WEEKLY PROGRESS REPORT
SEPTEMBER 26 – OCTOBER 2, 2005

REMOVAL ACTION
NW NATURAL "GASCO" SITE

Prepared for Submittal to

U.S. Environmental Protection Agency, Region 10
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Seattle, Washington 98101

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1 INTRODUCTION

This weekly progress report is a requirement of the U.S. Environmental Protection Agency (EPA) approved Removal Action Project Plan (RAPP) and Section II.5 of the EPA Statement of Work (SOW) for the removal action at the "Gasco" site (Site). The RAPP was prepared to comply with requirements described in the EPA Administrative Order on Consent (Order) for the Site. Consistent with the schedule submitted to EPA (Appendix I of the RAPP), the construction contractor (Sevenson Environmental Services [SES]) initiated construction activities at the Site on August 22, 2005 following the pre-construction meeting. The remainder of this progress report documents the removal action activities that were conducted during the week of September 26 through October 2, 2005.

2 CONSTRUCTION ACTIVITIES

The following section describes the construction activities conducted at the Site from September 26, 2005 through October 2, 2005.

2.1 Site Construction Activities

2.1.1 In-Water Construction Activities

SES conducted the following in-water construction activities:

- Approximately 700-900 cubic yards of material were dredged from the inner removal area on September 26-27. The dredged material was loaded on haul barge #4 (CHETCO). Portland cement was added as a drying agent to the dredged material during the loading process.
- Approximately 1700-1800 cubic yards were dredged and placed on haul barge #5 (B10) on September 29-30.
- Divers from Northwest Underwater Construction (NUC) conducted an inspection of the inner silt curtain on September 26, 2005.
- On September 26, the Sea Lion derrick was delivered to the Site to assist in the installation of the anchor system for the outer removal area silt curtain and bedload baffle by divers from NUC. Additional anchor placement for the outer containment structures was conducted by NUC on October 1.
- Near-shore dredging was observed by an archaeologist from Archaeological Investigations Northwest on September 26, 29, and 30 while nearshore dredging was conducted within 50 ft of the Ordinary Low Water elevation.
- Water generated by the dewatering of the transfer barge was treated through a filtration system and discharged on September 26-October 1. In accordance with EPA requests, samples were collected from the pre- and post-treatment water on each of these days.
- On September 30, Hickey Marine delivered a replacement carbon vessel (2000 lb.) for the transfer barge dewatering filtration system. Hickey installed the new unit as a replacement of the existing 1000-lb vessel.
- On September 30, Hickey transported the Sea Hawk derrick and the drying reagent barge to their facility, where the drying agent barge was refilled with Portland cement on October 1.
- On September 26 and September 29, progress elevation surveys of the dredge prism area and the pipe-way and dock structure were conducted.

2.1.2 Waste Transportation and Off-loading

- Haul barge #4 (CHETCO) was tarped and transported off-Site for off-loading on September 28.
- Haul barge #5 (B10) was returned to the project site for loading on September 28.

2.2 Problems Encountered and Proposed Solutions

2.2.1 Silt Curtain

On September 26, staff from Anchor Environmental noted a tear in the flotation system (tear located above water line) for the inner containment silt curtain. The tear was located beneath the oil-pipeline walkway, and was approximately 10-12" in length. The tear was confined to the flotation portion of the curtain, and did not extend into the permeable curtain. Dredging was discontinued following identification of the tear even though the tear was above water and did not affect the performance of the silt curtain containment. Divers from NUC were dispatched to the Site to perform the repair on September 27 before dredging resumed.

3 MONITORING ACTIVITIES

3.1 Dredge Monitoring – Field Parameter Results

In accordance with Appendix D (i.e., Construction Water Sediment Monitoring Plan [WSMP]) of the RAPP, water quality monitoring for field parameters (turbidity, temperature, dissolved oxygen, pH, and visual monitoring for sheens) occurred during dredging operations at the Site and during offloading operations at the Transfer Facility in the Port of Morrow. During dredging, field parameters were monitored every four hours at one upcurrent station 300 feet from the inner containment area and three downcurrent stations 150 feet from the inner containment area. During offloading at the Transfer Facility, field parameters were monitored every four hours at one upcurrent station 300 feet from the offloading barge and three downcurrent stations 150 feet from the offloading barge. At both locations, samples were collected at three depths—one foot below the surface, mid-depth, and one foot above the bottom.

The field parameter results are summarized for the Site and the Transfer Facility in Tables 1 and 2 and compared to the triggers (from Table E-1 of the Removal Action Environmental Protection Plan [RAEPP]). At the Site, there were two exceedances of the turbidity triggers detailed in Table E-1 on September 26. These exceedances were similar to those identified during the first week of dredging (September 6 through 9, 2005), which were determined by EPA not to be related to the dredging activities. Therefore, dredging operations continued without modification. No other parameters at the Site (i.e., DO, pH, temperature) exceeded Table E-1 triggers during this monitoring period. At the Transfer Facility, no exceedances of the Table E-1 triggers were identified for any of the field parameters for this monitoring period.

During one monitoring event on September 27, 2005 and one event on September 29, 2005, the flow of the river at the Site was reversed due to flood tide conditions. As a result, the upcurrent background station was re-located downriver and the downcurrent compliance stations were re-located upriver. The station names for a flow reversal event were updated to the following:

- RAA-WCD8 = upcurrent background station; 300 feet from the inner containment
- RAA-WCU4 = downcurrent compliance station; 150 feet from the inner containment (closest station to shore)

- RAA-WCU5 = downcurrent compliance station; 150 feet from inner containment (middle station)
- RAA-WCU6 = downcurrent compliance station; 150 feet from inner containment (furthest station from shore)

This revised sample nomenclature will be used for all future monitoring events when flood tide conditions cause the river to flow upstream.

3.2 Dredge Monitoring – Laboratory Parameter Results

In accordance with the WSMP, water quality monitoring at the Site for laboratory parameters (PAHs [anthracene, benzo(b)anthracene, benzo(a)pyrene, dibenzofuran, fluoranthene, fluorene, naphthalene, and phenanthrene] and cyanide) also occurred during dredging operations at the Site. As a result of chemical exceedances identified during previous monitoring events at the Site, EPA required samples for laboratory analyses to be collected on a daily basis (during this week) during dredging at one upcurrent station and one downcurrent station. At each station, samples were collected at three different depths--one foot below the surface, mid-depth, and one foot above the bottom. Additional BMPs, including implementing a filtration system to treat excess fluids from the transfer barge prior to discharge to the inner containment area and adjusting dredging cycle times, were employed beginning September 19, 2005 and continued through October 2, 2005.

Unvalidated results and comparisons to chronic and acute trigger levels are provided in Table 3 for samples collected between September 13 and September 21, 2005. Exceedances of acute and chronic criteria for various PAHs were detected to varying degrees, as shown in Table 3.

At the request of EPA, additional water quality samples were collected daily (beginning September 27, 2005) at one additional downcurrent station (WCD4 or WCU3 when the flow is reversed) located further downstream from the 150 ft compliance zone monitoring stations, one station immediately inside the inner containment curtain (RAA-Inside), and one station immediately outside the inner containment curtain (RAA-outside). These samples were submitted to the laboratory for the identical list of laboratory parameters (i.e., PAHs [anthracene, benzo(b)anthracene, benzo(a)pyrene, dibenzofuran, fluoranthene,

fluorene, naphthalene, and phenanthrene] and cyanide). In addition, samples were collected at stations WCD2 (150 ft downcurrent compliance zone station), WCD4 (additional requested downcurrent station), and WCU (300 ft upcurrent compliance zone station), inside the inner containment curtain (RAA-Inside) and outside the inner containment curtain (RAA-Outside) on September 29, 2005 while no dredging was occurring. These additional samples were collected at the direction of EPA to help evaluate the potential origin of the chemical exceedances (i.e., from dredging activities and/or barge dewatering). Final unvalidated results of this additional analytical testing have not been received from the laboratory at the writing of this report on October 4, 2005.

3.3 Transfer Barge Dewater Monitoring – Laboratory Parameter Results

In addition to the water column monitoring for laboratory parameters, EPA directed NW Natural to conduct testing (identical analyte list as water column laboratory parameters) of the barge dewatering filtration system influent and effluent water. The influent water is the raw water that accumulated within the transfer barge and the effluent water is the filtered water that was subsequently discharged within the inner-containment curtain. EPA directed that this sampling be performed on a daily basis but indicated that the sampling frequency could be lowered if sampling reflects that the treatment system change out frequencies are working effectively.

Final unvalidated results are provided in Table 3 for samples collected between September 19 and 21, 2005. As a result of preliminary sample results from September 19 through September 21, 2005, EPA directed NW Natural to change out the water treatment system's carbon filter on September 28, 2005. As described in Section 2.1.1, a replacement carbon vessel was delivered to the Site and installed on September 30, 2005.

3.4 Baseline Suspended Sediment Monitoring – Laboratory Parameter Results

In accordance with the WSMP, sediment traps were installed at the Site prior to initiation of construction activities (July 14, 2005) to monitor for Site related contaminants suspending and settling in the vicinity of the removal action area. The sediment traps were located at three locations in the vicinity of the removal action area: upstream (RAA-STBU), immediately downstream from the location of the downstream portion of the curtain (RAA-STBM), and further downstream near the Army Corps of Engineers dock structure (RAA-

STBD). Baseline sampling of the sediment traps was performed on August 17, 2005 (34 day monitoring period). Sufficient accumulation occurred at each sampling station to analyze for conventionals (total solids, total organic carbon, and cyanide) and the full list of PAHs. The laboratory analytical results are provided in Table 4.

3.5 Dredge Monitoring – Silt Curtain-Mudline Interface

In addition to the collection of water samples for field and laboratory parameters, water samples were collected at the silt curtain/mudline interface on September 26, 27, 29, and 30, 2005 to monitor the effectiveness of the curtain containment at the mudline interface. One water sample was collected downstream just outside of the primary containment silt curtain. Sample descriptions on all four days indicated clear and colorless water with some particulate matter and organic particulates suspended in the water. None of the samples collected during the time period contained evidence of any tar or sheen.

3.6 Fish Casualties within the Inner Containment

On September 26, 2005, a distressed pan fish (blue gill or sunfish) was identified inside the containment area. An attempt was made to catch the fish and remove it, but it escaped. In addition, eight small dead pan fish between 0.75 and 2.0 inches long were found and removed from inside the inner containment area. Mitch Fong of NOAA Enforcement was called per the requirements of the RAPP, and water samples were collected from inside the containment area and were submitted to the laboratory for DO and total sulfide analyses per the requirements of the Water Quality Certification. Dredging continued and no modifications were made to the dredging operation.

Per requirements of the Water Quality Certification, water samples were collected inside the primary containment area to run DO and total sulfide analyses on September 14, 2005 after distressed pan fish (e.g., sunfish or blue gill) were identified. In addition, a water sample was collected just outside the primary containment area for comparison. Results are provided in Table 3 (RAA-WCIN and RAA-WCOUT) and show that the DO level inside the curtain was 8.77 mg/L while the DO level outside the curtain was 10.03 mg/L. The total sulfides concentration was non-detect for both samples.

4 PROPOSED WORK FOR WEEK OF OCTOBER 3, 2005

The following activities are proposed for the week beginning October 3, 2005:

- Complete the loading of haul barge #5 (B10) and transport to Port of Morrow for off-loading.
- Deliver haul barge #6 (183) to the site and begin loading with dredged material.
- Continue daily sample collection of influent and effluent from the transfer barge water treatment system.
- Install secondary carbon vessel (1000 lb.) in series with the 2000-lb. vessel as a final treatment step for water generated by the transfer barge.
- Complete bathymetric progress surveys and land based surveys of the pipe-way.
- Perform inspections of the inner silt curtain structure every three days as required by recent EPA email on this subject.
- Provide archaeology observation during all near shore dredging operations.

TABLES

Table 1.
Water Quality Field Parameter Monitoring Results Compared to Triggers - Gasco Site
September 6 through 9, 2005

