS FOR PROJECT # T-17910

The following is a glossary for acronyms that may be used in this report.

<u>Abbreviation</u>	<u>Definition</u>
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	None Detected
REP	Replicate
RPD	Relative Percent Difference
SRM	Standard Reference Material
TOC	Total Organic Carbon

QC FOR PROJECT # 17910

Concentrations of the following are in ng/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY:

Matrix: Water

<u>Analyte</u>	<u>Sample Amount</u>	<u>Amount of Spike</u>	<u>Matrix Spike</u>	<u>MS % Rec</u>	<u>Matrix Spike Dup</u>	<u>MSD % Rec</u>	<u>RPD</u>
Tributyltin 17910-01	3.56	50	47.1	87	53.2	99	13

QC FOR PROJECT # T-17910

LABORATORY METHOD BLANK SUMMARY

Applicable Matrix: Water

<u>Analyte</u>	<u>Amount</u>	<u>Reporting Limit ng/L</u>	<u>EPA Method Number</u>
Tributyltin	ND	2.0	GC/FPD

QC FOR PROJECT # T-17910

LABORATORY CONTROL SPIKE

Concentrations of the following are in ng/L

Matrix: Water

<u>Analyte</u>	<u>Amount of Spike</u>	<u>LCS Amount</u>	<u>LCS % Rec</u>
Tributyltin	50	40	80

QC FOR PROJECT # 17910

SURROGATE RECOVERY

<u>Surrogate</u>	<u>Sample</u>	<u>% Recovery</u>	<u>QC Limits</u>
Tripropyltin	Laboratory Control Spike	118%	50 - 140
Tripropyltin	Method Blank	94%	50 - 140
Tripropyltin	17910-1	102%	50 - 140
Tripropyltin	17910-1 MS	113%	50 - 140
Tripropyltin	17910-1 MSD	102%	50 - 140



SEQUOIA SAN CARLOS	Client Project ID:	Sampled: 11/4/99
	Sample Descript: L911064-02	Received: 11/4/99
	Analysis Method: See below	
Attention:	Lab Number: M911211	Reported: 11/15/99

STATIC HAZARDOUS ABBREVIATED SCREEN BIOASSAY

Species: Pimephales promelas

Common Name: Fathead Minnow

Organisms/Tank: 10

Organisms/Conc.: 20

Tank Depth: 16 cm

Tank Volume: 8 L

Acclimation Temp.: 19 °C +/- 1

Supplier: Sticklebacks Unlimited/
Thomas Fish

Mean length: 41.0 mm Min. length: 39.0 mm
 Max. length: 44.0 mm
 Mean weight: 0.44 g Min. weight: 0.24 g
 Max. weight: 0.53 g

Dilution Water: Synthetic Softwater
Hardness 40-48

	Alkalinity, mg/L		Hardness, mg/L	
	Initial	Final	Initial	Final
Control	30	36	48	50
750 ppm	80	80	120	120
Duplicate 750 ppm	100	80	140	140

DATE	Initial	24 Hr	48 Hr	72 Hr	96 Hr
	11/8/99	11/9/99	11/10/99	11/11/99	11/12/99

	DO	C	pH	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	DO	C	pH	# M	Total Dead
	mg/L	Temp	Units	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	mg/L	Temp	Units	Dead	
Control	8.8	19	6.6	6.9	16	5.7	0	6.1	18	6.1	0	5.6	18	5.9	0	6.0	18	6.2	0	0
750 ppm	8.7	19	6.5	7.4	16	5.6	0	6.4	18	5.8	0	5.8	18	5.9	0	5.9	18	6.1	0	0
300 ppm	8.7	19	6.6	7.2	16	5.4	0	6.2	18	5.9	0	5.7	18	5.9	0	5.7	18	6.0	0	0
Duplicate																				
750 ppm	8.7	19	6.5	7.3	16	5.6	0	6.5	18	5.7	0	6.0	18	5.9	0	5.9	18	6.1	0	0
300 ppm	8.8	19	6.6	7.2	16	5.6	0	6.4	18	5.9	0	6.0	18	5.9	0	5.8	18	6.0	0	0

Remarks: The screen fails if > 40% of the fish die in the 750 ppm concentration.
SCREEN PASSES

Analyst: J.RANIEL

Method Reference: Static Acute Bioassay Procedures for Hazardous Waste Samples,
November 1988, California Department of Fish and Game WPCL.





