

DATE: December 31, 1999

**TOSCO MARKETING COMPANY  
GROUNDWATER MONITORING REPORT**

Site No.: 5353 Address: 600 Westlake Avenue North, Seattle, WA  
Tosco Project Manager: Timothy D. Johnson  
Consultant /Contact Person: Environmental Resolutions, Inc./John Meyer  
Primary Agency/Regulatory ID No.: Washington State Department of Ecology

**WORK PERFORMED THIS QUARTER(S) [Fourth - 1999]:**

- Monitored 9 groundwater monitoring wells and sampled 5 wells without purging

**RECEIVED**

**WORK PROPOSED FOR NEXT QUARTER [Second - 2000]:**

- Monitor 11 wells and sample 6 wells without purging

FEB 03 2000

ENVIRONMENTAL DEPARTMENT  
NORTHWEST REGION

**SUMMARY:**

Frequency of Sampling Events:	<u>Semiannually</u>	(Quarterly, etc.)
Approximate Depth to Groundwater:	<u>8 to 11 ft</u>	(Measured Feet)
Groundwater Gradient:	<u>Northerly and Westerly</u>	(Direction)
	<u>0.006 ft/ft</u>	(Magnitude)
Maximum TPH-G/Benzene Concentrations:	<u>62,400/12,900</u>	(ppb)
Measurable Free Product Detected:	<u>No</u>	(Yes - ID wells(s)/No)
Free Product Recovered This Quarter:	<u>None</u>	(gallons)
Cumulative Free Product Recovered to Date:	<u>46,632</u>	(gallons)
Bulk Soil Removed This Quarter:	<u>None</u>	(cubic yards)
Water Wells or Surface Waters w/in a 2000'	<u>Lake Union</u>	(Distance &
Radius and Respective Direction:	<u>400 feet north</u>	Direction)
Current Remedial Action:	<u>VES</u>	(SVE/AS/P&T etc.)
Permits for Discharge:	<u>PSAPCA No. 4397</u>	(NPDES, POTW, etc.)

**DISCUSSION:**

- 2 of 5 wells sampled contained analyte concentrations exceeding MTCA Method A Cleanup Levels.
- Methyl tert-butyl ether was not detected in MW-36.

**ATTACHMENTS:**

Plate P-1 - Groundwater Sample Analyses Map, 12/08/99  
Table 1 - Groundwater Analytical Results  
Laboratory Reports and Chain of Custody Records  
Field Data Records

Prepared By:



John K. Meyer, R.G.  
Environmental Resolutions, Inc.

cc: Ecology NW Region  
GeoEngineers

GROUNDWATER MONITORING REPORT

Address: 800 West 1st Avenue, Fort Collins, CO 80501  
Telephone: (970) 221-1234  
Environmental Research and Consulting, Inc.  
1000 North Lincoln Street, Fort Collins, CO 80501

WORK PERFORMED THIS QUARTER (Fourth - 1999):

Monitoring of groundwater conditions and collection of water samples for analysis.

WORK PROPOSED FOR NEXT QUARTER (Second - 2000):

Monitor wells and sample water without pumping.

SUMMARY:

Frequency of Sampling (Yearly)	Quarterly	Frequency of Sampling (Yearly)	Quarterly
Location	Well No. 1	Location	Well No. 1
Depth	100 ft	Depth	100 ft
Flow (gpm)	1.0	Flow (gpm)	1.0
Water Quality	Good	Water Quality	Good
Temperature	50°F	Temperature	50°F
pH	7.5	pH	7.5
Hardness	150 mg/l	Hardness	150 mg/l
Chloride	10 mg/l	Chloride	10 mg/l
Sulfate	5 mg/l	Sulfate	5 mg/l
Iron	0.1 mg/l	Iron	0.1 mg/l
Manganese	0.05 mg/l	Manganese	0.05 mg/l
Nitrate	0 mg/l	Nitrate	0 mg/l
Nitrite	0 mg/l	Nitrite	0 mg/l
Ammonia	0 mg/l	Ammonia	0 mg/l
Other	None	Other	None

DISCUSSION:

The groundwater quality is good and meets all applicable standards. No significant changes were observed compared to the previous quarter.

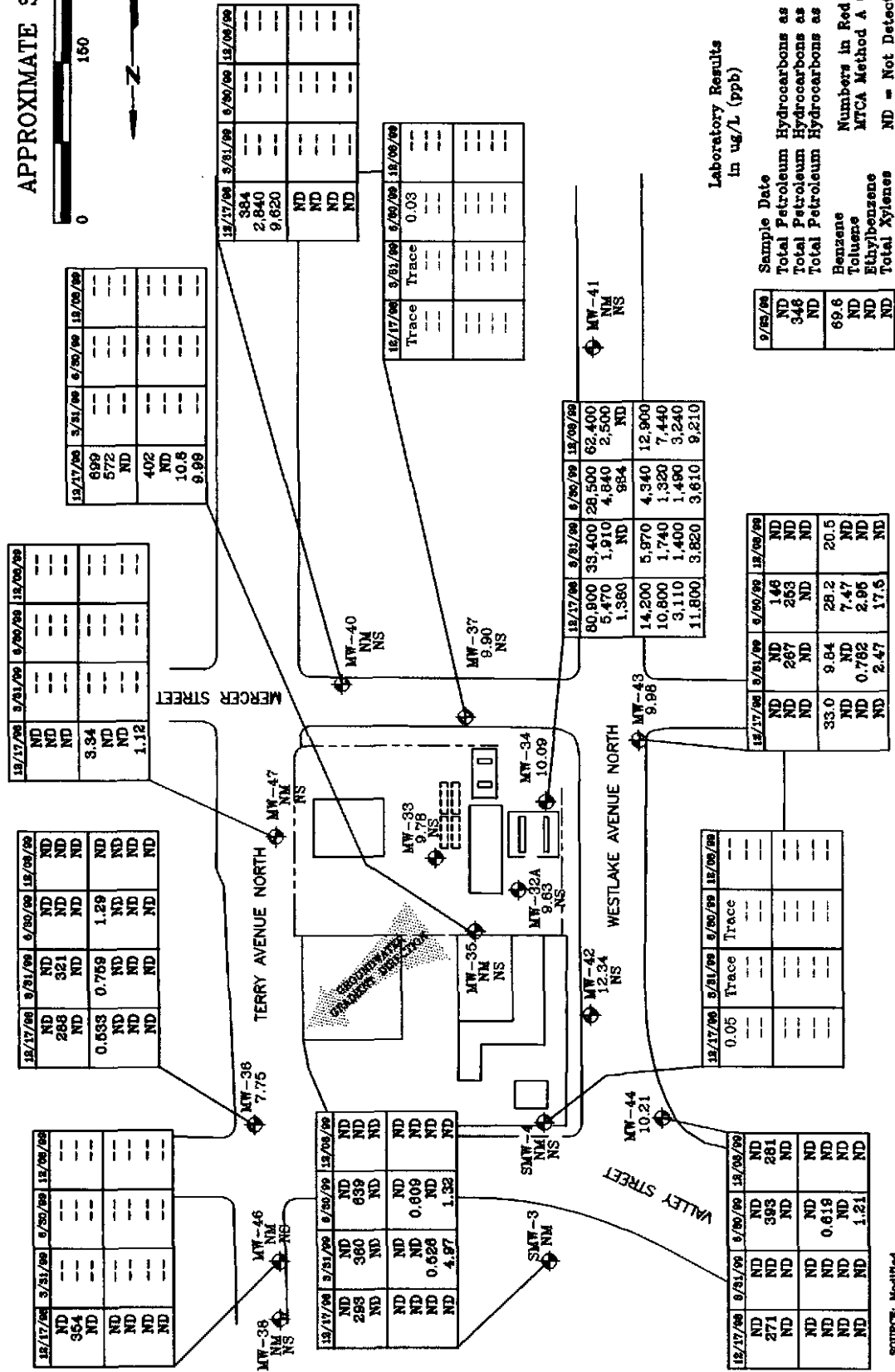
RECOMMENDATIONS:

Continue monitoring of groundwater conditions and collection of water samples for analysis. Monitor wells and sample water without pumping.