							DO Triggers[2]			Temperature Triggers[2]			Turbidity Triggers[2]			pH Triggers[2]	
Station ID	Date	Time	Latitude (dd)[1]	Longitude (dd)	Depth (ft)	DO (mg/L)	Event Specific Background	Pre-construction Background	Temp (deg C)	Event Specific Background	Pre-construction Background	Turbidity (NTU)	Event Specific Background	Pre-construction Background	pH	Event Specific Background	Pre-construction Background
RAA-WCU[3]	9/26/2005	1025	45.57954	122.75578	1	9.21	NA	NA	16.83	NA	NA	9	NA	NA	7.28	NA	NA
RAA-WCU	9/26/2005	1025	45.57954	122.75578	10	9.13	NA	NA	16.80	NA	NA	8	NA	NA	7.35	NA	NA
RAA-WCU	9/26/2005	1025	45.57954	122.75578	22	9.06	NA	NA	16.79	NA	NA	10	NA	NA	7.28	NA	NA
RAA-WCD2	9/26/2005	1000	45.58085	122.75897	1	9.21	<6.5	<6.5	16.89	17.13	22.59	11	12	11.29	7.25	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1000	45.58085	122.75897	21	9.14	<6.5	<6.5	16.79	17.10	22.32	**14**	11	12.63	7.27	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1000	45.58085	122.75897	42	9.06	<6.5	<6.5	16.79	17.09	21.84	17	13	18.56	7.18	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	955	45.58096	122.75883	1	9.25	<6.5	<6.5	16.86	17.13	22.59	10	12	11.29	7.3	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	955	45.58096	122.75883	21	9.20	<6.5	<6.5	16.79	17.10	22.32	12	11	12.63	7.26	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	955	45.58096	122.75883	42	9.08	<6.5	<6.5	16.79	17.09	21.84	15	13	18.56	7.2	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU	9/26/2005	1405	45.57954	122.75578	1	9.32	NA	NA	17.41	NA	NA	6	NA	NA	7.33	NA	NA
RAA-WCU	9/26/2005	1405	45.57954	122.75578	16	9.22	NA	NA	16.98	NA	NA	8	NA	NA	7.25	NA	NA
RAA-WCU	9/26/2005	1405	45.57954	122.75578	30	9.21	NA	NA	16.97	NA	NA	9	NA	NA	7.23	NA	NA
RAA-WCD1	9/26/2005	1445	45.58060	122.75912	1	9.45	<6.5	<6.5	17.28	17.71	22.59	9	9	11.29	7.32	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/26/2005	1445	45.58060	122.75912	17	9.37	<6.5	<6.5	16.99	17.28	22.32	9	11	12.63	7.22	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/26/2005	1445	45.58060	122.75912	34	9.24	<6.5	<6.5	16.98	17.27	21.84	12	12	18.56	7.18	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1430	45.58085	122.75897	1	9.42	<6.5	<6.5	17.20	17.71	22.59	6	9	11.29	7.31	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1430	45.58085	122.75897	23	9.33	<6.5	<6.5	17.01	17.28	22.32	10	11	12.63	7.24	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1430	45.58085	122.75897	45	9.20	<6.5	<6.5	17.01	17.27	21.84	8	12	18.56	7.20	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	1420	45.58096	122.75883	1	9.45	<6.5	<6.5	17.54	17.71	22.59	6	9	11.29	7.32	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	1420	45.58096	122.75883	23	9.33	<6.5	<6.5	17.06	17.28	22.32	7	11	12.63	7.25	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	1420	45.58096	122.75883	45	9.24	<6.5	<6.5	17.04	17.27	21.84	8	12	18.56	7.20	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU	9/26/2005	1610	45.57954	122.75578	1	9.55	NA	NA	18.24	NA	NA	4	NA	NA	7.26	NA	NA
RAA-WCU	9/26/2005	1610	45.57954	122.75578	16	9.21	NA	NA	16.93	NA	NA	7	NA	NA	7.17	NA	NA
RAA-WCU	9/26/2005	1610	45.57954	122.75578	33	9.07	NA	NA	16.87	NA	NA	10	NA	NA	7.12	NA	NA
RAA-WCD1	9/26/2005	1645	45.58060	122.75912	1	9.22	<6.5	<6.5	17.21	18.54	22.59	**12**	7	11.29	7.18	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/26/2005	1645	45.58060	122.75912	17	9.30	<6.5	<6.5	17.03	17.23	22.32	10	10	12.63	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/26/2005	1645	45.58060	122.75912	34	9.00	<6.5	<6.5	17.08	17.17	21.84	15	13	18.56	7.15	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1635	45.58085	122.75897	1	9.27	<6.5	<6.5	17.10	18.54	22.59	8	7	11.29	7.21	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1635	45.58085	122.75897	23	9.30	<6.5	<6.5	17.03	17.23	22.32	8	10	12.63	7.21	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/26/2005	1635	45.58085	122.75897	44	9.21	<6.5	<6.5	17.03	17.17	21.84	9	13	18.56	7.20	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	1630	45.58096	122.75883	1	9.35	<6.5	<6.5	17.15	18.54	22.59	9	7	11.29	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	1630	45.58096	122.75883	23	9.30	<6.5	<6.5	17.04	17.23	22.32	8	10	12.63	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/26/2005	1630	45.58096	122.75883	45	9.22	<6.5	<6.5	17.02	17.17	21.84	8	13	18.56	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD8[4]	9/27/2005	1445	45.58091	122.75964	1	9.19	NA	NA	17.39	NA	NA	3.01	NA	NA	7.31	NA	NA
RAA-WCD8	9/27/2005	1445	45.58091	122.75964	23	9.04	NA	NA	17.01	NA	NA	3.73	NA	NA	7.25	NA	NA
RAA-WCD8	9/27/2005	1445	45.58091	122.75964	45	8.86	NA	NA	16.92	NA	NA	4.37	NA	NA	7.17	NA	NA
RAA-WCU4	9/27/2005	1310	45.57937	122.75626	1	9.33	<6.5	<6.5	17.04	17.69	22.59	5.84	6	11.29	7.31	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU4	9/27/2005	1310	45.57937	122.75626	10	9.38	<6.5	<6.5	16.87	17.22	21.84	4.72	7	18.56	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU5	9/27/2005	1320	45.57959	122.75603	1	9.40	<6.5	<6.5	17.02	17.69	22.59	5.04	6	11.29	7.24	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU5	9/27/2005	1320	45.57959	122.75603	18	9.28	<6.5	<6.5	16.89	17.31	22.32	5.24	7	12.63	7.21	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU5	9/27/2005	1320	45.57959	122.75603	35	9.23	<6.5	<6.5	16.86	17.22	21.84	5.53	7	18.56	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU6	9/27/2005	1405	45.57986	122.75613	1	9.26	<6.5	<6.5	17.04	17.69	22.59	5.03	6	11.29	7.37	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU6	9/27/2005	1405	45.57986	122.75613	22	9.21	<6.5	<6.5	17.00	17.31	22.32	4.39	7	12.63	7.25	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU6	9/27/2005	1405	45.57986	122.75613	42	9.15	<6.5	<6.5	16.96	17.22	21.84	4.52	7	18.56	7.21	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU	9/29/2005	1019	45.57954	122.75578	1	9.31	NA	NA	16.61	NA	NA	4	NA	NA	7.24	NA	NA
RAA-WCU	9/29/2005	1019	45.57954	122.75578	9	9.32	NA	NA	16.62	NA	NA	4	NA	NA	7.23	NA	NA
RAA-WCU	9/29/2005	1019	45.57954	122.75578	17	9.21	NA	NA	16.50	NA	NA	5	NA	NA	7.23	NA	NA
RAA-WCD1	9/29/2005	1048	45.58060	122.75912	1	9.41	<6.5	<6.5	16.59	16.91	22.59	6	7	11.29	7.26	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/29/2005	1048	45.58060	122.75912	15	9.32	<6.5	<6.5	16.55	16.92	22.32	6	7	12.63	7.25	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/29/2005	1048	45.58060	122.75912	29	9.25	<6.5	<6.5	16.54	16.80	21.84	6	8	18.56	7.22	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/29/2005	1127	45.58085	122.75897	1	9.38	<6.5	<6.5	16.58	16.91	22.59	5	7	11.29	7.23	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/29/2005	1127	45.58085	122.75897	22	9.28	<6.5	<6.5	16.52	16.92	22.32	5	7	12.63	7.22	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD2	9/29/2005	1127	45.58085	122.75897	43	9.22	<6.5	<6.5	16.52	16.80	21.84	5	8	18.56	7.16	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/29/2005	1134	45.58096	122.75883	1	9.33	<6.5	<6.5	16.58	16.91	22.59	5	7	11.29	7.22	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/29/2005	1134	45.58096	122.75883	22	9.29	<6.5	<6.5	16.53	16.92	22.32	5	7	12.63	7.20	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD3	9/29/2005	1134	45.58096	122.75883	43	9.18	<6.5	<6.5	16.53	16.80	21.84	5	8	18.56	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD8[4]	9/29/2005	1445	45.58091	122.75964	1	9.40	NA	NA	16.99	NA	NA	3	NA	NA	7.29	NA	NA
RAA-WCD8	9/29/2005	1445	45.58091	122.75964	16	9.30	NA	NA	16.82	NA	NA	3	NA	NA	7.22	NA	NA
RAA-WCD8	9/29/2005	1445	45.58091	122.75964	35	9.25	NA	NA	16.82	NA	NA	4	NA	NA	7.18	NA	NA
RAA-WCU4	9/29/2005	1410	45.57937	122.75626	1	9.50	<6.5	<6.5	16.66	17.29	22.59	5	6	11.29	7.22	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU4	9/29/2005	1410	45.57937	122.75626	6	9.47	<6.5	<6.5	16.63	17.12	22.32	6	6	12.63	7.19	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU4	9/29/2005	1410	45.57937	122.75626	11	9.45	<6.5	<6.5	16.61	17.12	21.84	6	7	18.56	7.26	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU5	9/29/2005	1415	45.57959	122.75603	1	9.41	<6.5	<6.5	16.65	17.29	22.59	5	6	11.29	7.28	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU5	9/29/2005	1415	45.57959	122.75603	16	9.36	<6.5	<6.5	16.58	17.12	22.32	6	6	12.63	7.24	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU5	9/29/2005	1415	45.57959	122.75603	33	9.27	<6.5	<6.5	16.58	17.12	21.84	7	7	18.56	7.21	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU6	9/29/2005	1426	45.57986	122.75613	1	9.40	<6.5	<6.5	16.66	17.29	22.59	5	6	11.29	7.26	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU6	9/29/2005	1426	45.57986	122.75613	21	9.36	<6.5	<6.5	16.60	17.12	22.32	5	6	12.63	7.21	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU6	9/29/2005	1426	45.57986	122.75613	41	9.22	<6.5	<6.5	16.54	17.12	21.84	5	7	18.56	7.18	<6.5 or >8.5	<6.5 or >8.5
RAA-WCU	9/30/2005	1400	45.57954	122.75578	1	NC[5]	NA	NA	16.53	NA	NA	3.23	NA	NA	7.26	NA	NA
RAA-WCU	9/30/2005	1400	45.57954	122.75578	13	NC	NA	NA	16.50	NA	NA	3.21	NA	NA	7.27	NA	NA
RAA-WCU	9/30/2005	1400	45.57954	122.75578	21	NC	NA	NA	16.51	NA	NA	3.42	NA	NA	7.26	NA	NA
RAA-WCD1	9/30/2005	1315	45.58060	122.75912	1	8.38[6]	<6.5	<6.5	16.47	16.91	22.59	4.95	6	11.29	7.23	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/30/2005	1315	45.58060	122.75912	16	NC	<6.5	<6.5	16.47	16.92	22.32	5.55	6	12.63	7.22	<6.5 or >8.5	<6.5 or >8.5
RAA-WCD1	9/30/2005	1315	45.58060	122.75912	31	NC	<6.5	<6.5	16.47	16.80	21.84	5.97	6	18.56	7.22	<6.5 or >8.5	<6.5 or >8.5

Notes: [1]Datum for coordinates is NAD 83.

[2]Trigger is exceeded where downstream conditions exceed the specified amounts relative to both the event-specific background and the pre-construction background survey (95% upper confidence limit on the mean for

[3]RAA-WCU is the upstream event-specific background station.

[4]Flow was reversed during this round of sampling; therefore the upcurrent station was RAA-WCD8 and the downcurrent stations were RAA-WCU4, RAA-WCU5, and RAA-WCU6.

[5]Hydrolab dissolved oxygen probe not working properly.

[6]Dissolved oxygen meaurement obtained by the Winkler method.

BOLD indicates an exceedance

Table 2.
Water Quality Field Parameters Monitoring Results Compared to Triggers—Transfer Facility
September 19 through 25, 2005