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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ANALYTICAL REPORT FOR L911064

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TB-LB	L911064-01	Water	11/4/99
R-149(MW-6)	L911064-02	Water	11/4/99





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Sample Description: TB-LB
Laboratory Sample Number: L911064-01

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Purgeable Hydrocarbons as Gasoline	9110114	11/17/99	11/17/99		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Methyl tert-butyl ether	"	"	"		5.00	ND	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>	"	"	"	70.0-130		71.9	%	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Sample Description: R-149(MW-6)
Laboratory Sample Number: L911064-02

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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Sequoia Analytical - San Carlos

Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT

Purgeable Hydrocarbons as Gasoline	9110115	11/17/99	11/17/99		10000	56400	ug/l	1
Benzene	"	"	"		100	4680	"	
Toluene	"	"	"		100	9600	"	
Ethylbenzene	"	"	"		100	1490	"	
Xylenes (total)	"	"	"		100	7960	"	
Methyl tert-butyl ether	"	"	"		1000	ND	"	
Surrogate: a,a,a-Trifluorotoluene	"	"	"	70.0-130		101	%	

Volatile Organic Compounds by EPA Method 8260A

Benzene	9110037	11/5/99	11/5/99		200	5800	ug/l	
Bromobenzene	"	"	"		200	ND	"	
Bromochloromethane	"	"	"		200	ND	"	
Bromodichloromethane	"	"	"		200	ND	"	
Bromoform	"	"	"		200	ND	"	
Bromomethane	"	"	"		500	ND	"	
n-Butylbenzene	"	"	"		200	639	"	
sec-Butylbenzene	"	"	"		200	ND	"	
tert-Butylbenzene	"	"	"		200	ND	"	
Carbon tetrachloride	"	"	"		200	ND	"	
Chlorobenzene	"	"	"		200	ND	"	
Chloroethane	"	"	"		500	ND	"	
Chloroform	"	"	"		200	ND	"	
Chloromethane	"	"	"		500	ND	"	
2-Chlorotoluene	"	"	"		200	ND	"	
4-Chlorotoluene	"	"	"		200	ND	"	
Dibromochloromethane	"	"	"		200	ND	"	
1,2-Dibromoethane	"	"	"		200	ND	"	
Dibromomethane	"	"	"		200	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		500	ND	"	
1,2-Dichlorobenzene	"	"	"		200	ND	"	
1,3-Dichlorobenzene	"	"	"		200	ND	"	
1,4-Dichlorobenzene	"	"	"		200	ND	"	
Dichlorodifluoromethane	"	"	"		500	ND	"	
1,1-Dichloroethane	"	"	"		200	ND	"	
1,2-Dichloroethane	"	"	"		200	ND	"	
1,1-Dichloroethene	"	"	"		200	ND	"	
cis-1,2-Dichloroethene	"	"	"		200	ND	"	
trans-1,2-Dichloroethene	"	"	"		200	ND	"	
1,2-Dichloropropane	"	"	"		200	ND	"	
1,3-Dichloropropane	"	"	"		200	ND	"	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Sample Description: R-149(MW-6)
Laboratory Sample Number: L911064-02

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
Volatile Organic Compounds by EPA Method 8260A (continued)								
2,2-Dichloropropane	9110037	11/5/99	11/5/99		200	ND	ug/l	
1,1-Dichloropropene	"	"	"		200	ND	"	
Ethylbenzene	"	"	"		200	2130	"	
Hexachlorobutadiene	"	"	"		200	ND	"	
Isopropylbenzene	"	"	"		200	ND	"	
p-Isopropyltoluene	"	"	"		200	ND	"	
Methylene chloride	"	"	"		500	ND	"	
Naphthalene	"	"	"		500	850	"	
n-Propylbenzene	"	"	"		200	440	"	
Styrene	"	"	"		200	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		200	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		200	ND	"	
Tetrachloroethene	"	"	"		200	ND	"	
Toluene	"	"	"		200	11700	"	
1,2,3-Trichlorobenzene	"	"	"		200	ND	"	
1,2,4-Trichlorobenzene	"	"	"		200	ND	"	
1,1,1-Trichloroethane	"	"	"		200	ND	"	
1,1,2-Trichloroethane	"	"	"		200	ND	"	
Trichloroethene	"	"	"		200	ND	"	
Trichlorofluoromethane	"	"	"		500	ND	"	
1,2,3-Trichloropropane	"	"	"		200	ND	"	
1,2,4-Trimethylbenzene	"	"	"		200	3140	"	
1,3,5-Trimethylbenzene	"	"	"		200	918	"	
Vinyl chloride	"	"	"		200	ND	"	
Total Xylenes	"	"	"		200	11300	"	
Surrogate: 1,2-Dichloroethane-d4	"	"	"	76.0-114		102	%	
Surrogate: Toluene-d8	"	"	"	88.0-110		94.0	"	
Surrogate: 4-BFB	"	"	"	86.0-115		99.8	"	