Prepared by: [Name]  
Date: [Date]

Environmental Research and Consulting, Inc.  
1000 North Lincoln Street, Fort Collins, CO 80501

APPROXIMATE SCALE



**PROJECT NO.**  
31020

**PLATE**  
P-1

CC: 12/31/99

**EXPLANATION**

- MW-37 Groundwater Monitoring Well
- 9.70 Groundwater Elevation
- 0.01 Free Product Thickness in Feet
- NM Not Measured
- NS Not Sampled

**GROUNDWATER SAMPLE ANALYSES MAP - 12/08/99**

TOSCO FACILITY 5353  
600 Westlake Avenue North  
Seattle, Washington

**ERI ENVIRONMENTAL RESOLUTIONS, INC.**

Source: Modified from data provided by Toseco Marketing Company

TABLE 1  
GROUNDWATER ANALYTICAL RESULTS  
Tosco Facility 5353  
600 Westlake Avenue North  
Seattle, Washington  
Page 1 of 5

Well Name	Sample Date	DTW	LPH	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
SMW-3	03/08/95	10.25	0.00	--	<50	400	2,500	<0.5	<0.5	<0.5	<1.0
	06/06/95	10.23	0.00	--	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	09/07/95	10.89	0.00	--	<50	300	<750	<0.5	<0.5	<0.5	<1.0
	12/08/95	10.36	0.00	--	<50	300	<750	<0.5	<0.5	<0.5	<1.0
	04/01/96	10.07	0.00	--	34,000	4,600	2,300	6,400	42	2,100	3,000
	06/25/96	10.19	0.00	--	<50.0	320	<750	<0.500	<0.500	<0.500	<1.00
	09/27/96	11.12	0.00	--	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	03/28/97	10.19	0.00	--	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	06/30/97 <sup>SP</sup>	10.14	0.00	--	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	09/08/97 <sup>SP</sup>	10.85	0.00	--	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	12/19/97 <sup>SP</sup>	9.67	0.00	--	<50.0	521	<750	<0.500	<0.500	<0.500	<1.00
	3/16/98 <sup>SP</sup>	9.28	0.00	--	50.1	<250	<750	<0.500	<0.500	<0.500	<1.00
	6/26/98 <sup>SP</sup>	8.87	0.00	--	<50.0	500	<750	<0.500	<0.500	<0.500	<1.00
	9/23/98 <sup>SP</sup>	9.88	0.00	--	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	12/17/98 <sup>SP</sup>	9.22	0.00	--	<50.0	293	<750	<0.500	<0.500	<0.500	<1.00
	3/31/99 <sup>SP</sup>	9.01	0.00	--	<50.0	360	<750	<0.500	<0.500	0.526	4.97
	6/30/99 <sup>SP</sup>	9.56	0.00	--	<50.0	639	<750	<0.500	0.609	<0.500	1.32
12/08/99 <sup>SP</sup>	8.75	0.00	--	<50.0	<484	<1,450	<0.500	<0.500	<0.500	<1.00	
SMW-4	03/08/95	8.14	0.00	--	28,000	4,100	4,100	13,000	<250	2,400	6,200
	06/06/95	8.90	0.00	--	41,000	5,500	<750	8,400	44	2,700	4,900
	09/07/95	8.99	0.00	--	--	--	--	--	--	--	--
	12/08/95	7.66	0.00	--	40,000	1,500	520	6,100	57	2,900	3,600
	04/01/96	8.13	0.00	--	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	06/25/96	8.20	0.00	--	28,100	2,800	630	3,800	61.4	1,710	1,710
	09/27/96	8.62	0.00	--	28,600	2,400	<750	8,090	<0.500	2,000	1,730
	03/28/97	8.20	0.00	--	--	--	--	--	--	--	--
	06/30/97	8.06	0.00	--	--	--	--	--	--	--	--
	09/08/97	9.00	0.00	--	--	--	--	--	--	--	--
	12/19/97	9.41	0.00	--	--	--	--	--	--	--	--
	3/16/98	9.09	0.00	--	--	--	--	--	--	--	--
	6/26/98	8.76	Trace	--	--	--	--	--	--	--	--
	9/23/98	9.96	0.05	--	--	--	--	--	--	--	--
	12/17/98	10.22	Trace	--	--	--	--	--	--	--	--
	3/31/99	8.70	Trace	--	--	--	--	--	--	--	--
	6/30/99	8.20	Trace	--	--	--	--	--	--	--	--
12/08/99			Not Accessible								
MW-32A 20.7D	03/08/95	11.29	0.00	9.69	21,000	2,300	2,300	6,800	1,700	590	2,900
	06/06/95	--	--	--	--	--	--	--	--	--	--
	09/07/95	11.27	--	9.43	20,000	2,500	1,900	4,200	470	730	2,000
	12/08/95	10.61	--	10.06	11,000	1,200	<750	1,600	86	420	810
	04/01/96	10.90	--	9.80	7,800	1,400	1,000	2,200	58	300	480
	06/25/96	10.98	--	9.72	7,500	1,250	<750	1,200	60.4	217	435
	09/27/96	11.37	--	9.61	7,050	1,040	<750	1,570	37.4	264	416
	03/28/97	11.26	--	9.72	--	--	--	--	--	--	--
	06/30/97	10.89	--	--	--	--	--	--	--	--	--
	09/08/97	11.67	0.00	9.31	--	--	--	--	--	--	--
	12/19/97	11.42	0.00	9.28	--	--	--	--	--	--	--
	3/16/98	11.30	0.00	9.40	--	--	--	--	--	--	--
	6/26/98	11.29	0.00	9.41	--	--	--	--	--	--	--
	9/23/98	11.97	0.00	8.73	--	--	--	--	--	--	--
	12/17/98	11.09	0.00	9.61	--	--	--	--	--	--	--
3/31/99	10.47	0.00	10.23	--	--	--	--	--	--	--	
6/30/99	9.60	0.00	11.10	--	--	--	--	--	--	--	
12/08/99	11.07	0.00	9.63	--	--	--	--	--	--	--	
MW-33 20.7E	03/08/95	11.16	0.00	9.73	4,900	1,400	2,000	560	<25	320	420
	06/06/95	--	--	--	--	--	--	--	--	--	--
	09/07/95	11.20	0.00	9.55	9,700	1,400	820	850	140	230	620
	12/08/95	--	--	--	13,000	1,900	1,900	860	240	280	760
	04/01/96	11.00	0.00	9.75	5,200	860	<750	830	33	130	270
	06/25/96	11.05	0.00	9.70	2,700	1,080	<750	230	24.6	48.5	61.1
	09/27/96	11.13	0.00	9.76	5,150	1,190	<750	1,160	237	86.3	272
	03/28/97	11.19	0.00	9.70	--	--	--	--	--	--	--
	06/30/97	10.66	0.00	10.23	--	--	--	--	--	--	--
	09/08/97	10.48	0.00	10.41	--	--	--	--	--	--	--
	12/19/97	--	--	--	--	--	--	--	--	--	--
	3/16/98	--	--	--	--	--	--	--	--	--	--
	6/26/98	11.18	0.00	9.57	--	--	--	--	--	--	--
	9/23/98	11.90	0.00	8.85	--	--	--	--	--	--	--
12/17/98	11.03	0.00	9.72	--	--	--	--	--	--	--	
3/31/99	10.38	0.00	10.37	--	--	--	--	--	--	--	
6/30/99	9.52	0.00	11.23	--	--	--	--	--	--	--	
12/08/99	10.97	0.00	9.78	--	--	--	--	--	--	--	
MTCA Method A Cleanup Level					1,000 <sup>a</sup>	5	40	30	20		

Continued on Page 2.

