

October 5, 2000

Mr. Marty Cramer
Tosco Refining Company
5528 NW Doane Avenue
Portland, Oregon 97210



**Subject: Results of Additional Soil & Groundwater Sampling Activities
Former Tosco Bulk Plant 0581, Petersburg, AK 99833**

Dear Mr. Cramer:

Noll Environmental, Inc., conducted additional soil and groundwater sampling activities at the above-referenced site in July 2000 (Figure 1). The scope of services consisted of collecting groundwater samples from six existing ½-inch diameter geoprobe wells at the bulk plant site, and collecting five soil samples from a biotreatment cell located behind the bulk plant. The five soil samples submitted for laboratory analysis were collected from locations with high historical petroleum impacts. Site features, geoprobe well locations, and soil biotreatment cell sampling locations are shown on Figure 2. Groundwater and soil analytical results are summarized in Tables 1 and 2, respectively. A copy of the laboratory analytical report is included as Attachment 1.

Background and Previous Work

The site is an operating bulk plant located at 703 South Nordic Street (Mitkof Highway) in Petersburg, Alaska (Figure 1). The bulk plant was constructed in the 1930s or 1940s, and upgraded in 1994 and 1995. Unocal owned and operated the bulk plant until 1992, after which Alaska Fuel Service became the operator. Unocal sold the property to Tosco in 1997, who sold the property to Alaska Fuel Service in August 1998. The current property owner and site operator is Petro Marine, who acquired the property from Alaska Fuel Service in 1999. Petro Marine removed the overhead loading rack from the site in 2000.

Existing site features include a warehouse with an attached platform area, an office (currently vacant), a garage (currently being removed), seven aboveground storage tanks (ASTs) in a bermed tank farm area (one 70,700-gallon, one 108,000-gallon, one 189,000-gallon, and four 40,000-gallon ASTs), a pumping station associated with the ASTs, a marine loading/unloading rack located on a dock, a heating oil AST at the office, and two oil/water separators. The tank farm area is equipped with a concrete liner. Underground piping connects the AST pumping station to the marine loading/unloading

rack. Former site features include the overhead truck loading rack, aboveground piping connecting the AST pumping station to the truck loading rack, and nine ASTs (one 70,700-gallon, one 189,000-gallon, and seven 40,000-gallon ASTs) in a former tank farm area located directly west of the current tank farm. The 70,700-gallon and 189,000-gallon ASTs were apparently moved from the former tank farm area to the new tank farm in 1994.

GeoEngineers, Inc., conducted environmental assessments at the site in May 1993 and March 1994 (prior to removal of the former tank farm). Three hand auger borings (HB-1 through HB-3) and four test pits (TP-1 through TP-4) were advanced to depths ranging from 3.5 to 12 feet below ground surface (bgs) in May 1993. Soil samples were collected at depths ranging from 2 to 10 feet bgs. Eight additional hand auger borings (HA-4 through HA-11) were advanced to depths ranging from 0.8 to 3 feet bgs in March 1994. Soil samples were collected from all borings except HA-7 at depths ranging from 0.2 to 1.5 feet bgs. Soil samples were tested for gasoline-range hydrocarbons (GRO) by U. S. Environmental Protection Agency (EPA) Method 5030/8015 Modified and diesel-range hydrocarbons (DRO) by EPA Method 3540/3550/8100 Modified. Soil samples collected from the hand auger borings were also tested for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 5030/8020. In addition, a groundwater sample collected from one test pit was analyzed for BTEX and total lead (EPA Method 7421). Fourteen soil samples contained DRO (260 to 410,000 parts per million, or ppm). Two soil samples contained GRO (2,900 and 3,380 ppm) and total BTEX (113.3 and 81.6 ppm). The groundwater sample collected from the test pit did not contain BTEX or total lead.

GeoEngineers monitored the excavation of approximately 2,000 cubic yards (yds³) of petroleum-contaminated soil at the former tank farm area in June 1994, and treated the soil offsite. The soil was disposed of at the Petersburg landfill in September 1996. GeoEngineers excavated nine additional test pits (TP-1 through TP-9) in the former tank farm area in June 1995. The test pits were excavated to depths ranging from 7 to 9 feet bgs, and soil samples were collected at depths ranging from 1 to 9 feet bgs. The soil samples were analyzed for DRO, and selected soil samples were also tested for GRO and BTEX. Ten soil samples contained DRO (1,900 to 30,000 ppm), and one soil sample contained 17.88 ppm total BTEX.

In September 1996, the former tank farm area was excavated to depths ranging from 5 to 7.5 feet bgs, and 12 soil samples (BPC-1 through BPC-12) were collected from the excavation. None of the samples contained DRO above 1,000 ppm. GeoEngineers constructed an onsite biotreatment mound system on the former tank farm location in September 1996 to treat approximately 800 yds³ of petroleum-contaminated soil removed from the former tank farm area. Four soil samples (BPC-13 through BPC-16) were collected from the biotreatment cell in September 1996, at depths ranging from 0.5 to 1 foot. The soil samples were analyzed for DRO, and one sample was also tested for GRO and BTEX. One soil sample contained DRO (1,200 ppm). All other results were below the Alaska Department of Environmental Conservation (ADEC) site cleanup goals.

GeoEngineers installed six geoprobe groundwater monitoring wells (GP-1 through GP-6) along South Nordic Street in front of the bulk plant in September 1996. The well completion depths are unknown, but GeoEngineers reported that depth to groundwater in the wells ranged from 8.7 to 9.3 feet bgs. Groundwater samples collected from all wells except GP-5 in September 1996 were analyzed for GRO and BTEX. GeoEngineers reported that the sample volume collected from well GP-5 was not sufficient for GRO and BTEX analyses. Groundwater samples collected from wells GP-5 and GP-6 were also analyzed for total dissolved solids (TDS) and salinity. The groundwater sample collected from GP-6 contained 5.7 parts per billion (ppb) benzene. All other results were below the laboratory method detection limits or below the ADEC cleanup levels (Table 1).