Total Metals by EPA 6000/7000 Series Methods

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
Antimony	9110349	11/12/99	11/15/99	EPA 6010B	60.0	ND	ug/l	
Arsenic	"	"	"	EPA 6010B	100	ND	"	
Barium	"	"	"	EPA 6010B	4.00	166	"	
Beryllium	"	"	"	EPA 6010B	1.00	ND	"	
Cadmium	"	"	"	EPA 6010B	10.0	ND	"	
Chromium	"	"	"	EPA 6010B	10.0	ND	"	
Cobalt	"	"	"	EPA 6010B	7.00	ND	"	
Copper	"	"	"	EPA 6010B	10.0	23.0	"	
Lead	"	"	"	EPA 6010B	75.0	ND	"	
Molybdenum	"	"	"	EPA 6010B	20.0	ND	"	
Nickel	"	"	"	EPA 6010B	30.0	ND	"	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Sample Description: R-149(MW-6)
Laboratory Sample Number: L911064-02

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method/ Surrogate Limits	Reporting Limit	Result	Units	Notes*
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Total Metals by EPA 6000/7000 Series Methods (continued)

Selenium	9110349	11/12/99	11/15/99	EPA 6010B	100	ND	ug/l	
Silver	"	"	"	EPA 6010B	7.00	ND	"	
Thallium	"	"	"	EPA 6010B	100	ND	"	
Vanadium	"	"	"	EPA 6010B	10.0	ND	"	
Zinc	"	"	"	EPA 6010B	20.0	151	"	
Mercury	9110189	11/8/99	11/9/99	EPA 7470A	0.200	ND	"	

Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC)

Acenaphthene	"	11/8/99	11/18/99		0.833	4.54	ug/l	2
Acenaphthylene	"	"	"		1.67	ND	"	
Anthracene	"	"	"		0.0833	0.523	"	
Benzo (a) anthracene	"	"	"		0.0833	0.370	"	
Benzo (b) fluoranthene	"	"	"		0.0833	0.110	"	
Benzo (k) fluoranthene	"	"	"		0.0833	ND	"	
Benzo (g,h,i) perylene	"	"	"		0.167	0.194	"	
Benzo (a) pyrene	"	"	"		0.0833	ND	"	
Chrysene	"	"	"		0.0833	0.426	"	
Dibenz (a,h) anthracene	"	"	"		0.333	ND	"	
Fluoranthene	"	"	"		0.0833	1.34	"	2
Fluorene	"	"	"		0.167	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		0.0833	ND	"	
Naphthalene	"	"	"		0.833	1670000	"	
Phenanthrene	"	"	"		0.0833	4.56	"	
Pyrene	"	"	"		0.0833	1.45	"	
Surrogate: Carbazole	"	"	"	42.0-144		101	%	
Surrogate: Terphenyl-d14	"	"	"	2.00-146		108	"	

Conventional Chemistry Parameters by APHA/EPA Methods

pH	9110185	11/6/99	11/6/99	EPA 150.1		7.20	pH Units	3
Cyanide (total)	9110326	11/11/99	11/11/99	EPA 335.2	0.0100	ND	mg/l	
Sulfide	9110215	11/8/99	11/8/99	EPA 376.1	0.500	1.66	"	

Physical Parameters by APHA/ASTM/EPA Methods

Ignitability by Flashpoint	9110312	11/10/99	11/10/99	EPA 1010		ND	°C	
Reactive Sulfide	9110442	11/9/99	11/16/99	SW846 Ch 7.3	50.0	ND	mg/l	
Reactive Cyanide	"	"	"	SW846 Ch. 7.3	10.0	ND	"	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT/Quality Control
Sequoia Analytical - San Carlos

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
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Batch: 9110114	Date Prepared: 11/17/99		Extraction Method: EPA 5030B [P/T]							
Blank	9110114-BLK1									
Purgeable Hydrocarbons as Gasoline	11/17/99			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	0.500				
Methyl tert-butyl ether	"			ND	"	5.00				

Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.70	"	70.0-130	87.0			
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LCS	9110114-BS1									
Benzene	11/17/99	10.0		8.57	ug/l	70.0-130	85.7			
Toluene	"	10.0		8.69	"	70.0-130	86.9			
Ethylbenzene	"	10.0		9.02	"	70.0-130	90.2			
Xylenes (total)	"	30.0		27.0	"	70.0-130	90.0			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		7.98	"	70.0-130	79.8			

LCS	9110114-BS2									
Purgeable Hydrocarbons as Gasoline	11/17/99	250		254	ug/l	70.0-130	102			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.18	"	70.0-130	81.8			

Matrix Spike	9110114-MS1		L911113-06							
Purgeable Hydrocarbons as Gasoline	11/17/99	250	ND	239	ug/l	60.0-140	95.6			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.56	"	70.0-130	95.6			

Matrix Spike Dup	9110114-MSD1		L911113-06							
Purgeable Hydrocarbons as Gasoline	11/17/99	250	ND	238	ug/l	60.0-140	95.2	25.0	0.419	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.96	"	70.0-130	89.6			

Batch: 9110115	Date Prepared: 11/17/99		Extraction Method: EPA 5030B [P/T]							
Blank	9110115-BLK1									
Purgeable Hydrocarbons as Gasoline	11/17/99			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	0.500				
Methyl tert-butyl ether	"			ND	"	5.00				
Surrogate: a,a,a-Trifluorotoluene	"	10.0		9.75	"	70.0-130	97.5			

LCS	9110115-BS1									
Benzene	11/17/99	10.0		8.85	ug/l	70.0-130	88.5			
Toluene	"	10.0		8.73	"	70.0-130	87.3			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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**Total Purgeable Hydrocarbons (C6-C12), BTEX and MTBE by DHS LUFT/Quality Control
Sequoia Analytical - San Carlos**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<u>LCS (continued)</u>										
	<u>9110115-BS1</u>									
Ethylbenzene	11/17/99	10.0		8.80	ug/l	70.0-130	88.0			
Xylenes (total)	"	30.0		26.3	"	70.0-130	87.7			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		8.79	"	70.0-130	87.9			
<u>LCS</u>										
	<u>9110115-BS2</u>									
Purgeable Hydrocarbons as Gasoline	11/17/99	250		241	ug/l	70.0-130	96.4			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		10.8	"	70.0-130	108			
<u>Matrix Spike</u>										
	<u>9110115-MS1</u> <u>L911113-03</u>									
Purgeable Hydrocarbons as Gasoline	11/17/99	250	ND	212	ug/l	60.0-140	84.8			
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.4	"	70.0-130	114			
<u>Matrix Spike Dup</u>										
	<u>9110115-MSD1</u> <u>L911113-03</u>									
Purgeable Hydrocarbons as Gasoline	11/17/99	250	ND	230	ug/l	60.0-140	92.0	25.0	8.14	
Surrogate: a,a,a-Trifluorotoluene	"	10.0		11.3	"	70.0-130	113			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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**Volatile Organic Compounds by EPA Method 8260A/Quality Control
Sequoia Analytical - San Carlos**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9110037	Date Prepared: 11/5/99			Extraction Method: EPA 5030B [P/T]						
Blank	9110037-BLK1									
Benzene	11/5/99			ND	ug/l	2.00				
Bromobenzene	"			ND	"	2.00				
Bromochloromethane	"			ND	"	2.00				
Bromodichloromethane	"			ND	"	2.00				
Bromoform	"			ND	"	2.00				
Bromomethane	"			ND	"	5.00				
n-Butylbenzene	"			ND	"	2.00				
sec-Butylbenzene	"			ND	"	2.00				
tert-Butylbenzene	"			ND	"	2.00				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	2.00				
Chloroethane	"			ND	"	5.00				
Chloroform	"			ND	"	2.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	2.00				
4-Chlorotoluene	"			ND	"	2.00				
Dibromochloromethane	"			ND	"	2.00				
1,2-Dibromoethane	"			ND	"	2.00				
Dibromomethane	"			ND	"	2.00				
1,2-Dibromo-3-chloropropane	"			ND	"	5.00				
1,2-Dichlorobenzene	"			ND	"	2.00				
1,3-Dichlorobenzene	"			ND	"	2.00				
1,4-Dichlorobenzene	"			ND	"	2.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	2.00				
1,2-Dichloroethane	"			ND	"	2.00				
1,1-Dichloroethene	"			ND	"	2.00				
cis-1,2-Dichloroethene	"			ND	"	2.00				
trans-1,2-Dichloroethene	"			ND	"	2.00				
1,2-Dichloropropane	"			ND	"	2.00				
1,3-Dichloropropane	"			ND	"	2.00				
2,2-Dichloropropane	"			ND	"	2.00				
1,1-Dichloropropene	"			ND	"	2.00				
Ethylbenzene	"			ND	"	2.00				
Hexachlorobutadiene	"			ND	"	2.00				
Isopropylbenzene	"			ND	"	2.00				
p-Isopropyltoluene	"			ND	"	2.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	5.00				
n-Propylbenzene	"			ND	"	2.00				