TABLE 1  
GROUNDWATER ANALYTICAL RESULTS  
Tosco Facility 5353  
800 Westlake Avenue North  
Seattle, Washington  
Page 2 of 5

Well Name	Sample Date	DTW	LPH	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
MW-34 21.42	03/08/95	11.62	0.00	10.08	8,200	1,100	480	2,400	1,500	250	1,300
	06/06/95	11.73	0.00	9.97	9,100	2,300	<750	4,200	1,000	350	1,200
	09/07/95	11.57	0.00	9.85	12,000	1,600	930	4,800	2,300	580	2,000
	12/08/95	10.92	0.00	10.50	68,080	2,600	1,600	12,000	8,200	1,200	5,500
	04/01/96	11.21	0.00	10.21	10,080	1,900	<750	5,500	880	520	1,200
	06/25/96	11.19	0.00	10.23	13,700	1,160	<750	4,190	1,110	383	1,740
	09/27/96	11.58	0.00	10.12	18,300	1,030	<750	5,010	2,820	541	1,310
	03/28/97	11.47	0.00	10.23	—	—	—	—	—	—	—
	06/30/97 <sup>NP</sup>	11.19	0.00	10.51	2,970	311	<750	1,830	15.7	271	531
	09/08/97 <sup>NP</sup>	11.74	0.00	9.96	8,380	455	<750	3,820	645	567	1,270
	12/19/97	—	—	—	—	—	—	—	—	—	—
	3/16/98	—	—	—	—	—	—	—	—	—	—
	6/26/98 <sup>NP</sup>	11.42	0.00	10.00	78,800	3,990	<750	13,400	11,100	2,310	9,080
	9/23/98 <sup>NP</sup>	12.23	0.00	9.19	3,040	3,000	789	3,540	243	838	1,950
	12/17/98 <sup>NP</sup>	11.35	0.00	10.07	60,800	5,470	1,580	14,200	10,600	3,110	11,800
	3/31/99 <sup>NP</sup>	10.85	0.00	10.57	33,400	1,910	<750	6,970	1,740	1,400	3,920
	6/30/99 <sup>NP</sup>	10.18	0.00	11.24	28,500	4,840	804	4,340	1,320	1,490	3,910
12/08/99 <sup>NP</sup>	11.33	0.00	10.09	62,400	2,800	<1,360	12,900	7,440	3,240	9,210	
MW-35 20.10	03/08/95	10.67	0.00	9.60	2,600	1,200	1,300	400	<25	120	83
	06/06/95	10.67	0.00	9.60	610	1,000	930	62	1.4	27	38
	09/07/95	10.87	0.00	9.43	—	—	—	—	—	—	—
	12/08/95	0.00	—	—	—	—	—	—	—	—	—
	04/01/96	—	—	—	—	—	—	—	—	—	—
	06/25/96	11.11	0.00	8.99	1,620	880	<750	88.2	1.11	26.7	17.6
	09/27/96	10.64	0.00	9.63	959	524	<750	38.8	0.990	10.4	6.18
	03/28/97 <sup>NP</sup>	11.28	0.00	8.99	1,370	333	<750	161	2.36	31.8	10.7
	03/28/97	11.28	0.00	8.99	1,800	<250	<750	250	2.62	48.1	8.04
	06/30/97 <sup>NP</sup>	10.19	0.00	10.08	1,300	<250	<750	348	<2.50	85.0	7.31
	09/08/97 <sup>NP</sup>	10.86	0.00	9.41	4,200	<250	<750	1,460	16.2	231	68.2
	12/19/97	—	—	—	—	—	—	—	—	—	—
	3/16/98 <sup>NP</sup>	10.64	0.00	9.46	805	361	<750	410	4.24	<2.50	<5.00
	6/26/98 <sup>NP</sup>	10.65	0.00	9.45	1,300	682	<750	800	<10.0	45.1	<20.0
9/23/98 <sup>NP</sup>	11.38	0.00	8.72	685	858	<750	243	<2.50	<2.50	<5.00	
12/17/98 <sup>NP</sup>	10.49	0.00	9.61	836	572	<750	482	<2.50	10.8	9.99	
3/31/99	Obstructed by vehicle	—	—	—	—	—	—	—	—	—	
6/30/99	Obstructed by vehicle	—	—	—	—	—	—	—	—	—	
12/08/99	Obstructed by vehicle	—	—	—	—	—	—	—	—	—	
MW-36 17.80	03/08/95	9.07	0.00	8.97	<50	580	1,200	2.6	<0.5	<0.5	<1.0
	06/06/95	7.92	0.00	10.12	<50	<250	<750	1.0	<0.5	<0.5	<1.0
	09/07/95	8.11	0.00	9.69	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	12/08/95	9.00	0.00	8.80	<50	810	1,200	1.1	<0.5	<0.5	<1.0
	04/01/96	9.00	0.00	8.80	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	06/25/96	8.97	0.00	—	<50.0	<250	<750	0.580	<0.500	<0.500	<1.00
	09/27/96	7.53	0.00	10.51	<50.0	<250	<750	1.18	<0.500	<0.500	<1.00
	03/28/97	9.21	0.00	8.83	<50.0	<250	<750	0.810	<0.500	<0.500	<1.00
	06/30/97 <sup>NP</sup>	6.88	0.00	11.16	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	09/08/97 <sup>NP</sup>	9.21	0.00	8.83	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	12/19/97 <sup>NP</sup>	10.09	0.00	7.71	<50.0	<250	<750	0.606	<0.500	<0.500	<1.00
	3/16/98 <sup>NP</sup>	9.29	0.00	8.51	56.6	287	<750	<0.500	<0.500	<0.500	<1.00
	6/26/98 <sup>NP</sup>	8.47	0.00	9.33	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	9/23/98 <sup>NP</sup>	9.89	0.00	7.91	<50.0	<250	<750	0.737	<0.500	<0.500	1.13
12/17/98 <sup>NP</sup>	10.00	0.00	7.80	<50.0	288	<750	0.533	<0.500	<0.500	<1.00	
3/31/99 <sup>NP</sup>	8.96	0.00	8.84	<50.0	321	<750	0.759	<0.500	<0.500	<1.00	
6/30/99 <sup>NP</sup>	8.44	0.00	9.36	<50.0	<250	<750	1.29	<0.500	<0.500	<1.00	
12/08/99 <sup>NP</sup>	10.05	0.00	7.75	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	
MW-37 21.01	03/08/95	11.94	0.00	9.24	54	1,200	1,400	1,180	2,400	1,200	6,700
	06/06/95	11.76	0.01	9.43	45	4,600	2,500	3,700	2,400	1,300	7,960
	06/06/95	11.76	0.01	9.43	90	—	—	5,100	6,000	4,600	14,000
	09/07/95	11.17	0.00	9.84	—	—	—	—	—	—	—
	12/08/95	10.22	0.00	10.79	—	—	—	—	—	—	—
	04/01/96	10.79	0.02	10.22	—	—	—	—	—	—	—
	06/25/96	10.82	0.20	10.19	—	—	—	—	—	—	—
	09/27/96	11.47	0.05	9.75	—	—	—	—	—	—	—
	03/28/97 <sup>NP</sup>	11.14	0.25	10.40	80,100	7,570	789	1,930	2,190	1,850	7,440
	03/28/97	11.14	0.25	10.40	297,000	45,190	<8,250	6,879	13,200	4,830	22,800
	06/30/97	10.80	0.02	10.23	—	—	—	—	—	—	—
	09/08/97	11.41	0.28	9.77	—	—	—	—	—	—	—
	12/19/97	11.28	0.02	9.75	—	—	—	—	—	—	—
	3/16/98	11.11	0.01	9.91	—	—	—	—	—	—	—
	6/26/98	11.32	0.01	9.70	—	—	—	—	—	—	—
	9/23/98	12.01	0.03	9.03	—	—	—	—	—	—	—
	12/17/98	11.00	Trace	10.01	—	—	—	—	—	—	—
3/31/99	—	Trace	—	—	—	—	—	—	—	—	
6/30/99	Dry	0.3	—	—	—	—	—	—	—	—	
12/08/99	11.11	—	9.90	—	—	—	—	—	—	—	
MTCA Method A Cleanup Level					1,000 <sup>a</sup>	5	40	30	20		

Continued on Page 3.

