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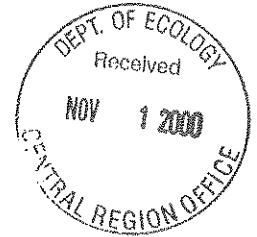


October 13, 2000

UST  
#4108



Mr. Scott Sloan  
Time Oil Company  
2737 West Commodore Way  
Seattle, Washington 98199-1233



Re: Operation & Maintenance Report  
July, August and September 2000  
Time Oil Co. Property No. 01-068  
107 West Lincoln Avenue  
Sunnyside, Washington

15-19046/006

Mr. Sloan:

Brown and Caldwell is pleased to present the Operation and Maintenance (O&M) results of the bioslurp remediation system operating at the above referenced site. The bioslurp remediation system was tested for operation on July 10, 2000 and began continuous operation on August 8, 2000. The most recent monitoring event occurred on September 27, 2000 and the next monitoring event is scheduled in October 2000.

## 1.0 SITE DESCRIPTION AND CONDITIONS

Time Oil Company Property No. 01-068 is located at 107 West Lincoln Avenue in Sunnyside, Washington (Figure 1 - Site Vicinity Map and Figure 2 - Site Map). Two underground storage tanks (USTs) and product dispensers are located in the northern portion of the property. A convenience store and associated paved parking occupy the remainder of the site. The ground surface at the site is paved with asphalt except in the UST area, which is covered with concrete.

Soils impacted by petroleum hydrocarbons were detected at the site in September 1996. Subsurface investigations completed in February, March and July of 1997 confirmed that soil and groundwater had been impacted at the site. Between February and March 1997, site assessment activities were performed, including a drivepoint assessment consisting of a total of 16 borings both on-site and off-site (in First Street located east of the site). Based on the drivepoint assessment results, eight monitoring wells (MW-1 through MW-8) were installed. Wells MW-1 through MW-5 were installed on site and MW-6 through MW-8 were installed on the east side of First Street. Based on the presence of Liquid Petroleum Hydrocarbons (LPH) encountered during the drivepoint assessment, monitoring wells MW-3, MW-4, and MW-5 were constructed as four-inch diameter wells. All other wells were constructed as two-inch wells.

In July and August 1998, additional site assessment activities were performed which included drilling several soil borings (B-1 through B-11) and installing four monitoring wells (MW-9 through MW-12) on the Washington Hills Cellars (WHC) property (located east of the subject site across First Street, see Figure 2, Site Map). Monitoring well MW-9 was constructed as a four-inch diameter well, and the remaining wells were constructed as two-inch diameter wells. On April 13 and 14, 1999 five additional two-inch monitoring wells were installed, MW-13, MW-14, and MW-15 located on the WHC property, and MW-16 and SW-1 located on the subject site. On May 1 and 2, 2000, two additional two-inch monitoring wells (MW-17 and MW-18) and four, four-inch recovery wells (RW-2 through RW-5) were installed on the WHC property. In addition, two four-inch recovery wells (RW-6 and RW-7) were installed in First Street and one four-inch recovery well (RW-1) was installed on the subject property.

## **2.0 REMEDIATION SYSTEM DESCRIPTION**

In May 2000 a bioslurp remedial system was installed at the site. The remediation system is located on the WHC property within a locked remediation shed and fenced enclosure. The bioslurp remedial system is designed to remove LPH, groundwater, and subsurface vapors from the extraction wells by direct vacuum from a liquid ring pump. Entrained liquid and air emanating from the remedial wells is separated at the air-water separator located within the remedial shed on the WHC property. Separated water and LPH is then pumped through an oil water separator where the LPH is removed and dispersed into an explosion proof holding tank located outside of the shed in the fenced compound. From the oil water separator, water is allowed to gravity feed into a batch tank for holding prior to being pumped into a tray air stripper. The air stripper is designed to remove volatiles from the groundwater by pulling air up through a column of water causing turbulence in which the volatile gasoline constituents are removed from the water. The treated groundwater is currently being pumped through granular activated carbon for additional treatment prior to discharge to the city sewer system.

Vapor generated from the LRP is combined with the vapor from the air stripper, merged into one stream with a "Y" connection and subsequently routed into a catalytic oxidizer for destruction. From the catalytic oxidizer, treated air is vented to ambient air through a 14 foot tall exhaust stack. Sampling ports are located on the exhaust stack for air sampling and monitoring.

## **3.0 SYSTEM MONITORING RESULTS**

The bioslurp remedial system began initial operation on July 10, 2000 for a six day trial operation and shakedown period. The system began continuous operation on August 8, 2000 and has operated for approximately 60.5 cumulative days since the initial startup. A system run-time log is provided in Table 1.

Brown and Caldwell has performed 10 site visits following the initial five day startup operation on July 23, 2000. During each site visit, the system was inspected and restarted if a shut down

had occurred. Pretreated air samples were collected on multiple occasions for the purpose of calculating pounds of hydrocarbons removed from subsurface soil and groundwater. Table 2 presents the sample dates and concentrations of pretreated air. Table 3 shows off-gas calculations for benzene and total petroleum hydrocarbons as gasoline (TPH-G) over time. Petroleum hydrocarbons emitted through the stack were measured during each site visit with a Photo Ionization Detector (PID) in parts per million (ppm). The most recent analytical results collected on September 27, 2000 indicate the average removal rate for benzene and TPH-G is currently 0.564 and 8.48 pounds per day, respectively. Analytical test certificates for the off-gas samples are presented in Attachment A.

Since the bioslurp remedial system has been in operation, the total removed amount of benzene and TPH has been calculated based on flow rate, laboratory analysis and total time the remedial system operation. An estimated 157.79 pounds of benzene and 1556.73 pounds or 252.31 gallons of petroleum hydrocarbons (based on the average weight of gasoline at 6.17 pounds/gallon) have been removed from the soil and groundwater in vapor form. Total quantities of benzene and TPH removed over time are presented in Table 3 and Figure 3. Analysis of Figure 3 shows improved performance along with increased concentrations of benzene and TPH-G since system startup.

#### **4.0 EQUIPMENT OPERATION AND MAINTENANCE**

During the last site visit conducted on September 27, 2000 all equipment was operating properly. H<sub>2</sub>Oil, under subcontract to Time Oil Company, performs monthly system maintenance on all remedial equipment. H<sub>2</sub>Oil monthly maintenance reports are submitted directly to Time Oil Company.

#### **5.0 SYSTEM EVALUATION**

The remedial system located at the subject site is operating at optimum conditions for removal of petroleum hydrocarbons from the soil. To date, the estimated vapor extraction removal rates are currently 8.48 pounds per day of TPH with approximately 1,557 pounds of hydrocarbons removed from the subsurface soil and groundwater to date.

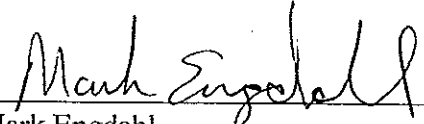
#### **6.0 CONCLUSIONS**

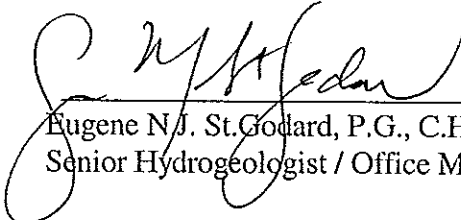
Petroleum hydrocarbons that have impacted soil and groundwater at the Valley View Market and WHC property are being removed by bioslurp remediation technologies. The bioslurp system began continuous operation at the site on August 8, 2000. Soil vapors extracted from the recovery wells are treated by a thermal oxidizer and discharged to the ambient air through an exhaust stack. Since the system began operating on July 10, 2000, twelve off-gas samples have been collected from the exhaust stack. Most recent analytical results, collected on September 27, 2000, indicate that the average removal rate for benzene and TPH is 0.5642 and 8.48 pounds per

day, respectively. An estimated 1,557 pounds of gasoline has been removed from the subsurface soil and groundwater as of October 4, 2000.

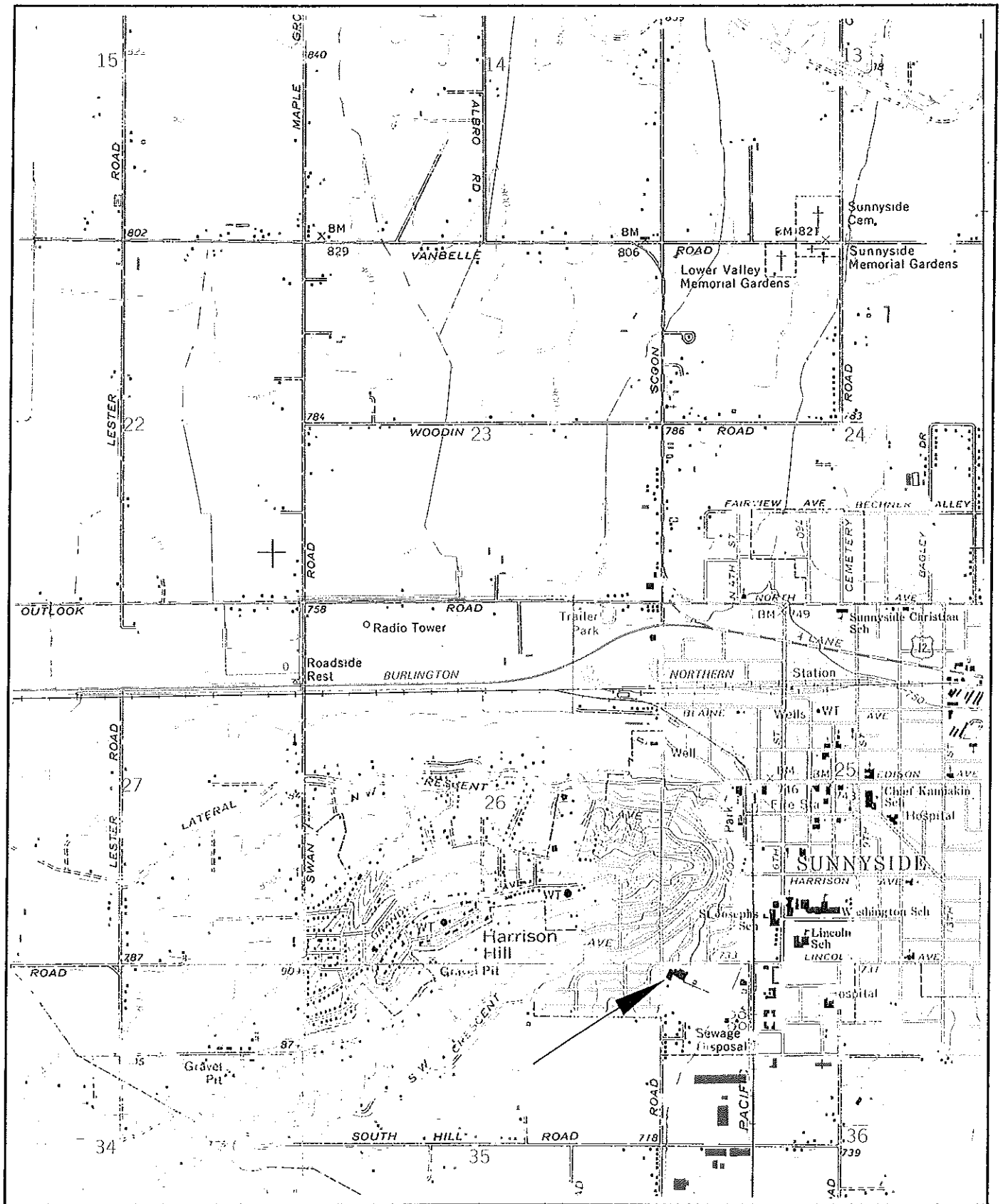
This report has been prepared for Time Oil Company. Should you have any questions regarding this letter or other aspects of this project, please do not hesitate to call us at your earliest convenience.