In May 1998, GeoEngineers collected 16 soil samples (BPS-1 through BPS-16) from the biotreatment stockpile at depths ranging from 1.5 to 5 feet. Samples were field-screened for petroleum hydrocarbons, and the 10 samples with the highest field screening results were analyzed for DRO in the C₁₀ to C₁₈ range. Two samples were also tested for GRO and BTEX. Four samples contained DRO concentrations (1,050 to 2,780 ppm) exceeding the ADEC cleanup level (1,000 ppm; Table 2). All other results were below the laboratory method detection limits or ADEC cleanup levels. GeoEngineers collected a groundwater sample from GP-1 in May 1998 (all other wells were dry), and analyzed the sample for BTEX. The results were below the laboratory method detection limits (Table 1).

Noll Environmental collected groundwater samples from five site wells (GP-1 through GP-4 and GP-6) and 17 soil samples (BPS-1 through BPS-17) from the biotreatment cell in October 1998. Groundwater samples were collected from the wells using a peristaltic pump. Soil samples were collected from the biotreatment cell at 1.5 to 3.5 feet using a hand auger. The wells were sampled without prior purging, and the samples were analyzed for BTEX by EPA Method 8021B. Groundwater samples collected from wells GP-1 through GP-3 were also tested for TDS by EPA Method 160.1 and salinity by Standard Method 2520. BTEX results were below the laboratory method detection limits or ADEC cleanup levels. Soil samples were field screened using a PID and sheen test. Ten soil samples with the highest field screening results were analyzed for BTEX, GRO, and DRO in the C₁₀ to C₁₈ range. Four samples contained DRO (1,040 to 1,830 ppm) exceeding the ADEC cleanup level (Table 2). All other results were below the laboratory method detection limits or ADEC cleanup levels.

Smith Bayliss LeResche Inc. (SBL), conducted an additional assessment at the site in January 1999 (*Baseline Expansion Report*, SBL, February 18, 1999). A geoprobe drill rig was used to advance 17 borings at the site (TB01 through TB17) to about 10 feet bgs. Eleven borings were advanced in the area of the top loading rack, ASTs pumping station, aboveground product piping, and oil/water separators. Four borings were drilled near the former tank farm and the onsite soil biotreatment cell. Three additional soil samples were collected from the beach sediments north of the bulk plant. Soil samples collected from the borings and beach area were submitted to Analytical Resources Inc. (ARI), in Seattle, Washington, for BTEX, GRO, and DRO analyses. Four samples contained DRO

concentrations (1,700 to 7,800 ppm) exceeding the ADEC cleanup level, and three samples contained GRO concentrations (100 to 180 ppm) exceeding the ADEC cleanup level (100 ppm). Three additional samples contained DRO concentrations (1,400 to 2,400 ppm) exceeding the ADEC cleanup level, but ARI did not recognize a specific petroleum product in the samples.

Noll Environmental collected 10 soil samples (BPS-1, BPS-3, BPS-5, BPS-7, BPS-8, BPS-10, BPS-12, and BPS-15 through BPS-17) from the biotreatment cell in July 1999. Noll Environmental attempted to collect groundwater samples from wells GP-1 through GP-6 in July 1999, but all six wells were dry. Soil samples were collected from the biotreatment cell at 1.8 to 2 feet using a hand auger. Existing patches in the biotreatment mound cover were opened to collect soil samples, and the patches were mended after the samples were collected. Soil samples were collected from 10 locations with the highest historical analytical results. Collected soil samples were analyzed for GRO, and DRO in the C₁₀ to C₁₈ range. Five samples contained DRO (1,100 to 3,570 ppm) exceeding the ADEC cleanup level (Table 2). All other results were below the laboratory method detection limits or ADEC cleanup levels.

Current Sampling Results

Noll Environmental collected groundwater samples from wells GP-1 through GP-4 and GP-6 on July 5, 2000, using a peristaltic pump. Well GP-5 was dry, and no groundwater sample was collected. The well monument at GP-5 was completely flooded, and the well monuments at GP-1, GP-2, GP-4, and GP-6 contained 3 to 4 inches of water. The well monuments were completely drained prior to attempting to sample the wells. In addition, the well monument seals were cleaned. The ¼-inch #10 stainless steel Philips screws that were placed into the ends of the ¼-inch diameter Teflon[®] tubing as plugs in October 1998 were in place at each well, and were replaced after sampling the wells.

The wells were sampled without prior purging. Groundwater samples were collected from the wells by connecting ¼-inch diameter silicon tubing in the peristaltic pump to the ¼-inch diameter Teflon[®] tubing. Two 40-milliliter VOA vials were collected from wells GP-1 through GP-4 and GP-6. In addition, two 1-pint poly bottles were collected from GP-1 through GP-3, and 0.1 to 0.5 pint of groundwater was collected in 1-pint poly bottles from GP-4 and GP-6. Wells GP-4 and GP-6 were allowed to recover for about 2 hours, but did not produce any additional groundwater. The groundwater pumped from wells GP-1 through GP-4 and GP-6 was clear to slightly gray, with no odor or sheen.

Collected groundwater samples were submitted to North Creek Analytical (NCA) in Bothell, Washington, and analyzed for BTEX by EPA Method 8021B and chlorides by EPA Method 300. Groundwater samples collected from GP-1 through GP-3 were also tested for sodium by EPA Method 6010B. Benzene (0.914 to 1.88 ppb), toluene (0.593 to 0.652

ppb), ethylbenzene (0.625 to 2.53 ppb), and total xylenes (4.95 to 5.59 ppb) were detected in the samples collected from GP-2 and GP-6, but at concentrations below the ADEC cleanup levels (Table 1). All other BTEX results were below the laboratory method detection limits. Chlorides (3,720 to 1,030,000 ppb) were detected in all five groundwater samples, and sodium (7,650 to 538,000 ppb) was detected in the groundwater samples collected from wells GP-1 through GP-3.

Noll Environmental collected five soil samples from the biotreatment cell on July 5, 2000, at locations with high historical analytical results (BPS-1, BPS-8, BPS-10, BPS-15, and BPS-16). The soil samples were collected at depths ranging from 2 to 2.5 feet using a hand auger. The hand auger and other soil sampling equipment (stainless steel spoons and bowls) were washed with a soap solution and rinsed with distilled water between soil sampling locations. Existing sampling access patches in the biotreatment mound soil stockpile cover were opened at each sampling location, and the cover was later mended with duct tape after the samples were collected. Collected soil samples were submitted to NCA and analyzed for DRO in the C₁₀ to C₁₈ range by Alaska Method AK 102. Four samples (BPS-1, BPS-10, BPS-15, and BPS-16) contained DRO concentrations (1,240 to 3,340 ppm) exceeding the ADEC site cleanup goal (Table 2).

