

DATE: April 6, 1998

TOSCO MARKETING COMPANY QUARTERLY REPORT

Tosco Facility: 4165 Address: 202 Avenue D, Snohomish, Washington
 Tosco Environmental Manager: Timothy D. Johnson
 Consulting Co./Contact Person: Environmental Resolutions, Inc., John Meyer
 ERI Project No.: 03101813
 Primary Agency/Regulatory ID No.: Washington State Department of Ecology UST

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WORK PERFORMED THIS QUARTER(S) [First - 1998]:

1. First quarter groundwater monitoring, sampling, and report.

WORK PROPOSED FOR NEXT QUARTER [Second - 1998]:

1. Second quarter groundwater monitoring and sampling.

Current Phase of Project:	<u>Quarterly Groundwater Sampling</u>	(Assmnt, Remed., etc.)
Frequency of Sampling:	<u>Quarterly</u>	(Quarterly, etc.)
Frequency of Monitoring:	<u>Quarterly</u>	(Monthly, etc.)
Are Liquid Phase Hydrocarbons Present On-site:	<u>No</u>	(Yes/No)
Cumulative LPH Recovered to Date:	<u>Unknown</u>	(gallons)
LPH Recovered This Quarter:	<u>None</u>	(gallons)
Bulk Soil Removed to Date:	<u>Unknown</u>	(cubic yards)
Bulk Soil Removed This Quarter:	<u>None</u>	(cubic yards)
Water Wells or Surface Waters w/in a 2000'		
Radius & Their Respective Directions:	<u>Snohomish River ~ 0.25 mi south</u>	(Distance and Direction)
Current Remediation Techniques:	<u>None</u>	(SVES, LPH Removal,
Permits for Discharge:	<u>None</u>	(NPDES, POTW, etc.)
Approximate Depth to Groundwater:	<u>4 to 10 feet</u>	(Measured Feet)
Groundwater Gradient:	<u>South</u>	(Direction)
	<u>0.05 vertical feet per linear foot</u>	(Magnitude)

Discussion: On March 11, 1998, Environmental Resolutions, Inc., (ERI) gauged 10 and purged and sampled 7 groundwater monitoring wells. Monitoring well MW-12 contained trace amounts of LPH and was sampled without purging. Results indicated groundwater present approximately 4 to 10 feet bgs with a gradient generally directed toward the south.

The groundwater samples collected from MW-1, MW-2, MW-6, MW-8, MW-10, MW-11, and MW-12 contained total petroleum hydrocarbon concentrations (TPH-G, TPH-D, and TPH-O) exceeding the MTCA Method A Cleanup Level. Samples collected from MW-6 and MW-8 contained benzene concentrations exceeding the MTCA Method A Cleanup Level. The samples collected from MW-6 and MW-12 also contained concentrations of ethylbenzene and total xylenes exceeding MTCA Method A Cleanup Levels. Remaining analyte concentrations were below MTCA Method A Cleanup Levels.

Summary of Unusual Activity: None
 Agency Directive Requirements: None
 Recommended Activities: Continue quarterly groundwater sampling