							DO Triggers[2]			Temperature Triggers[2]			Turbidity Triggers[2]			pH Triggers[2]	
Station ID	Date	Time	Latitude (dd)[1]	Longitude (dd)	Depth (ft)	DO (mg/L)	Event Specific Background	Pre-construction Background	Temp (deg C)	Event Specific Background	Pre-construction Background	Turbidity (NTU)	Event Specific Background	Pre-construction Background	pH	Event Specific Background	Pre-construction Background
TF-WCU	9/26/2005	1000	45.85347	119.67043	1	8.57	NA	NA	18.17	NA	NA	1.75	NA	NA	7.86	NA	NA
TF-WCU	9/26/2005	1000	45.85347	119.67043	6.5	8.51	NA	NA	18.05	NA	NA	2.18	NA	NA	7.98	NA	NA
TF-WCU	9/26/2005	1000	45.85347	119.67043	12	8.56	NA	NA	17.84	NA	NA	1.77	NA	NA	8.06	NA	NA
TF-WCD1	9/26/2005	915	45.85352	119.67284	1	8.59	<6.5	<6.5	18.18	18.47	21.78	1.88	4.75	6.33	7.79	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/26/2005	915	45.85352	119.67284	7	8.58	<6.5	<6.5	18.12	18.35	21.48	1.53	5.18	6.58	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/26/2005	915	45.85352	119.67284	13.5	8.46	<6.5	<6.5	18.11	18.14	21.42	1.84	4.77	6.64	8.04	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	935	45.85359	119.67266	1	8.71	<6.5	<6.5	18.19	18.47	21.78	2.12	4.75	6.33	7.88	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	935	45.85359	119.67266	11.5	8.60	<6.5	<6.5	18.09	18.35	21.48	2.35	5.18	6.58	8.02	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	935	45.85359	119.67266	22	8.62	<6.5	<6.5	18.02	18.14	21.42	2.02	4.77	6.64	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	950	45.85361	119.67239	1	8.70	<6.5	<6.5	18.22	18.47	21.78	1.59	4.75	6.33	7.87	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	950	45.85361	119.67239	12.5	8.61	<6.5	<6.5	18.03	18.35	21.48	1.91	5.18	6.58	7.99	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	950	45.85361	119.67239	24	8.64	<6.5	<6.5	17.86	18.14	21.42	1.88	4.77	6.64	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/26/2005	1531	45.85347	119.67043	1	8.82	NA	NA	18.86	NA	NA	1.51	NA	NA	8.00	NA	NA
TF-WCU	9/26/2005	1531	45.85347	119.67043	7	8.61	NA	NA	18.69	NA	NA	1.63	NA	NA	8.05	NA	NA
TF-WCU	9/26/2005	1531	45.85347	119.67043	13	8.94	NA	NA	18.57	NA	NA	1.43	NA	NA	8.04	NA	NA
TF-WCD1	9/26/2005	1458	45.85352	119.67284	1	8.95	<6.5	<6.5	18.71	19.16	21.78	1.44	4.51	6.33	7.94	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/26/2005	1458	45.85352	119.67284	8	8.40	<6.5	<6.5	18.70	18.99	21.48	1.41	4.63	6.58	8.04	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/26/2005	1458	45.85352	119.67284	15	8.63	<6.5	<6.5	18.71	18.87	21.42	1.47	4.43	6.64	8.03	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	1510	45.85359	119.67266	1	8.95	<6.5	<6.5	18.80	19.16	21.78	1.26	4.51	6.33	7.94	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	1510	45.85359	119.67266	12	8.52	<6.5	<6.5	18.65	18.99	21.48	1.49	4.63	6.58	8.03	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	1510	45.85359	119.67266	23	8.64	<6.5	<6.5	18.64	18.87	21.42	1.60	4.43	6.64	8.03	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	1520	45.85361	119.67239	1	9.08	<6.5	<6.5	18.89	19.16	21.78	1.60	4.51	6.33	7.95	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	1520	45.85361	119.67239	12	8.71	<6.5	<6.5	18.62	18.99	21.48	1.69	4.63	6.58	8.03	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	1520	45.85361	119.67239	23.5	8.46	<6.5	<6.5	18.54	18.87	21.42	1.54	4.43	6.64	8.02	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/26/2005	1750	45.85347	119.67043	1	8.96	NA	NA	19.08	NA	NA	1.27	NA	NA	8.02	NA	NA
TF-WCU	9/26/2005	1750	45.85347	119.67043	6.5	8.51	NA	NA	18.47	NA	NA	2.10	NA	NA	8.04	NA	NA
TF-WCU	9/26/2005	1750	45.85347	119.67043	12	8.53	NA	NA	18.21	NA	NA	2.35	NA	NA	8.00	NA	NA
TF-WCD1	9/26/2005	1710	45.85352	119.67284	1	9.13	<6.5	<6.5	19.02	19.38	21.78	1.32	4.27	6.33	8.12	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/26/2005	1710	45.85352	119.67284	7	8.76	<6.5	<6.5	18.30	18.77	21.48	1.75	5.10	6.58	8.07	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/26/2005	1710	45.85352	119.67284	13.5	8.57	<6.5	<6.5	18.19	18.51	21.42	2.00	5.35	6.64	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	1730	45.85359	119.67266	1	9.03	<6.5	<6.5	19.09	19.38	21.78	1.33	4.27	6.33	8.12	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	1730	45.85359	119.67266	11.5	8.56	<6.5	<6.5	18.29	18.77	21.48	1.68	5.10	6.58	8.07	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/26/2005	1730	45.85359	119.67266	22	8.48	<6.5	<6.5	18.07	18.51	21.42	2.22	5.35	6.64	7.93	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	1745	45.85361	119.67239	1	9.11	<6.5	<6.5	19.06	19.38	21.78	1.27	4.27	6.33	8.05	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	1745	45.85361	119.67239	12.5	8.41	<6.5	<6.5	18.27	18.77	21.48	1.95	5.10	6.58	8.03	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/26/2005	1745	45.85361	119.67239	24	8.43	<6.5	<6.5	18.11	18.51	21.42	2.21	5.35	6.64	7.95	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/27/2005	944	45.85347	119.67043	1	8.86	NA	NA	18.16	NA	NA	1.49	NA	NA	7.91	NA	NA
TF-WCU	9/27/2005	944	45.85347	119.67043	6.5	8.84	NA	NA	18.10	NA	NA	1.76	NA	NA	7.97	NA	NA
TF-WCU	9/27/2005	944	45.85347	119.67043	12	8.91	NA	NA	17.94	NA	NA	1.94	NA	NA	8.01	NA	NA
TF-WCD1	9/27/2005	905	45.85352	119.67284	1	8.85	<6.5	<6.5	18.11	18.46	21.78	2.02	4.49	6.33	7.89	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/27/2005	905	45.85352	119.67284	5.5	8.81	<6.5	<6.5	18.05	18.40	21.48	2.17	4.76	6.58	7.96	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/27/2005	905	45.85352	119.67284	10.5	8.87	<6.5	<6.5	18.02	18.24	21.42	2.02	4.94	6.64	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/27/2005	917	45.85359	119.67266	1	8.77	<6.5	<6.5	18.03	18.46	21.78	1.73	4.49	6.33	7.90	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/27/2005	917	45.85359	119.67266	12	8.84	<6.5	<6.5	17.97	18.40	21.48	2.28	4.76	6.58	8.02	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/27/2005	917	45.85359	119.67266	23	8.81	<6.5	<6.5	17.94	18.24	21.42	2.29	4.94	6.64	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/27/2005	930	45.85361	119.67239	1	8.95	<6.5	<6.5	18.15	18.46	21.78	1.45	4.49	6.33	7.91	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/27/2005	930	45.85361	119.67239	12.5	8.79	<6.5	<6.5	17.99	18.40	21.48	2.03	4.76	6.58	8.02	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/27/2005	930	45.85361	119.67239	24.5	8.79	<6.5	<6.5	17.96	18.24	21.42	1.72	4.94	6.64	8.02	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/27/2005	1428	45.85347	119.67043	1	9.07	NA	NA	19.00	NA	NA	1.30	NA	NA	8.00	NA	NA
TF-WCU	9/27/2005	1428	45.85347	119.67043	7	8.89	NA	NA	18.76	NA	NA	1.43	NA	NA	8.10	NA	NA
TF-WCU	9/27/2005	1428	45.85347	119.67043	13.5	8.60	NA	NA	18.64	NA	NA	1.54	NA	NA	8.15	NA	NA
TF-WCD1	9/27/2005	1330	45.85352	119.67284	1	8.89	<6.5	<6.5	18.93	19.30	21.78	1.36	4.30	6.33	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/27/2005	1330	45.85352	119.67284	5	9.01	<6.5	<6.5	18.91	19.06	21.48	1.22	4.43	6.58	7.99	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/27/2005	1330	45.85352	119.67284	9.5	8.80	<6.5	<6.5	18.90	18.94	21.42	1.26	4.54	6.64	8.05	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/27/2005	1351	45.85359	119.67266	1	8.84	<6.5	<6.5	19.01	19.30	21.78	1.26	4.30	6.33	7.96	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/27/2005	1351	45.85359	119.67266	12	8.81	<6.5	<6.5	18.84	19.06	21.48	1.46	4.43	6.58	8.07	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/27/2005	1351	45.85359	119.67266	23	8.73	<6.5	<6.5	18.84	18.94	21.42	2.61	4.54	6.64	8.08	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/27/2005	1408	45.85361	119.67239	1	8.85	<6.5	<6.5	19.10	19.30	21.78	1.14	4.30	6.33	7.95	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/27/2005	1408	45.85361	119.67239	12.5	9.09	<6.5	<6.5	18.84	19.06	21.48	1.29	4.43	6.58	8.08	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/27/2005	1408	45.85361	119.67239	24	9.04	<6.5	<6.5	18.65	18.94	21.42	1.99	4.54	6.64	8.08	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/28/2005	955	45.85347	119.67043	1	8.86	NA	NA	18.09	NA	NA	1.93	NA	NA	7.81	NA	NA
TF-WCU	9/28/2005	955	45.85347	119.67043	7	8.82	NA	NA	18.05	NA	NA	1.85	NA	NA	8.00	NA	NA
TF-WCU	9/28/2005	955	45.85347	119.67043	13.5	8.80	NA	NA	17.88	NA	NA	2.24	NA	NA	8.05	NA	NA
TF-WCD1	9/28/2005	850	45.85352	119.67284	1	8.80	<6.5	<6.5	18.05	18.39	21.78	1.78	4.93	6.33	7.89	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/28/2005	850	45.85352	119.67284	7	8.74	<6.5	<6.5	18.06	18.35	21.48	1.65	4.85	6.58	8.02	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/28/2005	850	45.85352	119.67284	13	8.76	<6.5	<6.5	18.06	18.18	21.42	1.84	5.24	6.64	8.03	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	920	45.85359	119.67266	1	8.87	<6.5	<6.5	18.06	18.39	21.78	1.96	4.93	6.33	7.88	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	920	45.85359	119.67266	12.5	8.75	<6.5	<6.5	18.05	18.35	21.48	1.81	4.85	6.58	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	920	45.85359	119.67266	24	8.77	<6.5	<6.5	18.04	18.18	21.42	1.75	5.24	6.64	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	935	45.85361	119.67239	1	8.78	<6.5	<6.5	18.06	18.39	21.78	1.75	4.93	6.33	7.87	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	935	45.85361	119.67239	12.5	8.71	<6.5	<6.5	18.06	18.35	21.48	1.74	4.85	6.58	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	935	45.85361	119.67239	24	8.75	<6.5	<6.5	18.04	18.18	21.42	1.92	5.24	6.64	7.99	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/28/2005	1425	45.85347	119.67043	1	9.00	NA	NA	18.56	NA	NA	1.38	NA	NA	8.02	NA	NA
TF-WCU	9/28/2005	1425	45.85347	119.67043	7.5	8.89	NA	NA	18.53	NA	NA	1.61	NA	NA	8.08	NA	NA
TF-WCU	9/28/2005	1425	45.85347	119.67043	14	8.78	NA	NA	18.52	NA	NA	1.28	NA	NA	8.10	NA	NA
TF-WCD1	9/28/2005	1330	45.85352	119.67284	1	9.09	<6.5	<6.5	18.63	18.86	21.78	1.27	4.38	6.33	7.97	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/28/2005	1330	45.85352	119.67284	4	8.91	<6.5	<6.5	18.59	18.83	21.48	1.13	4.61	6.58	8.00	<6.5 or >8.5	<6.5 or >8.5

Table 2.
Water Quality Field Parameters Monitoring Results Compared to Triggers—Transfer Facility
September 19 through 25, 2005

							DO Triggers[2]			Temperature Triggers[2]			Turbidity Triggers[2]			pH Triggers[2]	
Station ID	Date	Time	Latitude (dd)[1]	Longitude (dd)	Depth (ft)	DO (mg/L)	Event Specific Background	Pre-construction Background	Temp (deg C)	Event Specific Background	Pre-construction Background	Turbidity (NTU)	Event Specific Background	Pre-construction Background	pH	Event Specific Background	Pre-construction Background
TF-WCD1	9/28/2005	1330	45.85352	119.67284	16	8.80	<6.5	<6.5	18.62	18.82	21.42	1.14	4.28	6.64	8.04	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	1350	45.85359	119.67266	1	9.02	<6.5	<6.5	18.60	18.86	21.78	1.19	4.38	6.33	7.97	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	1350	45.85359	119.67266	12	8.92	<6.5	<6.5	18.59	18.83	21.48	1.48	4.61	6.58	8.04	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	1350	45.85359	119.67266	23.5	8.91	<6.5	<6.5	18.59	18.82	21.42	0.98	4.28	6.64	8.05	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	1410	45.85361	119.67239	1	9.14	<6.5	<6.5	18.62	18.86	21.78	1.43	4.38	6.33	7.98	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	1410	45.85361	119.67239	12	8.97	<6.5	<6.5	18.48	18.83	21.48	1.38	4.61	6.58	8.05	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	1410	45.85361	119.67239	23.5	8.88	<6.5	<6.5	18.38	18.82	21.42	1.78	4.28	6.64	8.05	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/28/2005	1620	45.85347	119.67043	1	9.18	NA	NA	19.96	NA	NA	1.55	NA	NA	8.02	NA	NA
TF-WCU	9/28/2005	1620	45.85347	119.67043	7	9.11	NA	NA	18.64	NA	NA	1.60	NA	NA	8.03	NA	NA
TF-WCU	9/28/2005	1620	45.85347	119.67043	13.5	9.09	NA	NA	18.57	NA	NA	1.98	NA	NA	8.10	NA	NA
TF-WCD1	9/28/2005	1550	45.85352	119.67284	1	9.17	<6.5	<6.5	18.80	20.26	21.78	2.24	4.55	6.33	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/28/2005	1550	45.85352	119.67284	6	8.94	<6.5	<6.5	18.72	18.94	21.48	1.72	4.60	6.58	8.08	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/28/2005	1550	45.85352	119.67284	10.5	8.97	<6.5	<6.5	18.70	18.87	21.42	1.54	4.98	6.64	8.12	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	1600	45.85359	119.67266	1	9.08	<6.5	<6.5	18.78	20.26	21.78	1.49	4.55	6.33	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	1600	45.85359	119.67266	12	9.10	<6.5	<6.5	18.51	18.94	21.48	1.98	4.60	6.58	8.09	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/28/2005	1600	45.85359	119.67266	23.5	8.48	<6.5	<6.5	18.20	18.87	21.42	2.09	4.98	6.64	7.98	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	1605	45.85361	119.67239	1	9.15	<6.5	<6.5	18.86	20.26	21.78	1.50	4.55	6.33	8.01	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	1605	45.85361	119.67239	12.5	9.01	<6.5	<6.5	18.42	18.94	21.48	1.63	4.60	6.58	8.08	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/28/2005	1605	45.85361	119.67239	24.5	8.56	<6.5	<6.5	18.22	18.87	21.42	1.89	4.98	6.64	7.98	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/29/2005	840	45.85347	119.67043	1	8.93	NA	NA	17.74	NA	NA	1.58	NA	NA	7.86	NA	NA
TF-WCU	9/29/2005	840	45.85347	119.67043	6.5	8.81	NA	NA	17.74	NA	NA	1.82	NA	NA	7.89	NA	NA
TF-WCU	9/29/2005	840	45.85347	119.67043	12.5	8.89	NA	NA	17.74	NA	NA	1.85	NA	NA	7.90	NA	NA
TF-WCD1	9/29/2005	735	45.85352	119.67284	1	8.86	<6.5	<6.5	17.75	18.04	21.78	1.97	4.58	6.33	7.85	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/29/2005	735	45.85352	119.67284	9	8.85	<6.5	<6.5	17.80	18.04	21.48	1.84	4.82	6.58	7.87	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/29/2005	735	45.85352	119.67284	17	8.87	<6.5	<6.5	17.79	18.04	21.42	2.56	4.85	6.64	7.85	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/29/2005	755	45.85359	119.67266	1	8.82	<6.5	<6.5	17.74	18.04	21.78	1.84	4.58	6.33	7.85	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/29/2005	755	45.85359	119.67266	12.5	8.84	<6.5	<6.5	17.76	18.04	21.48	2.17	4.82	6.58	7.87	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/29/2005	755	45.85359	119.67266	24	8.81	<6.5	<6.5	17.76	18.04	21.42	2.05	4.85	6.64	7.86	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/29/2005	825	45.85361	119.67239	1	8.87	<6.5	<6.5	17.72	18.04	21.78	1.80	4.58	6.33	7.85	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/29/2005	825	45.85361	119.67239	13	8.89	<6.5	<6.5	17.75	18.04	21.48	2.05	4.82	6.58	7.88	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/29/2005	825	45.85361	119.67239	25	8.83	<6.5	<6.5	17.75	18.04	21.42	1.65	4.85	6.64	7.87	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/29/2005	1340	45.85347	119.67043	1	9.23	NA	NA	17.95	NA	NA	1.77	NA	NA	7.92	NA	NA
TF-WCU	9/29/2005	1340	45.85347	119.67043	6	9.13	NA	NA	17.95	NA	NA	1.84	NA	NA	7.97	NA	NA
TF-WCU	9/29/2005	1340	45.85347	119.67043	11	9.11	NA	NA	17.95	NA	NA	2.78	NA	NA	8.01	NA	NA
TF-WCD1	9/29/2005	1235	45.85352	119.67284	1	9.15	<6.5	<6.5	17.92	18.25	21.78	1.88	4.77	6.33	7.90	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/29/2005	1235	45.85352	119.67284	11	9.13	<6.5	<6.5	17.90	18.25	21.48	2.30	4.84	6.58	7.93	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/29/2005	1235	45.85352	119.67284	20.5	9.12	<6.5	<6.5	17.85	18.25	21.42	2.22	5.78	6.64	7.91	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/29/2005	1255	45.85359	119.67266	1	9.10	<6.5	<6.5	17.92	18.25	21.78	2.04	4.77	6.33	7.92	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/29/2005	1255	45.85359	119.67266	12	9.16	<6.5	<6.5	17.93	18.25	21.48	1.77	4.84	6.58	8.00	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/29/2005	1255	45.85359	119.67266	23.5	9.07	<6.5	<6.5	17.88	18.25	21.42	2.48	5.78	6.64	7.98	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/29/2005	1319	45.85361	119.67239	1	9.17	<6.5	<6.5	17.95	18.25	21.78	2.29	4.77	6.33	7.92	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/29/2005	1319	45.85361	119.67239	13	9.14	<6.5	<6.5	17.93	18.25	21.48	2.24	4.84	6.58	7.99	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/29/2005	1319	45.85361	119.67239	25	9.11	<6.5	<6.5	17.92	18.25	21.42	2.17	5.78	6.64	7.99	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/30/2005	1001	45.85347	119.67043	1	8.95	NA	NA	17.84	NA	NA	2.22	NA	NA	7.91	NA	NA
TF-WCU	9/30/2005	1001	45.85347	119.67043	6	8.99	NA	NA	17.83	NA	NA	1.56	NA	NA	7.88	NA	NA
TF-WCU	9/30/2005	1001	45.85347	119.67043	11	8.91	NA	NA	17.84	NA	NA	1.76	NA	NA	7.89	NA	NA
TF-WCD1	9/30/2005	935	45.85352	119.67284	1	8.87	<6.5	<6.5	17.84	18.14	21.78	2.29	5.22	6.33	7.81	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/30/2005	935	45.85352	119.67284	10	8.80	<6.5	<6.5	17.84	18.13	21.48	2.13	4.56	6.58	7.80	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/30/2005	935	45.85352	119.67284	19	8.87	<6.5	<6.5	17.83	18.14	21.42	1.92	4.76	6.64	7.75	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/30/2005	943	45.85359	119.67266	1	8.85	<6.5	<6.5	17.84	18.14	21.78	2.31	5.22	6.33	7.88	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/30/2005	943	45.85359	119.67266	12	8.79	<6.5	<6.5	17.83	18.13	21.48	2.26	4.56	6.58	7.84	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/30/2005	943	45.85359	119.67266	23	8.82	<6.5	<6.5	17.84	18.14	21.42	1.92	4.76	6.64	7.81	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/30/2005	952	45.85361	119.67239	1	8.75	<6.5	<6.5	17.83	18.14	21.78	2.02	5.22	6.33	7.89	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/30/2005	952	45.85361	119.67239	12.5	8.72	<6.5	<6.5	17.84	18.13	21.48	2.72	4.56	6.58	7.90	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/30/2005	952	45.85361	119.67239	24.5	8.79	<6.5	<6.5	17.84	18.14	21.42	2.31	4.76	6.64	7.89	<6.5 or >8.5	<6.5 or >8.5
TF-WCU	9/30/2005	1242	45.85347	119.67043	1	9.05	NA	NA	17.89	NA	NA	1.90	NA	NA	7.94	NA	NA
TF-WCU	9/30/2005	1242	45.85347	119.67043	6.5	8.97	NA	NA	17.87	NA	NA	2.33	NA	NA	7.94	NA	NA
TF-WCU	9/30/2005	1242	45.85347	119.67043	12	8.94	NA	NA	17.86	NA	NA	2.40	NA	NA	7.96	NA	NA
TF-WCD1	9/30/2005	1222	45.85352	119.67284	1	8.85	<6.5	<6.5	17.88	18.14	21.78	1.78	5.22	6.33	7.94	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/30/2005	1222	45.85352	119.67284	7.5	8.77	<6.5	<6.5	17.87	18.13	21.48	1.74	4.56	6.58	7.98	<6.5 or >8.5	<6.5 or >8.5
TF-WCD1	9/30/2005	1222	45.85352	119.67284	14	8.96	<6.5	<6.5	17.86	18.14	21.42	1.96	4.76	6.64	7.97	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/30/2005	1228	45.85359	119.67266	1	8.93	<6.5	<6.5	17.89	18.14	21.78	2.23	5.22	6.33	7.94	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/30/2005	1228	45.85359	119.67266	12.5	8.85	<6.5	<6.5	17.87	18.13	21.48	1.51	4.56	6.58	7.95	<6.5 or >8.5	<6.5 or >8.5
TF-WCD2	9/30/2005	1228	45.85359	119.67266	24	8.89	<6.5	<6.5	17.85	18.14	21.42	1.90	4.76	6.64	7.94	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/30/2005	1238	45.85361	119.67239	1	8.97	<6.5	<6.5	17.88	18.14	21.78	1.80	5.22	6.33	7.94	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/30/2005	1238	45.85361	119.67239	12.5	8.98	<6.5	<6.5	17.87	18.13	21.48	1.76	4.56	6.58	7.95	<6.5 or >8.5	<6.5 or >8.5
TF-WCD3	9/30/2005	1238	45.85361	119.67239	24	8.89	<6.5	<6.5	17.85	18.14	21.42	1.88	4.76	6.64	7.96	<6.5 or >8.5	<6.5 or >8.5