TABLE 1  
GROUNDWATER ANALYTICAL RESULTS  
Tosco Facility 5353  
600 Westlake Avenue North  
Seattle, Washington  
Page 3 of 5

Well Name	Sample Date	DTW	LPH	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
MW-38 16.52	03/08/95	--	--	--	--	--	--	--	--	--	--
	06/06/95	--	--	--	--	--	--	--	--	--	--
	09/07/95	--	--	--	--	--	--	--	--	--	--
	12/08/95	--	--	--	--	--	--	--	--	--	--
	04/01/96	--	--	--	--	--	--	--	--	--	--
	06/25/96	--	--	--	--	--	--	--	--	--	--
	09/27/96	--	--	--	--	--	--	--	--	--	--
	03/28/97	9.23	0.00	7.60	<50	<250	<750	<0.500	<0.500	<0.500	<1.00
	06/30/97	--	--	--	--	--	--	--	--	--	--
	09/08/97	--	--	--	--	--	--	--	--	--	--
	12/19/97	--	--	--	--	--	--	--	--	--	--
	3/16/98	--	--	--	--	--	--	--	--	--	--
	6/26/98	--	--	--	--	--	--	--	--	--	--
	9/23/98	--	--	--	--	--	--	--	--	--	--
12/17/98	--	--	--	--	--	--	--	--	--	--	
3/31/99	--	--	--	--	--	--	--	--	--	--	
6/30/99	--	--	--	--	--	--	--	--	--	--	
12/08/99	--	--	--	--	--	--	--	--	--	--	
MW-40 20.89	03/08/95	10.98	0.00	10.14	980	2,600	2,600	11	<0.5	11	<1.0
	06/06/95	11.18	0.00	9.94	1,800	2,300	1,600	6.6	4.3	4.1	21
	09/07/95	11.08	0.00	9.81	650	13,000	69,000	11	0.91	0.57	<1.0
	12/08/95	10.30	0.00	10.59	600	1,400	4,900	2.7	3	<0.5	<1.0
	04/01/96	10.56	0.00	10.33	620	3,200	13,000	1.2	<0.5	0.55	<1.0
	06/25/96	10.69	0.00	10.20	600	2,700	8,600	<0.500	9.82	<0.500	<1.00
	09/27/96	10.95	0.00	10.17	602	3,590	9,660	0.604	41.1	0.525	<1.0
	03/28/97	10.92	0.00	10.20	--	--	--	--	--	--	--
	06/30/97	--	--	--	--	--	--	--	--	--	--
	09/08/97	--	--	--	--	--	--	--	--	--	--
	12/19/97 <sup>P</sup>	11.11	0.00	9.78	325	3,260	12,600	<0.500	0.504	0.663	2.44
	3/16/98	--	--	--	--	--	--	--	--	--	--
	6/26/98	--	--	--	--	--	--	--	--	--	--
	9/23/98	--	--	--	--	--	--	--	--	--	--
12/17/98 <sup>P</sup>	10.86	0.00	10.03	384	2,840	6,820	<0.500	<0.500	<0.500	<1.00	
3/31/99	--	--	--	--	--	--	--	--	--	--	
6/30/99	--	--	--	--	--	--	--	--	--	--	
12/08/99	--	--	--	--	--	--	--	--	--	--	
MW-41 27.00	03/08/95	14.72	--	12.48	<50	<250	<750	1.6	<0.5	<0.5	<1.0
	06/06/95	15.02	--	12.18	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	09/07/95	15.00	--	12.00	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	12/08/95	16.30	--	10.70	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	04/01/96	15.02	--	11.98	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	06/25/96	15.07	--	11.93	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	09/27/96	15.42	0.00	11.78	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	03/28/97	15.27	0.00	11.93	--	--	--	--	--	--	--
	06/30/97	--	--	--	--	--	--	--	--	--	--
	09/08/97	--	--	--	--	--	--	--	--	--	--
	12/19/97	--	--	--	--	--	--	--	--	--	--
	3/16/98	--	--	--	--	--	--	--	--	--	--
	6/26/98	--	--	--	--	--	--	--	--	--	--
	9/23/98	--	--	--	--	--	--	--	--	--	--
12/17/98	--	--	--	--	--	--	--	--	--	--	
3/31/99	--	--	--	--	--	--	--	--	--	--	
6/30/99	--	--	--	--	--	--	--	--	--	--	
12/08/99	--	--	--	--	--	--	--	--	--	--	
MW-42 20.34	03/08/95	9.45	0.00	10.91	130	870	1,200	790	<25	<25	<50
	06/06/95	9.37	0.00	10.89	120	920	1,500	500	<0.56	<0.5	<1.0
	09/07/95	9.50	0.00	10.84	5,000	780	1,200	210	4.1	42	230
	12/08/95	8.95	0.00	11.39	300	1,300	1,300	380	<2.0	<2.0	<4.0
	04/01/96	9.03	0.00	11.31	180	650	<750	290	0.52	<0.5	<1.0
	06/25/96	9.07	0.00	11.27	150	720	<750	150	<0.500	<0.500	<1.00
	09/27/96	9.12	0.00	11.24	<250	534	<750	228	<2.50	<2.50	<5.00
	03/28/97	9.09	0.00	11.27	--	--	--	--	--	--	--
	06/30/97	8.92	0.00	11.44	--	--	--	--	--	--	--
	09/08/97	9.57	0.00	10.79	--	--	--	--	--	--	--
	12/19/97	--	--	--	--	--	--	--	--	--	--
	3/16/98	9.53	0.00	10.81	--	--	--	--	--	--	--
	6/26/98	9.51	0.00	10.83	--	--	--	--	--	--	--
	9/23/98	9.96	0.00	10.38	--	--	--	--	--	--	--
12/17/98	9.10	0.00	11.24	--	--	--	--	--	--	--	
3/31/99	9.00	0.00	11.34	--	--	--	--	--	--	--	
6/30/99	8.60	0.00	11.74	--	--	--	--	--	--	--	
12/08/99	8.00	0.00	12.34	--	--	--	--	--	--	--	

MTCA Method A Cleanup Level  
Continued on Page 4.