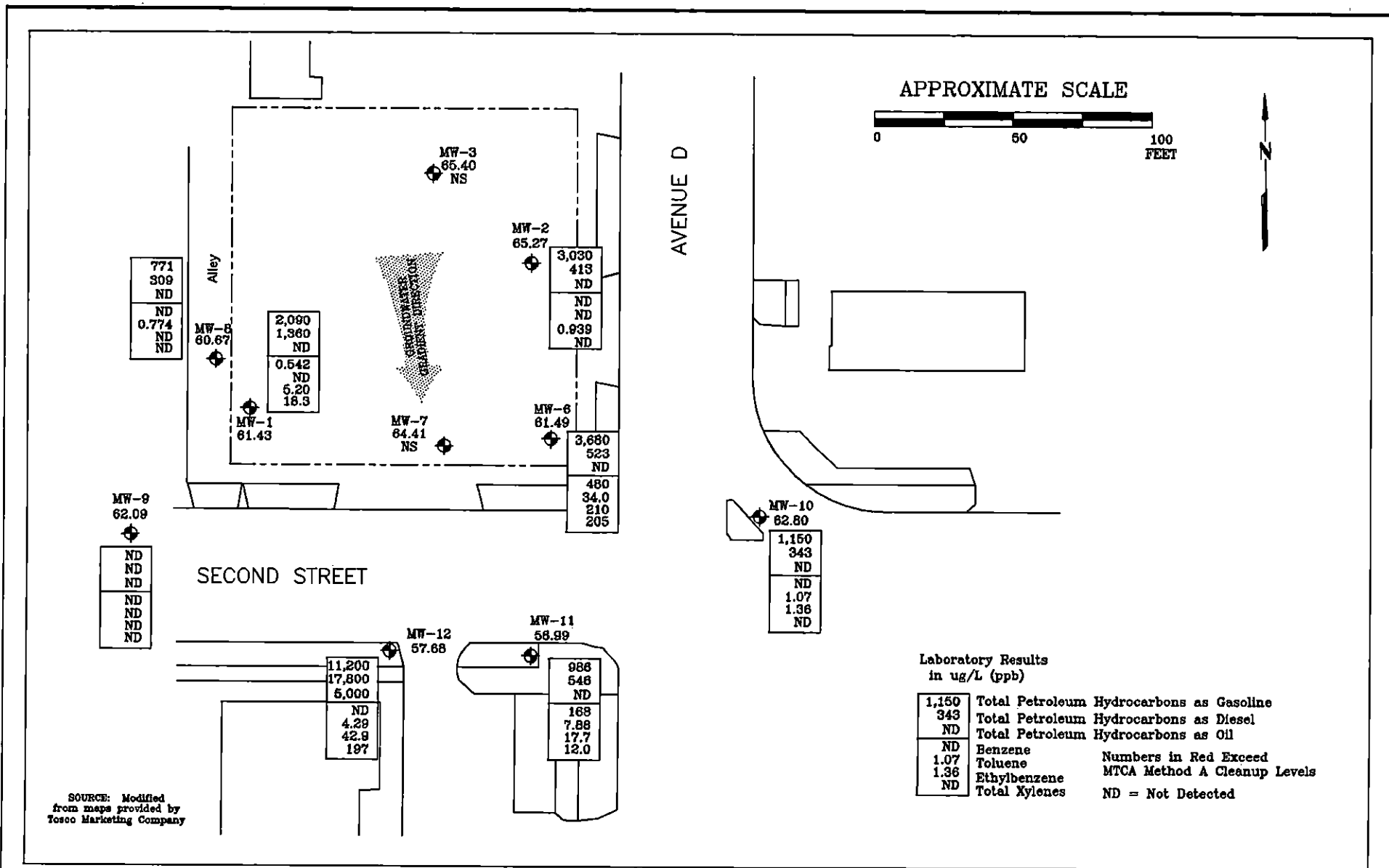
ATTACHED:

- Plate P-1 - Groundwater Sample Analyses Map, 3/11/98
- Table 1 - Groundwater Analytical Results
- Laboratory Reports and Chain-of-Custody Documentation

Prepared by:

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

cc: Brian Sato, Washington State Department of Ecology
 Mick Monken, City of Snohomish
 Lisa Bona, GeoEngineers



FN 4165

GROUNDWATER SAMPLE ANALYSES MAP - 3/11/98

TOSCO FACILITY 4165
202 Avenue D
Snohomish, Washington

EXPLANATION

- ◆ MW-3 Groundwater Monitoring Well
- 65.40 Groundwater Elevation
- NS Not Sampled

PROJECT NO.