Very truly yours,  
**BROWN AND CALDWELL**

  
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Mark Engdahl  
Environmental Geologist

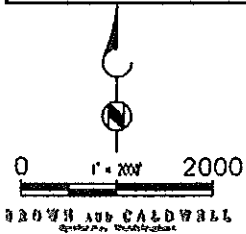
  
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Eugene N.J. St. Godard, P.G., C.HG.  
Senior Hydrogeologist / Office Manager

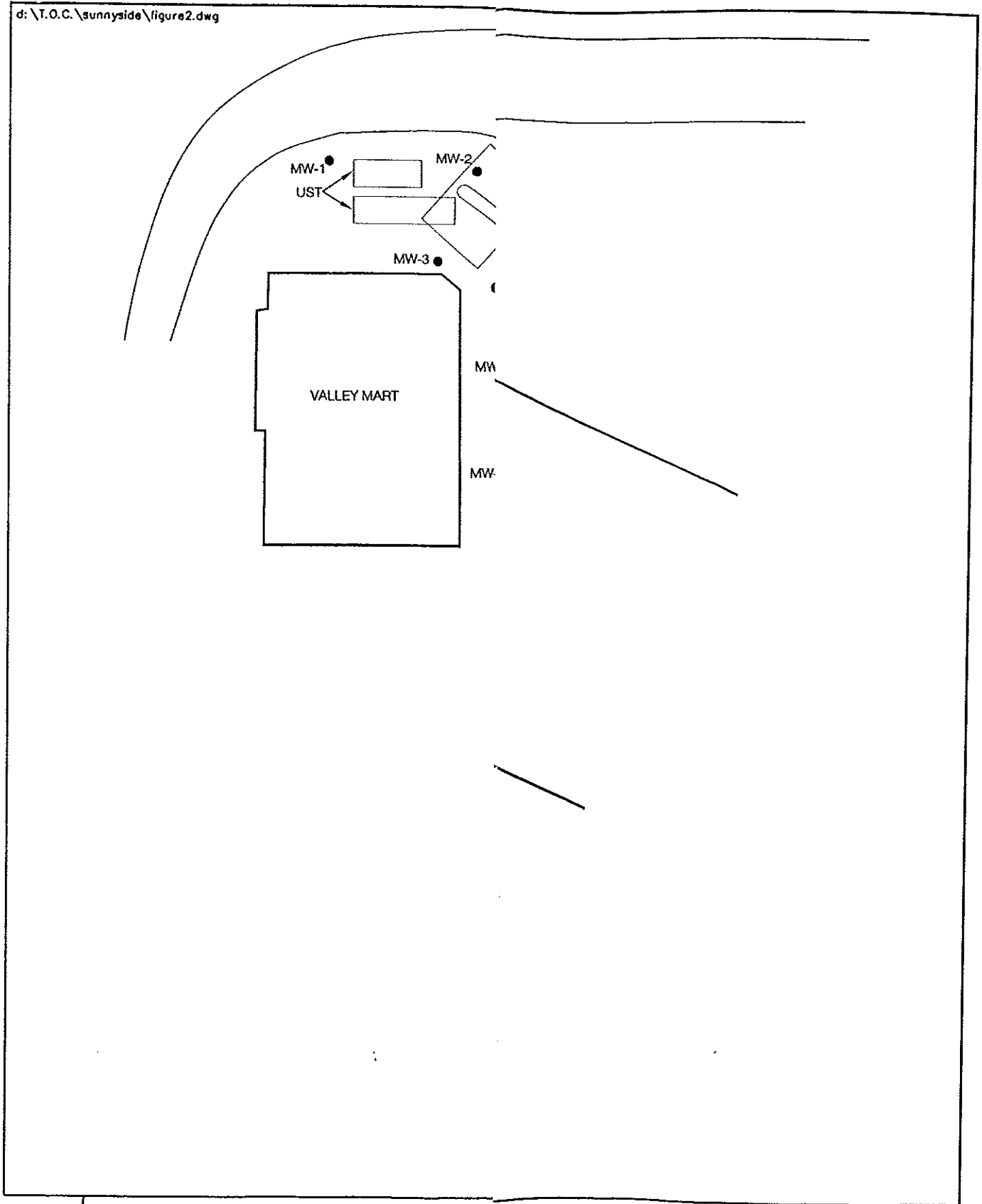
Enclosures:	Figure 1:	Site Vicinity Map
	Figure 2:	Site Plan
	Figure 3:	Total Pounds of Benzene and TPH Removed Vs Time
	Table 1:	SVE Run-Time Log
	Table 2:	Off-Gas Analytical Summary
	Table 3:	Total Pounds Benzene and TPH Removed
	Attachment A:	Laboratory Certificates
		7/11/00 - North Creek Analytical
		7/12/00 - North Creek Analytical
		7/13/00 - North Creek Analytical
		7/14/00 - North Creek Analytical
		7/15/00 - North Creek Analytical
		7/25/00 - North Creek Analytical
		7/28/00 - North Creek Analytical
		8/1/00 - North Creek Analytical
		8/8/00 - North Creek Analytical
		8/15/00 - North Creek Analytical
		8/28/00 - North Creek Analytical
		9/27/00 - North Creek Analytical



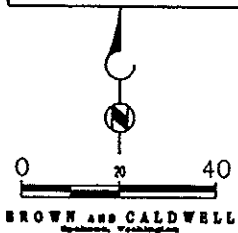
From 7.5 Minute - Sunnyside Quadrangle

Site Vicinity Map  
 Time Oil Facility 01-068  
 Sunnyside, Washington  
 FIGURE 1





October 2000



Site Plan  
Time Oil Facility 01-068  
Sunnyside, Washington  
FIGURE 2

**FIGURE 3**  
**CUMULATIVE BENZENE AND TPH-G REMOVAL VS TIME**  
**TIME OIL FACILITY 01-068**

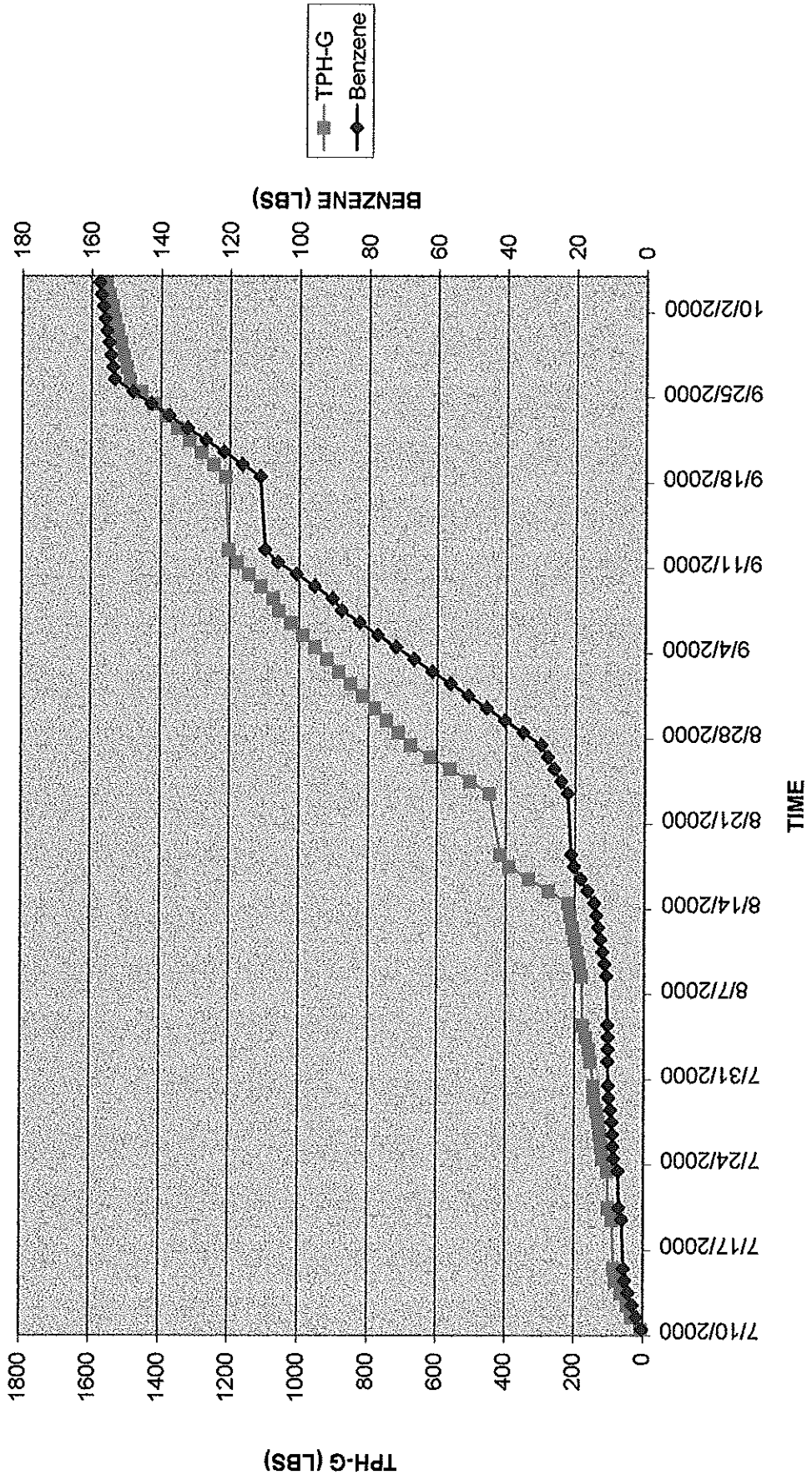


TABLE 1  
 RUN TIME LOG  
 Time Oil Property # 01-068  
 Sunnyside, Wa

Date	Time Start	Time Stop	Total Hours Operated*	Total Days Operated	Cumulative Gallons Discharged
7/10/2000	1900		5	0.21	start 420
7/15/2000		900	110	4.58	18,936.6
7/19/2000	1500		119	4.96	18,936.6
7/20/2000		1825	137.25	5.72	
7/23/2000	1925		142	5.92	20,385.5
7/30/2000		700	293	12.21	
8/1/2000	1030		306.5	12.77	45,440.5
8/2/2000		900	315.5	13.15	
8/3/2000	1000		329.5	13.73	***
8/4/2000		1518	344.75	14.36	
8/8/2000	905		359.75	14.99	50,095.2
8/18/2000		1030	586.25	24.43	
8/23/2000	1030		599.75	24.99	83,877.5
9/8/2000		945	969.5	40.40	
9/8/2000	2200		971.5	40.48	136,133.6
9/12/2000		1700	1060.5	44.19	
9/18/2000	1800		1064.5	44.44	***
10/4/2000			1454.5	60.44	174,386.0

\*\*\* No reading collected, system restarted by H2Oil.  
 End of Shake down period.

\* Total hours operated at the end of the referenced day.

174,386.0	Gallons Discharged	
-420.0	Initial Flow Reading	
174,806.00	Hours	Minutes
Total	1454.5	87270
2.00 GPM		



**TABLE 2: SYSTEM INFLUENT VAPOR CONCENTRATIONS**

Time Oil Property 01-068  
Sunnyside, Washington

Sample: Influent Air		Date: 07/11/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	65.1	260	8.98E-05	1.519955
Toluene	119	260	8.98E-05	2.778412
Ethylbenzene	19.1	260	8.98E-05	0.445947
Xylenes	110	260	8.98E-05	2.568280
Total BTEX (Lbs/Day)				7.312594
Total Petroleum Hydrocarbons	1140	260	8.98E-05	26.616720

Sample: Influent 7-12-00		Date: 07/12/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	54.3	240	8.98E-05	1.170274
Toluene	78.6	240	8.98E-05	1.693987
Ethylbenzene	10.0	240	8.98E-05	0.215520
Xylenes	54.8	240	8.98E-05	1.181050
Total BTEX (Lbs/Day)				4.2608
Total Petroleum Hydrocarbons	601	240	8.98E-05	12.952752

Sample: Influent 7-13-00		Date: 07/13/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	54.5	232	8.98E-05	1.135431
Toluene	90.6	232	8.98E-05	1.887524
Ethylbenzene	14.5	232	8.98E-05	0.302087
Xylenes	81.6	232	8.98E-05	1.700022
Total BTEX (Lbs/Day)				5.025064
Total Petroleum Hydrocarbons	838	232	8.98E-05	17.458557

**TABLE 2: SYSTEM INFLUENT VAPOR CONCENTRATIONS**

Time Oil Property 01-068  
Sunnyside, Washington

Sample: Influent Air 7-14-00		Date: 07/14/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	48.9	230	8.98E-05	1.009981
Toluene	74.5	230	8.98E-05	1.538723
Ethylbenzene	11.7	230	8.98E-05	0.241652
Xylenes	63.7	230	8.98E-05	1.315660
Total BTEX (Lbs/Day)				4.1060
Total Petroleum Hydrocarbons	790	230	8.98E-05	16.316660

Sample: Influent Air 7-15-00		Date: 07/15/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	60.3	230	8.98E-05	1.245436
Toluene	84.6	230	8.98E-05	1.747328
Ethylbenzene	12.2	230	8.98E-05	0.251979
Xylenes	63.9	230	8.98E-05	1.319791
Total BTEX (Lbs/Day)				4.564534
Total Petroleum Hydrocarbons	691	230	8.98E-05	14.271914

Sample: Influent Air 7-25-00		Date: 07/25/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	9.23	235	8.98E-05	0.194781
Toluene	12.3	235	8.98E-05	0.259567
Ethylbenzene	1.85	235	8.98E-05	0.039041
Xylenes	10.8	235	8.98E-05	0.227912
Total BTEX (Lbs/Day)				0.721301
Total Petroleum Hydrocarbons	175	235	8.98E-05	3.693025

**TABLE 2: SYSTEM INFLUENT VAPOR CONCENTRATIONS**

Time Oil Property 01-068  
Sunnyside, Washington

Sample: Influent Air 7-28-00					
Date: 07/28/00					
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day	
Benzene	22	235	8.98E-05	0.464266	
Toluene	32.1	235	8.98E-05	0.677406	
Ethylbenzene	4.37	235	8.98E-05	0.092220	
Xylenes	26.7	235	8.98E-05	0.563450	
Total BTEX (Lbs/Day)				1.797343	
Total Petroleum Hydrocarbons	313	235	8.98E-05	6.605239	

Sample: Influent Air 8-1-00					
Date: 08/1/00					
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day	
Benzene	64.8	153.2	8.98E-05	0.891477	
Toluene	83.0	153.2	8.98E-05	1.141861	
Ethylbenzene	9.72	153.2	8.98E-05	0.133722	
Xylenes	58.0	153.2	8.98E-05	0.797927	
Total BTEX (Lbs/Day)				2.9650	
Total Petroleum Hydrocarbons	1070	153.2	8.98E-05	14.720375	

Sample: Influent Air 8-8-00					
Date: 08/08/00					
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day	
Benzene	31.1	217	8.98E-05	0.606033	
Toluene	37.9	217	8.98E-05	0.738542	
Ethylbenzene	4.31	217	8.98E-05	0.083987	
Xylenes	27.8	217	8.98E-05	0.541727	
Total BTEX (Lbs/Day)				1.970290	
Total Petroleum Hydrocarbons	333	217	8.98E-05	6.489038	

**TABLE 2: SYSTEM INFLUENT VAPOR CONCENTRATIONS**

Time Oil Property 01-068  
Sunnyside, Washington

Sample: Influent Air 8-15-00		Date: 08/15/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	75.3	286	8.98E-05	1.933915
Toluene	145	286	8.98E-05	3.724006
Ethylbenzene	30.9	286	8.98E-05	0.793599
Xylenes	189	286	8.98E-05	4.854049
Total BTEX (Lbs/Day)				11.3056
Total Petroleum Hydrocarbons	2230	286	8.98E-05	57.272644

Sample: Influent Air 8-28-00		Date: 08/28/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	196	299	8.98E-05	5.262639
Toluene	246	299	8.98E-05	6.605149
Ethylbenzene	27.3	299	8.98E-05	0.733010
Xylenes	163	299	8.98E-05	4.376583
Total BTEX (Lbs/Day)				16.977381
Total Petroleum Hydrocarbons	1290	299	8.98E-05	34.636758

Sample: Influent Air 9-27-00		Date: 09/27/00		
Compound	System Influent Air (mg/m3)	Flow (cfm)	Constant	Lbs/Day
Benzene	26.4	238	8.98E-05	0.564231
Toluene	44.1	238	8.98E-05	0.942523
Ethylbenzene	4.21	238	8.98E-05	0.089978
Xylenes	27.8	238	8.98E-05	0.594153
Total BTEX (Lbs/Day)				2.190885
Total Petroleum Hydrocarbons	397	238	8.98E-05	8.484843

Benzene reported as non-detect, used 1/2 detection limit.