1,000<sup>a</sup>      5      40      30      20

TABLE 1  
GROUNDWATER ANALYTICAL RESULTS  
Tosco Facility 5353  
600 Westlake Avenue North  
Seattle, Washington  
Page 4 of 5

Well Name	Sample Date	DTW	LPH	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
MW-43 21.04	03/08/95	11.36	0.00	9.94	<50	850	2,400	25	<0.5	<0.5	<1.0
	06/06/95	11.45	0.00	9.84	<50	899	1,800	8.2	<0.5	<0.5	<1.0
	09/07/95	11.14	0.00	9.90	<50	<250	850	10	<0.5	<0.5	<1.0
	12/08/95	10.85	0.00	10.19	<50	860	3,180	37	<0.5	<0.5	<1.0
	04/01/96	10.98	0.00	10.06	<50	300	<750	4.5	<0.5	<0.5	<1.0
	06/25/96	11.06	0.00	9.98	<50.0	370	<750	2.57	<0.500	<0.500	<1.00
	09/27/96	11.33	0.00	9.96	<50.0	339	<750	4.40	<0.5	<0.500	<1.00
	03/28/97	11.13	0.00	9.98	<50.0	<250	<750	3.89	0.884	<0.500	2.47
	06/30/97 <sup>NP</sup>	7.08	0.00	14.21	<50.0	<250	<750	58.2	<0.500	<0.500	<1.00
	09/08/97 <sup>NP</sup>	11.48	0.00	9.83	83	<250	<750	35.5	<0.500	2.10	3.08
	12/19/97	-	-	-	-	-	-	-	-	-	-
	3/16/98 <sup>NP</sup>	11.09	0.00	9.95	76.3	408	<750	28.5	<0.500	<0.500	<1.00
	6/26/98 <sup>NP</sup>	11.26	0.00	9.78	<50.0	346	<750	88.8	<0.500	<0.500	<1.00
	9/23/98 <sup>NP</sup>	11.75	0.00	9.29	<50.0	267	<750	8.05	<0.500	<0.500	<1.00
	12/17/98 <sup>NP</sup>	11.07	0.00	9.97	<50.0	<250	<750	33.0	<0.500	<0.500	<1.00
	3/31/99 <sup>NP</sup>	10.97	0.00	10.07	<50.0	267	<750	8.84	<0.500	0.782	2.47
6/30/99 <sup>NP</sup>	9.97	0.00	11.07	146	253	<750	28.2	7.47	2.95	17.5	
12/08/99 <sup>NP</sup>	11.06	0.00	9.98	<50.0	<250	<750	20.5	<0.500	<0.500	<1.00	
MW-44 18.73	03/08/95	9.44	0.00	10.46	<50	280	940	<0.5	<0.5	<0.5	<1.0
	06/06/95	8.28	0.00	10.62	<50	<250	820	<0.5	<0.5	<0.5	1.6
	09/07/95	7.94	0.00	10.79	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	12/08/95	8.09	0.00	10.64	<50	520	2,400	<0.5	<0.5	<0.5	<1.0
	04/01/96	7.98	0.00	10.75	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	06/25/96	7.90	0.00	10.83	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	09/27/96	8.28	0.00	10.59	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	03/28/97	8.07	0.00	10.83	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	06/30/97 <sup>NP</sup>	7.84	0.00	11.06	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	09/08/97 <sup>NP</sup>	8.65	0.00	10.25	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	12/19/97 <sup>NP</sup>	8.51	0.00	10.22	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	3/16/98 <sup>NP</sup>	8.43	0.00	10.30	60.0	310	<750	<0.500	<0.500	<0.500	<1.00
	6/26/98 <sup>NP</sup>	8.37	0.00	10.36	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	9/23/98 <sup>NP</sup>	9.30	0.00	9.43	<50.0	343	<750	<0.500	<0.500	<0.500	<1.00
	12/17/98 <sup>NP</sup>	8.10	0.00	10.63	<50.0	271	<750	<0.500	<0.500	<0.500	<1.00
	3/31/99 <sup>NP</sup>	8.18	0.00	10.55	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
6/30/99 <sup>NP</sup>	8.03	0.00	10.70	<50.0	393	<750	<0.500	0.619	<0.500	1.21	
12/08/99 <sup>NP</sup>	8.92	0.00	10.21	<50.0	281	<750	<0.500	<0.500	<0.500	<1.00	
MW-46 16.91	03/08/95	8.00	0.00	8.91	<50	720	3,580	<0.5	<0.5	<0.5	<1.0
	06/06/95	7.30	0.00	10.01	<50	<250	1,400	<0.5	<0.5	<0.5	<1.0
	09/07/95	7.80	0.00	8.93	<50	710	5,600	<0.5	<0.5	<0.5	<1.0
	12/08/95	8.32	0.00	8.59	<50	1,400	14,000	<0.5	<0.5	<0.5	<1.0
	04/01/96	7.04	0.00	9.87	<50	<400	2,800	<0.5	<0.5	<0.5	<1.0
	06/25/96	7.85	0.00	9.06	<50.0	440	2,880	<0.500	<0.500	<0.500	<1.00
	09/27/96	7.57	0.00	9.74	<50.0	267	<750	0.618	<0.500	<0.500	<1.00
	03/28/97	7.25	0.00	10.06	<50.0	<250	<750	<0.500	1.25	<0.500	2.06
	06/30/97	7.12	0.00	10.19	-	-	-	-	-	-	-
	09/08/97	8.82	0.00	8.49	-	-	-	-	-	-	-
	12/19/97 <sup>NP</sup>	9.40	0.00	7.51	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	3/16/98	-	-	-	-	-	-	-	-	-	-
	6/26/98	-	-	-	-	-	-	-	-	-	-
	9/23/98	-	-	-	-	-	-	-	-	-	-
	12/17/98 <sup>NP</sup>	9.20	0.00	7.71	<50.0	354	<750	<0.500	<0.500	<0.500	<1.00
	3/31/99	-	-	-	-	-	-	-	-	-	-
6/30/99	-	-	-	-	-	-	-	-	-	-	
12/08/99	-	-	-	-	-	-	-	-	-	-	
MW-47 19.83	03/08/95	10.88	0.00	9.16	<50	350	1,600	5.3	<0.5	<0.5	<1.0
	06/06/95	10.91	0.00	9.13	70	360	780	15	0.59	<0.5	2.3
	09/07/95	10.76	0.00	9.07	<50	260	<750	1.7	<0.5	<0.5	<1.0
	12/08/95	10.40	0.00	9.43	740	880	2,500	<0.5	<0.5	<0.5	<1.0
	04/01/96	10.67	0.00	9.16	<50	<250	<750	4.4	<0.5	<0.5	<1.0
	06/25/96	10.71	0.00	9.12	110	400	<750	14.4	<0.500	<0.500	<1.00
	09/27/96	10.85	0.00	9.19	<50.0	<250	<750	4.34	<0.500	<0.500	<1.00
	03/28/97 <sup>NP</sup>	10.92	0.00	9.12	64.5	<250	<750	7.81	<0.500	<0.500	1.57
	03/28/97	10.92	0.00	9.12	177	<250	<750	82.4	<0.500	<0.500	<1.00
	06/30/97	-	-	-	-	-	-	-	-	-	-
	09/08/97	-	-	-	-	-	-	-	-	-	-
	12/19/97	-	-	-	-	-	-	-	-	-	-
	3/16/98	-	-	-	-	-	-	-	-	-	-
	6/26/98 <sup>NP</sup>	10.78	0.00	9.05	<50.0	356	<750	27.3	<0.500	<0.500	<1.00
	9/23/98	-	-	-	-	-	-	-	-	-	-
	12/17/98 <sup>NP</sup>	10.61	0.00	9.22	<50.0	<250	<750	3.34	<0.500	<0.500	1.12
3/31/99	9.65	0.00	10.18	-	-	-	-	-	-	-	
6/30/99	-	-	-	-	-	-	-	-	-	-	
12/08/99	-	-	-	-	-	-	-	-	-	-	
MTCA Method A Cleanup Level						1,000 <sup>a</sup>	5	40	30	20	

Continued on Page 5.