31018

PLATE
P-1

DATE: 4/6/98



TABLE 1
GROUNDWATER ANALYTICAL RESULTS
Tosco Facility 4165
202 Avenue D
Snohomish, Washington
Page 1 of 2

Well Name	Sample Date	DTW	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
MW-1 98.11	01/23/95	7.16	90.95	26,000	2,400	<750	32	110	370	2,400
	01/23/95	--	--	27,000	--	--	36	120	390	2,700
	04/20/95	7.56	90.55	40,000	1,500	<750	100	390	750	4,900
	04/20/95	--	--	40,000	--	--	100	420	780	5,200
	07/21/95	10.15	87.96	7,300	1,000	<1,000	6.5	17	80	310
	07/21/95	--	--	8,100	--	--	6.9	19	81	320
	10/18/95	9.17	88.94	30,000	2,500	<750	17	24	260	1,500
	10/18/95	--	--	29,000	--	--	17	17	280	1,600
	01/24/96	5.51	95.47	36,000	2,800	1,700	66	99	540	3,800
	01/24/96	--	--	36,000	--	--	62	84	620	3,700
	04/24/96	7.78	90.73	19,000	1,500	<750	<2.0	<2.0	25	140
	04/24/96	--	--	16,000	--	--	16	4.1	22	130
	07/23/96	9.77	58.89	7,950	648	<750	9.35	61.9	32.1	94.3
	07/23/96	--	--	7,430	--	--	<2.50	<2.50	24.7	72.3
68.26	10/15/96	10.52	58.14	1,750	321	<750	<0.500	1.89	4.91	10.1
	10/15/96	--	--	1,730	--	--	<0.500	1.86	5.01	10.2
	03/17/97 ^{NP}	6.61	62.05	8,600	984	<785	<0.500	3.60	3.25	8.37
	03/17/97	--	--	13,600	2,070	1,030	13.2	8.11	10.3	25.3
	06/04/97	8.40	60.26	16,500	895	<750	18.1	14.7	25.5	106
	09/12/97	10.70	57.96	315	353	<750	12.7	2.76	2.64	9.20
	12/16/97*	--	--	4,640	3,210	3,780	<1.25	<6.25	3.96	10.8
	3/11/98	6.83	61.43	2,090	1,360	<750	0.542	<0.500	5.20	18.3
MW-2	01/23/95	4.67	94.72	9,800	810	<750	4.8	5.0	8.8	16
	04/20/95	5.20	94.19	5,700	1,100	<750	4.5	4.1	4.5	7.0
	07/21/95	8.30	91.09	7,000	1,700	<1,000	2.8	2.4	3.9	7.2
	10/18/95	6.00	93.39	6,400	1,000	750	<2.0	2.7	7.0	11
	01/24/96	3.92	95.75	5,600	680	<750	1.9	<0.5	3.5	6.2
	04/24/96	5.30	94.70	6,300	530	<750	1.6	2.9	4.4	7.1
	07/23/96	8.24	61.97	3,710	468	<750	<2.50	2.61	2.92	<5.00
	10/15/96	8.65	61.56	4,100	427	<750	<1.00	2.57	2.56	4.47
	03/17/97 ^{NP}	4.19	86.02	2,730	359	<750	<2.50	<2.50	<2.50	<5.00
	03/17/97	--	--	3,260	677	<750	<2.50	3.13	2.61	<5.00
	06/04/97	6.20	64.01	2,970	<250	<750	33.7	2.77	2.71	5.07
	09/12/97	8.92	61.29	1,850	335	<750	50.3	4.24	3.37	4.83
	12/16/97	5.52	64.28	1,840	343	<750	29.4	2.59	1.80	3.52
	3/11/98	4.53	65.27	3,030	413	<750	<0.500	<0.500	0.939	<1.00
MW-3	01/23/95	4.61	95.26	<50	<250	<750	<0.5	<0.5	<0.5	<0.5
	04/20/95	5.15	94.72	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	07/21/95	8.72	91.15	<50	<250	<1,000	<0.5	<0.5	<0.5	<1.0
	10/18/95	6.36	93.51	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	01/24/96	4.12	95.75	<50	<250	<750	<0.5	<0.5	<0.5	<1.0
	04/24/96	5.34	95.04	--	--	--	--	--	--	--
	07/23/96	8.81	61.95	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	10/15/96	9.14	61.62	--	--	--	--	--	--	--
	03/17/97	4.46	66.30	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	06/04/97	--	--	--	--	--	--	--	--	--
	09/12/97	9.41	61.35	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	12/16/97	5.95	64.30	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	3/11/98	4.85	65.40	--	--	--	--	--	--	--
	03/17/97 ^{NP}	--	--	4,710	595	<750	94.1	102	218	142
MW-6 67.74	03/17/97	6.86	61.30	2,700	661	<750	1,100	37.5	170	105
	06/04/97	6.94	61.22	3,920	<250	<750	201	37.8	141	166
	09/12/97	9.05	59.11	674	<250	<750	756	3.98	6.57	12.7
	12/16/97	6.51	61.23	2,260	343	<750	111	32.3	113	137
	3/11/98	6.25	61.49	3,680	523	<750	480	34.0	210	205
	03/17/97	2.30	65.95	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
MW-7 67.86	06/04/97	5.68	62.57	<50.0	1,430	<750	<0.500	<0.500	<0.500	<1.00
	09/12/97	9.22	59.03	--	--	--	--	--	--	--
	12/16/97	4.79	63.07	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	3/11/98	3.45	64.41	--	--	--	--	--	--	--