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Volatile Organic Compounds by EPA Method 8260A/Quality Control
Sequoia Analytical - San Carlos

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<u>Blank (continued)</u>										
<u>9110037-BLK1</u>										
Styrene	11/5/99			ND	ug/l	2.00				
1,1,1,2-Tetrachloroethane	"			ND	"	2.00				
1,1,2,2-Tetrachloroethane	"			ND	"	2.00				
Tetrachloroethene	"			ND	"	2.00				
Toluene	"			ND	"	2.00				
1,2,3-Trichlorobenzene	"			ND	"	2.00				
1,2,4-Trichlorobenzene	"			ND	"	2.00				
1,1,1-Trichloroethane	"			ND	"	2.00				
1,1,2-Trichloroethane	"			ND	"	2.00				
Trichloroethene	"			ND	"	2.00				
Trichlorofluoromethane	"			ND	"	5.00				
1,2,3-Trichloropropane	"			ND	"	2.00				
1,2,4-Trimethylbenzene	"			ND	"	2.00				
1,3,5-Trimethylbenzene	"			ND	"	2.00				
Vinyl chloride	"			ND	"	2.00				
Total Xylenes	"			ND	"	2.00				
Surrogate: 1,2-Dichloroethane-d4	"	50.0		48.6	"	76.0-114	97.2			
Surrogate: Toluene-d8	"	50.0		46.5	"	88.0-110	93.0			
Surrogate: 4-BFB	"	50.0		45.2	"	86.0-115	90.4			
<u>LCS</u>										
<u>9110037-BS1</u>										
Benzene	11/5/99	50.0		50.0	ug/l	70.0-130	100			
Chlorobenzene	"	50.0		53.4	"	70.0-130	107			
1,1-Dichloroethene	"	50.0		49.5	"	70.0-130	99.0			
Toluene	"	50.0		49.0	"	70.0-130	98.0			
Trichloroethene	"	50.0		50.6	"	70.0-130	101			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		49.9	"	76.0-114	99.8			
Surrogate: Toluene-d8	"	50.0		44.7	"	88.0-110	89.4			
Surrogate: 4-BFB	"	50.0		47.2	"	86.0-115	94.4			
<u>Matrix Spike</u>										
<u>9110037-MS1</u> <u>L911031-02</u>										
Benzene	11/5/99	50.0	ND	42.2	ug/l	60.0-140	84.4			
Chlorobenzene	"	50.0	ND	40.9	"	60.0-140	81.8			
1,1-Dichloroethene	"	50.0	ND	36.1	"	60.0-140	72.2			
Toluene	"	50.0	ND	38.0	"	60.0-140	76.0			
Trichloroethene	"	50.0	ND	36.9	"	60.0-140	73.8			
Surrogate: 1,2-Dichloroethane-d4	"	50.0		55.5	"	76.0-114	111			
Surrogate: Toluene-d8	"	50.0		50.0	"	88.0-110	100			
Surrogate: 4-BFB	"	50.0		46.9	"	86.0-115	93.8			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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**Volatile Organic Compounds by EPA Method 8260A/Quality Control
Sequoia Analytical - San Carlos**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup		9110037-MSD1	L911031-02							
Benzene	11/5/99	50.0	ND	40.8	ug/l	60.0-140	81.6	25.0	3.37	
Chlorobenzene	"	50.0	ND	41.2	"	60.0-140	82.4	25.0	0.731	
1,1-Dichloroethene	"	50.0	ND	35.2	"	60.0-140	70.4	25.0	2.52	
Toluene	"	50.0	ND	38.4	"	60.0-140	76.8	25.0	1.05	
Trichloroethene	"	50.0	ND	36.8	"	60.0-140	73.6	25.0	0.271	
Surrogate: 1,2-Dichloroethane-d4	"	50.0		53.0	"	76.0-114	106			
Surrogate: Toluene-d8	"	50.0		50.6	"	88.0-110	101			
Surrogate: 4-BFB	"	50.0		47.8	"	86.0-115	95.6			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Total Metals by EPA 6000/7000 Series Methods/Quality Control
Sequoia Analytical - Petaluma