TABLE 1  
GROUNDWATER ANALYTICAL RESULTS  
Tosco Facility 5353  
600 Westlake Avenue North  
Seattle, Washington  
Page 5 of 5

Well Name	Sample Date	DTW	LPH	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
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**EXPLANATION:**

Concentrations in ug/L (ppb).

Wellhead elevations taken from prior consultant's reports.

DTW = Depth to water in feet below top of casing except where noted in prior reports.

LPH = Liquid-phase petroleum hydrocarbon thickness in feet.

GW Elev. = Groundwater elevation relative to DTW data; corrected for LPH where applicable using a specific gravity of 0.85.

TPH-G = Total Petroleum Hydrocarbons as Gasoline by Ecology Method WTPH-G.

TPH-D and TPH-O = Total petroleum hydrocarbons as diesel and as oil (respectively) by Ecology Method WTPH-D (Extended).

B = Benzene; T = Toluene; E = Ethylbenzene; X = Total Xylenes.

BTEX = Aromatic compounds by EPA Method 8020.

\* = Well not purged prior to sampling.

< = Less than the stated laboratory reporting limit.

- = Not analyzed or no data.

Shaded values equal or exceed MTCA Method A Cleanup Levels.

\* Total Petroleum Hydrocarbons

Data collected before 12/18/97 are taken from prior consultants.





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ERI  
 1921 Edmonds Drive SE  
 Renton WA, 98055

Project: TOSCO #5353  
 Project Number: 31020  
 Project Manager: John Meyer

Reported:  
 12/20/99 08:36

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SMW-3	B9L0230-01	Water	12/08/99 00:00	12/10/99 16:00
MW-34	B9L0230-02	Water	12/08/99 00:00	12/10/99 16:00
MW-36	B9L0230-03	Water	12/08/99 00:00	12/10/99 16:00
MW-43	B9L0230-04	Water	12/08/99 00:00	12/10/99 16:00
MW-44	B9L0230-05	Water	12/08/99 00:00	12/10/99 16:00

North Creek Analytical - Bothell

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Steve Davis, Project Manager

North Creek Analytical, Inc.  
 Environmental Laboratory Network



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ERI Project: TOSCO #5353  
 1921 Edmonds Drive SE Project Number: 31020  
 Renton WA, 98055 Project Manager: John Meyer Reported:  
 12/20/99 08:36

**Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B  
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SMW-3 (B9L0230-01) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	9L14024	12/14/99	12/14/99	WTPH-G/8021	
Benzene	ND	0.500	"	"	"	"	"	B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)		85.4 %	50-150		"	"	"	"	
Surrogate: 4-BFB (PID)		100 %	50-150		"	"	"	"	
<b>MW-34 (B9L0230-02) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Gasoline Range Hydrocarbons	62400	10000	ug/l	200	9L14024	12/14/99	12/15/99	WTPH-G/8021	
Benzene	12900	100	"	"	"	"	"	B	
Toluene	7440	100	"	"	"	"	"	"	
Ethylbenzene	3240	100	"	"	"	"	"	"	
Xylenes (total)	9210	200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)		85.8 %	50-150		"	"	"	"	
Surrogate: 4-BFB (PID)		101 %	50-150		"	"	"	"	
<b>MW-43 (B9L0230-04) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	9L14024	12/14/99	12/14/99	WTPH-G/8021	
Benzene	20.5	0.500	"	"	"	"	"	B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)		83.1 %	50-150		"	"	"	"	
Surrogate: 4-BFB (PID)		102 %	50-150		"	"	"	"	

North Creek Analytical - Bothell

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Steve Davis, Project Manager

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ERI Project: TOSCO #5353  
 1921 Edmonds Drive SE Project Number: 31020  
 Renton WA, 98055 Project Manager: John Meyer  
 Reported: 12/20/99 08:36

**Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B  
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-44 (B9L0230-05) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	9L14024	12/14/99	12/14/99	WTPH-G/8021	
Benzene	ND	0.500	"	"	"	"	"	B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)		82.7 %	50-150		"	"	"	"	
Surrogate: 4-BFB (PID)		103 %	50-150		"	"	"	"	

North Creek Analytical - Bothell

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 Environmental Laboratory Network



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ERI  
 1921 Edmonds Drive SE  
 Renton WA, 98055

Project: TOSCO #5353  
 Project Number: 31020  
 Project Manager: John Meyer

Reported:  
 12/20/99 08:36

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by NWTPH-G and EPA 8021B**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-36 (B9L0230-03) Water    Sampled: 12/08/99 00:00    Received: 12/10/99 16:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	9L14024	12/14/99	12/14/99	WTPH-G/8021	
Benzene	ND	0.500	"	"	"	"	"	B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)		83.3 %	50-150		"	"	"	"	
Surrogate: 4-BFB (PID)		100 %	50-150		"	"	"	"	

North Creek Analytical - Bothell

Steve Davis, Project Manager

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ERI Project: TOSCO #5353  
 1921 Edmonds Drive SE Project Number: 31020  
 Renton WA, 98055 Project Manager: John Meyer Reported:  
 12/20/99 08:36

**Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>SMW-3 (B9L0230-01) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Diesel Range Hydrocarbons	ND	0.484	mg/l	1	9L14003	12/14/99	12/15/99	WTPH-D	
Heavy Oil Range Hydrocarbons	ND	1.45	"	"	"	"	"	"	
Surrogate: 2-FBP		82.7 %	50-150		"	"	"	"	
<b>MW-34 (B9L0230-02) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Diesel Range Hydrocarbons	2.50	0.453	mg/l	1	9L14003	12/14/99	12/15/99	WTPH-D	
Heavy Oil Range Hydrocarbons	ND	1.36	"	"	"	"	"	"	
Surrogate: 2-FBP		98.3 %	50-150		"	"	"	"	
<b>MW-36 (B9L0230-03) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	9L14003	12/14/99	12/15/99	WTPH-D	
Heavy Oil Range Hydrocarbons	ND	0.750	"	"	"	"	"	"	
Surrogate: 2-FBP		85.8 %	50-150		"	"	"	"	
<b>MW-43 (B9L0230-04) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Diesel Range Hydrocarbons	ND	0.250	mg/l	1	9L14003	12/14/99	12/15/99	WTPH-D	
Heavy Oil Range Hydrocarbons	ND	0.750	"	"	"	"	"	"	
Surrogate: 2-FBP		79.8 %	50-150		"	"	"	"	
<b>MW-44 (B9L0230-05) Water</b> Sampled: 12/08/99 00:00 Received: 12/10/99 16:00									
Diesel Range Hydrocarbons	0.281	0.250	mg/l	1	9L14003	12/14/99	12/16/99	WTPH-D	
Heavy Oil Range Hydrocarbons	ND	0.750	"	"	"	"	"	"	
Surrogate: 2-FBP		85.5 %	50-150		"	"	"	"	

North Creek Analytical - Bothell

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ERI Project: TOSCO #5353  
 1921 Edmonds Drive SE Project Number: 31020  
 Renton WA, 98055 Project Manager: John Meyer Reported: 12/20/99 08:36

**soline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B - Quality Cont  
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9L14024: Prepared 12/14/99 Using EPA 5030B (P/T)**

**Blank (9L14024-BLK1)**

Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	40.1		"	48.0		83.5	50-150			
Surrogate: 4-BFB (PID)	47.6		"	48.0		99.2	50-150			

**Blank (9L14024-BLK2)**

Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	40.6		"	48.0		84.6	50-150			
Surrogate: 4-BFB (PID)	47.0		"	48.0		97.9	50-150			

**LCS (9L14024-BS1)**

Gasoline Range Hydrocarbons	449	50.0	ug/l	500		89.8	70-130			
Surrogate: 4-BFB (FID)	43.2		"	48.0		90.0	50-150			