TABLE 1
GROUNDWATER ANALYTICAL RESULTS
Tosco Facility 4165
202 Avenue D
Snohomish, Washington
Page 2 of 2

Well Name	Sample Date	DTW	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X
MW-8 67.52	03/17/97	6.48	61.45	<50	<250	<750	<0.500	<0.500	<0.500	<1.00
	06/04/97	8.46	59.47	1,060	<250	<750	8.87	4.77	1.79	31.6
	09/12/97	10.74	57.19	1,330	1,360	914	12.2	5.74	2.66	7.89
	12/16/97	7.92	59.60	874	476	<750	8.90	<4.00	<4.00	<8.00
	3/11/98	6.85	60.67	771	309	<750	<0.500	0.774	<0.500	<1.00
MW-9 68.66	03/17/97	6.89	62.21	6,770	4,850	1,140	<2.50	15.7	9.38	12.3
	06/04/97	7.94	61.16	<50	887	<750	<0.500	<0.500	<0.500	<1.00
	09/12/97	9.84	59.26	<50	<250	<750	<0.500	<0.500	<0.500	<1.00
	12/16/97	7.38	61.28	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
	3/11/98	6.57	62.09	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00
MW-10 67.33	03/17/97	6.47	61.31	4,180	14,300	1,040	10.6	<10.0	124	<20.0
	03/17/97 ^{NP}	--	--	4,660	6,940	<750	9.94	8.36	56.8	9.77
	06/04/97	5.46	62.32	3,620	<250	<750	13.1	7.70	66.4	13.6
	09/12/97	7.49	60.29	4,280	660	<750	21.6	13.4	10.7	41.6
	12/16/97*	4.85	62.48	929	387	<750	<2.00	<2.00	<2.00	<4.00
	3/11/98	4.53	62.80	1,150	343	<750	<0.500	1.07	1.36	<1.00
MW-11 66.37	03/17/97 ^{NP}	--	--	924	<250	<750	246	17.5	37.1	30.1
	03/17/97	9.58	57.33	798	<250	<750	241	16.0	34.4	25.7
	06/04/97	10.05	56.86	1,030	<250	<750	241	11.2	29.6	26.3
	09/12/97	11.01	55.90	1,200	<250	<750	38.4	1.27	2.34	7.12
	12/16/97*	9.59	56.78	512	272	<750	64.2	2.37	4.14	6.31
	3/11/98	9.38	56.99	986	646	<750	168	7.88	17.7	12.0
MW-12 66.40	03/17/97	9.01	58.05	2,080	1,700	<750	9.27	3.53	12.0	13.4
	06/04/97	9.68	57.38	2,840	726	<750	11.4	4.16	32.2	33.6
	09/12/97	10.91	56.15	2,740	762	<750	16.7	2.75	16.7	19.5
	12/16/97	8.09	58.31	0.01 Feet LPH - No sample collected						
	3/11/98 ^{NP}	8.72	57.68	11,200	17,800	6,000	<2.50	4.29	42.9	197
MTCA Method A Cleanup Level				1,000 ^d			5	40	30	20