Summary

Noll Environmental collected groundwater samples from five wells (GP-1 through GP-4 and GP-6) and five soil samples (BPS-1, BPS-8, BPS-10, BPS-15 and BPS-16) from the biotreatment cell on July 5, 2000. Well GP-5 was dry on July 5, 2000. Groundwater samples were collected from the wells using a peristaltic pump. Soil samples were collected from the biotreatment cell at 2 to 2.5 feet using a hand auger.

The wells were sampled without prior purging, and the samples were analyzed for BTEX and chlorides. Groundwater samples collected from wells GP-1 through GP-3 were also tested for sodium. BTEX were detected in groundwater samples collected from two wells (GP-2 and GP-6), but at concentrations below the ADEC cleanup levels. GP-2 is located near the fuel pipeline for the marine loading rack, and GP-6 is located near the former top loading rack. All other BTEX results were below the laboratory method detection limits. Detected concentrations of sodium (7,650 to 538,000 ppb) and chlorides (3,720 to 1,030,000 ppb) in the groundwater samples indicate a pronounced salt water influence, especially at the wells located north of Mitkof Highway (GP-1 through GP-3).

Soil samples were collected from the biotreatment cell at existing access patches in the biotreatment mound cover, and the patches were mended after samples were collected. Soil samples were collected from five locations with high historical analytical results. Collected soil samples were analyzed for DRO in the C₁₀ to C₁₈ range. Four samples contained DRO (1,240 to 3,340 ppm) exceeding the ADEC site cleanup goal (1,000 ppm).

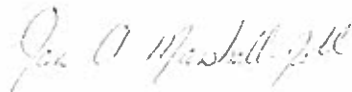
Statement of Limitations

This report has been prepared for the sole use of Tosco Refining Company for the above-referenced address. This report is not intended for use by others, and the information contained herein is not applicable to other sites. The interpretation of subsurface conditions at this site is based solely on information made available to Noll Environmental, and observations made possible in the field. It is always possible that areas with hydrocarbons or other compounds may exist in portions of the site that were not assessed. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time this report was prepared. No other conditions, expressed or implied, should be understood.

Please call if you have questions regarding this report.

Sincerely,

Noll Environmental, Inc.



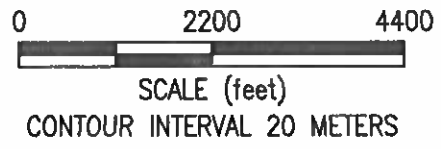
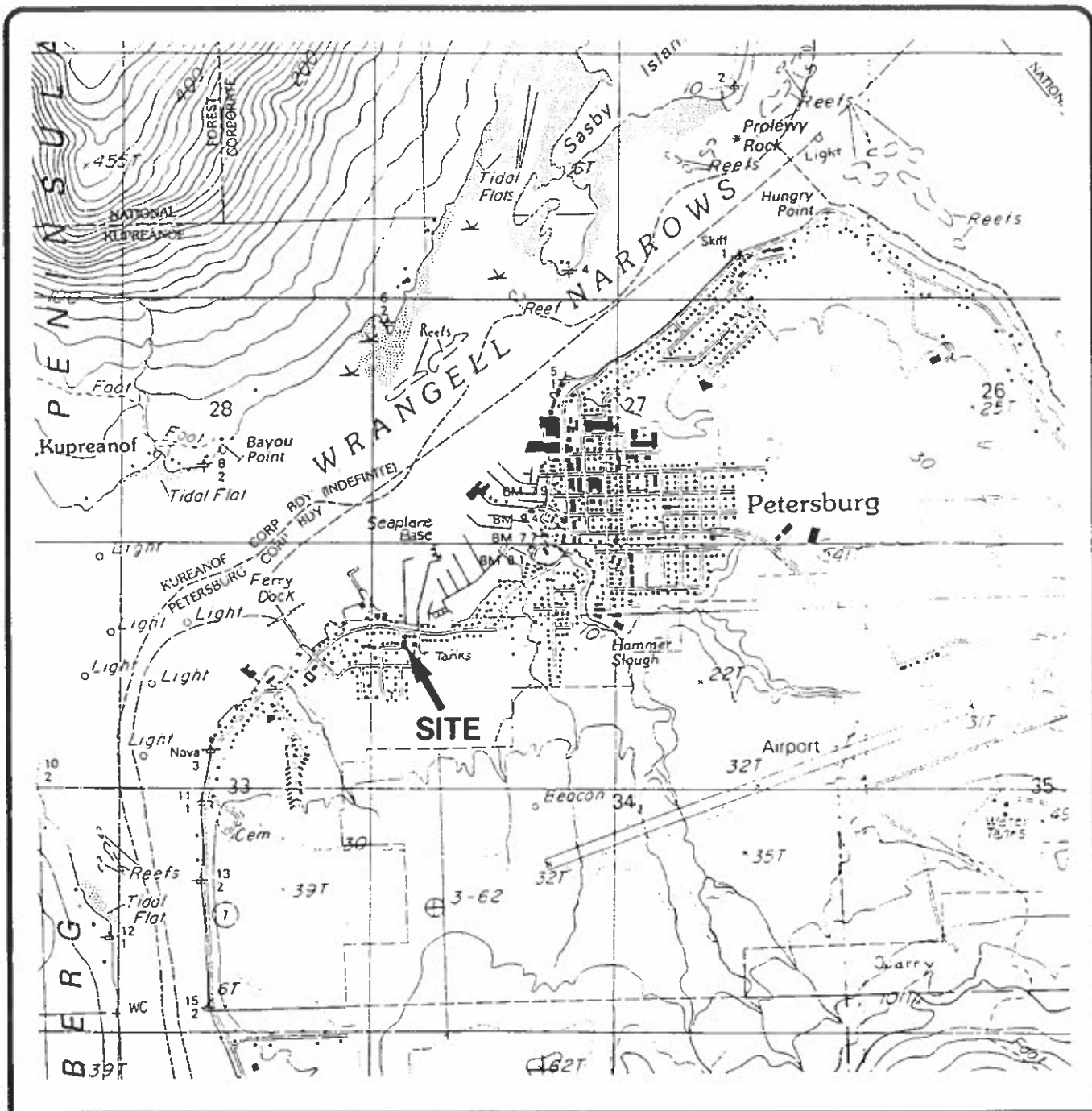
Jan A. Marshall-Noll
President



Michael D. Noll, R.G.
Senior Geologist

Attachments: Figure 1 - Vicinity Map
Figure 2 - Sample Location Map
Table 1 - Groundwater Laboratory Analytical Results
Table 2 - Soil Laboratory Analytical Results
Attachment 1 - Laboratory Analytical Report

cc: Mr. Bill Janes (ADEC - Juneau)
Facility Manager (Petro Marine - Petersburg)



NOTE: THE LOCATIONS OF ALL FEATURES SHOWN ARE APPROXIMATE.