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9110189			Date Prepared: 11/8/99			Extraction Method: EPA 7470A				
Blank										
9110189-BLK1										
Mercury	11/9/99			ND	ug/l	0.200				
LCS										
9110189-BS1										
Mercury	11/9/99	1.60		1.60	ug/l	80.0-120	100			
Matrix Spike										
9110189-MS1 P911164-06										
Mercury	11/9/99	1.60	ND	1.60	ug/l	75.0-125	100			
Matrix Spike Dup										
9110189-MSD1 P911164-06										
Mercury	11/9/99	1.60	ND	1.63	ug/l	75.0-125	102	20.0	1.98	
Batch: 9110349			Date Prepared: 11/12/99			Extraction Method: EPA 3010A				
Blank										
9110349-BLK1										
Antimony	11/15/99			ND	ug/l	60.0				
Arsenic	"			ND	"	100				
Barium	"			ND	"	4.00				
Beryllium	"			ND	"	1.00				
Cadmium	"			ND	"	10.0				
Chromium	"			ND	"	10.0				
Cobalt	"			ND	"	7.00				
Copper	"			ND	"	10.0				
Lead	"			ND	"	75.0				
Molybdenum	"			ND	"	20.0				
Nickel	"			ND	"	30.0				
Selenium	"			ND	"	100				
Silver	"			ND	"	7.00				
Thallium	"			ND	"	100				
Vanadium	"			ND	"	10.0				
Zinc	"			ND	"	20.0				
LCS										
9110349-BS1										
Antimony	11/15/99	500		475	ug/l	80.0-120	95.0			
Arsenic	"	500		524	"	80.0-120	105			
Barium	"	500		494	"	80.0-120	98.8			
Beryllium	"	50.0		52.0	"	80.0-120	104			
Cadmium	"	50.0		50.3	"	80.0-120	101			
Chromium	"	500		503	"	80.0-120	101			
Cobalt	"	500		516	"	80.0-120	103			
Copper	"	500		504	"	80.0-120	101			
Lead	"	500		527	"	80.0-120	105			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Total Metals by EPA 6000/7000 Series Methods/Quality Control
Sequoia Analytical - Petaluma

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)										
	9110349-BS1									
Molybdenum	11/15/99	500		483	ug/l	80.0-120	96.6			
Nickel	"	500		533	"	80.0-120	107			
Selenium	"	500		559	"	80.0-120	112			
Silver	"	50.0		49.3	"	80.0-120	98.6			
Thallium	"	500		529	"	80.0-120	106			
Vanadium	"	500		516	"	80.0-120	103			
Zinc	"	500		518	"	80.0-120	104			
Matrix Spike										
	9110349-MS1		L911064-02							
Antimony	11/15/99	500	ND	436	ug/l	75.0-125	87.2			
Arsenic	"	500	ND	453	"	75.0-125	90.6			
Barium	"	500	166	607	"	75.0-125	88.2			
Beryllium	"	50.0	ND	46.0	"	75.0-125	92.0			
Cadmium	"	50.0	ND	44.0	"	75.0-125	88.0			
Chromium	"	500	ND	435	"	75.0-125	87.0			
Cobalt	"	500	ND	449	"	75.0-125	89.8			
Copper	"	500	23.0	461	"	75.0-125	87.6			
Lead	"	500	ND	454	"	75.0-125	90.8			
Molybdenum	"	500	ND	432	"	75.0-125	86.4			
Nickel	"	500	ND	455	"	75.0-125	91.0			
Selenium	"	500	ND	471	"	75.0-125	94.2			
Silver	"	50.0	ND	40.8	"	75.0-125	81.6			
Thallium	"	500	ND	447	"	75.0-125	89.4			
Vanadium	"	500	ND	451	"	75.0-125	90.2			
Zinc	"	500	151	599	"	75.0-125	89.6			
Matrix Spike Dup										
	9110349-MSD1		L911064-02							
Antimony	11/15/99	500	ND	451	ug/l	75.0-125	90.2	20.0	3.38	
Arsenic	"	500	ND	473	"	75.0-125	94.6	20.0	4.32	
Barium	"	500	166	631	"	75.0-125	93.0	20.0	5.30	
Beryllium	"	50.0	ND	48.1	"	75.0-125	96.2	20.0	4.46	
Cadmium	"	50.0	ND	49.9	"	75.0-125	99.8	20.0	12.6	
Chromium	"	500	ND	454	"	75.0-125	90.8	20.0	4.27	
Cobalt	"	500	ND	468	"	75.0-125	93.6	20.0	4.14	
Copper	"	500	23.0	480	"	75.0-125	91.4	20.0	4.25	
Lead	"	500	ND	494	"	75.0-125	98.8	20.0	8.44	
Molybdenum	"	500	ND	454	"	75.0-125	90.8	20.0	4.97	
Nickel	"	500	ND	474	"	75.0-125	94.8	20.0	4.09	
Selenium	"	500	ND	536	"	75.0-125	107	20.0	12.7	
Silver	"	50.0	ND	43.3	"	75.0-125	86.6	20.0	5.95	
Thallium	"	500	ND	448	"	75.0-125	89.6	20.0	0.223	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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**Total Metals by EPA 6000/7000 Series Methods/Quality Control
Sequoia Analytical - Petaluma**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)										
	9110349-MSD1	L911064-02								
Vanadium	11/15/99	500	ND	470	ug/l	75.0-125	94.0	20.0	4.13	
Zinc	"	500	151	635	"	75.0-125	96.8	20.0	7.73	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC)/Quality Control
Sequoia Analytical - Petaluma