EXPLANATION:

All concentrations in ug/L (ppb).

Wellhead elevations taken from prior consultant's reports. Elevations recalculated 4/29/98.

DTW = Depth to water in feet below top of casing. Measurements taken from ground surface between 4/24/98 and 9/12/97.

GW Elev. = Groundwater elevation relative to top of casing elevations; corrected for free product where applicable using a specific gravity of 0.75.

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

TPH-D and TPH-O = Total Petroleum Hydrocarbons as Diesel and Oil, respectively, by Ecology Method WTPH-D (extended).

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

BTEX = Aromatic compounds by EPA Method 8020.

LPH = Liquid-phase petroleum hydrocarbons present; no sample collected.

-- = No Data.

< = Less than the stated laboratory reporting limit.

^{NP} = Sample collected without purging.

* = Well resampled on 12/23/97 due to laboratory breakage.

^d Total Petroleum Hydrocarbons.

Shaded values equal or exceed MTCA Method A Cleanup Levels.

Data collected before 12/16/97 are taken from prior consultants.



NORTH CREEK ANALYTICAL

Environmental Laboratory Services

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

ERI
1921 Edmonds Drive SE
Renton, WA 98055

Project: TOSCO #4165, Snohomish
Project Number: 31018
Project Manager: John Meyer

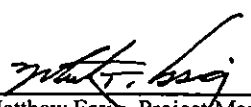
Sampled: 3/11/98
Received: 3/10/98
Reported: 3/25/98 09:32

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-1	B803219-01	Water	3/11/98
MW-2	B803219-02	Water	3/11/98
MW-6	B803219-03	Water	3/11/98
MW-8	B803219-04	Water	3/11/98
MW-9	B803219-05	Water	3/11/98
MW-10	B803219-06	Water	3/11/98
MW-11	B803219-07	Water	3/11/98
MW-12	B803219-08	Water	3/11/98

North Creek Analytical, Inc.

*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.*


Matthew Essig, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

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

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>MW-1</u>				<u>B803219-01</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	1.36	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		88.9	%	
<u>MW-2</u>				<u>B803219-02</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	0.413	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		88.4	%	
<u>MW-6</u>				<u>B803219-03</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	0.523	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		90.4	%	
<u>MW-8</u>				<u>B803219-04</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	0.309	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		101	%	
<u>MW-9</u>				<u>B803219-05</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		95.7	%	
<u>MW-10</u>				<u>B803219-06</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	0.343	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		93.4	%	
<u>MW-11</u>				<u>B803219-07</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/12/98		0.250	0.546	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	50.0-150		94.7	%	
<u>MW-12</u>				<u>B803219-08</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0380284	3/11/98	3/13/98		1.25	17.8	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		3.75	5.00	"	
Surrogate: Octacosane	"	"	"	50.0-150		108	%	1

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.