SOURCE: USGS 7.5' TOPOGRAPHIC QUADRANGLE MAP "PETERSBURG (D-3) SW. AK.," DATED 1992.

NOLL
Environmental, Inc.

DATE:	10-1-98
DESIGN BY:	
DRAWN BY:	LSP
CHECKED BY:	
SCALE:	1=1
PROJ. NO.:	98-02-003
FILE:	NOLL-04

Figure 1
FORMER TOSCO BULK PLANT No. 0581
703 SOUTH NORDIC STREET
PETERSBURG, ALASKA
VICINITY MAP

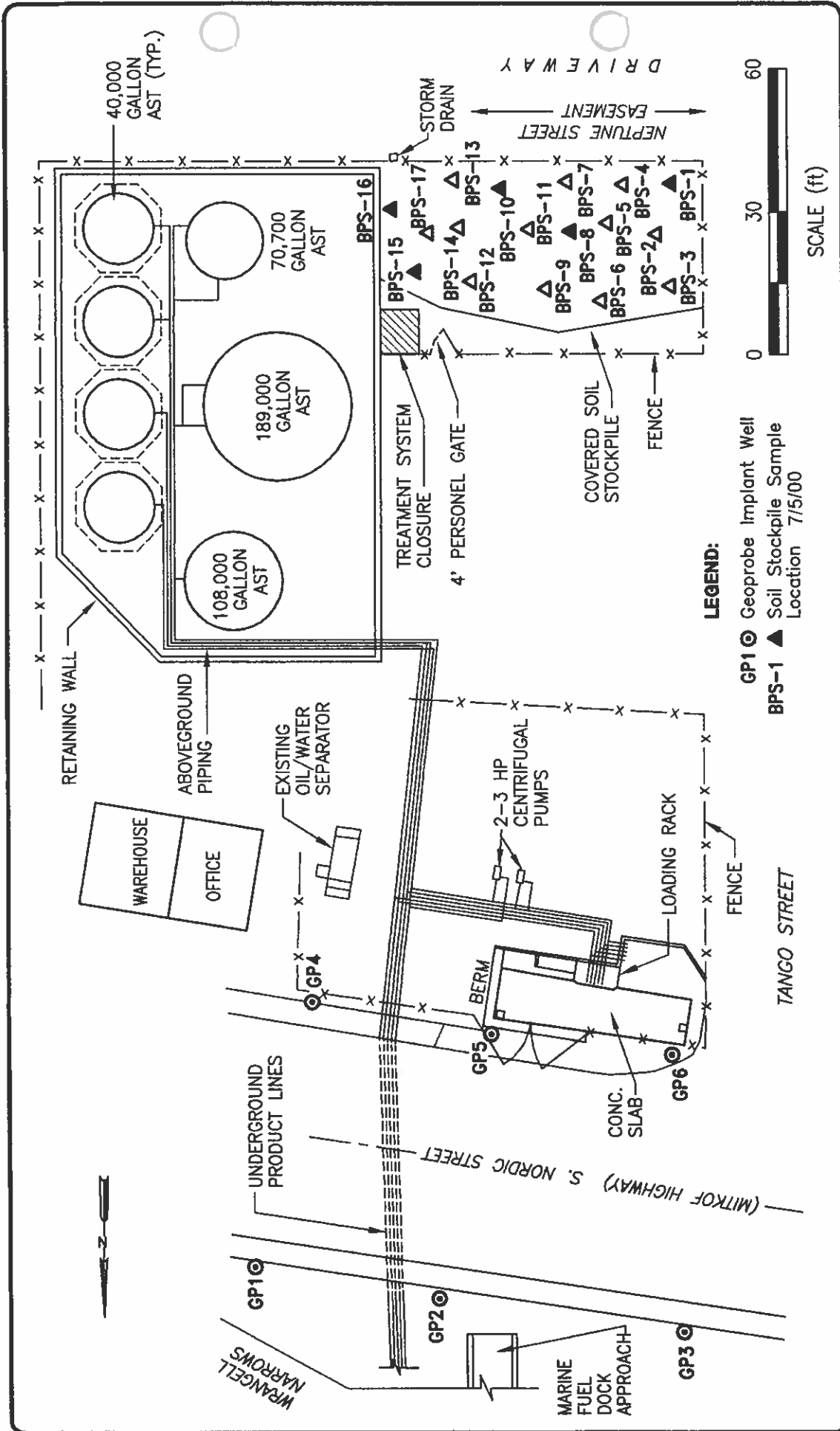


Figure 2

FORMER TOSCO BULK PLANT No. 0581
 703 SOUTH NORDIC STREET
 PETERSBURG, ALASKA

SAMPLE LOCATION MAP

DATE:	10-1-98 (REV. 10/21/98)
DESIGN BY:	LSP
DRAWN BY:	LSP
CHECKED BY:	
SCALE:	1"=30'
PROJECT NO.:	98-02-003
FILE:	NOLL-06

NOLL

Environmental, Inc.