**Duplicate (9L14024-DUP1)**

Source: B9L0231-07

Gasoline Range Hydrocarbons	8140	250	ug/l		7090			13.8	25	
Surrogate: 4-BFB (FID)	51.7		"	48.0		108	50-150			

**Duplicate (9L14024-DUP2)**

Source: B9L0231-03

Gasoline Range Hydrocarbons	43600	10000	ug/l		41600			4.69	25	
Surrogate: 4-BFB (FID)	42.9		"	48.0		89.4	50-150			

North Creek Analytical - Bothell

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ERI 1921 Edmonds Drive SE Renton WA, 98055	Project: TOSCO #5353 Project Number: 31020 Project Manager: John Meyer	Reported: 12/20/99 08:36
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**soline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B - Quality Cont  
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9L14024: Prepared 12/14/99 Using EPA 5030B (P/T)

**Matrix Spike (9L14024-MS1)**

Source: B9L0230-01

Benzene	9.85	0.500	ug/l	10.0	0.292	95.6	70-130			
Toluene	9.72	0.500	"	10.0	0.160	95.6	70-130			
Ethylbenzene	10.0	0.500	"	10.0	ND	100	70-130			
Xylenes (total)	29.8	1.00	"	30.0	ND	99.3	70-130			
Surrogate: 4-BFB (PID)	48.2		"	48.0		100	50-150			

**Matrix Spike Dup (9L14024-MSD1)**

Source: B9L0230-01

Benzene	9.79	0.500	ug/l	10.0	0.292	95.0	70-130	0.611	15	
Toluene	9.58	0.500	"	10.0	0.160	94.2	70-130	1.45	15	
Ethylbenzene	9.87	0.500	"	10.0	ND	98.7	70-130	1.31	15	
Xylenes (total)	29.3	1.00	"	30.0	ND	97.7	70-130	1.69	15	
Surrogate: 4-BFB (PID)	47.2		"	48.0		98.3	50-150			

North Creek Analytical - Bothell

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ERI Project: TOSCO #5353  
 1921 Edmonds Drive SE Project Number: 31020  
 Renton WA, 98055 Project Manager: John Meyer  
 Reported: 12/20/99 08:36

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by NWTPH-G and EPA 8021B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 9L14024: Prepared 12/14/99 Using EPA 5030B (P/T)

**Blank (9L14024-BLK1)**

Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Methyl tert-butyl ether	ND	5.00	"							
Surrogate: 4-BFB (FID)	40.1		"	48.0		83.5	50-150			
Surrogate: 4-BFB (PID)	47.6		"	48.0		99.2	50-150			

**Blank (9L14024-BLK2)**

Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Methyl tert-butyl ether	ND	5.00	"							
Surrogate: 4-BFB (FID)	40.6		"	48.0		84.6	50-150			
Surrogate: 4-BFB (PID)	47.0		"	48.0		97.9	50-150			

**LCS (9L14024-BS1)**

Gasoline Range Hydrocarbons	449	50.0	ug/l	500		89.8	70-130			
Surrogate: 4-BFB (FID)	43.2		"	48.0		90.0	50-150			

**Duplicate (9L14024-DUP1)**

Source: B9L0231-07

Gasoline Range Hydrocarbons	8140	250	ug/l		7090			13.8	25	
Surrogate: 4-BFB (FID)	51.7		"	48.0		108	50-150			

**Duplicate (9L14024-DUP2)**

Source: B9L0231-03

Gasoline Range Hydrocarbons	43600	10000	ug/l		41600			4.69	25	
Surrogate: 4-BFB (FID)	42.9		"	48.0		89.4	50-150			

North Creek Analytical - Bothell

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ERI 1921 Edmonds Drive SE Renton WA, 98055	Project: TOSCO #5353 Project Number: 31020 Project Manager: John Meyer	Reported: 12/20/99 08:36
--------------------------------------------------	------------------------------------------------------------------------------	-----------------------------

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by NWTPH-G and EPA 8021B - Quality Control  
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 9L14024: Prepared 12/14/99 Using EPA 5030B (P/T)**

Matrix Spike (9L14024-MS1)				Source: B9L0230-01						
Benzene	9.85	0.500	ug/l	10.0	0.292	95.6	70-130			
Toluene	9.72	0.500	"	10.0	0.160	95.6	70-130			
Ethylbenzene	10.0	0.500	"	10.0	ND	100	70-130			
Xylenes (total)	29.8	1.00	"	30.0	ND	99.3	70-130			
Methyl tert-butyl ether	11.0	5.00	"	10.0	ND	110	70-130			
<i>Surrogate: 4-BFB (PID)</i>	<i>48.2</i>		<i>"</i>	<i>48.0</i>		<i>100</i>	<i>50-150</i>			

Matrix Spike Dup (9L14024-MSD1)				Source: B9L0230-01						
Benzene	9.79	0.500	ug/l	10.0	0.292	95.0	70-130	0.611	15	
Toluene	9.58	0.500	"	10.0	0.160	94.2	70-130	1.45	15	
Ethylbenzene	9.87	0.500	"	10.0	ND	98.7	70-130	1.31	15	
Xylenes (total)	29.3	1.00	"	30.0	ND	97.7	70-130	1.69	15	
Methyl tert-butyl ether	10.0	5.00	"	10.0	ND	100	70-130	9.52	15	
<i>Surrogate: 4-BFB (PID)</i>	<i>47.2</i>		<i>"</i>	<i>48.0</i>		<i>98.3</i>	<i>50-150</i>			

North Creek Analytical - Bothell

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ERI 1921 Edmonds Drive SE Renton WA, 98055	Project: TOSCO #5353 Project Number: 31020 Project Manager: John Meyer	Reported: 12/20/99 08:36
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**Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9L14003: Prepared 12/14/99 Using EPA 3520C/600 Series</b>										
<b>Blank (9L14003-BLK1)</b>										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Heavy Oil Range Hydrocarbons	ND	0.750	"							
<i>Surrogate: 2-FBP</i>	0.266		"	0.320		83.1	50-150			
<b>LCS (9L14003-BS1)</b>										
Diesel Range Hydrocarbons	1.40	0.250	mg/l	2.00		70.0	60-140			
<i>Surrogate: 2-FBP</i>	0.211		"	0.320		65.9	50-150			
<b>Source: B9L0230-01</b>										
<b>Duplicate (9L14003-DUP1)</b>										
Diesel Range Hydrocarbons	ND	0.467	mg/l		0.172			2.87	44	
Heavy Oil Range Hydrocarbons	ND	1.40	"		ND				44	
<i>Surrogate: 2-FBP</i>	0.505		"	0.598		84.4	50-150			
<b>Source: B9L0230-02</b>										
<b>Duplicate (9L14003-DUP2)</b>										
Diesel Range Hydrocarbons	2.85	0.496	mg/l		2.50			13.1	44	
Heavy Oil Range Hydrocarbons	ND	1.49	"		0.340			11.1	44	
<i>Surrogate: 2-FBP</i>	0.636		"	0.635		100	50-150			

North Creek Analytical - Bothell

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ERI 1921 Edmonds Drive SE Renton WA, 98055	Project: TOSCO #5353 Project Number: 31020 Project Manager: John Meyer	Reported: 12/20/99 08:36
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**Notes and Definitions**

- 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
- RPD Relative Percent Difference