Matthew Essig, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132



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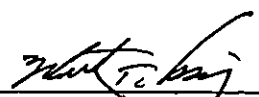
ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-1				B803219-01			Water	
Benzene	0380527	3/22/98	"		0.500	0.542	ug/l	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	5.20	"	
Xylenes (total)	"	"	"		1.00	18.3	"	
Gasoline Range Hydrocarbons	"	"	"		50.0	2090	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		94.4	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		100	"	
MW-2				B803219-02			Water	
Benzene	0380530	5/23/98	"		0.500	ND	ug/l	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	0.939	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Gasoline Range Hydrocarbons	"	"	"		50.0	3030	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		113	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		112	"	
MW-6				B803219-03			Water	
Benzene	0380493	3/20/98	3/20/98		5.00	480	ug/l	
Toluene	"	"	"		5.00	34.0	"	
Ethylbenzene	"	"	"		5.00	210	"	
Xylenes (total)	"	"	"		10.0	205	"	
Gasoline Range Hydrocarbons	"	"	"		500	3680	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		93.8	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		97.0	"	
MW-8				B803219-04			Water	
Benzene	0380493	3/20/98	3/20/98		0.500	ND	ug/l	
Toluene	"	"	"		0.500	0.774	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Gasoline Range Hydrocarbons	0380493	3/20/98	3/20/98		50.0	771	ug/l	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		86.0	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		98.2	"	

North Creek Analytical, Inc.

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East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132



NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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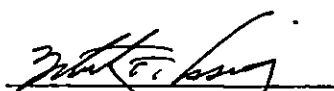
ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-9								
				B803219-05			Water	
Benzene	0380493	3/20/98	3/20/98		0.500	ND	ug/l	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Gasoline Range Hydrocarbons	"	"	"		50.0	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		85.0	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		95.6	"	
MW-10								
				B803219-06			Water	
Benzene	0380493	3/20/98	3/20/98		0.500	ND	ug/l	
Toluene	"	"	"		0.500	1.07	"	
Ethylbenzene	"	"	"		0.500	1.36	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Gasoline Range Hydrocarbons	"	"	"		50.0	1150	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		84.4	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		103	"	
MW-11								
				B803219-07			Water	
Benzene	0380527	3/22/98	3/22/98		1.00	158	ug/l	
Toluene	"	"	"		1.00	7.88	"	
Ethylbenzene	"	"	"		1.00	17.7	"	
Xylenes (total)	"	"	"		2.00	12.0	"	
Gasoline Range Hydrocarbons	"	"	"		100	986	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		92.0	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		98.8	"	
MW-12								
				B803219-08			Water	
Benzene	0380530	5/23/98	3/23/98		2.50	ND	ug/l	
Toluene	"	"	"		2.50	4.29	"	
Ethylbenzene	"	"	"		2.50	42.9	"	
Xylenes (total)	"	"	"		5.00	197	"	
Gasoline Range Hydrocarbons	"	"	"		250	11200	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		142	%	

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ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>MW-12 (continued)</u>		<u>B803219-08</u>				<u>Water</u>		
Surrogate: 4-BFB (PID)	0380530	5/23/98	3/23/98	50.0-150		115	%	

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ERI
1921 Edmonds Drive SE
Renton, WA 98055

Project: TOSCO #4165, Snohomish
Project Number: 31018
Project Manager: John Meyer

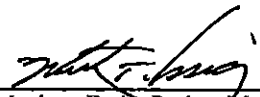
Sampled: 3/11/98
Received: 3/10/98
Reported: 3/25/98 09:32

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

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0380284										
Date Prepared: 3/11/98										
Extraction Method: EPA 3520C/600 Series										
Blank										
Diesel Range Hydrocarbons	3/12/98			ND	mg/l	0.250				
Heavy Oil Range Hydrocarbons	"			ND	"	0.750				
Surrogate: 2-FBP	"	0.320		0.280	"	50.0-150	87.5			
LCS										
0380284-BS1										
Diesel Range Hydrocarbons	3/12/98	2.00		1.84	mg/l	60.0-140	92.0			
Surrogate: 2-FBP	"	0.320		0.253	"	50.0-150	79.1			
Duplicate										
0380284-DUP1 B803221-03										
Diesel Range Hydrocarbons	3/12/98		0.493	0.303	mg/l			44.0	47.7	2
Surrogate: 2-FBP	"	0.605		0.535	"	50.0-150	88.4			
Duplicate										
0380284-DUP2 B803219-01										
Diesel Range Hydrocarbons	3/12/98		1.36	1.24	mg/l			44.0	9.23	
Surrogate: 2-FBP	"	0.605		0.618	"	50.0-150	102			