**Table 1: Groundwater Laboratory Analytical Results (ppb)
Former Tosco Bulk Plant #0581, Petersburg, AK**

Sample ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	Total Dissolved Solids	Salinity	Sodium	Chloride
GP-1	7/5/00	nd	nd	nd	nd	--	--	--	538,000	1,030,000
	7/29/99	--*	--	--	--	--	--	--	--	--
	10/2/98	nd	nd	nd	nd	--	490	0.215	--	--
	5/19/98	nd	nd	nd	nd	--	--	--	--	--
	9/9/96	nd	nd	nd	nd	nd	--	--	--	--
GP-2	7/5/00	1.88	0.652	2.53	4.95	--	--	--	65,400	9,180
	7/29/99	--*	--	--	--	--	--	--	--	--
	10/2/98	0.644	nd	0.534	nd	--	330	0.118	--	--
	5/19/98	--	--	--	--	--	--	--	--	--
	9/9/96	nd	1.4	1.3	3.6	160	--	--	--	--
GP-3	7/5/00	nd	nd	nd	nd	--	--	--	7,650	17,100
	7/29/99	--*	--	--	--	--	--	--	--	--
	10/2/98	nd	nd	nd	nd	--	250	0.043	--	--
	5/19/98	--	--	--	--	--	--	--	--	--
	9/9/96	1.3	nd	nd	nd	nd	--	--	--	--
GP-4	7/5/00	nd	nd	nd	nd	--	--	--	--	28,700
	7/29/99	--*	--	--	--	--	--	--	--	--
	10/2/98	nd	nd	nd	nd	--	--	--	--	--
	5/19/98	--	--	--	--	--	--	--	--	--
	9/9/96	nd	nd	nd	nd	nd	--	--	--	--
GP-5	7/5/00	--*	--	--	--	--	--	--	--	--
	7/29/99	--*	--	--	--	--	--	--	--	--
	10/2/98	--*	--	--	--	--	--	--	--	--
	5/19/98	--	--	--	--	--	--	--	--	--
	9/9/96	--	--	--	--	--	275-425	280	--	--
GP-6	7/5/00	0.914	0.593	0.625	5.59	--	--	--	--	3,720
	7/29/99	--*	--	--	--	--	--	--	--	--
	10/2/98	0.825	nd	0.880	12.9	--	--	--	--	--
	5/19/98	--	--	--	--	--	--	--	--	--
	9/9/96	5.7	2.3	2.600	25	150	275-425	270	--	--
ADEC Cleanup Levels		5	1,000	700	10,000	--	500	--	--	--

ppb = parts per billion -- = Not Analyzed
 nd = Not Detected (See Lab Report for Detection Limits)
 BTEX = Benzene, toluene, ethylbenzene, and total xylenes

ADEC = Alaska Department of Environmental Conservation
 --* = Not Sampled - Well Dry
 GRO = Gasoline Range Hydrocarbons

**Table 2: Soil Laboratory Analytical Results (ppm)
Formco Cosco Bulk Plant #0581, Petersburg, AK**

Sample ID	Sample Date	Sample Depth (ft)	PID (ppm)	Sheen	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	DRO
BPS-1	7/5/00	2.0	--	--	--	--	--	--	--	3,340
	7/29/99	2.0	--	--	--	--	--	--	nd	1,770
	10/1/98	2.5	30.0	Slight	nd	nd	nd	nd	nd	549
	5/20/98	4.0	56.1	Moderate	--	--	--	--	--	2,410
BPS-2	10/1/98	1.5	2.0	none	--	--	--	--	--	--
BPS-3	7/29/99	1.8	--	--	--	--	--	--	nd	412
	10/1/98	3.5	24.7	Slight	nd	nd	0.402	2.69	44.2	399
	5/20/98	2.0	81.4	Slight	--	--	--	--	--	291
BPS-4 (BPC-13)	10/1/98	2.5	3.0	none	--	--	--	--	--	--
	5/20/98	2.5	92.0	Slight	--	--	--	--	--	695
	9/14/96	0.5	95.0	Slight-Mod	--	--	--	--	--	540
BPS-5	7/29/99	2.0	--	--	--	--	--	--	nd	628
	10/1/98	2.5	8.2	none	nd	nd	nd	0.114	nd	695
BPS-6	10/1/98	2.5	5.8	none	--	--	--	--	--	--
BPS-7	7/29/99	2.0	--	--	--	--	--	--	nd	731
	10/1/98	2.5	8.0	Slight	nd	nd	0.194	1.03	21.9	739
BPS-8	7/5/00	2.0	--	--	--	--	--	--	--	282
	7/29/99	2.0	--	--	--	--	--	--	5.59	1,100
	10/1/98	2.5	3.5	Slight	nd	2.80	0.638	2.59	60.0	1,020
BPS-9	10/1/98	2.5	0.0	none	--	--	--	--	--	--
	5/20/98	3.0	78.0	Slight	--	--	--	--	--	218
BPS-10	7/5/00	2.5	--	--	--	--	--	--	--	2,270
	7/29/99	2.0	--	--	--	--	--	--	nd	2,750
	10/1/98	2.5	12.0	Slight	nd	nd	nd	nd	nd	1,360
	5/20/98	5.0	84.1	Moderate	--	--	--	--	--	2,780
BPS-11	10/1/98	2.5	1.1	none	--	--	--	--	--	--
	5/20/98	2.0	102	Slight	nd	nd	nd	nd	--	316
BPS-12 (BPC-15)	7/29/99	2.0	--	--	--	--	--	--	nd	848
	10/2/98	2.5	1.0	Very Slight	nd	nd	nd	nd	nd	429
	5/20/98	3.0	91.0	Slight-Mod	--	--	--	--	--	1,050
	9/14/96	1.0	105.0	Slight	--	--	--	--	--	1,200
BPS-13	10/2/98	2.5	0.0	Very Slight	--	--	--	--	--	--
BPS-14 (BPC-14)	10/2/98	1.5	0.0	Very Slight	--	--	--	--	--	--
	5/20/98	2.0	68.4	Slight	--	--	--	--	--	156
	9/14/96	1.0	120.0	Slight	--	--	--	--	--	630
BPS-15	7/5/00	2.0	--	--	--	--	--	--	--	1,240
	7/29/99	2.0	--	--	--	--	--	--	nd	3,570
	10/2/98	2.5	8.0	Slight	nd	nd	0.335	1.87	26.8	1,030
	5/20/98	2.5	56.2	Slight	--	--	--	--	--	562
BPS-16	7/5/00	2.0	--	--	--	--	--	--	--	1,940
	7/29/99	2.0	--	--	--	--	--	--	nd	2,190
	10/2/98	2.5	1.0	Slight	nd	nd	nd	nd	nd	437
	5/20/98	3.0	106	Slight-Mod	nd	nd	nd	nd	nd	1,610
BPS-17	7/29/99	2.0	--	--	--	--	--	--	10.4	882
	10/2/98	2.5	5.0	Slight	nd	nd	0.347	1.57	37.4	770
ADEC Cleanup Standards					0.5	--	--	--	100	1,000
					Total BTEX = 15					

ppm = parts per million -- = Not Analyzed
ADEC = Alaska Department of Environmental Conservation
BTEX = Benzene, toluene, ethylbenzene, and total xylenes
DRO = Diesel Range Hydrocarbons

nd = Not Detected (See Lab Report for Detection Limits)
Bold = Exceeded ADEC Cleanup Standard for Soil
GRO = Gasoline Range Hydrocarbons