**TABLE 3: Benzene and TPH Removal Calculations**

Time Oil Property 01-068  
Sunnyside, Washington

Date	Days Operated	Offgas - Benzene lbs/day	Cumulative Benzene - lbs	TPH - lbs/day	Cumulative TPH - lbs
7/10/2000	0.208	0.3162	0.3162	5.5363	5.5363
***7/11/2000	1	1.5200	1.8362	26.6170	32.1533
***7/12/2000	1	1.1700	3.0062	12.9520	45.1053
***7/13/2000	1	1.1400	4.1462	17.4590	62.5643
***7/14/2000	1	1.0100	5.1562	16.3170	78.8813
***7/15/2000	0.375	0.4688	5.6249	5.3520	84.2333
7/19/2000	0.375	0.4688	6.0937	5.3520	89.5853
7/20/2000	0.760	0.9500	7.0437	10.8467	100.4321
7/23/2000	0.198	0.2475	7.2912	2.8259	103.2579
***7/24/2000	1	1.2500	8.5412	14.2720	117.5299
***7/25/2000	1	0.1950	8.7362	3.6930	121.2229
***7/26/2000	1	0.1950	8.9312	3.6930	124.9159
***7/27/2000	1	0.1950	9.1262	3.6930	128.6089
***7/28/2000	1	0.4640	9.5902	6.6050	135.2139
7/29/2000	1	0.4640	10.0542	6.6050	141.8189
7/30/2000	0.292	0.1355	10.1896	1.9287	143.7476
***8/1/2000	0.563	0.0502	10.2398	8.2874	152.0349
8/2/2000	0.375	0.0334	10.2732	5.5200	157.5549
8/3/2000	0.583	0.0519	10.3252	8.5818	166.1367
8/4/2000	0.635	0.0566	10.3817	9.3472	175.4839
***8/8/2000	0.625	0.3788	10.7605	4.0556	179.5395
8/9/2000	1	0.6060	11.3665	6.4890	186.0285
8/10/2000	1	0.6060	11.9725	6.4890	192.5175
8/11/2000	1	0.6060	12.5785	6.4890	199.0065
8/12/2000	1	0.6060	13.1845	6.4890	205.4955
8/13/2000	1	0.6060	13.7905	6.4890	211.9845
8/14/2000	1	0.6060	14.3965	6.4890	218.4735
***8/15/2000	1	1.9340	16.3305	57.2730	275.7465
8/16/2000	1	1.9340	18.2645	57.2730	333.0195
8/17/2000	1	1.9340	20.1985	57.2730	390.2925
8/18/2000	0.4375	0.8461	21.0446	25.0569	415.3495
8/23/2000	0.563	1.0888	22.1335	32.2447	447.5942
8/24/2000	1	1.9340	24.0675	57.2730	504.8672
8/25/2000	1	1.9340	26.0015	57.2730	562.1402
8/26/2000	1	1.9340	27.9355	57.2730	619.4132
8/27/2000	1	1.9340	29.8695	57.2730	676.6862
***8/28/2000	1	5.2630	35.1325	34.6370	711.3232
8/29/2000	1	5.2630	40.3955	34.6370	745.9602
8/30/2000	1	5.2630	45.6585	34.6370	780.5972
8/31/2000	1	5.2630	50.9215	34.6370	815.2342
9/1/2000	1	5.2630	56.1845	34.6370	849.8712
9/2/2000	1	5.2630	61.4475	34.6370	884.5082
9/3/2000	1	5.2630	66.7105	34.6370	919.1452
9/4/2000	1	5.2630	71.9735	34.6370	953.7822
9/5/2000	1	5.2630	77.2365	34.6370	988.4192
9/6/2000	1	5.2630	82.4995	34.6370	1023.0562

**TABLE 3: Benzene and TPH Removal Calculations**  
 Time Oil Property 01-068  
 Sunnyside, Washington

Date	Days Operated	Offgas - Benzene lbs/day	Cumulative Benzene - lbs	TPH - lbs/day	Cumulative TPH - lbs
9/7/2000	1	5.2630	87.7625	34.6370	1057.6932
9/8/2000	0.49	2.5789	90.3413	16.9721	1074.6653
9/9/2000	1	5.2630	95.6043	34.6370	1109.3023
9/10/2000	1	5.2630	100.8673	34.6370	1143.9393
9/11/2000	1	5.2630	106.1303	34.6370	1178.5763
9/12/2000	0.708	3.7262	109.8565	24.5230	1203.0993
9/18/2000	0.250	1.3158	111.1723	8.6593	1211.7585
9/19/2000	1	5.2630	116.4353	34.6370	1246.3955
9/20/2000	1	5.2630	121.6983	34.6370	1281.0325
9/21/2000	1	5.2630	126.9613	34.6370	1315.6695
9/22/2000	1	5.2630	132.2243	34.6370	1350.3065
9/23/2000	1	5.2630	137.4873	34.6370	1384.9435
9/24/2000	1	5.2630	142.7503	34.6370	1419.5805
9/25/2000	1	5.2630	148.0133	34.6370	1454.2175
9/26/2000	1	5.2630	153.2763	34.6370	1488.8545
***9/27/2000	1	0.5642	153.8405	8.4848	1497.3394
9/28/2000	1	0.5642	154.4047	8.4848	1505.8242
9/29/2000	1	0.5642	154.9689	8.4848	1514.3091
9/30/2000	1	0.5642	155.5331	8.4848	1522.7939
10/1/2000	1	0.5642	156.0973	8.4848	1531.2787
10/2/2000	1	0.5642	156.6615	8.4848	1539.7636
10/3/2000	1	0.5642	157.2257	8.4848	1548.2484
10/4/2000	1	0.5642	157.7899	8.4848	1556.7333

\*\*\* Date off-gas sample was collected.  
 Temporary system shut down.

***ATTACHMENT A  
LABORATORY CERTIFICATES***



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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: 19046.005  
 Project Manager: Gene St. Goddard

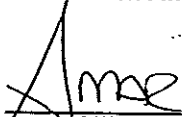
Reported:  
 10/04/00 12:25

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Discharge 9-27-00	B0I0795-01	Air	09/27/00 12:15	09/29/00 09:30
Inlet 9-27-00	B0I0795-02	Air	09/27/00 12:50	09/29/00 09:30

North Creek Analytical - Bothell

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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: 19046.005  
 Project Manager: Gene St. Goddard

Reported:  
 10/04/00 12:25

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Discharge 9-27-00 (B010795-01) Air</b> <b>Sampled: 09/27/00 12:15</b> <b>Received: 09/29/00 09:30</b>									
Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air	1	0129017	09/29/00	09/30/00	WTPH-G/8021B	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	66.6 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	78.0 %	50-150			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	
<b>Inlet 9-27-00 (B010795-02) Air</b> <b>Sampled: 09/27/00 12:50</b> <b>Received: 09/29/00 09:30</b>									
Gasoline Range Hydrocarbons	397	50.0	mg/m <sup>3</sup> Air	5	0129017	09/29/00	09/30/00	WTPH-G/8021B	
Benzene	26.4	0.500	"	"	"	"	"	"	
Toluene	44.1	0.500	"	"	"	"	"	"	
Ethylbenzene	4.21	0.500	"	"	"	"	"	"	
Xylenes (total)	27.8	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	78.4 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	74.0 %	50-150			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	93.5	11.8	ppmv	5	"	"	"	"	
Benzene (v/v)	8.15	0.154	"	"	"	"	"	"	
Toluene (v/v)	11.5	0.131	"	"	"	"	"	"	
Ethylbenzene (v/v)	0.954	0.114	"	"	"	"	"	"	
Xylenes, total (v/v)	6.30	0.227	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Page 2 of 5

Brown & Caldwell - Spokane  
10015 N Division St Suite 100  
Spokane WA, 99218

Project: Time Oil-Sunnyside  
Project Number: 19046.005  
Project Manager: Gene St. Goddard

Reported:  
10/04/00 12:25

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-G and EPA 8021B - Quality Control**

**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 0I29017: Prepared 09/29/00 Using EPA 5030B (P/T)

**Blank (0I29017-BLK1)**

Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air						
Benzene	ND	0.100	"						
Toluene	ND	0.100	"						
Ethylbenzene	ND	0.100	"						
Xylenes (total)	ND	0.200	"						
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv						
Benzene (v/v)	ND	0.0308	"						
Toluene (v/v)	ND	0.0261	"						
Ethylbenzene (v/v)	ND	0.0227	"						
Xylenes, total (v/v)	ND	0.0454	"						
Surrogate: 4-BFB (FID)	6.80		mg/m <sup>3</sup> Air	9.60		70.8	50-150		
Surrogate: 4-BFB (PID)	7.61		"	9.60		79.3	50-150		

**LCS (0I29017-BS1)**

Benzene	1.31	0.100	mg/m <sup>3</sup> Air	2.00		65.5	50-150		
Toluene	1.31	0.100	"	2.00		65.5	50-150		
Ethylbenzene	1.24	0.100	"	2.00		62.0	50-150		
Xylenes (total)	3.77	0.200	"	6.00		62.8	50-150		
Surrogate: 4-BFB (PID)	8.03		"	9.60		83.6	50-150		

**LCS (0I29017-BS2)**

Gasoline Range Hydrocarbons	74.9	10.0	mg/m <sup>3</sup> Air	100		74.9	50-150		
Surrogate: 4-BFB (FID)	7.58		"	9.60		79.0	50-150		

**LCS Dup (0I29017-BSD1)**

Benzene	1.23	0.100	mg/m <sup>3</sup> Air	2.00		61.5	50-150	6.30	50
Toluene	1.22	0.100	"	2.00		61.0	50-150	7.11	50
Ethylbenzene	1.16	0.100	"	2.00		58.0	50-150	6.67	50
Xylenes (total)	3.53	0.200	"	6.00		58.8	50-150	6.58	50
Surrogate: 4-BFB (PID)	7.91		"	9.60		82.4	50-150		

North Creek Analytical - Bothell

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Amar Gill, Project Manager



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Brown & Caldwell - Spokane  
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 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: 19046.005  
 Project Manager: Gene St. Goddard

Reported:  
 10/04/00 12:25

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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 0129017: Prepared 09/29/00 Using EPA 5030B (P/T)										
Duplicate (0129017-DUP1) Source: B010800-02										
Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air		ND			17.8	30	
Surrogate: 4-BFB (FID)	6.91		"	9.60		72.0	50-150			

North Creek Analytical - Bothell

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Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA, 99218	Project: Time Oil-Sunnyside Project Number: 19046.005 Project Manager: Gene St. Goddard	Reported: 10/04/00 12:25
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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

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**NORTH CREEK ANALYTICAL**  
Environmental Laboratory Services

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**CHAIN OF CUSTODY REPORT**

Work Order # **BO10795**

REPORT TO: *Brown & Caldwell*  
ATTENTION: *Gene St. George*  
ADDRESS: *10015 N. Division St Ste 100*

PHONE: *509-777-1124* FAX: *509-777-1133*  
PROJECT NAME: *Sunny Side of In*  
PROJECT NUMBER: *19046, cas*

SAMPLED BY: *Brad Engdahl*  
CLIENT IDENTIFICATION: \_\_\_\_\_  
SAMPLING DATE/TIME: \_\_\_\_\_  
1. *Discharge 9-27-00 7/27/00 1215*  
2. *Fuelst 9-27-00 9/27/00 1250*

INVOICE TO: *Time Oil Company*  
ATTENTION: *Scott Sloan*  
ADDRESS: \_\_\_\_\_

P.O. NUMBER: \_\_\_\_\_  
NCA QUOTE #: \_\_\_\_\_  
Analysis Request: *TPH-G BTEX*

**OTHER** Spills: \_\_\_\_\_  
\* Turnaround Requests less than standard may incur Rush Charges

MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
Air	1	
Air	1	

TURNAROUND REQUEST in Business Days \*

Organic & Inorganic Analysis  
 10  7  5  4  3  2  1  Name Day

Fuels & Hydrocarbon Analysis  
 5  3-4  2  1  Name Day

RELINQUISHED BY: *Brad Engdahl* DATE: *9/28* RECEIVED BY: *Johnny Tony* DATE: *9/29/00*  
 PRINT NAME: *Brad Engdahl* FIRM: *B&C* PRINT NAME: *SPRANY TONY* FIRM: *NCA* TIME: *1330* TIME: *0930*

RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ RECEIVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PRINT NAME: \_\_\_\_\_ FIRM: \_\_\_\_\_ PRINT NAME: \_\_\_\_\_ FIRM: \_\_\_\_\_  
 TIME: \_\_\_\_\_ TIME: \_\_\_\_\_

ADDITIONAL REMARKS: \_\_\_\_\_

10.9% W/V



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 503.906.9200 fax 503.906.9210  
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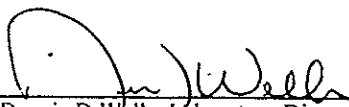
Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/28/00 Received: 8/29/00 Reported: 9/1/00 11:30
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**ANALYTICAL REPORT FOR SAMPLES:**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
Inlet Air 08/28/00	S008101-01	Air	8/28/00
Discharge Air 08/28/00	S008101-02	Air	8/28/00