Notes: [1]Datum for coordinates is NAD 83.

[2]Trigger is exceeded where downstream conditions exceed the specified amounts relative to both the event-specific background and the pre-construction background survey (95% upper confidence limit on the mean for

[3]TF-WCU is the upstream event-specific background station.

BOLD indicates an exceedance

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	 Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-B47 Pre-Treatment 9/19/2005	RAA-B47 Post-Treatment 9/19/2005	RAA-B47 Pre-Treatment 9/20/2005	RAA-B47 Post-Treatment 9/20/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	**0.34 * #**	**0.07 * #**	**1.00 * #**	**0.07 * #**
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**152 * #**	**1.72 ***	**3050 * #**	**17.1 * #**
Benzo(a)anthracene	0.02	0.49	0.02 U	**80.6 * #**	**2.07 * #**	**2540 * #**	**11.2 * #**
Benzo(a)pyrene	0.01	0.24	0.0532	**132 * #**	**3.47 * #**	**2970 * #**	**12.5 * #**
Dibenzofuran	3.7	66	0.2 U	**29.2 J ***	**0.04 J**	**368 * #**	**0.80**
Fluoranthene	6.16	3980	0.0425	**328 ***	**5.13**	**9080 * #**	**34.3 ***
Fluorene	3.9	70	0.02 U	**176 * #**	**0.38**	**2910 * #**	**8.23 ***
Naphthalene	12	190	0.148	**11400 * #**	**1.82**	**29700 * #**	**2.19**
Phenanthrene	--	--	0.0382	**739**	**3.52**	**16000**	**57.0**

Notes:

* = Exceeds chronic criteria

= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this event due to flow reversal in the river on a flooding tide. This station has been renamed "WCU5". Station WCU is actually located c upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of the primary containment area per requirements of the Water Quality Certification after fish were identified as distressed within the area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	 Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-B47 Pre-Treatment 9/21/2005	RAA-B47 Post-Treatment 9/21/2005	RAA-WCD1 Downcurrent Surface Depth 9/13/2005	RAA-WCD1 Downcurrent Mid Depth 9/13/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	**0.03 * #**	0.05 U	0.05 U	0.05 U
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**2.25 ***	**2.30 ***	**0.80 ***	**10.3 ***
Benzo(a)anthracene	0.02	0.49	0.02 U	**1.84 * #**	**1.88 * #**	**0.54 * #**	**5.68 * #**
Benzo(a)pyrene	0.01	0.24	0.0532	**2.75 * #**	**2.82 * #**	**0.76 * #**	**7.03 * #**
Dibenzofuran	3.7	66	0.2 U	1.92 U	**0.04 J**	**0.16 J**	**0.41**
Fluoranthene	6.16	3980	0.0425	**4.97**	**5.08**	**1.88**	**20.4 ***
Fluorene	3.9	70	0.02 U	**0.51**	**0.52**	**1.78**	**5.69 ***
Naphthalene	12	190	0.148	**0.45 J**	**0.47**	**0.13**	**1.02**
Phenanthrene	--	--	0.0382	**5.41**	**5.53**	**1.11**	**22.8**

Notes:

* = Exceeds chronic criteria

= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this e downstream, but wa upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of primary containme area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	 Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-WCD1 Downcurrent Bottom Depth 9/13/2005	RAA-WCD2 Downcurrent Surface Depth 9/14/2005	RAA-WCD2 Downcurrent Mid Depth 9/14/2005	RAA-WCD2 Downcurrent Bottom Depth 9/14/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**4.31 ***	**7.41 ***	**4.00 ***	**6.82 ***
Benzo(a)anthracene	0.02	0.49	0.02 U	**2.36 * #**	**4.51 * #**	**2.23 * #**	**4.26 * #**
Benzo(a)pyrene	0.01	0.24	0.0532	**1.19 * #**	**5.75 * #**	**3.18 * #**	**5.36 * #**
Dibenzofuran	3.7	66	0.2 U	**0.21**	**0.70**	**0.37**	**0.67**
Fluoranthene	6.16	3980	0.0425	**7.87 ***	**16.8 ***	**88.7 ***	**15.4 ***
Fluorene	3.9	70	0.02 U	**2.81**	**5.11 ***	**2.58**	**4.63 ***
Naphthalene	12	190	0.148	**9.25**	**62.2 ***	**16.9 ***	**47.5 ***
Phenanthrene	--	--	0.0382	**7.42**	**29.2**	**16.1**	**27.1**

Notes:

* = Exceeds chronic criteria

= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this ev
upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of
area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	 Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-WCD2 [1] Downcurrent Surface Depth 9/19/2005	RAA-WCD2[1] Downcurrent Mid Depth 9/19/2005	RAA-WCD2[1] Downcurrent Bottom Depth 9/19/2005	RAA-WCU[1] Upcurrent Surface Depth 9/19/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**0.07**	**1.27 ***	**0.25**	**0.00371 J**
Benzo(a)anthracene	0.02	0.49	0.02 U	**0.04 ***	**0.67 * #**	**0.14 ***	**0.00699 J**
Benzo(a)pyrene	0.01	0.24	0.0532	**0.09 ***	**1.00 * #**	**0.21 ***	**0.04 ***
Dibenzofuran	3.7	66	0.2 U	0.20 U	**0.09 J**	**0.02 J**	0.20 U
Fluoranthene	6.16	3980	0.0425	**0.16**	**2.29**	**0.55**	**0.01 J**
Fluorene	3.9	70	0.02 U	**0.05**	**0.76**	**0.16**	0.02 U
Naphthalene	12	190	0.148	**1.01**	**11.9**	**2.81**	**0.01 J**
Phenanthrene	--	--	0.0382	**0.27**	**4.29**	**0.87**	**0.01 J**

Notes:

* = Exceeds chronic criteria

= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this ev
upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of
area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	WQ Trigger Table E-1 RAPP Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-WCU[1] Upcurrent Mid Depth 9/19/2005	RAA-WCU[1] Upcurrent Bottom Depth 9/19/2005	RAA-WCD2 Downcurrent Surface Depth 9/20/2005	RAA-WCD2 Downcurrent Mid Depth 9/20/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**0.02**	**0.01 J**	**0.24**	**1.64 ***
Benzo(a)anthracene	0.02	0.49	0.02 U	**0.01 J**	**0.02**	**0.10 ***	**0.89 * #**
Benzo(a)pyrene	0.01	0.24	0.0532	**0.05 ***	**0.08 ***	**0.16 ***	**1.59 * #**
Dibenzofuran	3.7	66	0.2 U	0.20 U	0.19 U	0.20 U	**0.17 J**
Fluoranthene	6.16	3980	0.0425	**0.06**	**0.05**	**0.37**	**3.31**
Fluorene	3.9	70	0.02 U	**0.02**	**0.04**	**0.12**	**1.25**
Naphthalene	12	190	0.148	**0.24**	**0.16**	**1.88**	**22.3 ***
Phenanthrene	--	--	0.0382	**0.10**	**0.10**	**0.61**	**6.14**

Notes:

* = Exceeds chronic criteria

= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this ev
upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of
area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-WCD2 Downcurrent Bottom Depth 9/20/2005	RAA-WCU Upcurrent Surface Depth 9/20/2005	RAA-WCU Upcurrent Mid Depth 9/20/2005	RAA-WCU Upcurrent Bottom Depth 9/20/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**0.58**	**0.02 J**	**0.03**	**0.02**
Benzo(a)anthracene	0.02	0.49	0.02 U	**0.31 ***	**0.01 J**	**0.02**	**0.02**
Benzo(a)pyrene	0.01	0.24	0.0532	**0.42 * #**	**0.06 ***	**0.07 ***	**0.07 ***
Dibenzofuran	3.7	66	0.2 U	**0.05 J**	**0.22 U**	**0.21 U**	**0.21 U**
Fluoranthene	6.16	3980	0.0425	**1.28**	**0.04**	**0.07**	**0.08**
Fluorene	3.9	70	0.02 U	**0.44**	**0.01 J**	**0.02**	**0.02**
Naphthalene	12	190	0.148	**8.20**	**0.18**	**0.26**	**0.27**
Phenanthrene	--	--	0.0382	**2.16**	**0.07**	**0.11**	**0.11**

Notes:

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= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this ev
upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of
area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	WQ Trigger Table E-1 RAPP Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-WCD2 Downcurrent Surface Depth 9/21/2005	RAA-WCD2 Downcurrent Mid Depth 9/21/2005	RAA-WCD2 Downcurrent Bottom Depth 9/21/2005	RAA-WCU Upcurrent Surface Depth 9/21/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dissolved Oxygen	<6.5	<6.0		--	--	--	--
Sulfide	--	--		--	--	--	--
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**1.98 ***	**1.74 ***	**4.36 ***	**0.01 J**
Benzo(a)anthracene	0.02	0.49	0.02 U	**1.32 * #**	**1.14 * #**	**2.76 * #**	**0.01 J**
Benzo(a)pyrene	0.01	0.24	0.0532	**1.56 * #**	**1.33 * #**	**5.94 * #**	**0.09 ***
Dibenzofuran	3.7	66	0.2 U	**0.18 J**	**0.14 J**	**1.14**	0.21 U
Fluoranthene	6.16	3980	0.0425	**4.02**	**3.74**	**11.3 ***	**0.05**
Fluorene	3.9	70	0.02 U	**1.39**	**1.16**	**3.61**	**0.03**
Naphthalene	12	190	0.148	**16.8 ***	**14.0 ***	**42.8 ***	**0.39**
Phenanthrene	--	--	0.0382	**7.68**	**6.70**	**20.2**	**0.09**

Notes:

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= Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this ev
upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of
area.