Analytical Laboratory Report



Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8223
 425.420.9210 fax 425.420.9210
 Spokane East 555 Montgomery, Suite B, Spokane, WA 99206-4776
 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

Noll Environmental
 11921 185th Ave. SE
 Snohomish WA, 98290

Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GP-1	B0G0140-01	Water	07/05/00 13:30	07/07/00 14:00
GP-2	B0G0140-02	Water	07/05/00 13:45	07/07/00 14:00
GP-3	B0G0140-03	Water	07/05/00 14:00	07/07/00 14:00
GP-4	B0G0140-04	Water	07/05/00 13:10	07/07/00 14:00
GP-6	B0G0140-05	Water	07/05/00 12:40	07/07/00 14:00
BPS-1-2	B0G0140-06	Soil	07/05/00 15:00	07/07/00 14:00
BPS-8-2	B0G0140-07	Soil	07/05/00 15:15	07/07/00 14:00
BPS-10-2.5	B0G0140-08	Soil	07/05/00 15:25	07/07/00 14:00
BPS-15-2	B0G0140-09	Soil	07/05/00 15:35	07/07/00 14:00
BPS-16-2	B0G0140-10	Soil	07/05/00 15:35	07/07/00 14:00

North Creek Analytical - Bothell

Steve Davis, Project Manager

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.

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



Seattle 117 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8223
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 Spokane East 115 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
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Noll Environmental
 11921 185th Ave. SE
 Snohomish WA, 98290

Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

**Diesel Hydrocarbons (C10-C18) by AK102 Modified
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BPS-1-2 (B0G0140-06) Soil Sampled: 07/05/00 15:00 Received: 07/07/00 14:00									
Diesel Range Hydrocarbons	3340	119	mg/kg dry	11	0G12028	07/12/00	07/15/00	AK 102	
Surrogate: 2-FBP	107 %	50-150			"	"	"	"	
BPS-8-2 (B0G0140-07) Soil Sampled: 07/05/00 15:15 Received: 07/07/00 14:00									
Diesel Range Hydrocarbons	282	12.0	mg/kg dry	3	0G12028	07/12/00	07/15/00	AK 102	
Surrogate: 2-FBP	88.7 %	50-150			"	"	"	"	
BPS-10-2.5 (B0G0140-08) Soil Sampled: 07/05/00 15:25 Received: 07/07/00 14:00									
Diesel Range Hydrocarbons	2270	204	mg/kg dry	11	0G12028	07/12/00	07/15/00	AK 102	
Surrogate: 2-FBP	93.6 %	50-150			"	"	"	"	
BPS-15-2 (B0G0140-09) Soil Sampled: 07/05/00 15:35 Received: 07/07/00 14:00									
Diesel Range Hydrocarbons	1240	406	mg/kg dry	41	0G12028	07/12/00	07/15/00	AK 102	
Surrogate: 2-FBP	93.1 %	50-150			"	"	"	"	
BPS-16-2 (B0G0140-10) Soil Sampled: 07/05/00 15:35 Received: 07/07/00 14:00									
Diesel Range Hydrocarbons	1940	69.5	mg/kg dry	5	0G12028	07/12/00	07/15/00	AK 102	
Surrogate: 2-FBP	89.7 %	50-150			"	"	"	"	

North Creek Analytical - Bothell

Steve Davis, Project Manager

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Noll Environmental
 11921 185th Ave. SE
 Snohomish WA, 98290

Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

BTEX by EPA Method 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GP-1 (B0G0140-01) Water Sampled: 07/05/00 13:30 Received: 07/07/00 14:00									
Benzene	ND	0.500	ug/l	1	0G12003	07/12/00	07/12/00	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	105 %	50-150			"	"	"	"	
GP-2 (B0G0140-02) Water Sampled: 07/05/00 13:45 Received: 07/07/00 14:00									
Benzene	1.88	0.500	ug/l	1	0G12003	07/12/00	07/12/00	EPA 8021B	
Toluene	0.652	0.500	"	"	"	"	"	"	
Ethylbenzene	2.53	0.500	"	"	"	"	"	"	
Xylenes (total)	4.95	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	106 %	50-150			"	"	"	"	
GP-3 (B0G0140-03) Water Sampled: 07/05/00 14:00 Received: 07/07/00 14:00									
Benzene	ND	0.500	ug/l	1	0G12003	07/12/00	07/12/00	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	109 %	50-150			"	"	"	"	
GP-4 (B0G0140-04) Water Sampled: 07/05/00 13:10 Received: 07/07/00 14:00									
Benzene	ND	0.500	ug/l	1	0G12003	07/12/00	07/12/00	EPA 8021B	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	109 %	50-150			"	"	"	"	

North Creek Analytical - Bothell

Steve Davis; Project Manager

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Noll Environmental 11921 185th Ave. SE Snohomish WA. 98290	Project: TOSCO Former Bulk Plant #0581 Project Number: 20-02 Project Manager: Michael D. Noll	Reported: 08/15/00 10:29
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BTEX by EPA Method 8021B
North Creek Analytical - Bothell

Analyte	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Result	Limit							
GP-6 (B0G0140-05) Water Sampled: 07/05/00 12:40 Received: 07/07/00 14:00									
Benzene	0.914	0.500	ug/l	1	0G12003	07/12/00	07/12/00	EPA 8021B	
Toluene	0.593	0.500	"	"	"	"	"	"	
Ethylbenzene	0.625	0.500	"	"	"	"	"	"	
Xylenes (total)	5.59	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	107 %	50-150			"	"	"	"	

North Creek Analytical - Bothell

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Noll Environmental
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Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