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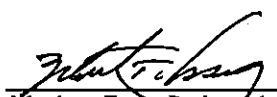
ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recovery Limits	Recovery %	RPD Limit	RPD %	Notes*
Batch: 0380493										
Blank										
Date Prepared: 3/20/98										
0380493-BLK1										
Extraction Method: EPA 5030										
Benzene	3/20/98			ND	ug/l	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Gasoline Range Hydrocarbons	"			ND	"	50.0				
Surrogate: 4-BFB (FID)	"	50.0		44.6	"	50.0-150	89.2			
Surrogate: 4-BFB (PID)	"	50.0		49.3	"	50.0-150	98.6			
LCS										
0380493-BS1										
Gasoline Range Hydrocarbons	3/20/98	1250		1160	ug/l	50.0-150	92.8			
Surrogate: 4-BFB (FID)	"	50.0		55.7	"	50.0-150	111			
LCS										
0380493-BS2										
Benzene	3/20/98	20.0		21.7	ug/l	67.0-130	109			
Toluene	"	20.0		21.8	"	75.0-126	109			
Ethylbenzene	"	20.0		22.1	"	76.0-124	111			
Xylenes (total)	"	60.0		66.0	"	75.0-126	110			
Surrogate: 4-BFB (PID)	"	50.0		52.4	"	50.0-150	105			
Duplicate										
0380493-DUP1 B803219-01										
Gasoline Range Hydrocarbons	3/20/98		10500	11800	ug/l			50.0	11.7	
Surrogate: 4-BFB (FID)	"	50.0		49.6	"	50.0-150	99.2			
Duplicate										
0380493-DUP2 B803219-03										
Gasoline Range Hydrocarbons	3/20/98		3680	3720	ug/l			50.0	1.08	
Surrogate: 4-BFB (FID)	"	50.0		47.8	"	50.0-150	95.6			
Matrix Spike										
0380493-MS1 B803219-02										
Benzene	3/20/98	20.0	ND	13.5	ug/l	67.0-130	67.5			
Toluene	"	20.0	ND	12.1	"	75.0-126	60.5			3
Ethylbenzene	"	20.0	0.936	14.3	"	76.0-124	66.8			3
Xylenes (total)	"	60.0	ND	42.3	"	75.0-126	70.5			3
Surrogate: 4-BFB (PID)	"	50.0		47.3	"	50.0-150	94.6			
Matrix Spike Dup										
0380493-MSD1 B803219-02										
Benzene	3/20/98	20.0	ND	14.6	ug/l	67.0-130	73.0	13.0	7.83	
Toluene	"	20.0	ND	13.2	"	75.0-126	66.0	13.0	8.70	3

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East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132



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ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)										
	0380493-MSD1	B803219-02								
Ethylbenzene	3/20/98	20.0	0.936	15.6	ug/l	76.0-124	73.3	15.0	9.28	3
Xylenes (total)	"	60.0	ND	45.9	"	75.0-126	76.5	13.0	8.16	
Surrogate: 4-BFB (PID)	"	50.0		48.1	"	50.0-150	96.2			
Batch: 0380527										
Date Prepared: 3/22/98										
Extraction Method: EPA 5030										
Blank										
0380527-BLK1										
Benzene	3/22/98			ND	ug/l	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Gasoline Range Hydrocarbons	"			ND	"	50.0				
Surrogate: 4-BFB (FID)	"	50.0		49.5	"	50.0-150	99.0			
Surrogate: 4-BFB (PID)	"	50.0		48.1	"	50.0-150	96.2			
LCS										
0380527-BS1										
Gasoline Range Hydrocarbons	3/22/98	1250		1190	ug/l	50.0-150	95.2			
Surrogate: 4-BFB (FID)	"	50.0		46.6	"	50.0-150	93.2			
LCS										
0380527-BS2										
Benzene	3/22/98	20.0		18.6	ug/l	67.0-130	93.0			
Toluene	"	20.0		18.4	"	75.0-126	92.0			
Ethylbenzene	"	20.0		19.0	"	76.0-124	95.0			
Xylenes (total)	"	60.0		57.7	"	75.0-126	96.2			
Surrogate: 4-BFB (PID)	"	50.0		49.1	"	50.0-150	98.2			
Batch: 0380530										
Date Prepared: 5/23/98										
Extraction Method: EPA 5030										
Blank										
0380530-BLK1										
Benzene	3/23/98			ND	ug/l	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Gasoline Range Hydrocarbons	"			ND	"	50.0				
Surrogate: 4-BFB (FID)	"	50.0		46.2	"	50.0-150	92.4			
Surrogate: 4-BFB (PID)	"	50.0		49.8	"	50.0-150	99.6			
LCS										
0380530-BS1										
Gasoline Range Hydrocarbons	3/23/98	1250		1320	ug/l	50.0-150	106			
Surrogate: 4-BFB (FID)	"	50.0		44.5	"	50.0-150	89.0			