North Creek Analytical - Spokane

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 Environmental Laboratory Network**

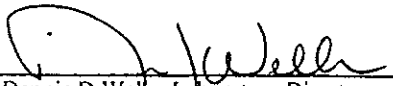


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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/28/00 Received: 8/29/00 Reported: 9/1/00 11:30
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**Gasoline Hydrocarbons (Toluene to-Dodecane) and BTEX by WTPH-G and EPA 8021  
 North Creek Analytical - Spokane**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>Inlet Air 08/28/00</u>				<u>S008101-01</u>			<u>Air</u>	
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	0800088	8/29/00	8/29/00		59.9	1290	(per analyte)	
Benzene (mg/m <sup>3</sup> )	"	"	"		1.50	196	"	
Toluene (mg/m <sup>3</sup> )	"	"	"		1.50	246	"	
Ethylbenzene (mg/m <sup>3</sup> )	"	"	"		1.50	27.3	"	
Total Xylenes (mg/m <sup>3</sup> )	"	"	"		2.99	163	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		12.9	304	"	
Benzene (ppmv)	"	"	"		0.479	60.3	"	
Toluene (ppmv)	"	"	"		0.359	64.1	"	
Ethylbenzene (ppmv)	"	"	"		0.359	6.19	"	
Total Xylenes (ppmv)	"	"	"		0.689	36.9	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		130	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		NR	"	1
<u>Discharge Air 08/28/00</u>				<u>S008101-02</u>			<u>Air</u>	
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	0800088	8/29/00	8/29/00		7.01	ND	(per analyte)	
Benzene (mg/m <sup>3</sup> )	"	"	"		0.0599	ND	"	
Toluene (mg/m <sup>3</sup> )	"	"	"		0.208	ND	"	
Ethylbenzene (mg/m <sup>3</sup> )	"	"	"		0.0599	ND	"	
Total Xylenes (mg/m <sup>3</sup> )	"	"	"		0.120	ND	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		1.40	ND	"	
Benzene (ppmv)	"	"	"		0.0192	ND	"	
Toluene (ppmv)	"	"	"		0.0296	ND	"	
Ethylbenzene (ppmv)	"	"	"		0.0144	ND	"	
Total Xylenes (ppmv)	"	"	"		0.0275	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		67.6	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		96.2	"	

  
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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/28/00 Received: 8/29/00 Reported: 9/1/00 11:30
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control**  
 North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0800088</b>		<b>Date Prepared: 8/29/00</b>		<b>Extraction Method: GC Volatiles</b>					
<b>Blank</b>		<b>0800088-BLK1</b>							
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	8/29/00			ND	(per analyte)	7.01			
Benzene (mg/m <sup>3</sup> )	"			ND	"	0.0599			
Toluene (mg/m <sup>3</sup> )	"			ND	"	0.208			
Ethylbenzene (mg/m <sup>3</sup> )	"			ND	"	0.0599			
Total Xylenes (mg/m <sup>3</sup> )	"			ND	"	0.120			
Gasoline Range Hydrocarbons (ppmv)	"			ND	"	1.40			
Benzene (ppmv)	"			ND	"	0.0192			
Toluene (ppmv)	"			ND	"	0.0296			
Ethylbenzene (ppmv)	"			ND	"	0.0144			
Total Xylenes (ppmv)	"			ND	"	0.0275			
Surrogate: 4-BFB (FID)	"	5.00		4.31	"	50.0-150	86.2		
Surrogate: 4-BFB (PID)	"	5.00		5.58	"	50.0-150	112		
<b>LCS</b>		<b>0800088-BS1</b>							
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	8/29/00	250		202	(per analyte)	85.0-115	80.8		
Surrogate: 4-BFB (FID)	"	5.00		4.85	"	50.0-150	97.0		
<b>LCS</b>		<b>0800088-BS2</b>							
Benzene (mg/m <sup>3</sup> )	8/29/00	2.00		2.07	(per analyte)	85.0-115	103		
Toluene (mg/m <sup>3</sup> )	"	2.00		2.02	"	85.0-115	101		
Ethylbenzene (mg/m <sup>3</sup> )	"	2.00		2.17	"	85.0-115	109		
Total Xylenes (mg/m <sup>3</sup> )	"	6.00		6.59	"	85.0-115	110		
Surrogate: 4-BFB (PID)	"	5.00		5.07	"	50.0-150	101		
<b>Duplicate</b>		<b>0800088-DUP1</b>		<b>S008101-02</b>					
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	8/29/00		ND	ND	(per analyte)			50.0	
Benzene (mg/m <sup>3</sup> )	"		ND	ND	"			50.0	
Toluene (mg/m <sup>3</sup> )	"		ND	ND	"			50.0	
Ethylbenzene (mg/m <sup>3</sup> )	"		ND	ND	"			50.0	
Total Xylenes (mg/m <sup>3</sup> )	"		ND	ND	"			50.0	
Gasoline Range Hydrocarbons (ppmv)	"		ND	ND	"			50.0	
Benzene (ppmv)	"		ND	ND	"			50.0	
Toluene (ppmv)	"		ND	ND	"			50.0	
Ethylbenzene (ppmv)	"		ND	ND	"			50.0	
Total Xylenes (ppmv)	"		ND	ND	"			50.0	
Surrogate: 4-BFB (FID)	"	5.00		2.70	"	50.0-150	54.0		
Surrogate: 4-BFB (PID)	"	5.00		5.53	"	50.0-150	111		

North Creek Analytical - Spokane

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

Dennis D Wells, Laboratory Director

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 Environmental Laboratory Network





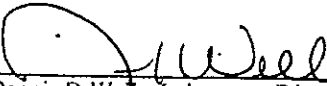
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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/28/00 Received: 8/29/00 Reported: 9/1/00 11:30
---	---	---

**Notes and Definitions**

#	Note
I	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
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 - Spokane

  
 Dennis D Wells, Laboratory Director

North Creek Analytical, Inc.  
 Environmental Laboratory Network



North Creek Analytical, Inc.  
Environmental Laboratory Network  
www.mcalabs.com

18329 120th Avenue N.E., Suite 101, Bonnell, WA 98011-9306 (425) 420-9200 FAX 420-9210  
East 11115 Montgomery, Suite B, Spokane, WA 98206-4776 (509) 924-9200 FAX 924-9290  
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210  
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

# CHAIN OF CUSTODY REPORT

Work Order #: SD08065

CLIENT: Raint & Pulett

REPORT TO: Gene S. Gooding

ADDRESS: 10015 N. Division St Ste 100

PHONE: 509-327-1228 FAX: 727-1133

PROJECT NAME: Sunnyvale OFM

PROJECT NUMBER:

SAMPLED BY: Mark Engdell

CLIENT SAMPLE IDENTIFICATION: 6-PTX

DATE/TIME: 8/15/00 12:50

INVOICE TO: Time 8/16  
Ahn, Scott Sloan

PO NUMBER:

REQUESTED ANALYSES

TURNAROUND REQUEST in Business Days\*

10	7	5	4	3	2	1	<1
Organic & Inorganic Analyses							
5	4	<input checked="" type="checkbox"/>	2	1	<1		
Petroleum Hydrocarbon Analyses							
STD. <input type="checkbox"/> STD. <input type="checkbox"/> OTHER <input type="checkbox"/> Please Specify							

\*Turnaround Request less than standard may incur Rush Charges.

MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
<u>Air</u>	<u>1</u>	<u>SD08065-01</u>	

NO.	DATE/TIME	INITIALS	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RECEIVED BY
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

RELINQUISHED BY: Mark Engdell

PRINT NAME: Mark Engdell FIRM: BRC

DATE: 8/16/00 TIME: 0820

RECEIVED BY: [Signature]

PRINT NAME: Chris Williams

DATE: 8/16/00 TIME: 0820

RELINQUISHED BY: [Signature]

PRINT NAME: NCA-S

DATE: 8/16/00 TIME: 0820



Seattle 18609 120th Avenue NE, Suite 101, Burien, WA 98148-1100  
425 420 9200 fax 425 420 9210  
Spokane 11115 Montgomerie, Suite B, Spokane, WA 99 08-1776  
509 924 9200 fax 509 924 9290  
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
503 906 9200 fax 503 906 9210  
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
541 383 9310 fax 541 382 7588

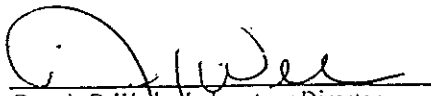
Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/8/00 Received: 8/9/00 Reported: 8/14/00 10:38
---	---	--

**ANALYTICAL REPORT FOR SAMPLES:**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
Effluent Air 8-8-00	S008031-01	Air	8/8/00

North Creek Analytical - Spokane

*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.*

  
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Environmental Laboratory Network



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 206-409-0200 fax 206-409-0201  
 Spokane 15011 1st Avenue, Suite 100, Spokane, WA 99201  
 509-324-0200 fax 509-324-0201  
 Portland 15011 1st Avenue, Suite 100, Portland, OR 97201  
 503-281-0200 fax 503-281-0201  
 Bend 10002 Oregon Avenue, Suite E-1, Bend, OR 97701-0001  
 541-325-1310 fax 541-325-1311

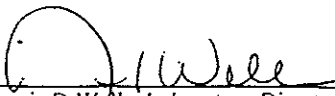
Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/1/00 Received: 8/2/00 Reported: 8/4/00 15:32
---	---	---

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

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>Influent Air 08/01/00</u>				<u>S008005-02</u>			<u>Air</u>	
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	0800008	8/2/00	8/2/00		12.0	1070	(per analyte)	
Benzene (mg/m <sup>3</sup> )	"	"	"		0.299	64.8	"	
Toluene (mg/m <sup>3</sup> )	"	"	"		0.299	83.0	"	
Ethylbenzene (mg/m <sup>3</sup> )	"	"	"		0.299	9.72	"	
Total Xylenes (mg/m <sup>3</sup> )	"	"	"		0.599	58.0	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		2.57	252	"	
Benzene (ppmv)	"	"	"		0.0958	20.0	"	
Toluene (ppmv)	"	"	"		0.0718	21.7	"	
Ethylbenzene (ppmv)	"	"	"		0.0719	2.20	"	
Total Xylenes (ppmv)	"	"	"		0.138	13.1	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		92.2	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		66.0	"	

North Creek Analytical - Spokane

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

  
 Dennis D Wells, Laboratory Director

**North Creek Analytical, Inc.**  
**Environmental Laboratory Network**

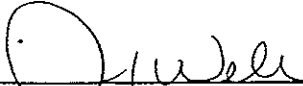


Seattle 13829 120th Avenue NE, Suite 101, Everett, WA 98011-4503  
 425-470-9200 fax 425-420-9200  
 Spokane East 11118 Montpierre, Suite 1, Spokane, WA 99208-4711  
 509-921-9200 fax 509-921-9200  
 Portland 1405 SW Thomas Avenue, Beaverton, OR 97008-7132  
 503-306-9200 fax 503-306-9210  
 Bend 29332 Empire Avenue, Suite 5-1, Bend, OR 97701-5711  
 541-321-9200 fax 541-382-7588

Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/1/00 Received: 8/2/00 Reported: 8/4/00 15:32
---	---	---

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control  
 North Creek Analytical - Spokane**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0800008</b>	<b>Date Prepared: 8/2/00</b>		<b>Extraction Method: GC Volatiles</b>							
<b>Blank</b>	<b>0800008-BLK1</b>									
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	8/2/00			7.83	(per analyte)	2.40				
Benzene (mg/m <sup>3</sup> )	"			ND	"	0.0599				
Toluene (mg/m <sup>3</sup> )	"			ND	"	0.0599				
Ethylbenzene (mg/m <sup>3</sup> )	"			ND	"	0.0599				
Total Xylenes (mg/m <sup>3</sup> )	"			ND	"	0.120				
Gasoline Range Hydrocarbons (ppmv)	"			1.85	"	0.515				
Benzene (ppmv)	"			ND	"	0.0192				
Toluene (ppmv)	"			ND	"	0.0144				
Ethylbenzene (ppmv)	"			ND	"	0.0144				
Total Xylenes (ppmv)	"			ND	"	0.0275				
Surrogate: 4-BFB (FID)	"	5.00		4.41	"	50.0-150	88.2			
Surrogate: 4-BFB (PID)	"	5.00		4.81	"	50.0-150	96.2			
<b>LCS</b>	<b>0800008-BS1</b>									
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	8/2/00	200		142	(per analyte)	50.0-150	71.0			
Benzene (mg/m <sup>3</sup> )	"	2.00		2.11	"	85.0-115	105			
Toluene (mg/m <sup>3</sup> )	"	2.00		2.22	"	85.0-115	111			
Ethylbenzene (mg/m <sup>3</sup> )	"	2.00		2.19	"	85.0-115	110			
Total Xylenes (mg/m <sup>3</sup> )	"	6.00		6.91	"	85.0-115	115			
Surrogate: 4-BFB (FID)	"	5.00		4.33	"	50.0-150	86.6			
Surrogate: 4-BFB (PID)	"	5.00		5.35	"	50.0-150	107			

  
 Dennis D Wells, Laboratory Director



Seattle 18800 123th Avenue NE, Suite 101, Bothell, WA 98011-4426  
 425 421-9200 fax 425 420-9119  
 Spokane 2101 N. Division, Suite B, Spokane, WA 99205-1718  
 509.924.9200 fax 509.924.9290  
 Portland 9405 SW Milling Avenue, Beaverton, OR 97008-4102  
 503.998.3200 fax 503.998.9210  
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541.385.4143 fax 541.382.7588

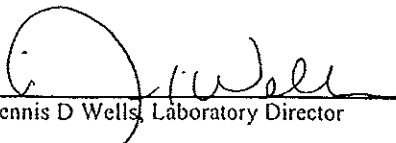
Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 8/1/00 Received: 8/2/00 Reported: 8/4/00 15:32
---	---	---

Notes and Definitions

#	Note
---	------

- 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 - Spokane

  
 Dennis D Wells, Laboratory Director



**NORTH CREEK ANALYTICAL**  
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (425) 420-9200 FAX 420-9210  
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 9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210

**CHAIN OF CUSTODY REPORT**

Work Order # S008005

REPORT TO: Brown & Powell

INVOICE TO: Time O'1 Co.

ATTENTION: Gene St. Godard

ATTENTION: Scott Spear

ADDRESS: 10015 N. Division St Ste 100

ADDRESS:

Spokane, WA 99228

PHONE: 509-777-1126 FAX: 777-1133

P.O. NUMBER:

NCA QUOTE #:

PROJECT NAME: Sunrise Oldm

Analysis Request:

PROJECT NUMBER:

SAMPLED BY: M. Engdahl

CLIENT SAMPLE IDENTIFICATION

SAMPLING DATE/TIME

NCA SAMPLE ID (Laboratory Use Only)

WTPH-6  
WTPH-D  
BTEF  
Total Pb

1 Discharge 8-1-00 8/1/00 1440  
 2 Facility Air 8-1-00 8/1/00 1430

X X X X X

MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
W	5	S008005-01
A	1	↓ 2

TURNAROUND REQUEST in Business Days \*

Organic & Inorganic Analyses  
 10  7  5  4  3  2  1  Same Day  
 Fuels & Hydrocarbon Analyses  
 5  3-4  2  Same Day  
 Standard

OTHER Specify:

\* Turnaround Request less than standard may incur Rush Charges.

RELINQUISHED BY: Mark Engdahl

DATE: 8/2/00

RECEIVED BY: Chris Williams

DATE: 8/2/00

PRINT NAME: Mark Engdahl FIRM: BPC

TIME: 0820

PRINT NAME: Chris Williams FIRM: NCA-5

TIME: 0820

RELINQUISHED BY: Gene St. Godard

DATE:

RECEIVED BY: Gene St. Godard

DATE:

PRINT NAME:

FIRM:

TIME:

PRINT NAME:

FIRM:

TIME:

ADDITIONAL REMARKS: \* Filter Pb sample @ lab

12200

PAGE OF



Seattle 13033 123rd Avenue NE, Suite 101, Redmond, WA 98011-9528  
 425 429 9290 fax 425 429 9210  
 Spokane 2300 11113 Montgomery Street, Spokane, WA 99208-4705  
 509 924 9200 fax 509 924 9290  
 Portland 3105 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503 906 9200 fax 503 906 9210  
 Bend 29332 Emore Avenue, Suite F-1, Bend, OR 97701-5711  
 541 383 9310 fax 541 382 7538

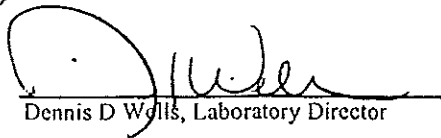
Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/28/00 Received: 7/28/00 Reported: 8/1/00 16:03
---	---	---

**ANALYTICAL REPORT FOR SAMPLES:**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
Influent Air 07/28/00	S007060-06	Air	7/28/00
Discharge Air 07/28/00	S007060-07	Air	7/28/00
LRP Air 07/28/00	S007060-08	Air	7/28/00
Stripper Air 07/28/00	S007060-09	Air	7/28/00

North Creek Analytical - Spokane

*The results in this report apply to the samples analyzed in accordance with the chain of custody document.  
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 Dennis D. Wells, Laboratory Director

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 Environmental Laboratory Network**





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 Spokane East 11113 Montpierre, Suite 6, Spokane, WA 99208-4779  
 509 924 9200 fax 509 924 9290  
 Portland 9135 SW Jambos Avenue, Beaverton, OR 97008-7132  
 503 906 9000 fax 503 906 9110  
 Bend 29332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541 383 9310 fax 541 382 7538

Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/28/00 Received: 7/28/00 Reported: 8/1/00 16:03
---	---	---

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

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>LRP Air 07/28/00 (continued)</u>				<u>S007060-08</u>			<u>Air</u>	
Surrogate: 4-BFB (FID)	0700063	7/28/00	7/28/00	50.0-150		123	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		109	"	
<u>Stripper Air 07/28/00</u>				<u>S007060-09</u>			<u>Air</u>	
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	0700063	7/28/00	7/28/00		2.40	21.5	(per analyte)	
Benzene (mg/m <sup>3</sup> )	"	"	"		0.0599	1.05	"	
Toluene (mg/m <sup>3</sup> )	"	"	"		0.0599	2.05	"	
Ethylbenzene (mg/m <sup>3</sup> )	"	"	"		0.0599	0.313	"	
Total Xylenes (mg/m <sup>3</sup> )	"	"	"		0.120	2.82	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		0.515	5.06	"	
Benzene (ppmv)	"	"	"		0.0192	0.322	"	
Toluene (ppmv)	"	"	"		0.0144	0.535	"	
Ethylbenzene (ppmv)	"	"	"		0.0144	0.0710	"	
Total Xylenes (ppmv)	"	"	"		0.0275	0.640	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		78.8	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		134	"	

North Creek Analytical - Spokane

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

Dennis D. Wells, Laboratory Director

**North Creek Analytical, Inc.**  
**Environmental Laboratory Network**



Seattle 18939 120th Avenue NE, Suite 101, Everett, WA 98011-9218  
 425 420 9200 fax 425 420 9210  
 Spokane East 11115 Montgomery, Suite 200, Spokane, WA 99206-1115  
 509 921 9200 fax 509 921 9299  
 Portland 8415 SW Clatsop Avenue, Suite 100, Portland, OR 97225-3112  
 503 906 9200 fax 503 906 9211  
 Bend 28332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
 541 383 3310 fax 541 382 1318

Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/28/00 Received: 7/28/00 Reported: 8/1/00 16:03
---	---	---

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control  
 North Creek Analytical - Spokane**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Units	Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<u>Batch: 0700063</u>		<u>Date Prepared: 7/28/00</u>		<u>Extraction Method: GC Volatiles</u>						
<u>Blank</u>		<u>0700063-BLK1</u>								
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	7/28/00			2.41	(per analyte)	2.40				
Benzene (mg/m <sup>3</sup> )	"			ND	"	0.0599				
Toluene (mg/m <sup>3</sup> )	"			ND	"	0.0599				
Ethylbenzene (mg/m <sup>3</sup> )	"			ND	"	0.0599				
Total Xylenes (mg/m <sup>3</sup> )	"			ND	"	0.120				
Gasoline Range Hydrocarbons (ppmv)	"			0.567	"	0.515				
Benzene (ppmv)	"			ND	"	0.0192				
Toluene (ppmv)	"			ND	"	0.0144				
Ethylbenzene (ppmv)	"			ND	"	0.0144				
Total Xylenes (ppmv)	"			ND	"	0.0275				
Surrogate: 4-BFB (FID)	"	5.00		4.43	"	50.0-150	88.6			
Surrogate: 4-BFB (PID)	"	5.00		6.08	"	50.0-150	122			
<u>LCS</u>		<u>0700063-BS1</u>								
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	7/28/00	50.0		43.0	(per analyte)	85.0-115	86.0			
Surrogate: 4-BFB (FID)	"	5.00		1.68	"	50.0-150	33.6			
<u>LCS</u>		<u>0700063-BS2</u>								
Benzene (mg/m <sup>3</sup> )	7/28/00	2.00		1.71	(per analyte)	85.0-115	85.5			
Toluene (mg/m <sup>3</sup> )	"	2.00		2.07	"	85.0-115	103			
Ethylbenzene (mg/m <sup>3</sup> )	"	2.00		2.09	"	85.0-115	104			
Total Xylenes (mg/m <sup>3</sup> )	"	6.00		6.57	"	85.0-115	110			
Surrogate: 4-BFB (PID)	"	5.00		5.99	"	50.0-150	120			
<u>Duplicate</u>		<u>0700063-DUP1</u>	<u>S007060-07</u>							
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	7/28/00		8.19	4.49	(per analyte)					58.4
Benzene (mg/m <sup>3</sup> )	"		1.45	0.0880	"					177
Toluene (mg/m <sup>3</sup> )	"		2.31	0.193	"					169
Ethylbenzene (mg/m <sup>3</sup> )	"		0.379	0.0758	"					133
Total Xylenes (mg/m <sup>3</sup> )	"		2.21	0.281	"					155
Gasoline Range Hydrocarbons (ppmv)	"		1.93	1.06	"					58.2
Benzene (ppmv)	"		0.447	0.0271	"					177
Toluene (ppmv)	"		0.603	0.0505	"					169
Ethylbenzene (ppmv)	"		0.0860	0.0172	"					133
Total Xylenes (ppmv)	"		0.501	0.0638	"					155
Surrogate: 4-BFB (FID)	"	5.00		3.85	"	50.0-150	77.0			
Surrogate: 4-BFB (PID)	"	5.00		6.43	"	50.0-150	129			

North Creek Analytical - Spokane

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

Dennis D Wells, Laboratory Director

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 Environmental Laboratory Network



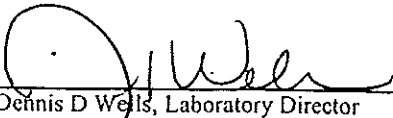
Seattle 206.420.9200 fax 206.420.9201  
 Spokane 509.924.9200 fax 509.924.9290  
 Portland 503.906.9200 fax 503.906.9210  
 Bend 541.382.9310 fax 541.382.7588

Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/28/00 Received: 7/28/00 Reported: 8/1/00 16:03
---	---	---

**Notes and Definitions**

#	Note
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 - Spokane

  
 Dennis D Wells, Laboratory Director



North Creek Analytical, Inc.  
Environmental Laboratory Network  
www.ncaelabs.com

East 11115 Montgomery, Suite B, Spokane, WA 98206-4776  
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132  
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711  
(\$09) 924-9200 FAX 924-9290  
(\$03) 906-9200 FAX 906-9210  
(\$41) 383-9310 FAX 382-7588

# CHAIN OF CUSTODY REPORT

Work Order #: **SDD700**

CLIENT: **Brewer's Cell**

INVOICE TO:

**Trane Oil Co,  
Attn: Scott Stoen**

REPORT TO: **Gene St. Godard**

PO NUMBER:

ADDRESS: **10015 N. Division St, Ste. 100**

PHONE: **509-737-1126**

REQUESTED ANALYSES

PROJECT NUMBER:

TURNAROUND REQUEST in Business Days\*

Organic & Inorganic Analyses:  10  7  5  4  3  2  1  <1

Petroleum Hydrocarbon Analyses:  5  4  3  2  1  <1

STD.  5  4  3  2  1  <1

STD.  5  4  3  2  1  <1

OTHER:  **Pls Specify**

\*Turnaround Request less than standard may incur Rush Charges

SAMPLED BY: **M Engelbald**

DATE: **7-28-00**

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	BTEX	WTPH-6	WTPH-D	Total Ph
------------------------------	--------------------	------	--------	--------	----------

MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
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1. Discharge 7-27-00 7/27/00 0715	X	X	X	W	5	SDD700-01	2
2. Discharge 7-28-00 7/28/00 0345	X	X	X	W	5		2
3. Recycled 7-28-00 7/28/00 0355	X	X	X	W	4		3
4. Batch 7-28-00 7/28/00 0430	X	X	X	W	4		4
5. Filter Carbin 7-28-00 7/28/00 0400	X	X	X	W	4		5
6. Filter 7-28-00 7/28/00 0410	X	X	X	Air	1		6
7. Discharge Air 7-28-00 7/28/00 0415	X	X	X	Air	1		7
8. LRP Air 7-28-00 7/28/00 0405	X	X	X	Air	1		8
9. Strip Acid 7-28-00 7/29/00 0355	X	X	X	Air	1		9
10.							
11.							
12.							
13.							
14.							
15.							

RELINQUISHED BY: **Mark Engelbald**

DATE: **7/29/00**

RECEIVED BY: **Michael Ramarato**

DATE: **7-28-00**

PRINT NAME: **Mark Engelbald**

TIME: **0748**

PRINT NAME: **Michael Ramarato**

TIME: **0750**

RELINQUISHED BY: **Mark Engelbald**

DATE: **7/29/00**

RECEIVED BY: **Michael Ramarato**

DATE: **7-28-00**

PRINT NAME: **Mark Engelbald**

TIME: **0748**

PRINT NAME: **Michael Ramarato**

TIME: **0750**

ADDITIONAL REMARKS: **11:20 OCA5  
11:70 Ambers**



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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/25/00 Received: 7/25/00 Reported: 7/28/00 13:57
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**ANALYTICAL REPORT FOR SAMPLES:**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
Influent 07/25/00	S007051-01	Air	7/25/00

North Creek Analytical - Spokane

*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.*

*Dennis D Wells*  
 Dennis D Wells, Laboratory Director



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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/25/00 Received: 7/25/00 Reported: 7/28/00 13:57
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021  
 North Creek Analytical - Spokane**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>Influent 07/25/00</u>				<u>S007051-01</u>			<u>Air</u>	
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	0700052	7/25/00	7/25/00		2.40	175	(per analyte)	
Benzene (mg/m <sup>3</sup> )	"	"	"		0.0599	9.23	"	
Toluene (mg/m <sup>3</sup> )	"	"	"		0.0599	12.3	"	
Ethylbenzene (mg/m <sup>3</sup> )	"	"	"		0.0599	1.85	"	
Total Xylenes (mg/m <sup>3</sup> )	"	"	"		0.120	10.8	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		0.515	41.2	"	
Benzene (ppmv)	"	"	"		0.0192	2.85	"	
Toluene (ppmv)	"	"	"		0.0144	3.22	"	
Ethylbenzene (ppmv)	"	"	"		0.0144	0.419	"	
Total Xylenes (ppmv)	"	"	"		0.0275	2.45	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		93.0	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		71.6	"	

North Creek Analytical - Spokane

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

*Dennis D Wells*  
 Dennis D Wells, Laboratory Director

North Creek Analytical, Inc.  
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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/25/00 Received: 7/25/00 Reported: 7/28/00 13:57
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control**  
**North Creek Analytical - Spokane**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. %	RPD Limit	RPD %	Notes*
<u>Batch: 0700052</u>		<u>Date Prepared: 7/25/00</u>		<u>Extraction Method: GC Volatiles</u>					
<u>Blank</u>		<u>0700052-BLK1</u>							
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	7/25/00			3.10	(per analyte)	2.40			
Benzene (mg/m <sup>3</sup> )	"			ND	"	0.0599			
Toluene (mg/m <sup>3</sup> )	"			ND	"	0.0599			
Ethylbenzene (mg/m <sup>3</sup> )	"			ND	"	0.0599			
Total Xylenes (mg/m <sup>3</sup> )	"			ND	"	0.120			
Gasoline Range Hydrocarbons (ppmv)	"			0.731	"	0.515			
Benzene (ppmv)	"			ND	"	0.0192			
Toluene (ppmv)	"			ND	"	0.0144			
Ethylbenzene (ppmv)	"			ND	"	0.0144			
Total Xylenes (ppmv)	"			ND	"	0.0275			
Surrogate: 4-BFB (FID)	"	5.00		3.93	"	50.0-150	78.6		
Surrogate: 4-BFB (PID)	"	5.00		5.14	"	50.0-150	103		
<u>LCS</u>		<u>0700052-BS1</u>							
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	7/25/00	200		169	(per analyte)	50.0-150	84.5		
Surrogate: 4-BFB (FID)	"	5.00		4.32	"	50.0-150	86.4		
<u>LCS</u>		<u>0700052-BS2</u>							
Benzene (mg/m <sup>3</sup> )	7/25/00	2.00		1.71	(per analyte)	50.0-150	85.5		
Toluene (mg/m <sup>3</sup> )	"	2.00		1.91	"	50.0-150	95.5		
Ethylbenzene (mg/m <sup>3</sup> )	"	2.00		2.06	"	50.0-150	103		
Total Xylenes (mg/m <sup>3</sup> )	"	6.00		6.28	"	50.0-150	104		
Surrogate: 4-BFB (PID)	"	5.00		5.77	"	50.0-150	115		
<u>Duplicate</u>		<u>0700052-DUP1</u>	<u>S007048-02</u>						
Gasoline Range Hydrocarbons (mg/m <sup>3</sup> )	7/25/00		10.9	8.30	(per analyte)		50.0	27.1	
Benzene (mg/m <sup>3</sup> )	"		0.132	0.131	"		50.0	0.760	
Toluene (mg/m <sup>3</sup> )	"		0.333	0.286	"		50.0	15.2	
Ethylbenzene (mg/m <sup>3</sup> )	"		0.0848	0.0610	"		50.0	32.6	
Total Xylenes (mg/m <sup>3</sup> )	"		1.25	0.725	"		50.0	53.2	1
Gasoline Range Hydrocarbons (ppmv)	"		2.57	1.96	"		50.0	26.9	
Benzene (ppmv)	"		0.0408	0.0404	"		50.0	0.985	
Toluene (ppmv)	"		0.0868	0.0748	"		50.0	14.9	
Ethylbenzene (ppmv)	"		0.0192	ND	"		50.0		
Total Xylenes (ppmv)	"		0.283	0.165	"		50.0	52.7	1
Surrogate: 4-BFB (FID)	"	5.00		4.28	"	50.0-150	85.6		
Surrogate: 4-BFB (PID)	"	5.00		5.88	"	50.0-150	118		

North Creek Analytical - Spokane

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

*Dennis D Wells*  
 Dennis D Wells, Laboratory Director

North Creek Analytical, Inc.  
 Environmental Laboratory Network



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Brown & Caldwell - Spokane 10015 N. Division, Su. 100 Spokane, WA 99218	Project: Sunnyside O&M Project Number: N/A Project Manager: Gene St. Godard	Sampled: 7/25/00 Received: 7/25/00 Reported: 7/28/00 13:57
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Notes and Definitions

#	Note
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- 1 The spike recovery for this QC sample is outside of NCA established control limits. Alternate sources of QC have been used to validate 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 - Spokane

*Dennis D Wells*  
 Dennis D Wells, Laboratory Director







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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/21/00 12:06

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Notes
<b>Batch 0G18011: Prepared 07/18/00 Using EPA 5030B (P/T)</b>									
<b>Blank (0G18011-BLK1)</b>									
Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air						
Benzene	ND	0.100	"						
Toluene	ND	0.100	"						
Ethylbenzene	ND	0.100	"						
Xylenes (total)	ND	0.200	"						
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv						
Benzene (v/v)	ND	0.0308	"						
Toluene (v/v)	ND	0.0261	"						
Ethylbenzene (v/v)	ND	0.0227	"						
Xylenes, total (v/v)	ND	0.0454	"						
Surrogate: 4-BFB (FID)	9.45		mg/m <sup>3</sup> Air	9.60		98.4 50-150			
Surrogate: 4-BFB (PID)	9.37		"	9.60		97.6 50-150			
<b>LCS (0G18011-BS1)</b>									
Benzene	2.06	0.100	mg/m <sup>3</sup> Air	2.00		103 50-150			
Toluene	2.04	0.100	"	2.00		102 50-150			
Ethylbenzene	2.23	0.100	"	2.00		112 50-150			
Xylenes (total)	6.46	0.200	"	6.00		108 50-150			
Surrogate: 4-BFB (PID)	9.44		"	9.60		98.3 50-150			
<b>LCS (0G18011-BS2)</b>									
Gasoline Range Hydrocarbons	54.8	10.0	mg/m <sup>3</sup> Air	100		54.8 50-150			
Surrogate: 4-BFB (FID)	10.7		"	9.60		111 50-150			
<b>LCS Dup (0G18011-BSD1)</b>									
Benzene	1.92	0.100	mg/m <sup>3</sup> Air	2.00		96.0 50-150	7.04	50	
Toluene	1.90	0.100	"	2.00		95.0 50-150	7.11	50	
Ethylbenzene	2.03	0.100	"	2.00		101 50-150	9.39	50	
Xylenes (total)	6.03	0.200	"	6.00		101 50-150	6.89	50	
Surrogate: 4-BFB (PID)	9.76		"	9.60		102 50-150			

North Creek Analytical - Bothell

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Amar Gill, Project Manager

North Creek Analytical, Inc.  
 Environmental Laboratory Network



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Brown & Caldwell - Spokane  
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 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/21/00 12:06

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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
<b>Batch 0G18011: Prepared 07/18/00 Using EPA 5030B (P/T)</b>										
<b>Duplicate (0G18011-DUP1)</b>					<b>Source: B0G0318-01</b>					
Gasoline Range Hydrocarbons	20.0	10.0	ng/m <sup>3</sup> Air		18.5			7.79	30	
Surrogate: 4-BFB (FID)	9.73		"	9.60		101	50-150			

North Creek Analytical - Bothell

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 Amar Gill, Project Manager



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Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA, 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/21/00 12:06
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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

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Amar Gill, Project Manager





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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/20/00 16:49

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Discharge 7-14-00	B0G0296-01	Air	07/14/00 11:45	07/17/00 11:00
Influent 7-14-00	B0G0296-02	Air	07/14/00 11:50	07/17/00 11:00

North Creek Analytical - Bothell

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 Amar Gill, Project Manager



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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/20/00 16:49

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Discharge 7-14-00 (B0G0296-01) Air</b> Sampled: 07/14/00 11:45    Received: 07/17/00 11:00									
Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air	1	0G17016	07/17/00	07/17/00	WTPH-G/8021B	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	0.133	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	94.2 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	105 %	50-150			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	0.0347	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	
<b>Influent 7-14-00 (B0G0296-02) Air</b> Sampled: 07/14/00 11:50    Received: 07/17/00 11:00									
Gasoline Range Hydrocarbons	790	50.0	mg/m <sup>3</sup> Air	5	0G17016	07/17/00	07/17/00	WTPH-G/8021B	
Benzene	48.9	0.500	"	"	"	"	"	"	
Toluene	74.5	0.500	"	"	"	"	"	"	
Ethylbenzene	11.7	0.500	"	"	"	"	"	"	
Xylenes (total)	63.7	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	115 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	81.9 %	50-150			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	186	11.8	ppmv	5	"	"	"	"	
Benzene (v/v)	15.1	0.154	"	"	"	"	"	"	
Toluene (v/v)	19.5	0.131	"	"	"	"	"	"	
Ethylbenzene (v/v)	2.64	0.114	"	"	"	"	"	"	
Xylenes, total (v/v)	14.4	0.227	"	"	"	"	"	"	

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.*

Amar Gill, Project Manager

North Creek Analytical, Inc.  
 Environmental Laboratory Network



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 541.383.9310 fax 541.382.7588

Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA. 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/20/00 16:49
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-G and EPA 8021B - Quality Control**  
**North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Notes
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Batch 0G17016: Prepared 07/17/00 Using EPA 5030B (P/T)

**Blank (0G17016-BLK1)**

Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
Surrogate: 4-BFB (FID)	9.70		mg/m <sup>3</sup> Air	9.60		101	50-150			
Surrogate: 4-BFB (PID)	9.78		"	9.60		102	50-150			

**LCS (0G17016-BS1)**

Benzene	2.09	0.100	mg/m <sup>3</sup> Air	2.00		104	50-150			
Toluene	2.06	0.100	"	2.00		103	50-150			
Ethylbenzene	2.14	0.100	"	2.00		107	50-150			
Xylenes (total)	6.55	0.200	"	6.00		109	50-150			
Surrogate: 4-BFB (PID)	9.69		"	9.60		101	50-150			

**LCS (0G17016-BS2)**

Gasoline Range Hydrocarbons	73.1	10.0	mg/m <sup>3</sup> Air	100		73.1	50-150			
Surrogate: 4-BFB (FID)	10.4		"	9.60		108	50-150			

**LCS Dup (0G17016-BSD1)**

Benzene	2.01	0.100	mg/m <sup>3</sup> Air	2.00		100	50-150	3.90	50	
Toluene	1.97	0.100	"	2.00		98.5	50-150	4.47	50	
Ethylbenzene	2.06	0.100	"	2.00		103	50-150	3.81	50	
Xylenes (total)	6.35	0.200	"	6.00		106	50-150	3.10	50	
Surrogate: 4-BFB (PID)	9.91		"	9.60		103	50-150			

North Creek Analytical - Bothell

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Amar Gill, Project Manager





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 541.383.9310 fax 541.382.7588

Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA. 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/20/00 16:49
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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 0G17016: Prepared 07/17/00 Using EPA 5030B (P/T)										
Duplicate (0G17016-DUP1) <span style="float:right">Source: B0G0296-01</span>										
Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air		ND			2.35	30	
Surrogate: 4-BFB (FID)	10.1		"	9.60		105	50-150			

North Creek Analytical - Bothell

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541.383.9310 fax 541.382.7588

Brown & Caldwell - Spokane  
10015 N Division St Suite 100  
Spokane WA, 99218

Project: Time Oil-Sunnyside  
Project Number: N/A  
Project Manager: Gene St. Goddard

Reported:  
07/20/00 16:49

### 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

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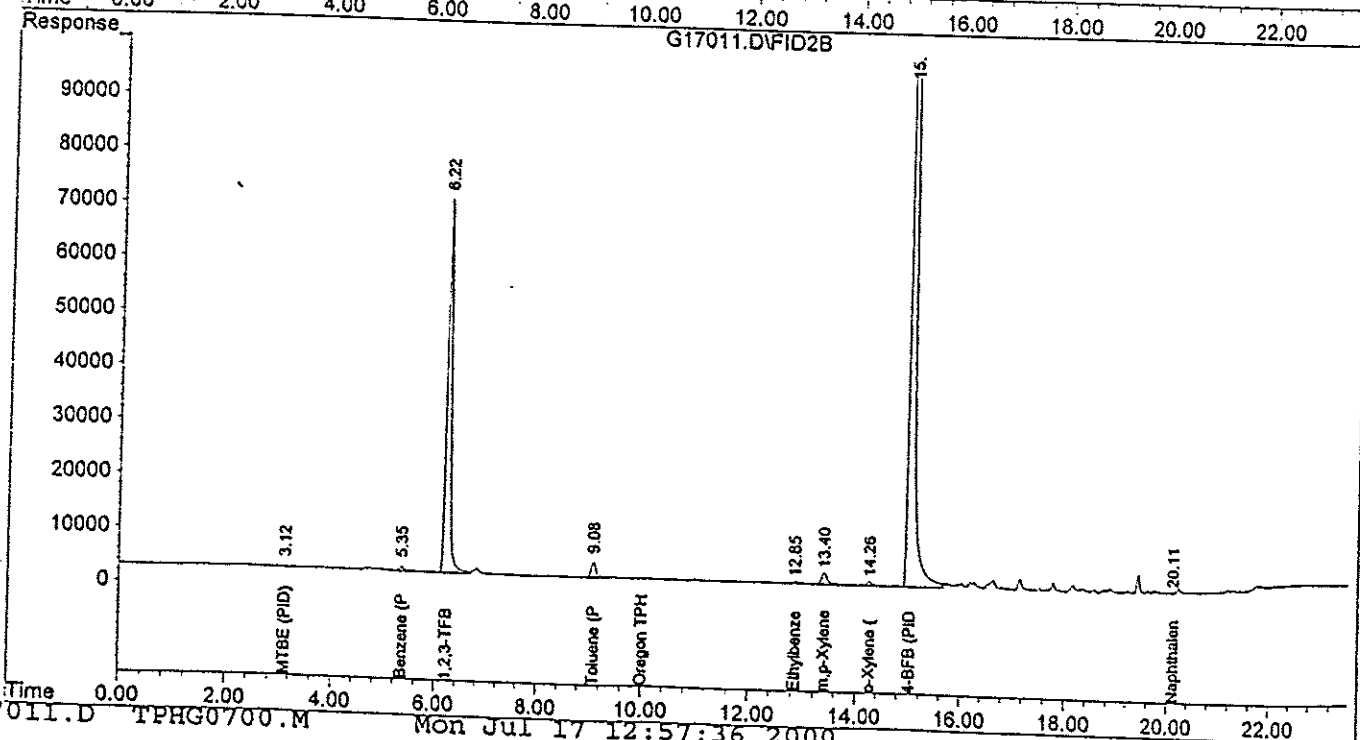
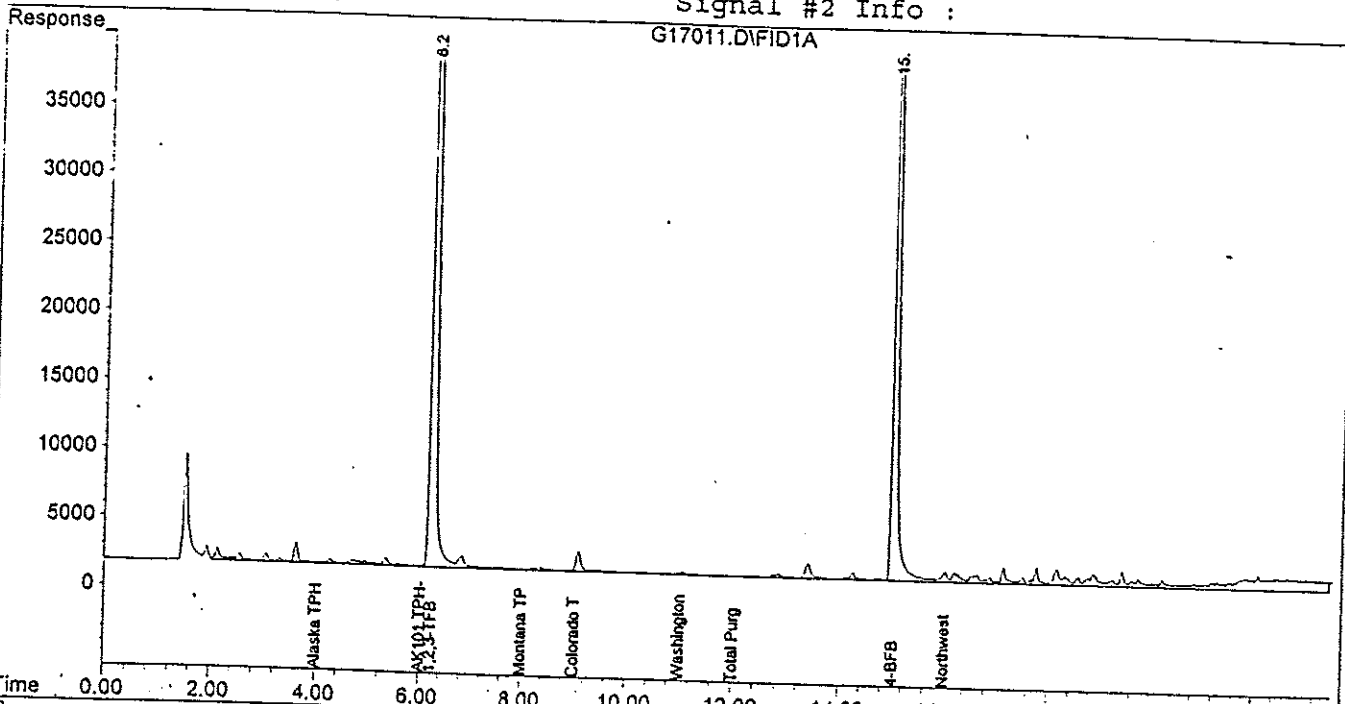
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Quantification report

Signal #1 : C:\HPCHEM\3\DATA\071700\G17011.D\FID1A.CH Vial: 11  
Signal #2 : C:\HPCHEM\3\DATA\071700\G17011.D\FID2B.CH  
Acq On : 17 Jul 2000 12:33 pm  
Sample : b0g0296-01 Operator: ys  
Misc : 25 mL, air Inst : GC #6  
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E  
Quant Time: Jul 17 12:57 2000 Quant Results File: TPHG0700.RES  
Multiplr: 1.00

Quant Method : C:\HPCHEM\3\METHODS\TPHG0700.M (Chemstation Integrator)  
Title : TPH-G Water Method  
Last Update : Mon Jul 17 10:14:44 2000  
Response via : Multiple Level Calibration  
DataAcq Meth : TPHG0700.M

Volume Inj. :  
Signal #1 Phase :  
Signal #1 Info :  
Signal #2 Phase :  
Signal #2 Info :

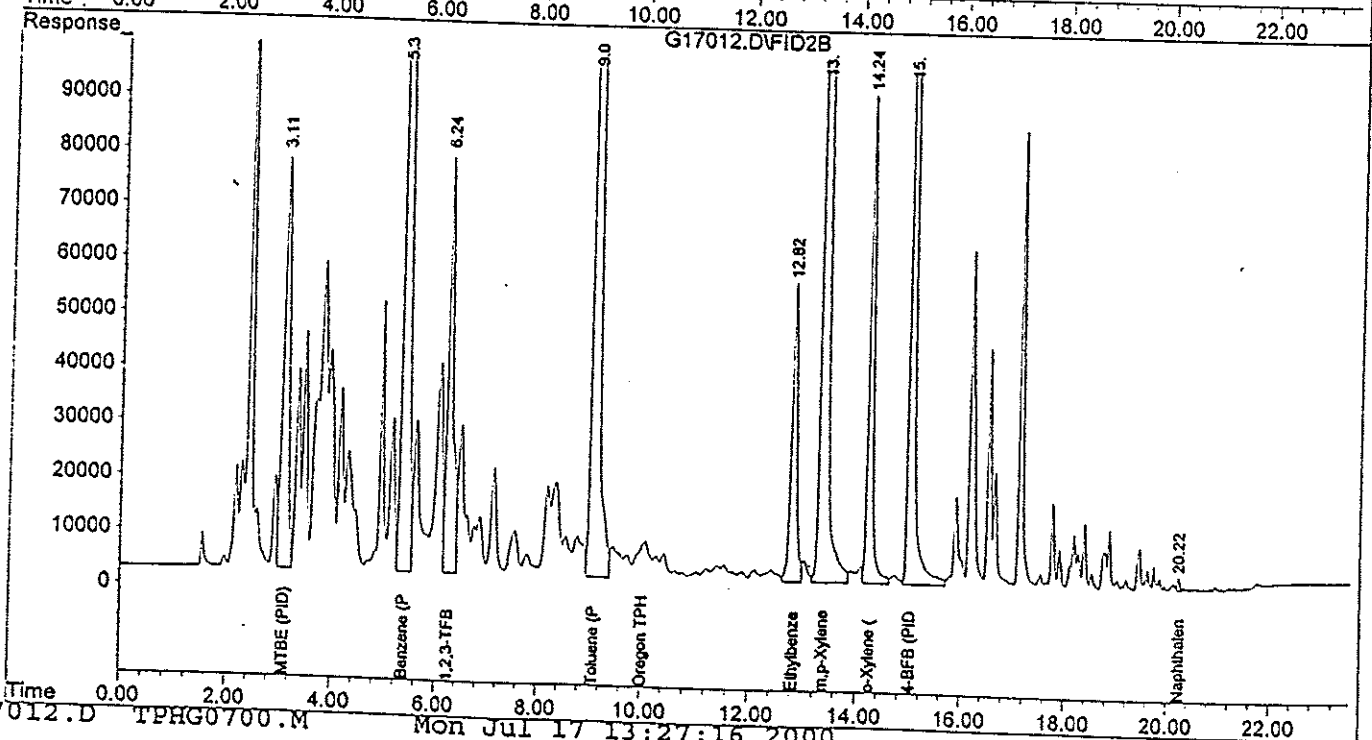
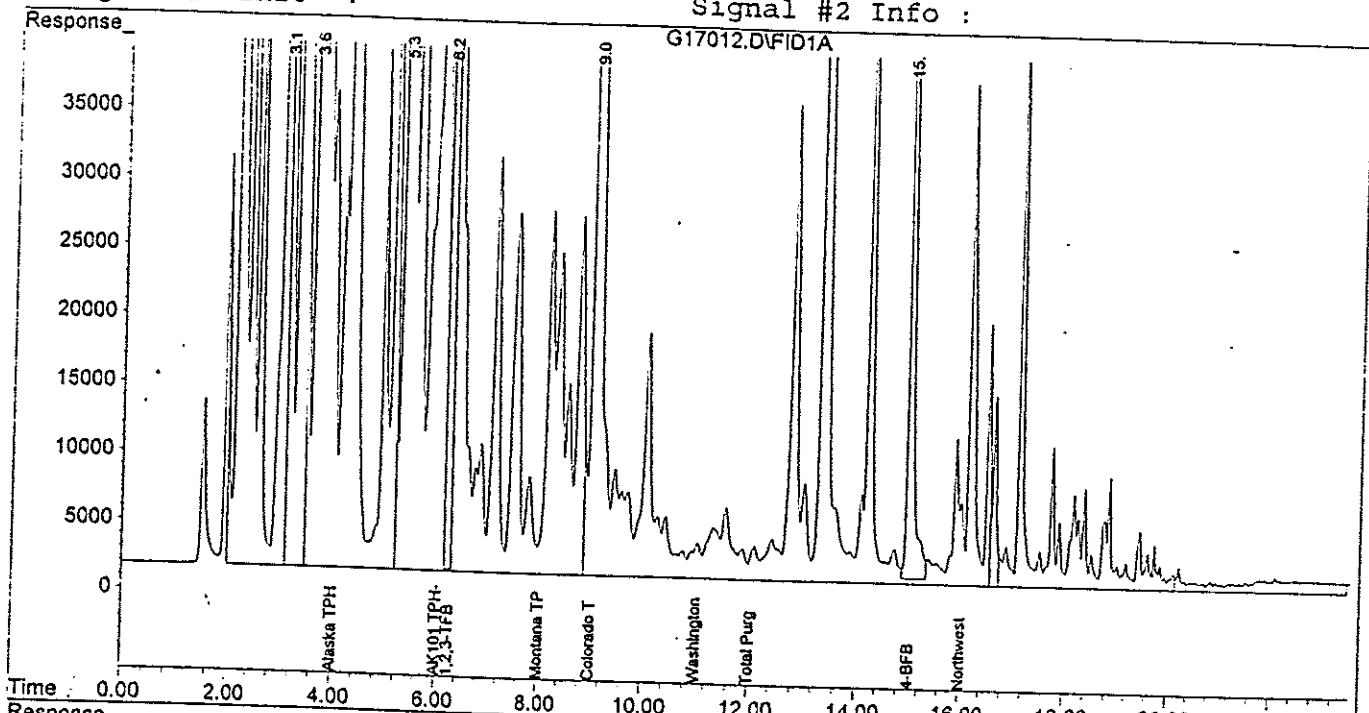


Quantitation Report

Signal #1 : C:\HPCHEM\3\DATA\071700\G17012.D\FID1A.CH Vial: 12  
Signal #2 : C:\HPCHEM\3\DATA\071700\G17012.D\FID2B.CH  
Acq On : 17 Jul 2000 1:03 pm  
Sample : b0g0296-02 Operator: ys  
Misc : 5 mL, air Inst : GC #6  
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E  
Quant Time: Jul 17 13:27 2000 Quant Results File: TPHG0700.RES  
Multiplr: 5.00

Quant Method : C:\HPCHEM\3\METHODS\TPHG0700.M (Chemstation Integrator)  
Title : TPH-G Water Method  
Last Update : Mon Jul 17 10:14:44 2000  
Response via : Multiple Level Calibration  
DataAcq Meth : TPHG0700.M

Volume Inj. :  
Signal #1 Phase :  
Signal #1 Info :  
Signal #2 Phase :  
Signal #2 Info :





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 (541) 383-9310 FAX 383-7588

# CHAIN OF CUSTODY REPORT

Work Order #: **BOG0296**

CLIENT: **Brown & Caldwell**  
 REPORT TO: **Gene St. Gadare**  
 ADDRESS: **10015 N. Division St Ste 100**  
**Spokane, WA 99228**  
 PHONE: **509-777-7174**  
 PROJECT NAME: **Sunnyside**  
 PROJECT NUMBER: **777-110**  
 FAX: **777-110**

INVOICE TO: **Time Oil Co**  
**Attn: Scott Slogan**  
 P.O. NUMBER:

TURNAROUND REQUEST in Business Days\*

Organic & Inorganic Analyses

10	7	5	4	3	2	1	<1
----	---	---	---	---	---	---	----

Petrochem Hydrocarbon Analyses

5	4	2	1	<1
---	---	---	---	----

STD.

OTHER

\*Turnaround Request less than standard may occur in Peak Changes

## REQUESTED ANALYSES

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	MATRIX (W.S.O)	# OF CONT.	COMMENTS	ID	NCA W/L
1. Discharge 7-14-00	7/14/00 - 1145	Air	1	BOG0296-01		
2. Influent 7-14-00	7/14/00 - 1150	Air	1	-02		
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

RELINQUISHED BY: **Mark Engdahl**  
 PRINT NAME: **Mark Engdahl**  
 FIRM: **B&C**

RECEIVED BY: **[Signature]**  
 PRINT NAME: **Karla Kaczorowski**  
 FIRM: **NCA**

DATE: **7/14/00**  
 TIME: **1350**

DATE: **7/17/00**  
 TIME: **11:00**

ADDITIONAL REMARKS:

DATE:   
 TIME:   
 FIRM:   
 DATE:   
 TIME:   
 FIRM:



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 541.383.3310 fax 541.382.7588

Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA. 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/19/00 14:44
--	---	-----------------------------

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Influent 7-12-00	B0G0259-01	Air	07/12/00 15:25	07/14/00 09:35
Influent 7-13-00	B0G0259-02	Air	07/12/00 12:50	07/14/00 09:35

North Creek Analytical - Bothell

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Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA, 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/19/00 14:44
--	---	-----------------------------

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Influent 7-12-00 (B0G0259-01) Air</b> Sampled: 07/12/00 15:25    Received: 07/14/00 09:35									
Gasoline Range Hydrocarbons	601	250	mg/m <sup>3</sup> Air	25	0G14013	07/14/00	07/14/00	WTPH-G/8021B	
Benzene	54.3	2.50	"	"	"	"	"	"	"
Toluene	78.6	2.50	"	"	"	"	"	"	"
Ethylbenzene	10.0	2.50	"	"	"	"	"	"	"
Xylenes (total)	54.8	5.00	"	"	"	"	"	"	"
Surrogate: 4-BFB (FID)	105 %	50-150			"	"	"	"	"
Surrogate: 4-BFB (PID)	86.4 %	50-150			"	"	"	"	"
Gasoline Range Hydrocarbons (v/v)	ND	59.0	ppmv	25	"	"	"	"	"
Benzene (v/v)	16.7	0.770	"	"	"	"	"	"	"
Toluene (v/v)	20.5	0.653	"	"	"	"	"	"	"
Ethylbenzene (v/v)	2.27	0.568	"	"	"	"	"	"	"
Xylenes, total (v/v)	12.4	1.14	"	"	"	"	"	"	"
<b>Influent 7-13-00 (B0G0259-02) Air</b> Sampled: 07/12/00 12:50    Received: 07/14/00 09:35									
Gasoline Range Hydrocarbons	838	250	mg/m <sup>3</sup> Air	25	0G14013	07/14/00	07/14/00	WTPH-G/8021B	
Benzene	54.5	2.50	"	"	"	"	"	"	"
Toluene	90.6	2.50	"	"	"	"	"	"	"
Ethylbenzene	14.5	2.50	"	"	"	"	"	"	"
Xylenes (total)	81.6	5.00	"	"	"	"	"	"	"
Surrogate: 4-BFB (FID)	103 %	50-150			"	"	"	"	"
Surrogate: 4-BFB (PID)	85.9 %	50-150			"	"	"	"	"
Gasoline Range Hydrocarbons (v/v)	ND	59.0	ppmv	25	"	"	"	"	"
Benzene (v/v)	16.8	0.770	"	"	"	"	"	"	"
Toluene (v/v)	23.7	0.653	"	"	"	"	"	"	"
Ethylbenzene (v/v)	3.30	0.568	"	"	"	"	"	"	"
Xylenes, total (v/v)	18.5	1.14	"	"	"	"	"	"	"

North Creek Analytical - Bothell

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Amar Gill, Project Manager



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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/19/00 14:44

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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
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Batch 0G14013: Prepared 07/14/00 Using EPA 5030B (P/T)

**Blank (0G14013-BLK1)**

Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							

Surrogate: 4-BFB (FID)	9.59		mg/m <sup>3</sup> Air	9.60		99.9	50-150			
Surrogate: 4-BFB (PID)	8.86		"	9.60		92.3	50-150			

**LCS (0G14013-BS1)**

Benzene	1.69	0.100	mg/m <sup>3</sup> Air	2.00		84.5	50-150			
Toluene	1.70	0.100	"	2.00		85.0	50-150			
Ethylbenzene	1.75	0.100	"	2.00		87.5	50-150			
Xylenes (total)	5.40	0.200	"	6.00		90.0	50-150			
Surrogate: 4-BFB (PID)	9.51		"	9.60		99.1	50-150			

**LCS (0G14013-BS2)**

Gasoline Range Hydrocarbons	62.7	10.0	mg/m <sup>3</sup> Air	100		62.7	50-150			
Surrogate: 4-BFB (FID)	9.61		"	9.60		100	50-150			

**LCS Dup (0G14013-BSD1)**

Benzene	1.93	0.100	mg/m <sup>3</sup> Air	2.00		96.5	50-150	13.3	50	
Toluene	1.93	0.100	"	2.00		96.5	50-150	12.7	50	
Ethylbenzene	1.95	0.100	"	2.00		97.5	50-150	10.8	50	
Xylenes (total)	5.96	0.200	"	6.00		99.3	50-150	9.86	50	
Surrogate: 4-BFB (PID)	9.45		"	9.60		98.4	50-150			

North Creek Analytical - Bothell

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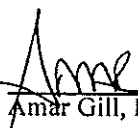
Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA, 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/19/00 14:44
--	---	-----------------------------

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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
<b>Batch 0G14013: Prepared 07/14/00 Using EPA 5030B (P/T)</b>										
<b>Duplicate (0G14013-DUP1) Source: B0G0259-01</b>										
Gasoline Range Hydrocarbons	663	500	mg/m <sup>3</sup> Air		601			9.81	30	
Surrogate: 4-BFB (FID)	9.85		"	9.60		103	50-150			

North Creek Analytical - Bothell

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Brown & Caldwell - Spokane  
10015 N Division St Suite 100  
Spokane WA. 99218

Project: Time Oil-Sunnyside  
Project Number: N/A  
Project Manager: Gene St. Goddard

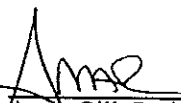
Reported:  
07/19/00 14:44

### 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

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Page 5 of 5



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20332 Empty Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

**CHAIN OF CUSTODY REPORT**

Work Order #: **BO60259**

CLIENT: **Brown & Caldwell**  
REPORT TO: **Gene St. Godard**  
ADDRESS: **1015 W. Division St. St. Louis, MO 63103**  
PHONE: **314-777-1133** FAX: **314-777-1133**

INVOICE TO: **Time Oil Co**  
**Attn: Scott Sloan**

TURNAROUND REQUEST in Business Days\*  
Organic & Inorganic Analyses

STP:  10  7  5  4  3  2  1  <1  
Petrochem Hydrocarbon Analyses  
STP:  5  4  3  2  1  <1

\*Turnaround Request less than standard may incur Road Charges.  
OTHER:  Please Specify

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TPH-6	BTEX	REQUESTED ANALYSES	MATRIX (W.S.O)	# OF CONT.	COMMENTS	NCA W/O ID
1. Influent #1210	7/13/00 1535	X	X		Air	1	BO60259-01	02
2. Influent #1300	7/13/00 1250	X	X		Air	1		
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								

RELINQUISHED BY: **Mark Easdale** DATE: **7/13/00** RECEIVED BY: **Michelle Weaver** DATE: **7/14/00**  
PRINT NAME: **Mark Easdale** TIME: **1400** PRINT NAME: **Michelle Weaver** TIME: **0935**  
FIRM: **NCA** FIRM: **Bell**

ADDITIONAL REMARKS: **TPH**

DATE: **7/13/00** TIME: **1400** DATE: **7/14/00** TIME: **0935**

TEMP: **15°C** PAGE: **1** OF **1**

SAMPLES WERE NOT @ 2-60 UPON RECEIPT



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 541.383.9310 fax 541.382.7588

Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA. 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

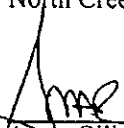
Reported:  
 07/18/00 15:41

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Influent	B0G0231-01	Air	07/11/00 18:25	07/13/00 09:20

North Creek Analytical - Bothell

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 Amar Gill, Project Manager

North Creek Analytical, Inc.  
 Environmental Laboratory Network



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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/18/00 15:41

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Influent (B0G0231-01) Air    Sampled: 07/11/00 18:25    Received: 07/13/00 09:20									
Gasoline Range Hydrocarbons	1140	250	mg/m <sup>3</sup> Air	25	0G14013	07/14/00	07/14/00	WTPH-G/8021B	
Benzene	65.1	2.50	"	"	"	"	"	"	
Toluene	119	2.50	"	"	"	"	"	"	
Ethylbenzene	19.1	2.50	"	"	"	"	"	"	
Xylenes (total)	110	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	105 %	50-150			"	"	"	"	
Surrogate: 4-BFB (PID)	86.0 %	50-150			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	59.0	ppmv	25	"	"	"	"	
Benzene (v/v)	20.1	0.770	"	"	"	"	"	"	
Toluene (v/v)	31.0	0.653	"	"	"	"	"	"	
Ethylbenzene (v/v)	4.34	0.568	"	"	"	"	"	"	
Xylenes, total (v/v)	25.0	1.14	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Brown & Caldwell - Spokane  
 10015 N Division St Suite 100  
 Spokane WA, 99218

Project: Time Oil-Sunnyside  
 Project Number: N/A  
 Project Manager: Gene St. Goddard

Reported:  
 07/18/00 15:41

**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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
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Batch 0G14013: Prepared 07/14/00 Using EPA 5030B (P/T)

**Blank (0G14013-BLK1)**

Gasoline Range Hydrocarbons	ND	10.0	mg/m <sup>3</sup> Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
Surrogate: 4-BFB (FID)	9.59		mg/m <sup>3</sup> Air	9.60		99.9	50-150			
Surrogate: 4-BFB (PID)	8.86		"	9.60		92.3	50-150			

**LCS (0G14013-BS1)**

Benzene	1.69	0.100	mg/m <sup>3</sup> Air	2.00		84.5	50-150			
Toluene	1.70	0.100	"	2.00		85.0	50-150			
Ethylbenzene	1.75	0.100	"	2.00		87.5	50-150			
Xylenes (total)	5.40	0.200	"	6.00		90.0	50-150			
Surrogate: 4-BFB (PID)	9.51		"	9.60		99.1	50-150			

**LCS (0G14013-BS2)**

Gasoline Range Hydrocarbons	62.7	10.0	mg/m <sup>3</sup> Air	100		62.7	50-150			
Surrogate: 4-BFB (FID)	9.61		"	9.60		100	50-150			

**LCS Dup (0G14013-BSD1)**

Benzene	1.93	0.100	mg/m <sup>3</sup> Air	2.00		96.5	50-150	13.3	50	
Toluene	1.93	0.100	"	2.00		96.5	50-150	12.7	50	
Ethylbenzene	1.95	0.100	"	2.00		97.5	50-150	10.8	50	
Xylenes (total)	5.96	0.200	"	6.00		99.3	50-150	9.86	50	
Surrogate: 4-BFB (PID)	9.45		"	9.60		98.4	50-150			

North Creek Analytical - Bothell

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Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA, 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	Reported: 07/18/00 15:41
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX in Air by WTPH-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 0G14013: Prepared 07/14/00 Using EPA 5030B (P/T)										
Duplicate (0G14013-DUP1) <span style="float:right">Source: B0G0259-01</span>										
Gasoline Range Hydrocarbons	663	500	mg/m <sup>3</sup> Air		601			9.81	30	
Surrogate: 4-BFB (FID)	9.85		"	9.60		103	50-150			

North Creek Analytical - Bothell

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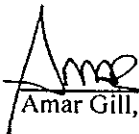
Brown & Caldwell - Spokane 10015 N Division St Suite 100 Spokane WA, 99218	Project: Time Oil-Sunnyside Project Number: N/A Project Manager: Gene St. Goddard	<b>Reported:</b> 07/18/00 15:41
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**Notes and Definitions**

- 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

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 Amar Gill, Project Manager



# CHAIN OF CUSTODY REPORT

Work Order #: **BO60231**

CLIENT: **Brown & Caldwell**  
 REPORT TO: **Gene St. Godeau**  
 ADDRESS: **10015 N. Division St. Ste 100**  
**Spokane WA 99225**  
 PHONE: **509-277-1124** FAX: **277-1135**  
 PROJECT NAME:  
 PROJECT NUMBER:  
 SAMPLED BY:

INVOICE TO:  
**Tim & Oil Co.**  
**Attn: Scott Sloan**  
 P.O. NUMBER:  
 REQUESTED ANALYSES

TURNAROUND REQUEST in Business Days\*

Organic & Inorganic Analyses  
 10  7  5  4  3  2  1  <1

Petroleum Hydrocarbon Analyses  
 5  4  3  2  1  <1

OTHER  Please Specify

\*Turnaround Request less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	WTP#	BTEX	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA W/ ID
1. In-Fluent 7-1-00	7/1/00 1825	X	X	Air	1	BO60231	01
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

RELINQUISHED BY: **Mark Engdahl** FIRM: **B-C** DATE: **7/1/00** RECEIVED BY: **Debbie Weaver** FIRM: **New Bothell** DATE: **7-13-00**  
 RELINQUISHED BY: **Mark Engdahl** FIRM: **B-C** DATE: **1:30C** RECEIVED BY: **Debbie Weaver** FIRM: **New Bothell** DATE: **0720**  
 PRINT NAME: **Mark Engdahl** FIRM: **B-C** DATE: **7/1/00** RECEIVED BY: **Debbie Weaver** FIRM: **New Bothell** DATE: **0720**  
 ADDITIONAL REMARKS: **COC REV 309**

Chromatogram Report

Signal #1 : D:\HPCHEM\2\DATA\071400\G14013.D\FID1A.CH  
Signal #2 : D:\HPCHEM\2\DATA\071400\G14013.D\FID2B.CH  
Acq On : 14 Jul 2000 1:56 pm  
Sample : b0g0231-01  
Misc : 1 ml, air  
Infile Signal #1: SURR.E  
Infile Signal #2: SURR.E  
Quant Time: Jul 14 14:20 2000  
Quant Results File: TPHG0600.RES  
Operator: YS  
Inst : GC #12  
Multiplier: 25.00  
Vial: 13

Quant Method : D:\HPCHEM\2\METHODS\TPHG0600.M (Chemstation Integrator)  
Title : DB-MTBE Method  
Last Update : Mon Jul 10 16:25:16 2000  
Response via : Multiple Level Calibration  
Datacq Meth : TPHG0600.M

Volume Intj. :  
Signal #1 Phase :  
Signal #1 Info :  
Signal #2 Phase :  
Signal #2 Info :  
G14013.D\FID1A