Table 3.
Water Quality Laboratory Analytical Monitoring Results Compared to Triggers – Gasco Site
September 13 through 21, 2005

Location ID Location Sample ID Sample Date	WQ Trigger Table E-1 RAPP Chronic	 Acute	Background Preconstruction Survey Results 8/17-19/2005	RAA-WCU Upcurrent Mid Depth 9/21/2005	RAA-WCU Upcurrent Bottom Depth 9/21/2005	RAA-WCIN[2] Inside Primary Containment 9/14/2005	RAA-WCOUT[2] Outside Primary Containment 9/14/2005
Conventionals (mg/L)							
Cyanide	0.0052	0.02	0.05 U	0.05 U	0.05 U	--	--
Dissolved Oxygen	<6.5	<6.0		--	--	**8.77**	**10.03**
Sulfide	--	--		--	--	0.0050 U	0.0050 U
SVOCs (µg/L)							
Anthracene	0.73	13	0.02 U	**0.04**	**0.02**	--	--
Benzo(a)anthracene	0.02	0.49	0.02 U	**0.01 J**	**0.01 J**	--	--
Benzo(a)pyrene	0.01	0.24	0.0532	**0.06 ***	**0.06 ***	--	--
Dibenzofuran	3.7	66	0.2 U	0.20 U	0.20 U	--	--
Fluoranthene	6.16	3980	0.0425	**0.06**	**0.06**	--	--
Fluorene	3.9	70	0.02 U	**0.04**	**0.02**	--	--
Naphthalene	12	190	0.148	**0.66**	**0.18**	--	--
Phenanthrene	--	--	0.0382	**0.15**	**0.07**	--	--

Notes:

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\# = Exceeds acute criteria

Bold, italics - exceeds both chronic and background survey concentrations

J = Estimated value

U = Not detected

[1] Station WCD2 is actually located upstream, but was the downcurrent station on this ev
upcurrent on this

[2] These samples were collected inside the primary containment area and just outside of
area.

Table 4.
Baseline Suspended Sediment Monitoring Laboratory Analytical Results - Gasco Site
August 17, 2005

Location ID Location Sample ID Sample Date	RAA-STBD Army Corps Dock RAA-STBD-050817 8/17/2005	RAA-STBM Downstream Curtain RAA-STBM-050818 8/18/2005	RAA-STBU Upstream Curtain RAA-STBU-050817 8/17/2005
Conventionals			
Total Solids (%)	12.5	16	16.5
Total Organic Carbon (%)	3.6	3.59	3.43
Cyanide (mg/kg)	19.8	2.5	1.00 U
PAHs (µg/kg)			
2-Methylnaphthalene	130	220	17
Acenaphthene	270	490	30
Acenaphthylene	150	440	26
Anthracene	690	1100	75
Benzo(a)anthracene	1400	3700	170
Benzo(a)pyrene	2200	6100	270
Benzo(b)fluoranthene	1400	4200	200
Benzo(g,h,i)perylene	1900	5300	260
Benzo(k)fluoranthene	1100	3000	150
Chrysene	1900	4600	250
Dibenzo(a,h)anthracene	250	650	31
Dibenzofuran	28	62	6.70 J
Fluoranthene	2400	6400	320
Fluorene	180	310	21
Indeno(1,2,3-cd)pyrene	1600	4900	210
Naphthalene	270	630	50
Phenanthrene	1600	3500	180
Pyrene	3100	8000	400

Notes:

J = Estimated value

U = Not detected

APPENDIX A

GASCO SITE WQ MONITORING LOG SHEETS

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www.anchorenv.com

NORMAL

Water Quality Monitoring Form

Station ID: RAA-WCU-A/B-050926	Date: 9/26/05	Time: 0915 ① / 1025 ②	
Project Name: GASCO	Project Number: 000029-02		
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: ebbing, sunny, 55-60°F, calm water, light breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 23' (m)

	Dissolved Oxygen (mg/L) ①	Dissolved Oxygen (mg/L) ②	Temperature (C) ①	Temperature (C) ②	Turbidity (NTU) ①	Turbidity (NTU) ②
Depth 1: 1 (m) 1'	9.21		16.83		7	9
Depth 2: 10 (m) 15'	9.13		16.80		8	8
Depth 3: 22 (m) 25'	9.06		16.79		8	10
Other:						

Evidence of floating or suspended materials:	hydrocarbons floating on surface
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	substantial sheen, patches 10-15' across bubbles of sheen coming up
Discoloration and Turbidity:	particulates, turbidity
Velocity at stated depth:	—
Color:	green-brown
Odor:	creosote-like odor
Other Observations:	bubbles on surface

② KRT oil blooms ~~gone~~ no ~~sheen~~ sheen, oil "blooms" coming from bottom

Comments:
pH: 1 7.28 2 7.35 3 7.28
Cond 1 112 2 111 3 110

Recorded by: KT Other Monitoring Personnel: JR, AS

STATION WCD1 obstructed by vessel in Duwamish Hull MOORAGE

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Water Quality Monitoring Form

Station ID: RAA-WCD1-A-050926		Date: 9-26-05	Time:
Project Name: GASCO		Project Number: CCCC29-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: ebbing, sunny 55-60°F, calm water, light breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: _____ (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: ____ (m)			
Depth 2: ____ (m)			
Depth 3: ____ (m)			
Other:			

Evidence of floating or suspended materials:	
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	
Discoloration and Turbidity:	
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 _____ 2 _____ 3 _____

Cond 1 _____ 2 _____ 3 _____

Recorded by: KT

Other Monitoring Personnel: JR, AS

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NORMAL

Water Quality Monitoring Form

Station ID: RHA-WCD2-B-050926	Date: 9-26-05	Time: 1000	
Project Name: GASCO	Project Number:		
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: cloudy, sunny, 60°F, calm water, light breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 43 (m) 145

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.21	16.89	11
Depth 2: 21 (m)	9.14	16.79	14
Depth 3: 42 (m)	9.06	16.79	17
Other:			

Evidence of floating or suspended materials:	leaves, particulates, some bubbles
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none noted
Discoloration and Turbidity:	particulates / turbidity
Velocity at stated depth:	—
Color:	green brown
Odor:	none noted
Other Observations:	

Comments:

pH: 1 7.25 2 7.27 3 7.18

Cond 1 97 2 111 3 112

Recorded by: KT Other Monitoring Personnel: JR, AS

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FORM A

Water Quality Monitoring Form

Station ID: RAA-WCD3-2-050926	Date: 9-26-05	Time: 0955	
Project Name: GASCO	Project Number: CCC029-02		
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: ebbing, sunny, 55-60°F, calm water, light breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 43' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)'	9.25	16.86	10
Depth 2: 21 (m)'	9.20	16.79	12
Depth 3: 42 (m)'	9.08	16.79	15
Other:			

Evidence of floating or suspended materials:	
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none noted
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—
Color:	green-brown
Odor:	none noted
Other Observations:	

Comments:

pH: 1 7.30 2 7.26 3 7.20

Cond 1 107 2 110 3 113

Recorded by: KT Other Monitoring Personnel: JR, AS

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SLACK ⇒ NORMAL

Water Quality Monitoring Form

Station ID: ~~WC~~ RAF-WCU-8-000		Date: 9/26/05	Time: 1405
Project Name: GASCO		Project Number: CC029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: Slack tide, sunny, 70°F, starting to get windy, breeze from N

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 33 (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.32	17.41	6
Depth 2: 16 (m)	9.22	16.98	8
Depth 3: 30 (m)	9.21	16.97	9
Other:			

Evidence of floating or suspended materials:	
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	
Discoloration and Turbidity:	particulates / turbidity
Velocity at stated depth:	
Color:	green-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.33 2 7.25 3 7.22

Cond 1 135 2 110 3 110

Recorded by: KT Other Monitoring Personnel: JR

large boat + 2 tugs passing

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Water Quality Monitoring Form

Station ID: RAA-WCD1-A2-050926		Date: 9-26-05	Time: 1445
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: slack tide, sunny, 70°F breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 35' ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ '	9.45	17.28	9
Depth 2: 17 ~~(m)~~ '	9.37	16.99	9
Depth 3: 34 ~~(m)~~ '	9.24	16.98	12
Other:			

Evidence of floating or suspended materials:	1cm 4" wood debris, feathers, bottle cap
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	no sheen
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—
Color:	green-brown
Odor:	none detected
Other Observations:	had to nudge outer boom out of way

Comments:

pH: 1 7.32 2 7.22 3 7.18

Cond 1 110 2 110 3 111

Recorded by: KT Other Monitoring Personnel: JR

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Water Quality Monitoring Form

Station ID: RAA-WCC2-050926		Date: 9-26-05	Time: 1430
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: slack tide, Sunny, 70°F, breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 46 (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.42	17.20	9 | 6
Depth 2: 23 (m) 23'	9.33 | 9.32	17.01 | 17.00	8 | 10
Depth 3: 45 (m)	9.20	17.01	11
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	no sheene
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—
Color:	green-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.31 2 7.24 | 7.27 3 7.20

Cond 1 109 2 109 | 111 3 109

Recorded by: KT Other Monitoring Personnel: JR

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SLACK → NORMAL

Water Quality Monitoring Form

Station ID: RAA-WCD3-B-050926		Date: 9-26-05	Time: 1450
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: slack tide, sunny, 70°F breeze from W

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 46' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)'	9.45	17.54	6
Depth 2: 23 (m)'	9.33	17.06	7
Depth 3: 45 (m)'	9.24	17.04	8
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—
Color:	green brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.32 2 7.25 3 7.20

cond 1 106 2 109 3 109

Recorded by: KT Other Monitoring Personnel: JR

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Water Quality Monitoring Form

Station ID: RAA-WCU-A-050926		Date: 9-26-05	Time: 1610
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: sunny, 75°F, breeze from W ebbing

Status/Description of Operation at Time of Sampling: Dredging

Depth to Bottom: 34 ~~(m)~~ '

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) '	9.55	18.24	4
Depth 2: 16 (m) '	9.21	16.93	7
Depth 3: 33 (m) '	9.07	16.87	10
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	~~no sheen~~ spotty sheen
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—

Color:	green-brown
Odor:	none detected
Other Observations:	bubbles rising to surface from below

Comments:

pH: 1 7.26 2 7.17 3 7.12

Cond 1 109 2 107 3 106

Recorded by: KT Other Monitoring Personnel: JR, AS

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Water Quality Monitoring Form

Station ID: RAA-WCD1-A/B-050926		Date: 9-26-05	Time: 1645 KRT
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: Sunny, 72°F, breeze from W, ebbing

Status/Description of Operation at Time of Sampling: dredging stopped

Depth to Bottom: 35' ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~'	9.22	17.21	~~13, 16, 21~~ 20, 18, 15, 12 KRT var. btw 15 & 20
Depth 2: 17 ~~(m)~~'	9.30	17.03	10
Depth 3: 34 ~~(m)~~'	9.00	17.08	~~25~~ KRT 15
Other:			

Evidence of floating or suspended materials:	sheen, woody debris
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	spotty sheen
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—
Color:	green-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.18 2 7.19 3 7.15

Cond 1 107 2 108 3 107

Recorded by: KT Other Monitoring Personnel: JR, AS

moved boom out of way

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Water Quality Monitoring Form

Station ID: RAA-WCD2-A/B-050926		Date: 9-26-05	Time: 1635
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: Sunny, 72°F, breeze from W ebbing

Status/Description of Operation at Time of Sampling: dredging stopped

Depth to Bottom: 45 ~~(m)~~ ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft	9.27	17.10	8
Depth 2: 23 ~~(m)~~ ft	9.30	17.03	8
Depth 3: 44 ~~(m)~~ ft	9.21	17.03	9
Other:			

Evidence of floating or suspended materials:	Sheen, some bubbles
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	Spotty sheen
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—
Color:	green-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.21 2 7.21 3 7.20

Cond 1 113 2 107 3 108

Recorded by: KT

Other Monitoring Personnel: JR, AS

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Water Quality Monitoring Form

Station ID: RAA-WCD3-A-050926		Date: 9-26-05	Time: 1630
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: Sunny, 72°F, breeze from W ebbing

Status/Description of Operation at Time of Sampling: dredging activity stopped

Depth to Bottom: 46 (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.35	17.15	9
Depth 2: 23 (m)	9.30	17.04	8
Depth 3: 45 (m)	9.22	17.02	8
Other:			

Evidence of floating or suspended materials:	feathers, some bubbles, sheen
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	Sheen, spotty, prevalent ~~rect~~
Discoloration and Turbidity:	particulates/turbidity
Velocity at stated depth:	—

Color:	green-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.19 2 7.19 3 7.19

Cond 1 109 2 105 3 107

Recorded by: KG Other Monitoring Personnel: JR, AS

opened up outer boom, Sea Lion derrick came out,

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Water Quality Monitoring Form

Station ID: RAA-WQ-8-050927		Date: 9-27-05	Time: 1445
Project Name: GASCO		Project Number: [illegible]	
Coordinates Datum: 300 ft from inner containment			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: mostly cloudy, Steady light wind from W, 65°F,

Status/Description of Operation at Time of Sampling: Stopped Dredging @ 1430

Depth to Bottom: 46 (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU) * Hach 2100P
Depth 1: 1 (m)	~~17.9~~ 9.19	17.59	3.01
Depth 2: 23 (m)	9.04	17.01	3.75
Depth 3: 45 (m)	8.86	16.92	4.37
Other:			

Evidence of floating or suspended materials:	At surface [illegible]
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	No sheen
Discoloration and Turbidity:	—
Velocity at stated depth:	—

Color:	Greenish Brown
Odor:	Non. Dredged
Other Observations:	

Comments:

pH: 1 7.31 2 7.25 3 7.17

Cond 1 99 2 [illegible] 3 100

* Turbidity probe on Hydrolab not working properly so used the Hach Turbidimeter 2100P

Recorded by: [illegible] Other Monitoring Personnel: [illegible]

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Water Quality Monitoring Form

Station ID: RAA-WCU-~~B~~ A DS -050927	Date: 9-27-05	Time: 1450
Project Name: GASCO	Project Number: 000029-02	
Coordinates Datum:		
Lat/Northing:	Long/Easting:	

Weather/River Stage/Flow Observations: mostly cloudy. steady wind (light) from W, 65°F

Status/Description of Operation at Time of Sampling: STOPPED DREDGING @ 1450

Depth to Bottom: 46 (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) 1450			
Depth 2: 23 (m) 1455			
Depth 3: 15 (m) 1500			
Other:			

Evidence of floating or suspended materials:	Surface Scum/ wood Debris
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	No sheen
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	Greenish Brown
Odor:	None Detected
Other Observations:	

Comments:

pH: 1 ____ 2 ____ 3 ____

cond 1 ____ 2 ____ 3 ____

Recorded by: EA

Other Monitoring Personnel: KT

REVERSE FLOW

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Water Quality Monitoring Form

Station ID: RAA-~~WCD1~~ WCU4-~~2~~ A-050927	Date: 9-27-05	Time: 1250-1310	
Project Name: GASCO	Project Number: 000029-02		
Coordinates Datum: 150 closest to shore			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: mostly cloudy, steady light wind from W. 65°F

Status/Description of Operation at Time of Sampling: Dredging

Depth to Bottom: ~~9~~ 11 (m) KPT

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU) Hydrolab 5.84
Depth 1: 1 (m)	9.33	17.04	~~0~~
~~Depth 2: (m)~~			
Depth 3: ~~8~~ 10 (m)	9.38	16.87	~~0~~ 4.72
Other:			