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9110272		Date Prepared: 11/10/99			Extraction Method: EPA 3520B					
Blank		9110272-BLK1								
Acenaphthene	11/18/99			ND	ug/l	0.500				
Acenaphthylene	"			ND	"	1.00				
Anthracene	"			ND	"	0.0500				
Benzo (a) anthracene	"			ND	"	0.0500				
Benzo (b) fluoranthene	"			ND	"	0.0500				
Benzo (k) fluoranthene	"			ND	"	0.0500				
Benzo (g,h,i) perylene	"			ND	"	0.100				
Benzo (a) pyrene	"			ND	"	0.0500				
Chrysene	"			ND	"	0.0500				
Dibenz (a,h) anthracene	"			ND	"	0.200				
Fluoranthene	"			ND	"	0.0500				
Fluorene	"			ND	"	0.100				
Indeno (1,2,3-cd) pyrene	"			ND	"	0.0500				
Naphthalene	"			ND	"	0.500				
Phenanthrene	"			ND	"	0.0500				
Pyrene	"			ND	"	0.0500				
Surrogate: Carbazole	"	1.00		0.700	"	42.0-144	70.0			
Surrogate: Terphenyl-d14	"	2.00		1.82	"	2.00-146	91.0			
LCS		9110272-BS1								
Acenaphthene	11/18/99	10.0		6.48	ug/l	1.30-124	64.8			
Acenaphthylene	"	20.0		12.9	"	1.70-139	64.5			
Anthracene	"	1.00		0.714	"	1.00-126	71.4			
Benzo (a) anthracene	"	1.00		0.903	"	1.00-135	90.3			
Benzo (b) fluoranthene	"	2.00		1.82	"	1.00-150	91.0			
Benzo (k) fluoranthene	"	1.00		0.928	"	1.00-159	92.8			
Benzo (g,h,i) perylene	"	2.00		1.77	"	1.00-116	88.5			
Benzo (a) pyrene	"	1.00		0.897	"	1.00-128	89.7			
Chrysene	"	1.00		0.921	"	1.00-199	92.1			
Dibenz (a,h) anthracene	"	2.00		1.72	"	2.00-110	86.0			
Fluoranthene	"	2.00		1.59	"	1.50-123	79.5			
Fluorene	"	2.00		1.33	"	2.50-142	66.5			
Indeno (1,2,3-cd) pyrene	"	1.00		0.918	"	1.00-116	91.8			
Naphthalene	"	10.0		5.91	"	1.30-122	59.1			
Phenanthrene	"	1.00		0.734	"	1.00-155	73.4			
Pyrene	"	1.00		0.715	"	1.00-140	71.5			
Surrogate: Carbazole	"	1.00		0.870	"	42.0-144	87.0			
Surrogate: Terphenyl-d14	"	2.00		1.88	"	2.00-146	94.0			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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**Polynuclear Aromatic Hydrocarbons by EPA Method 610 (HPLC)/Quality Control
Sequoia Analytical - Petaluma**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS Dup	9110272-BSD1									
Acenaphthene	11/18/99	10.0		6.94	ug/l	1.30-124	69.4	35.0	6.86	
Acenaphthylene	"	20.0		14.1	"	1.70-139	70.5	35.0	8.89	
Anthracene	"	1.00		0.751	"	1.00-126	75.1	35.0	5.05	
Benzo (a) anthracene	"	1.00		0.924	"	1.00-135	92.4	35.0	2.30	
Benzo (b) fluoranthene	"	2.00		1.88	"	1.00-150	94.0	35.0	3.24	
Benzo (k) fluoranthene	"	1.00		0.952	"	1.00-159	95.2	35.0	2.55	
Benzo (g,h,i) perylene	"	2.00		1.83	"	1.00-116	91.5	35.0	3.33	
Benzo (a) pyrene	"	1.00		0.914	"	1.00-128	91.4	35.0	1.88	
Chrysene	"	1.00		0.948	"	1.00-199	94.8	35.0	2.89	
Dibenz (a,h) anthracene	"	2.00		1.78	"	2.00-110	89.0	35.0	3.43	
Fluoranthene	"	2.00		1.59	"	1.50-123	79.5	35.0	0	
Fluorene	"	2.00		1.43	"	2.50-142	71.5	35.0	7.25	
Indeno (1,2,3-cd) pyrene	"	1.00		0.912	"	1.00-116	91.2	35.0	0.656	
Naphthalene	"	10.0		6.35	"	1.30-122	63.5	35.0	7.18	
Phenanthrene	"	1.00		0.750	"	1.00-155	75.0	35.0	2.16	
Pyrene	"	1.00		0.731	"	1.00-140	73.1	35.0	2.21	
Surrogate: Carbazole	"	1.00		0.831	"	42.0-144	83.1			
Surrogate: Terphenyl-d14	"	2.00		1.81	"	2.00-146	90.5			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Conventional Chemistry Parameters by APHA/EPA Methods/Quality Control
Sequoia Analytical - Petaluma