**Total Metals by EPA 6000/7000 Series Methods
 North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GP-1 (B0G0140-01) Water Sampled: 07/05/00 13:30 Received: 07/07/00 14:00									
Sodium	538	1.00	mg/l	2	0G11028	07/11/00	07/14/00	EPA 6010B	
GP-2 (B0G0140-02) Water Sampled: 07/05/00 13:45 Received: 07/07/00 14:00									
Sodium	65.4	0.500	mg/l	1	0G11028	07/11/00	07/14/00	EPA 6010B	
GP-3 (B0G0140-03) Water Sampled: 07/05/00 14:00 Received: 07/07/00 14:00									
Sodium	7.65	0.500	mg/l	1	0G11028	07/11/00	07/14/00	EPA 6010B	

North Creek Analytical - Bothell

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Noll Environmental 11921 185th Ave. SE Snohomish WA. 98290	Project: TOSCO Former Bulk Plant #0581 Project Number: 20-02 Project Manager: Michael D. Noll	Reported: 08/15/00 10:29
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**Anions by EPA Method 300.0
North Creek Analytical - Bothell**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GP-1 (B0G0140-01) Water	Sampled: 07/05/00 13:30		Received: 07/07/00 14:00						
Chloride	1030	60.0	mg/l	300	0G18007	07/17/00	07/17/00	EPA 300.0	
GP-2 (B0G0140-02) Water	Sampled: 07/05/00 13:45		Received: 07/07/00 14:00						
Chloride	9.18	0.400	mg/l	2	0G18007	07/17/00	07/17/00	EPA 300.0	
GP-3 (B0G0140-03) Water	Sampled: 07/05/00 14:00		Received: 07/07/00 14:00						
Chloride	17.1	0.800	mg/l	4	0G18007	07/17/00	07/17/00	EPA 300.0	
GP-4 (B0G0140-04) Water	Sampled: 07/05/00 13:10		Received: 07/07/00 14:00						
Chloride	28.7	1.00	mg/l	5	0G18007	07/17/00	07/17/00	EPA 300.0	
GP-6 (B0G0140-05) Water	Sampled: 07/05/00 12:40		Received: 07/07/00 14:00						
Chloride	3.72	0.200	mg/l	1	0G18039	07/18/00	07/18/00	EPA 300.0	

North Creek Analytical - Bothell

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Noll Environmental
 11921 185th Ave. SE
 Snohomish WA. 98290

Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BPS-1-2 (B0G0140-06) Soil Sampled: 07/05/00 15:00 Received: 07/07/00 14:00									
Dry Weight	37.1	1.00	%	1	0G11017	07/11/00	07/12/00	BSOPSPL003R07	
BPS-8-2 (B0G0140-07) Soil Sampled: 07/05/00 15:15 Received: 07/07/00 14:00									
Dry Weight	62.9	1.00	%	1	0G11017	07/11/00	07/12/00	BSOPSPL003R07	
BPS-10-2.5 (B0G0140-08) Soil Sampled: 07/05/00 15:25 Received: 07/07/00 14:00									
Dry Weight	21.5	1.00	%	1	0G11017	07/11/00	07/12/00	BSOPSPL003R07	
BPS-15-2 (B0G0140-09) Soil Sampled: 07/05/00 15:35 Received: 07/07/00 14:00									
Dry Weight	40.4	1.00	%	1	0G11017	07/11/00	07/12/00	BSOPSPL003R07	
BPS-16-2 (B0G0140-10) Soil Sampled: 07/05/00 15:35 Received: 07/07/00 14:00									
Dry Weight	28.8	1.00	%	1	0G11017	07/11/00	07/12/00	BSOPSPL003R07	

North Creek Analytical - Bothell

Steve Davis, Project Manager

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Noll Environmental 11921 185th Ave. SE Snohomish WA, 98290	Project: TOSCO Former Bulk Plant #0581 Project Number: 20-02 Project Manager: Michael D. Noll	Reported: 08/15/00 10:29
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Diesel Hydrocarbons (C10-C18) by AK102 Modified - 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 0G12028: Prepared 07/12/00 Using EPA 3550B

Blank (0G12028-BLK1)

Diesel Range Hydrocarbons	ND	4.00	mg/kg wet							
Surrogate: 2-FBP	10.7		"	12.8		83.6	50-150			

LCS (0G12028-BS1)

Diesel Range Hydrocarbons	61.4	4.00	mg/kg wet	80.0		76.8	60-120			
Surrogate: 2-FBP	11.4		"	12.8		89.1	50-150			

LCS Dup (0G12028-BSD1)

Diesel Range Hydrocarbons	52.3	4.00	mg/kg wet	80.0		65.4	60-120	16.0	20	
Surrogate: 2-FBP	9.37		"	12.8		73.2	50-150			

North Creek Analytical - Bothell

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Noll Environmental 11921 185th Ave. SE Snohomish WA. 98290	Project: TOSCO Former Bulk Plant #0581 Project Number: 20-02 Project Manager: Michael D. Noll	Reported: 08/15/00 10:29
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**BTEX by EPA Method 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 0G12003: Prepared 07/12/00 Using EPA 5030B (P/T)

Blank (0G12003-BLK1)

Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	52.0		"	48.0		108	50-150			

LCS (0G12003-BS2)

Benzene	9.57	0.500	ug/l	10.0		95.7	70-130			
Toluene	9.34	0.500	"	10.0		93.4	70-130			
Ethylbenzene	9.72	0.500	"	10.0		97.2	70-130			
Xylenes (total)	28.4	1.00	"	30.0		94.7	70-130			
Surrogate: 4-BFB (PID)	34.5		"	48.0		71.9	50-150			

Matrix Spike (0G12003-MS1)

Source: B0G0193-01

Benzene	10.1	0.500	ug/l	10.0	ND	100	70-130			
Toluene	9.75	0.500	"	10.0	ND	94.3	70-130			
Ethylbenzene	9.73	0.500	"	10.0	ND	97.3	70-130			
Xylenes (total)	29.3	1.00	"	30.0	ND	96.6	70-130			
Surrogate: 4-BFB (PID)	51.7		"	48.0		108	50-150			

Matrix Spike Dup (0G12003-MSD1)

Source: B0G0193-01

Benzene	10.4	0.500	ug/l	10.0	ND	103	70-130	2.93	15	
Toluene	10.0	0.500	"	10.0	ND	96.8	70-130	2.53	15	
Ethylbenzene	10.1	0.500	"	10.0	ND	101	70-130	3.73	15	
Xylenes (total)	30.6	1.00	"	30.0	ND	101	70-130	4.34	15	
Surrogate: 4-BFB (PID)	51.7		"	48.0		108	50-150			