Evidence of floating or suspended materials:	feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	no sheen
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	greenish-brown
Odor:	none detected ~~odor~~ KPT
Other Observations:	

Comments:

pH: 1 7.31 2 7.19 3 ~~—~~

cond 1 100 2 102 3 ~~—~~

3 KPT

Recorded by: KT

Other Monitoring Personnel: EA

KPT performed calibration check at 1250 to make sure this number is real. checked with 20 NTU. read 20 NTU. recalibrated with 20+ 100 NTU still 0 NTU put surface water in calibration cup. still 0 NTU

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Water Quality Monitoring Form

Station ID: RAA-WC ~~B2~~ 44-A-B-050927		Date: 9-27-05	Time: 1350
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum: 150' closest to shore			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: mostly cloudy, steady light wind from W, 65°F

Status/Description of Operation at Time of Sampling: DREDGING

Depth to Bottom: _____ ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) 1353			
Depth 2: ____ (m)			
Depth 3: 9 (m) 1355			
Other:			

Evidence of floating or suspended materials:	Feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	No sheen
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	Greenish Brown
Odor:	None Detected
Other Observations:	Reverse Flow

Comments:

pH: 1 _____ 2 _____ 3 _____

cond 1 _____ 2 _____ 3 _____

Recorded by: EA

Other Monitoring Personnel: KT

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Reverse Flow

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Water Quality Monitoring Form

Station ID: RAA-WCD2-A-050927		Date: 9-27-05	Time: 1320
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum: MIDDLE STATION OF ARC - SAME AS WCD2 on reverse current			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: mostly ~~cloudy~~ sunny/clear, steady light wind from N, 70°F

Status/Description of Operation at Time of Sampling: DREDGING

Depth to Bottom: 36 ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)	Turbidimeter (HACH)
Depth 1: 1 (m)	9.40	17.02	0	5.04
Depth 2: 18 (m)	9.28	16.89	0	5.24
Depth 3: 35 (m)	9.23	16.86	0	5.53
Other:				

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	Small patch (~6" in diameter) of sheen
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	greenish-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.24 2 7.21 3 7.19

cond 1 99 2 102 3 101

Recorded by: KT

Other Monitoring Personnel: [illegible]

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Water Quality Monitoring Form

Station ID: RAA-WC~~03~~ U6 - ~~B~~ A C -050927		Date: 9-27-05	Time: 1405
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum: ~~Furthest offshore~~ in 150' arc			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: mostly ~~cloudy~~ sunny, steady light wind from W, 65°F

Status/Description of Operation at Time of Sampling: DA 2D6N6

Depth to Bottom: 43 ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.26	17.04	0
Depth 2: 22 (m)	9.21	17.00	0
Depth 3: 42 (m)	9.15	16.96	0
Other:			

HACH Turbidimeter
5.03
4.39
4.52

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	no sheen
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	greenish-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 7.37 2 7.25 3 7.21

cond 1 100 2 99 3 99

Recorded by: KT

Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WC~~04~~ U3 - A/B - 050927		Date: 9-27-05	Time: 1430
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: mostly cloudy, steady light wind from W, 65°F

Status/Description of Operation at Time of Sampling: DREDGING - STOPPED @ 1430

Depth to Bottom: 20 ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) 1430			
Depth 2: 10 (m) 1435			
Depth 3: 19 (m) 1440			
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	No Sheen
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	Greenish Brown
Odor:	None
Other Observations:	

Comments:

pH: 1 _____ 2 _____ 3 _____

Cond 1 _____ 2 _____ 3 _____

Recorded by: [illegible]

Other Monitoring Personnel: [illegible]

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Water Quality Monitoring Form

Station ID: RAA-INSIDE1-050927	Date: 9/27/05	Time: 1335	
Project Name: RAA-OUTSIDE1-050927	Project Number: 1345		
Coordinates Datum: AT PT B			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations:

Status/Description of Operation at Time of Sampling: DREDGING NOT DEWATERING

Depth to Bottom: ~25 (m) ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: ____ (m) ft			
Depth 2: 12 (m)			
Depth 3: ____ (m)			
Other:			

Evidence of floating or suspended materials:	
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	
Discoloration and Turbidity:	INSIDE – very turbid OUTSIDE – not turbid
Velocity at stated depth:	—
Color:	INSIDE: BROWN/TURBID OUTSIDE: GREENISH BROWN
Odor:	
Other Observations:	

Comments:

pH: 1 ____ 2 ____ 3 ____

Recorded by: EA

Other Monitoring Personnel: RT

BARGE WATER SAMPLES

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Water Quality Monitoring Form

Station ID: RAA-B47-Pre-050927 / RAA-B47-Post-050927		Date: 9/27/05	Time: PRE 0900 / POST 0830
Project Name: Gasco RA		Project Number: 000029-02	
Coordinates Datum: NA			
Lat/Northing: NA		Long/Easting: NA	

Weather/River Stage/Flow Observations:
Cloudy / lt. west wind / 62°F

Status/Description of Operation at Time of Sampling:
Pumping water from

Depth to Bottom: ___ (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: ___ (m)			
Depth 2: ___ (m)			
Depth 3: ___ (m)			
Other:			

	PRE	POST
Evidence of floating or suspended materials:	YES	NO
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	YES	NO
Discoloration and Turbidity:	Cloudy/brown/grey	slight cloudy/grey
Velocity at stated depth:	NA	NA

Color:	SEE above
Odor:	petroleum odor due to dredging material /
Other Observations:	NONE

Comments:
pH: 1 2 3 TD

Recorded by: TJS

Other Monitoring Personnel: NONE

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Water Quality Monitoring Form

Station ID: RAA-WCU-A,B,C-050929-1		Date: 29 SEP 05	Time: 735
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.57930	Long/Easting:	122.75564

Weather/River Stage/Flow Observations: no wind, calm water, mid 60's

Status/Description of Operation at Time of Sampling: no dredging

Depth to Bottom: 33' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)			
Depth 2: 16' (m)			
Depth 3: 27' (m)			
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	slight sheen
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green brown
Odor:	none, creosote (slight)
Other Observations:	

Comments:

pH: 1 _____ 2 _____ 3 _____

chemistry grabs prior to dredging. Upper station.

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WCD2-A,B,C-050929-1		Date: 29 Sept 05	Time: 748
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58084	Long/Easting:	122.75894

Weather/River Stage/Flow Observations: Calm, no wind, mid 60's

Status/Description of Operation at Time of Sampling: no dredging

Depth to Bottom: 45' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)			
Depth 2: 22' (m)			
Depth 3: 44' (m)			
Other:			

Evidence of floating or suspended materials:	organic debris, feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	—
Velocity at stated depth:	—

Color:	brown - green
Odor:	
Other Observations:	—

Comments:

pH: 1 _____ 2 _____ 3 _____

anomaly grab. D2

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WC04-A,B,C-050929-1		Date: 29 Sept 05	Time: 0800
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58094	Long/Easting:	122.75988

Weather/River Stage/Flow Observations:

Status/Description of Operation at Time of Sampling: no dredging, bucket in water pointing depths on cable.

Depth to Bottom: 34' ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)			
Depth 2: 17' (m)			
Depth 3: 33' (m)			
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	slight
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	petroleum
Other Observations:	

Comments:

pH: 1 _____ 2 _____ 3 _____

Chemistry Grab - Pre-dredge. 04

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-INSIDE-050929-1 RAA-OUTSIDE-050929-1		Date: 9/29/05	Time: 0820 0825
Project Name: GASCO		Project Number: ~~[illegible]~~	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: no wind, calm water, mid 60s

Status/Description of Operation at Time of Sampling: no dredging

Depth to Bottom: ____ (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: ____ (m)			
mid Depth 2: 11 (m)			
Depth 3: ____ (m)			
Other:			

Evidence of floating or suspended materials:	wood debris, feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	Sheen inside silt curtain
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	greenish-brown
Odor:	none detected
Other Observations:	

Comments:

pH: 1 ____ 2 ____ 3 ____

Recorded by: KT Other Monitoring Personnel: BP

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Water Quality Monitoring Form

Station ID: RAA-WCV-A,B,C-050929-2		Date: 050929	Time: 1019
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.57914	Long/Easting:	122.75542

Weather/River Stage/Flow Observations: calm, water moving downriver minimal wind

Status/Description of Operation at Time of Sampling: dredging, cement add mixing

Depth to Bottom: 18' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)	9.31	16.61	4 (3.73 Hach)
Depth 2: 9' (m)	9.32	16.62	4 (4.04 Hach)
Depth 3: 17' (m)	9.21	16.50	5 (4.59 Hach)
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	moderate sheen 5' circles
Discoloration and Turbidity:	—
Velocity at stated depth:	.53 fps mid channel
Color:	green-brown
Odor:	Creosote
Other Observations:	Moved upstream away from sheen. ~50'

Comments:

pH: 1 7.24 2 7.23 3 7.23

Cond: 1 126 2 113 3 105

	Time
A	1020
B	1025
C	1030

chemistry grabs also taken at 3 depths

Recorded by: BP

Other Monitoring Personnel: KT, AS

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Water Quality Monitoring Form

Station ID: RAA-WCDI-A,B,C-~~050929~~ 9-2		Date: 29 Sep 05	Time: 1048
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58051	Long/Easting:	122.75918

Weather/River Stage/Flow Observations: calm, downriver flow, light wind

Status/Description of Operation at Time of Sampling: dredging

Depth to Bottom: 30' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)	9.41	16.59	6 (5.59 Hach)
Depth 2: 15' (m)	9.32	16.55	6 (5.56 Hach)
Depth 3: 29' (m)	9.25	16.54	6 (5.31 Hach)
Other:			

Evidence of floating or suspended materials:	trash, foam, feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	spotty sheen.
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	brown-green
Odor:	tar, creosote
Other Observations:	

Comments:

pH: 1 7.26 2 7.25 3 7.22

Cond: 1 102 2 107 3 108

chemistry sample

	Time
A	1050
B	1055
C	1100

Recorded by: BP

Other Monitoring Personnel: KT, AS

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Water Quality Monitoring Form

Station ID: RAA WCD2		Date: 29 Sep 05	Time: 1127
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58086	Long/Easting:	122.75894

Weather/River Stage/Flow Observations: Calm, downriver flow, slight breeze

Status/Description of Operation at Time of Sampling: dredging, haul transfer

Depth to Bottom: 44' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)	9.38	16.58	5
Depth 2: 22' (m)	9.28	16.52	5
Depth 3: 43' (m)	9.22	16.52	5
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	—
Other Observations:	

Comments:

pH: 1 7.23 2 7.22 3 7.16

1 104 2 105 3 105

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WCB3-		Date: 29 Sep	Time: 1134
Project Name: GASCO		Project Number:	
Coordinates Datum:			
Lat/Northing:	45.58100	Long/Easting:	122.75879

Weather/River Stage/Flow Observations: calm, no breeze

Status/Description of Operation at Time of Sampling: dredging

Depth to Bottom: 44 ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~	9.33	16.58	5
Depth 2: 22 ~~(m)~~	9.29	16.53	5
Depth 3: 43 ~~(m)~~	9.18	16.53	5
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	—
Other Observations:	—

Comments:

pH: 1 7.22 2 7.20 3 7.19

Cond: 1 105 2 105 3 105

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WCD4-A,B,C-050929-2, RAA-WCD4-B-050929-2-DUP		Date: 29 Sep 05	Time: 1110
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58095	Long/Easting:	122.76000

Weather/River Stage/Flow Observations: calm, sunny high 60's

Status/Description of Operation at Time of Sampling: dredging, cement add mixing

Depth to Bottom: 36' (~~mt~~)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (~~mt~~)	9.38	16.61	5 (4.55 Hach)
Depth 2: 18' (~~mt~~)	9.32	16.54	6 (4.93 Hach)
Depth 3: 35' (~~mt~~)	9.25	16.54	6 (5.08 Hach)
Other:			

Evidence of floating or suspended materials:	none, foam, particulate
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	creosote, petroleum
Other Observations:	

Comments:

pH: 1 7.26 2 7.22 3 7.19

Cond 1 111 2 106 3 106

chemistry: A 1110, B 1115, C 1120 DUP @ B

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-INSIDE-050929-2 RAA-OUTSIDE-050929-2		Date: 9/29/05	Time: 1200 1210
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: no wind, calm water, mid 60's

Status/Description of Operation at Time of Sampling: ~~no~~ not dredging

Depth to Bottom: ___ (m)	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: ___ (m)			
Depth 2: 9 (m) mid			
Depth 3: ___ (m)			
Other:			

Evidence of floating or suspended materials:	wood debris, feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	sheen inside silt curtain
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	greenish-brown
Odor:	none detected
Other Observations:	

Comments: pH: 1 ___ 2 ___ 3 ___

Recorded by: KT Other Monitoring Personnel: BP

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Water Quality Monitoring Form

Station ID: RAA-WC08		Date: 29 Sep 05	Time: 1445
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58075	Long/Easting:	122.75960

Weather/River Stage/Flow Observations: same as 1410

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 36' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.40	16.99	3
Depth 2: 16 (m)	9.30	16.82	3
Depth 3: 35 (m)	9.25	16.82	4
Other:			

Evidence of floating or suspended materials:	foam, white particulates, wood debris
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	brown-green
Odor:	creosote
Other Observations:	—

Comments:

pH: 1 7.29 2 7.22 3 7.18

Cond: 1 97 2 102 3 104

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Reverse

Station ID: RAA-WCU 4		Date: 29 Sep 05	Time: 1410
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.57932	Long/Easting:	122.75630

Weather/River Stage/Flow Observations: flow is moving upriver - Reverse flow moderate breeze SE - Cooler. overcast

Status/Description of Operation at Time of Sampling: dredging

Depth to Bottom: 14' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)	9.50	16.66	5
Depth 2: 6' (m)	9.47	16.63	6
Depth 3: 11' (m)	9.45	16.61	6
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	Creosote
Other Observations:	

Comments:

pH: 1 7.22 2 ~~6.91~~ 7.19 (BP) 3 7.26

Cond 1 96 2 105 3 101

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Reverse

Station ID: RAA-WCU5		Date: 29 Sept	Time: 1415
Project Name: GASCO		Project Number: 000029.02	
Coordinates Datum:			
Lat/Northing:	45.57948	Long/Easting:	122.75613

Weather/River Stage/Flow Observations: same as 1410

Status/Description of Operation at Time of Sampling: dredging

Depth to Bottom: 34' ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' ~~(m)~~	9.41	16.65	5
Depth 2: 16' (m)	9.36	16.58	6
Depth 3: 33' (m)	9.27	16.58	7
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	—
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	—
Other Observations:	—