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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS	0380530-BS2									
Benzene	3/23/98	20.0		20.6	ug/l	67.0-130	103			
Toluene	"	20.0		20.5	"	75.0-126	103			
Ethylbenzene	"	20.0		20.9	"	76.0-124	104			
Xylenes (total)	"	60.0		63.0	"	75.0-126	105			
Surrogate: 4-BFB (PID)	"	50.0		53.4	"	50.0-150	107			



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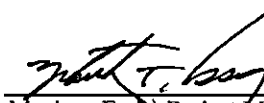
ERI	Project: TOSCO #4165, Snohomish	Sampled: 3/11/98
1921 Edmonds Drive SE	Project Number: 31018	Received: 3/10/98
Renton, WA 98055	Project Manager: John Meyer	Reported: 3/25/98 09:32

Notes and Definitions

#	Note
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- 1 Due to interference from coeluting organic compounds with the primary surrogate, results of the secondary surrogate have been used to control the analysis.
 - 2 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
 - 3 The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
- 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

North Creek Analytical, Inc.


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Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # **B803219**

REPORT TO: ER1			INVOICE TO: Tono			TURNAROUND REQUEST in Business Days * ☒ 10 Standard ☐ 7 ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ Same Day ☐ 5 Standard ☐ 3-4 ☐ 2 ☐ 1 ☐ Same Day OTHER Specify: _____ * Turnaround Requests less than standard may incur Rush Charges.												
ATTENTION: John Meyer			ATTENTION:															
ADDRESS: 1921 Edmond Dr SE Renton, WA 98055			ADDRESS:															
PHONE: (425) 227-0280 FAX: X 0225			P.O. NUMBER: NCA QUOTE #:															
PROJECT NAME: Tono 4105 Snodgrass			TPA-6/BTE TPA-D (ext)															
PROJECT NUMBER: 31018						Analysis Request:												
SAMPLED BY: Meyer																		
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)											MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS			
1. MW-1	3/11/98 }	B803219-01	X	X														
2. MW-2		02	X	X														
3. MW-6		03	X	X														
4. MW-8		04	X	X														
5. MW-9		05	X	X														
6. MW-10		06	X	X														
7. MW-11		07	X	X														
8. MW-12		08	X	X														
9.																		
10.																		
RELINQUISHED BY (Signature): [Signature]			DATE: 3/11/98		RECEIVED BY (Signature): [Signature]			DATE: 3/10/98										
PRINT NAME: John Meyer			FIRM: ER1		PRINT NAME: Lisa Hudley			FIRM: NCA		TIME: 1400								
RELINQUISHED BY (Signature):			DATE:		RECEIVED BY (Signature):			DATE:										
PRINT NAME:			FIRM:		PRINT NAME:			FIRM:		TIME:								
ADDITIONAL REMARKS:															133 w/0		PAGE	OF