North Creek Analytical - Bothell

Steve Davis, Project Manager

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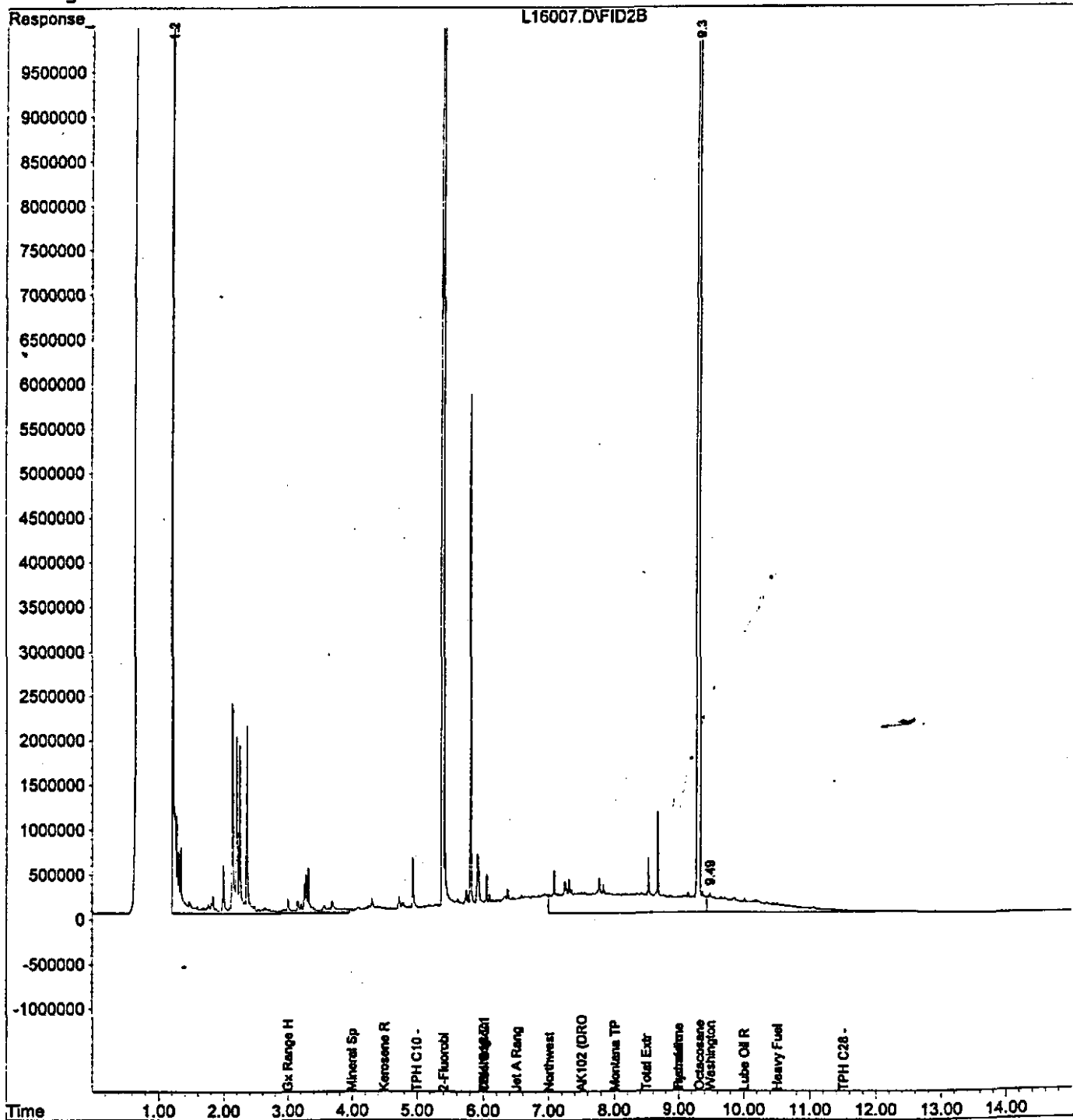
Data File : C:\HPCHEM\4\DATA.SEC\L16007.D  
Acq On : 12-16-99 10:52:39 AM  
Sample : b910230-05  
Misc : w r1  
IntFile : SURR.E  
Quant Time: Dec 16 12:19 1999

Vial: 4  
Operator: jw  
Inst : GC #7  
Multiplr: 1.00

Quant Results File: TPHD2.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD2.M (Chemstation Integrator)  
Title : TPH-D Rear Method  
Last Update : Mon Nov 15 10:22:08 1999  
Response via : Multiple Level Calibration  
DataAcq Meth : TPHD.M

Volume Inj. :  
Signal Phase :  
Signal Info :



# TOSCO CHAIN OF CUSTODY REPORT 09L0230

**TOSCO INFORMATION**

Facility Number: 5353

Site Address: 600 Westlake Ave N.

City, State, ZIP: Seattle, WA

Site Release Number: 9953532511-200,491,030,01000,455353

Tosco Manager: Tom Johnson

CERT INFO: (check one)  Evaluation  Remediation  Demolition  Closure  Miscellaneous

**CONSULTANT INFORMATION**

Firm: EAT Project# 31020

Address: 1921 Edmunds Dr SE  
Renton, WA 98058

Phone: 425-227-0200 Fax: 4-0225

Project Manager: John Meyer

Sample Collection by: Chris Carter

Chain of Custody Record #:

Quality Assurance Data Level:  A  B

A: Standard Summary

B: Standard + Chromatograms

Laboratory Turnaround Days:  10  5  3  2  1

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CON-TAINERS
1. <u>SMW-3</u>	<u>12/8/99</u>	<u>W</u>	<u>3</u>
2. <u>MW-34</u>			<u>3</u>
3. <u>MW-36</u>			<u>5</u>
4. <u>MW-43</u>			<u>5</u>
5. <u>MW-44</u>			<u>3</u>
6.			
7.			
8.			
9.			
10.			

TPH-HCID	TPH-Gas	BTEX	EPA 8021 Mod.	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-Diesel-Ext. w/SG Cleanup	Halogen Volatiles EPA 8021	Pesticides/PCBs or PCBs Only	GCMs Volatiles EPA 8260	GCMs Semi-Vols. EPA 8270	PAH's: 8270 SIM or 8310	Lead: 8270 SIM or 8310	Total or Dissolved TCLP or RCRA	Metals (8)	
				X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X
				X	X	X	X	X	X	X	X	X	X	X	X	X

Confirm PCBs

NCA SAMPLE NUMBER

09L0230-01

-02

-03

-64

-05

Relinquished by: EAT Firm: EAT Date & Time: 12/8/99

Received by: Chris Carter Firm: NCA Date & Time: 12-10-99 16:00

1. SMW-3

2. MW-34

3. MW-36

4. MW-43

5. MW-44

Comments: Will call in other tests on MW-36 + MW-34

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Rev. TOS 3.5/98

**Final Report Approval**

Were all requested results provided?  yes  no Define

Were results within requested turnaround?  yes  no "No" on back

Final Approval Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Firm: NCA

S.O.C. W

GROUNDWATER SAMPLING - FIELD LOG

Client Name: Toxo ERI Job No. 31020 Date: 12/03/99 Page 1 of 1  
 Location: 5353 Westlake Field Cleaning Performed: Analysis:

\* Case Volume =  $(d_{\text{casing}} - d_{\text{well}}) \times L \times F$  where F =  
 0.163 for a 2" inside diameter well casing  
 0.652 for a 4" inside diameter well casing  
 1.467 for a 6" inside diameter well casing

Well No.	Time	Depth Water (ft.)	Depth Well (ft.)	Case Dia. (in)	Case Vol. gal	Purge Vol. (gal)	Conduct. $\mu S/CH$ (X1000)	Temp. Deg F	pH	TURB. NTU	PID PPH	Comments
37		11.11										
43		11.06										Prapod Sock Ecology Sample
42		8.00										
44		8.52										
36		10.05										Ecology Sample
3		8.75										
33		10.97										
35												Car over well
32A		11.07										
34		11.33										
4												not accessible (behind fence)

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