Comments:

pH: 1 7.28 2 7.24 3 7.21

Cond: 1 107 2 105 3 106

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Reverse

Station ID: RAA-WCU6		Date: 29 Sep 05	Time: 1426
Project Name: GASCO		Project Number:	
Coordinates Datum:			
Lat/Northing:	45.57960	Long/Easting:	122.75607

Weather/River Stage/Flow Observations: Same as 1410

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 42' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (m)	9.40	16.66	5
Depth 2: 21' (m)	9.36	16.60	5
Depth 3: 41' (m)	9.22	16.54	5
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	—
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	—
Odor:	—
Other Observations:	—

Comments:

pH: 1 7.26 2 7.21 3 7.18

Cond 1 108 2 106 3 105

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Reverse

Station ID: RAA-WCU3		Date: 29 Sep 05	Time: 1430
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.57898	Long/Easting:	122.75510

Weather/River Stage/Flow Observations:

Status/Description of Operation at Time of Sampling: Same

Depth to Bottom: 25' (~~m~~)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1' (~~m~~)	9.44	16.69	5
Depth 2: 13' (~~m~~)	9.39	16.60	5
Depth 3: ____ (~~m~~)	9.33	16.60	8
Other:			

Evidence of floating or suspended materials:	
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	sheen, spotting
Discoloration and Turbidity:	
Velocity at stated depth:	Same
Color:	
Odor:	creosote
Other Observations:	

Comments:

pH: 1 7.23 2 7.18 3 7.20

Cond 1 111 2 107 3 104

Recorded by: bp Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: KAA-WCU-~~B~~ C-050930		Date: 9/30	Time: 1400
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.57921	Long/Easting:	122.75558

Weather/River Stage/Flow Observations: heavy rain, slight breeze, fog

Status/Description of Operation at Time of Sampling: dredging, bank barge transfer

Depth to Bottom: 27' (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)		16.53	3.23
Depth 2: 13 (m)		16.50	3.21
Depth 3: 21 (m)		16.51	3.42
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	spotty sheen
Discoloration and Turbidity:	rain
Velocity at stated depth:	—
Color:	brown - green
Odor:	—
Other Observations:	—

Comments:

pH: 1 7.26 2 7.27 3 7.26

Cond 1 92 2 94 3 96

A: 1400 B: 1405 C: 1410

Recorded by: AP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WCD1-~~B~~-050930		Date: 9/30	Time: 1315
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58051	Long/Easting:	122.75916

Weather/River Stage/Flow Observations:
Sunny ad 1250

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 32 (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	8.38 (WINK)	16.47	4.95
Depth 2: 16 (m)		16.47	5.55 ~~5.55~~ BP
Depth 3: 31 (m)		16.47	5.97
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	—
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown
Odor:	—
Other Observations:	—

Comments:

pH: 1 7.22 2 7.22 3 7.22

Cond 1 100 2 98 3 99

Time A 1315 B 1320 C 1325 Dup@B ~~1315~~ 1320

Recorded by: BP Other Monitoring Personnel: KT

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Water Quality Monitoring Form

Station ID: RAA-WCD4-A-B-C-057930		Date: 9/30	Time: 1250
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:	45.58099	Long/Easting:	122.75990

Weather/River Stage/Flow Observations: heavy rain

Status/Description of Operation at Time of Sampling: dredging

Depth to Bottom: 38' ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU) Hach
Depth 1: 1' ~~(m)~~		16.51	4.48
Depth 2: 19' (m)		16.47	4.97
Depth 3: 37' (m)		16.47	5.40
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	yes, rain induced
Velocity at stated depth:	—
Color:	green-brown
Odor:	none
Other Observations:	DO sensor not working on Hydrolab

Comments:

pH: 1 7.20 2 7.22 3 7.20

Cond: 1 98 2 98 3 98

TIME: A 1250 B 1255 C 1300

Recorded by: BP Other Monitoring Personnel: RT

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Water Quality Monitoring Form

Station ID: RAA - INSIDE / OUTSIDE - 050930		Date: 9/30	Time: 1445
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: light ~~sty~~ rain. Fog.

Status/Description of Operation at Time of Sampling: dredging stopped during sampling

Depth to Bottom: _____ ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: ____ ~~(m)~~			
Depth 2: ____ ~~(m)~~			
Depth 3: ____ ~~(m)~~			
Other:			

Evidence of floating or suspended materials:	foam, organic debris, trash feathers
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	sheen inside and outside of curtain
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	green-brown.
Odor:	petroleum, creosote
Other Observations:	—

Comments:

pH: 1 _____ 2 _____ 3 _____

TIMES INSIDE : 1445

OUTSIDE : 1452

Recorded by: BP Other Monitoring Personnel: KT

APPENDIX B

TRANSFER FACILITY WQ MONITORING LOG SHEETS

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 9-26-05	Time: 10.00
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 54° Slight Breeze from North Calm

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 13 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ FT	8.57	18.17	1.75
Depth 2: 6.5 ~~(m)~~ FT	8.51	18.05	2.18
Depth 3: 12 ~~(m)~~ FT	8.56	17.84	1.77
Other:			

Evidence of floating or suspended materials:	—
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	—
Discoloration and Turbidity:	—
Velocity at stated depth:	—
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.86 2 7.98 3 8.06

Recorded by: Craig Wells

Other Monitoring Personnel: Mark Clancy, Steve [illegible]

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Water Quality Monitoring Form

Station ID: TF-WCD-1		**Date:** 9-26-05	**Time:** 0915
Project Name: Gasco		**Project Number:** 0000-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 54°, slight breeze from north, clear

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 14.5 ~~(m)~~ Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.59	18.18	1.88
Depth 2: 7 ~~(m)~~ Ft.	8.58	18.12	1.53
Depth 3: 13.5 ~~(m)~~ Ft	8.46	18.11	1.84
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.79 2 8.01 3 8.04

Recorded by: Craig Wells Other Monitoring Personnel: Mark Clancy Severson

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 9-26-05	Time: 09.35
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 54° Slight Breeze from North Clear

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 23.6 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.71	18.19	2.12
Depth 2: 11.5 ~~(m)~~ Ft	8.60	18.09	2.35
Depth 3: 22 ~~(m)~~ Ft	8.62	18.62	2.02
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.88 2 8.02 3 8.00

Recorded by: Craig Wells

Other Monitoring Personnel: Mark Clancy Seventeen

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 9-26-05	Time: 09:50
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 540 Slight Breeze from north Clear

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 25 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.70	18.22	1.59
Depth 2: 12.5 ~~(m)~~ Ft	8.61	18.03	1.91
Depth 3: 24 ~~(m)~~ Ft	8.64	17.86	1.88
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.87 2 7.99 3 8.00

Recorded by: Craig Wells

Other Monitoring Personnel: Mark Glancy, Steve Green

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 9-26-05	Time: 14.58
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74° Calm Sunny

Status/Description of Operation at Time of Sampling: Loading tracks

Depth to Bottom: 16 ~~(m) ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) ft~~	8.95	18.71	1.44
Depth 2: 8 ~~(m) ft~~	8.40	18.70	1.41
Depth 3: 15 ~~(m) ft~~	8.63	18.71	1.47
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.94 2 8.04 3 8.03

Recorded by: Craig Wells Other Monitoring Personnel: Mark Clancy

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 9-26-05	Time: 15,10
Project Name: Basco		Project Number:	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74° Calm Sunny

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 24.5 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.95	18.80	1.26
Depth 2: 12 ~~(m)~~ Ft	8.52	18.65	1.49
Depth 3: 23 ~~(m)~~ Ft	8.64	18.64	1.60
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.94 2 8.03 3 8.03

Recorded by: Craig Wells Other Monitoring Personnel: MARK CLANCY

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 9.26	Time: 15.20
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74° Calm, Sunny

Status/Description of Operation at Time of Sampling: Loading Trucks

Depth to Bottom: 24.6 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	9.08	18.89	1.60
Depth 2: 12 ~~(m)~~ Ft	8.71	18.62	1.69
Depth 3: 23.5 ~~(m)~~ Ft	8.46	18.54	1.54
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.95 2 8.03 3 8.02

Recorded by: Craig Wells Other Monitoring Personnel: Mark Clancy

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Water Quality Monitoring Form

Station ID: TF-WCU-1		Date: 9-26-05	Time: 15.31
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74°, calm, sunny

Status/Description of Operation at Time of Sampling: Loading Trucks

Depth to Bottom: 14 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.82	18.86	1.51
Depth 2: 7 ~~(m)~~ Ft	8.61	18.69	1.63
Depth 3: 13 ~~(m)~~ Ft	8.94	18.57	1.43
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.00 2 8.05 3 8.04

Recorded by: Craig Wells Other Monitoring Personnel: Mark Chaney

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Water Quality Monitoring Form

Station ID: TF-WCD-1	Date: 09-26-05	Time: 17:10
Project Name: Gasco	Project Number: 000029-02	
Coordinates Datum:		
Lat/Northing:	Long/Easting:	

Weather/River Stage/Flow Observations: 75°, calm, sunny

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 14.5 ~~(m) ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) ft~~	9.13	19.02	1.32
Depth 2: 7 ~~(m) ft~~	8.76	18.30	1.75
Depth 3: 13.5 ~~(m) ft~~	8.57	18.19	2.00
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.12 2 8.07 3 8.00

Recorded by: Craig Wells

Other Monitoring Personnel: Steve Hargquar

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-29-02	Time: 1730
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations:
76°, calm, sunny

Status/Description of Operation at Time of Sampling:
not operating

Depth to Bottom: 23 ~~(m)~~ FT

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	9.03	19.09	1.33
Depth 2: 11.5 ~~(m)~~ Ft	8.56	18.29	1.68
Depth 3: 22 ~~(m)~~ Ft	8.48	18.07	2.22
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:
pH: 1 8.12 2 8.07 3 7.93

Recorded by: Craig Wells

Other Monitoring Personnel: Steve Hargunil

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Water Quality Monitoring Form

Station ID: TF-WCD-[redacted]3		Date: 09-26-05	Time: [redacted] 1745
Project Name: Gasc		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 75°, calm, sunny

Status/Description of Operation at Time of Sampling: Not operating

Depth to Bottom: 25 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft	9.11	19.06	1.27
Depth 2: 12.5 ~~(m)~~ ft	8.41	18.27	1.95
Depth 3: 24 ~~(m)~~ ft	8.43	18.11	2.21
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.05 2 8.03 3 7.95

Recorded by: Craig Wells

Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-WCU-1		Date: 09-26-05	Time: 17:50
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, calm, sunny

Status/Description of Operation at Time of Sampling: Not operating

Depth to Bottom: 13 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft	8.96	19.08	1.27
Depth 2: 6.5 ~~(m)~~ ft.	8.51	18.47	2.10
Depth 3: 12 ~~(m)~~ ft.	8.53	18.21	2.35
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.02 2 8.04 3 8.00

Recorded by: Craig Wells Other Monitoring Personnel: Steve Hargrave

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 9-27-05	Time: 9:05
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 55° Sunny Slight Breeze From North

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 11.6 ~~(m)~~ FT

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.85	18.11	2.02
Depth 2: 5.5 ~~(m)~~ Ft	8.81	18.05	2.17
Depth 3: 10.5 ~~(m)~~ Ft	8.87	18.02	2.02
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.89 2 7.96 3 8.01

Recorded by: Craig Wells Other Monitoring Personnel: MARK CLANCY

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Water Quality Monitoring Form

Station ID: TF - WCD - 2	Date: 9-27-05	Time: 09:17
Project Name: Gasco	Project Number: 000029-02	
Coordinates Datum:		
Lat/Northing:	Long/Easting:	

Weather/River Stage/Flow Observations: 55° Sunny Slight Breeze from North

Status/Description of Operation at Time of Sampling:

Depth to Bottom: 24 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.77	18.03	1.73
Depth 2: 12 ~~(m)~~ Ft	8.84	17.97	2.28
Depth 3: 23 ~~(m)~~ Ft	8.81	17.94	2.29
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.90 2 8.02 3 8.00

Recorded by: Craig Wells Other Monitoring Personnel: Mark Olancy

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Water Quality Monitoring Form

Station ID: TF-WCD 3		Date: 9-27-05	Time: 0930
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 55° Slight Breeze from North Sunny

Status/Description of Operation at Time of Sampling: Waiting for trucks, moving material on barge

Depth to Bottom: 25.5 ~~(m)~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ FT	8.95	18.15	1.45
Depth 2: 12.5 ~~(m)~~ FT	8.79	17.99	2.03
Depth 3: 24.5 ~~(m)~~ FT	8.79	17.96	1.72
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.91 2 8.02 3 8.02

Recorded by Craig Wells Other Monitoring Personnel: Mark Chawy

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 9-27-05	Time: 09:44
Project Name: GASCO		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 55° Slight Breeze from North, clear

Status/Description of Operation at Time of Sampling: Temporary lull in loading

Depth to Bottom: 13 ~~(m)~~ FT

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ FT	8.86	18.16	1.49
Depth 2: 6.5 ~~(m)~~ FT	8.84	18.10	1.76
Depth 3: 12 ~~(m)~~ FT	8.91	17.94	1.94
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.91 2 9.97 3 8.01

Recorded by: Craig Wells Other Monitoring Personnel: Mark Clancy

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 9-27-05	Time: 14:28
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, clear, calm

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 14.5 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft	9.07	19.00	1.30
Depth 2: 7 ~~(m)~~ ft	8.89	18.72	1.43
Depth 3: 13.5 ~~(m)~~ ft	8.60	18.64	1.54
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.00 2 8.10 3 8.15

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Sevensen

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 9-27-05	Time: 13:30
Project Name: Graco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74°, Clear, light breeze From North

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 10.5 (m) Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) Ft.	8.89	18.93	1.36
Depth 2: 5 (m) Ft	9.01	18.91	1.22
Depth 3: 9.5 (m) Ft	8.80	18.90	1.26
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.00 2 7.99 3 8.05

Recorded by: Craig Wells Other Monitoring Personnel: Kim Radman Sorensen

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 9-27-05	Time: 13:51
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, clear, slight breeze from north

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 24 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft.	8.84	19.01	1.26
Depth 2: 12 ~~(m)~~ Ft.	8.81	18.84	1.46
Depth 3: 23 ~~(m)~~ Ft.	8.73	18.84	2.61
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.96 2 8.07 3 8.08

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Seversen

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 9-27-05	Time: 14:08
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, calm, clear

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 25 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft.	8.85	19.10	1.14
Depth 2: 12.5 ~~(m)~~ ft.	9.09	18.84	1.29
Depth 3: 24 ~~(m)~~ ft.	9.04	18.65	1.99
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.95 2 8.08 3 8.08

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodamer Sorensen

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 09-28-05	Time: 0955
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 58°, Clear, slight breeze from North

Status/Description of Operation at Time of Sampling: Temporary lull in loading

Depth to Bottom: 14.5 ~~(m)~~ ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft.	8.86	18.09	1.93
Depth 2: 7 ~~(m)~~ ft.	8.82	18.05	1.85
Depth 3: 13.5 ~~(m)~~ ft.	8.80	17.88	2.24
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.81 2 8.00 3 8.05

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Sevensen

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 09-28-05	Time: 0850
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 57°, Clear, ~5mph wind from north

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 14 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft.	8.80	18.05	1.78
Depth 2: 7 ~~(m)~~ ft.	8.74	18.06	1.65
Depth 3: 13 ~~(m)~~ ft.	8.76	18.06	1.84
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.89 2 8.02 3 8.03

Recorded by: Craig Wells

Other Monitoring Personnel: Kim Rodman Sorensen

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-28-05	Time: 0920
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 58°, clear, slight breeze from north.