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9110185										
Duplicate										
pH	11/6/99		7.20	7.24	pH Units			20.0	0.554	
Extraction Method: General Preparation										
Batch: 9110215										
Blank										
Sulfide	11/8/99			ND	mg/l	0.500				
Extraction Method: General Preparation										
LCS										
Sulfide	11/8/99	39.9		40.2	mg/l	80.0-120	101			
LCS Dup										
Sulfide	11/8/99	39.9		39.3	mg/l	80.0-120	98.5	20.0	2.51	
Batch: 9110326										
Blank										
Cyanide (total)	11/11/99			ND	mg/l	0.0100				
Extraction Method: General Preparation										
LCS										
Cyanide (total)	11/11/99	0.200		0.190	mg/l	80.0-120	95.0			
Matrix Spike										
Cyanide (total)	11/11/99	0.200	ND	0.190	mg/l	75.0-125	95.0			
Matrix Spike Dup										
Cyanide (total)	11/11/99	0.200	ND	0.194	mg/l	75.0-125	97.0	20.0	2.08	





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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**Physical Parameters by APHA/ASTM/EPA Methods/Quality Control
Sequoia Analytical - Petaluma**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9110312	Date Prepared: 11/10/99			Extraction Method: General Preparation						
LCS	9110312-BS1									
Ignitability by Flashpoint	11/10/99	DET		DET	°C	80.0-120				
Batch: 9110442	Date Prepared: 11/11/99			Extraction Method: General Preparation						
Blank	9110442-BLK1									
Reactive Sulfide	11/16/99			ND	mg/l	50.0				
Reactive Cyanide	"			ND	"	10.0				
LCS	9110442-BS1									
Reactive Sulfide	11/16/99	1530		351	mg/l	10.0-120	22.9			
LCS	9110442-BS2									
Reactive Cyanide	11/16/99	1000		87.9	mg/l	5.00-120	8.79			





Gettler-Ryan/Geostrategies(1) 6747 Sierra Court, Suite D Dublin, CA 94568	Project: Tosco(1) Project Number: 180065/449 Hegenberger Rd. Project Manager: Doug Lee	Sampled: 11/4/99 Received: 11/4/99 Reported: 11/19/99
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Notes and Definitions

#	Note
1	Chromatogram Pattern: Gasoline C6-C12
2	Results between the primary and confirmation detectors varied by greater than 40% RPD.
3	This sample was analyzed outside the EPA recommended holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference