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Noll Environmental
 11921 185th Ave. SE
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Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

**Total Metals by EPA 6000/7000 Series Methods - 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 0G11028: Prepared 07/11/00 Using EPA 3010A

Blank (0G11028-BLK1)

Sodium	ND	0.500	mg/l							
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LCS (0G11028-BS1)

Sodium	9.36	0.500	mg/l	10.0		93.6	80-120			
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Matrix Spike (0G11028-MS1)

Source: B0G0140-01

Sodium	532	1.00	mg/l	10.0	538	-60.0	80-120			Q-15
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Matrix Spike Dup (0G11028-MSD1)

Source: B0G0140-01

Sodium	548	1.00	mg/l	10.0	538	100	80-120	2.96	20	
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North Creek Analytical - Bothell

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Noll Environmental
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Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

**Anions by EPA Method 300.0 - 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 0G18007: Prepared 07/17/00 Using General Preparation

Blank (0G18007-BLK1)

Chloride	ND	0.200	mg/l							
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LCS (0G18007-BS1)

Chloride	1.95	0.200	mg/l	2.00		97.5	90-110			
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Duplicate (0G18007-DUP1)

Source: B0G0140-03

Chloride	16.7	0.800	mg/l		17.1			2.37	25	
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Matrix Spike (0G18007-MS1)

Source: B0G0140-03

Chloride	25.6	0.800	mg/l	8.00	17.1	106	80-120			
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Batch 0G18039: Prepared 07/18/00 Using General Preparation

Blank (0G18039-BLK1)

Chloride	ND	0.200	mg/l							
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LCS (0G18039-BS1)

Chloride	2.00	0.200	mg/l	2.00		100	90-110			
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Duplicate (0G18039-DUP1)

Source: B0G0291-01

Chloride	4.41	0.200	mg/l		4.73			7.00	25	
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Matrix Spike (0G18039-MS1)

Source: B0G0291-01

Chloride	6.90	0.200	mg/l	2.00	4.73	109	80-120			
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Project: TOSCO Former Bulk Plant #0581
 Project Number: 20-02
 Project Manager: Michael D. Noll

Reported:
 08/15/00 10:29

Physical Parameters by APHA/ASTM/EPA Methods - 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 0G11017: Prepared 07/11/00 Using Dry Weight

Blank (0G11017-BLK1)

Dry Weight	100	1.00	%							
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Blank (0G11017-BLK2)

Dry Weight	100	1.00	%							
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North Creek Analytical - Bothell

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

Steve Davis, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network



Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8223
 425.420.9200 fax 425.420.9210
 Spokane East 1st & Montgomery, Suite B, Spokane, WA 99205-4776
 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

Noll Environmental 11921 185th Ave. SE Snohomish WA, 98290	Project: TOSCO Former Bulk Plant #0581 Project Number: 20-02 Project Manager: Michael D. Noll	Reported: 08/15/00 10:29
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Notes and Definitions

- Q-15 Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
- 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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Steve Davis, Project Manager

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

TOSCO CHAIN OF CUSTODY REPORT

TOSCO INFORMATION

Facility Number: Former Bulk Plant # 0581
 Site Address: 703 South Nordic Street (Mittet Hwy)
 City, State, ZIP: Petersburg, AK 99833
 Site Release Number: -
 Tosco Manager: Marty Cramer
 CERT INFO: (check one) Evaluation Remediation
 Detection Demolition Closure Miscellaneous

CONSULTANT INFORMATION

Firm: Noll Environmental Inc Project# 20-02-
 Address: 11921-185th Ave SE
Snohomish, WA 98290
 Phone: (360) 794-9523 Fax: (360) 794-6578
 Project Manager: Mike Noll
 Sample Collection by: quidmeyer

Chain of Custody Record #:

Quality Assurance Data Level:
 A: Standard Summary
 B: Standard + Chromatograms
 Laboratory Turnaround D. 5 3 2 1

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W.S.O)	# OF CON-TAINERS
1. GP-1	7-5-00/1330	W	3
2. GP-2	/1345	W	3
3. GP-3	/1400	W	3
4. GP-4	/1310	W	2
5. GP-6	/1400	W	2
6. BPS-1-2	/1500	S	1
7. BPS-8-2	/1515	S	1
8. BPS-10-2.5	/1525	S	1
9. BPS-15-2	✓ /1535	S	1
10. BPS-16-2	7-5/1550	S	1

TPH-HCID	TPH-Gas	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel-Extended	TPH-Diesel-Ext. w/SG Cleanup	Halogen. Volatiles	EPA 8021	Pesticides/PCBs	GCMS Volatiles	EPA 8260	GCMS SemiVol.	EPA 8270	PAH's	8270 SIM or 8310	Lead	Total or Dissolved	TCLP or RCRA	Metals (8)	
	<input checked="" type="checkbox"/> BTEX																		
	<input checked="" type="checkbox"/>																		
	<input checked="" type="checkbox"/>																		
	<input checked="" type="checkbox"/>																		
	<input checked="" type="checkbox"/>																		
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	<input checked="" type="checkbox"/>																		
	<input checked="" type="checkbox"/>																		
	<input checked="" type="checkbox"/>																		

TPH-Gas + BTEX
TPH-Diesel
TPH-Diesel-Ext.
TPH-Diesel-Ext. w/SG Cleanup
Halogen. Volatiles
EPA 8021
Pesticides/PCBs
GCMS Volatiles
EPA 8260
GCMS SemiVol.
EPA 8270
PAH's
8270 SIM or 8310
Lead
Total or Dissolved
TCLP or RCRA
Metals (8)

OR WA AK NV Series

SAMPLES WERE NOT @ 2-6C UPON RECEIPT

Run if Volume sufficient

NCA SAMPLE NUMBER

Relinquished by: 1. Michael D. M Date & Time: 7-7-00/1140
2. Janell NOLL ENVIRONMENTAL Date & Time: 7-7-00
3.

Received by: Janell NOLL ENVIRONMENTAL Date & Time: 7-7-00
Robert Reed NCA-6 Date & Time: 7700 1400

Final Report Approval

Were all requested results provided? yes no Define

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

Final Approval Signature: _____ Date: _____