Status/Description of Operation at Time of Sampling: Loading Trucks

Depth to Bottom: 25 ~~(m)~~ ~~Ft~~.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ~~Ft.~~	8.87	18.06	1.96
Depth 2: 12.5 ~~(m)~~ ~~Ft.~~	8.75	18.05	1.81
Depth 3: 24 ~~(m)~~ ~~Ft.~~	8.77	18.04	1.75
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.88 2 8.01 3 8.01

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Sorensen

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 09-28-05	Time: 0935
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 58°, clear, slight breeze from north

Status/Description of Operation at Time of Sampling: Temorary lull in loading

Depth to Bottom: 25 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft.	8.78	18.06	1.75
Depth 2: 12.5 ~~(m)~~ ft.	8.71	18.06	1.74
Depth 3: 24 ~~(m)~~ ft.	8.75	18.04	1.92
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.87 2 8.00 3 7.99

Recorded by: Craig Wells

Other Monitoring Personnel: Kim Rodman Sevenser

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 09-28-05	Time: 14:25
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 70°, clear, slight breeze from north

Status/Description of Operation at Time of Sampling:
waiting for trucks, putting front end loader in barge

Depth to Bottom: _____ (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.00	18.56	1.38
Depth 2: 7.5 (m)	8.89	18.53	1.61
Depth 3: 14 (m)	8.78	18.52	1.28
Other:			

Evidence of floating or suspended materials:	
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	
Discoloration and Turbidity:	
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:
pH: 1 8.02 2 8.08 3 8.10

Recorded by: Craig Wells Other Monitoring Personnel: Ingmar Saad w/ parametrix

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 9-28-05	Time: 1330
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 68°, clear 3-5mph breeze out of north

Status/Description of Operation at Time of Sampling:
Temporary lull, waiting for trucks

Depth to Bottom: 8.5 ~~(m)~~ ~~Ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ~~Ft.~~	9.09	18.63	1.27
Depth 2: 4 ~~(m)~~ ~~Ft.~~	8.91	18.59	1.13
Depth 3: 7.5 ~~(m)~~ ~~Ft~~	8.80	18.62	1.14
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:
pH: 1 7.97 2 8.00 3 8.04

Recorded by: Craig Wells Other Monitoring Personnel: Ingmar Saul Parametrix

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-28-05	Time: 1350
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 58°, clear, 3-5 mph wind from north

Status/Description of Operation at Time of Sampling: Waiting for trucks

Depth to Bottom: 24.5 ~~(m) ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) ft~~	9.02	18.60	1.19
Depth 2: 12 ~~(m) ft~~	8.92	18.59	1.48
Depth 3: 23.5 ~~(m) ft~~	8.91	18.59	0.98
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.97 2 8.04 3 8.05

Recorded by: Craig Wells Other Monitoring Personnel: Ingmar Saul Parametrix

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 09-28-05	Time: 14:10
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 68°, clear, 3-5 mph wind from north

Status/Description of Operation at Time of Sampling: Waiting for trucks

Depth to Bottom: 24.5 ~~(m)~~ ~~Ft.~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ~~Ft.~~	9.14	18.62	1.43
Depth 2: 12 ~~(m)~~ ~~Ft.~~	8.97	18.48	1.38
Depth 3: 23.5 ~~(m)~~ ~~Ft.~~	8.88	18.38	1.78
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.98 2 8.05 3 8.05

Recorded by: Craig Wells

Other Monitoring Personnel: Ingmar Saul Parametrix

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 9-28-05	Time: 1620
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, clear, breeze from South

Status/Description of Operation at Time of Sampling: Loading Truck

Depth to Bottom: 14.5 ~~(m) Ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) Ft~~	9.18	18.96	1.55
Depth 2: 7 ~~(m) Ft~~	9.11	18.64	1.60
Depth 3: 13.5 ~~(m) Ft~~	9.09	18.57	1.98
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.02 2 8.03 3 8.10

Recorded by: Craig Wells Other Monitoring Personnel: Steve Hargquail

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 09-29-05	Time: 15:50
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, clear, calm

Status/Description of Operation at Time of Sampling: Loading Trucks

Depth to Bottom: 11.5 ~~(m) Ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) Ft~~	9.17	18.80	2.24
Depth 2: 6 ~~(m) Ft~~	8.94	18.72	1.72
Depth 3: 10.5 ~~(m) Ft.~~	8.97	18.70	1.54
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.01 2 8.08 3 8.12

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harguail

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-28-05	Time: 16:00
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, calm, clear

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: _____ (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m)	9.08	18.78	1.49
Depth 2: 12 (m)	9.10	18.51	1.98
Depth 3: 23.5 (m)	8.48	18.20	2.09
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 8.01 2 8.09 3 7.98

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 09-28-05	Time: 1605
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, clear, calm

Status/Description of Operation at Time of Sampling:
Moving material on barge, waiting for trucks

Depth to Bottom: 25.5 (m) Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) Ft	9.15	18.86	1.50
Depth 2: 12.5 (m) Ft.	9.01	18.42	1.63
Depth 3: 24.5 (m) Ft.	8.56	18.22	1.89
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:
pH: 1 8.01 2 8.08 3 7.98

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-[redacted] WCU	Date: 09-29-05	Time: 0840
Project Name: Gasco	Project Number: 000029-02	
Coordinates Datum:		
Lat/Northing:	Long/Easting:	

Weather/River Stage/Flow Observations: 67°, 50% overcast, 5-8 mph wind from South

Status/Description of Operation at Time of Sampling:
Temporary lull in loading, moving material on barge

Depth to Bottom: 13.5 ~~(m)~~ Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft.	8.93	17.74	1.58
Depth 2: 6.5 ~~(m)~~ Ft.	8.81	17.74	1.82
Depth 3: 12.5 ~~(m)~~ Ft.	8.89	17.74	1.85
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:
pH: 1 7.86 2 7.89 3 7.90

Recorded by: Craig Wells Other Monitoring Personnel: Ingmar Saul Parametrix

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 09-29-02	Time: 0735
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 67°, 50% overcast, wind 5-8 mph from southwest

Status/Description of Operation at Time of Sampling: Temporary lull in trucks moving material on barge

Depth to Bottom: 18 ~~(m)~~ Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft.	8.86	17.76	1.97
Depth 2: 9 ~~(m)~~ Ft.	8.85	17.80	1.84
Depth 3: 17 ~~(m)~~ Ft.	8.87	17.79	2.56
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.85 2 7.87 3 7.85

Recorded by: Craig Wells

Other Monitoring Personnel: Ingmar Saul Parametrix

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-29-05	Time: 0755
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 67°, 50% overcast, 5-8 mph wind from southwest

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 25 ~~(m)~~ Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft	8.82	17.74	1.94
Depth 2: 12.5 ~~(m)~~ Ft.	8.84	17.76	2.17
Depth 3: 24 ~~(m)~~ Ft.	8.81	17.76	2.05
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.85 2 7.87 3 7.86

Recorded by: Craig Wells

Other Monitoring Personnel: Ingmar Seul Parametrix

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Water Quality Monitoring Form

Station ID: TF - WCD - 3		Date: 09-29-02	Time: 0825
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 67°, 50% overcast, 5-8 mph wind from south

Status/Description of Operation at Time of Sampling: Temporary halt in loading, moving material on barge

Depth to Bottom: 26 ~~(m)~~ Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft.	8.87	17.72	1.80
Depth 2: 13 ~~(m)~~ Ft.	8.89	17.75	2.05
Depth 3: 25 ~~(m)~~ Ft	8.83	17.75	1.65
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.85 2 7.88 3 7.87

Recorded by: Craig Wells Other Monitoring Personnel: Ingmar Saul Parametrix

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 09-29-05	Time: 1340
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74°, 85% overcast, 10-15 mph wind from west, 12" swells from northwest

Status/Description of Operation at Time of Sampling: Loading trucks, loading chip barge just east of Gasco barge

Depth to Bottom: 12 ~~(m)~~ Ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft.	9.23	17.95	1.77
Depth 2: 6 ~~(m)~~ Ft.	9.13	17.95	1.84
Depth 3: 11 ~~(m)~~ Ft.	9.11	17.95	2.78
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.92 2 7.97 3 8.01

Recorded by: Craig Wells

Other Monitoring Personnel: Kim Rodman Sevensen

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 09-29-05	Time: 12:35
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 76°, 75%, overcast 10-15 mph wind from southwest, few drops of rain

Status/Description of Operation at Time of Sampling: Temporary lull between trucks, moving material on barge

Depth to Bottom: 21.5 ~~(m)~~ ~~ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ~~ft~~	9.15	17.92	1.88
Depth 2: 11 ~~(m)~~ ~~ft~~	9.13	17.90	2.30
Depth 3: 20.5 (m)	9.12	17.85	
Other:			2.22

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.90 2 7.93 3 7.91

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Sorensen

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Water Quality Monitoring Form

Station ID: TF-WCD-2	Date: 09-29-05	Time: 12:55
Project Name: Gasco	Project Number: 000029-02	
Coordinates Datum:		
Lat/Northing:	Long/Easting:	

Weather/River Stage/Flow Observations: 74°, 80% overcast, 10-15 mph wind from southwest, 12-18" swells from west

Status/Description of Operation at Time of Sampling: loading trucks, Loading Chip Barge

Depth to Bottom: 24.5 (m) ~~ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) ~~ft~~	9.10	17.92	2.04
Depth 2: 12 (m) ~~ft~~	9.16	17.93	1.77
Depth 3: 23.5 (m) ~~ft~~	9.07	17.88	2.48
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.92 2 8.00 3 7.98

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Sevenson

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 09-29-05	Time: 13:19
Project Name: Gasco		Project Number: 060029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 74°, 85% overcast, 10-15 mph wind from southwest, 12 inch swells from northwest

Status/Description of Operation at Time of Sampling:
Tempory lull in truck loading, chip barge loading west of Gasco barge

Depth to Bottom: _____ (m)

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ FT	9.17	17.95	2.29
Depth 2: 13 ~~(m)~~ FT	9.14	17.93	2.24
Depth 3: 25 ~~(m)~~ FT	9.11	17.92	2.17
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:
pH: 1 7.92 2 7.99 3 7.99

Recorded by: Craig Wells Other Monitoring Personnel: Kim Rodman Severson

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Water Quality Monitoring Form

Station ID: [redacted] TF- WCU [redacted]		Date: 09-30-05	Time: 1001
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: overcast 68°, ~5 mph breeze from southwest

Status/Description of Operation at Time of Sampling: Unterping Barge

Depth to Bottom: 12 ~~(m)~~ ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft.	8.95	17.84	2.22
Depth 2: 6 ~~(m)~~ ft.	8.99	17.83	1.56
Depth 3: 11 ~~(m)~~ ft.	8.91	17.84	1.76
Other:			

Evidence of floating or suspended materials:	None
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	None
Discoloration and Turbidity:	None
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.91 2 7.88 3 7.89

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 09-30-05	Time: 0935
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: Overcast, 68°, ~5 mph breeze from southwest

Status/Description of Operation at Time of Sampling: Temporary lull in trucks, moving material on barge

Depth to Bottom: 20 (m) ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 (m) ft	8.87	17.84	2.29
Depth 2: 10 (m) ft	8.80	17.84	2.13
Depth 3: 19 (m) ft	8.87	17.83	1.92
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.81 2 7.80 3 7.75

Recorded by: Craig E. Wells Other Monitoring Personnel: Steve Hargquail

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-30-05	Time: 0943
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: Overcast, 68°, ~5 mph wind from southwest

Status/Description of Operation at Time of Sampling: Moving material on barge

Depth to Bottom: 24 ~~(m)~~ ft

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ ft	8.85	17.84	2.31
Depth 2: 12 ~~(m)~~ ft	8.79	17.83	2.26
Depth 3: 23 ~~(m)~~ ft	8.82	17.84	1.92
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.88 2 7.84 3 7.81

Recorded by: Craig E. Wells Other Monitoring Personnel: Steve Hargrail

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 09-30-05	Time: 0952
Project Name: Gasco		Project Number: 000029-	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: overcast, 68°, <5 mph breeze from southwest

Status/Description of Operation at Time of Sampling: Untarping barge

Depth to Bottom: 25.5 ~~(m) Ft.~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) Ft.~~	8.75	17.83	2.02
Depth 2: 12.5 ~~(m) Ft.~~	8.72	17.84	2.72
Depth 3: 24.5 ~~(m) Ft.~~	8.79	17.84	2.31
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.89 2 7.90 3 7.89

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-WCU		Date: 09-30-05	Time: 12:42
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 71°, overcast, calm

Status/Description of Operation at Time of Sampling: moving material on barge

Depth to Bottom: 13 ~~(m)~~ Ft.

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m)~~ Ft.	9.05	17.89	1.90
Depth 2: 6.5 ~~(m)~~ Ft.	8.97	17.87	2.33
Depth 3: 12 ~~(m)~~ FT	8.94	17.86	2.40
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.94 2 7.94 3 7.96

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-WCD-1		Date: 09-30-05	Time: 12:22
Project Name: Grasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 71°, overcast, calm

Status/Description of Operation at Time of Sampling: Loading trucks

Depth to Bottom: 15 ~~(m) ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) ft~~	8.85	17.88	1.78
Depth 2: 7.5 ~~(m) ft~~	8.77	17.87	1.74
Depth 3: 14 ~~(m) ft~~	8.96	17.86	1.96
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.94 2 7.98 3 7.97

Recorded by: Craig Welk Other Monitoring Personnel: Steve Hargnail

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Water Quality Monitoring Form

Station ID: TF-WCD-2		Date: 09-30-05	Time: 12:28
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 71°, overcast, calm

Status/Description of Operation at Time of Sampling: Moving material on barge

Depth to Bottom: 25 ~~(m) ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) ft~~	8.93	17.89	2.23
Depth 2: 12.5 ~~(m) ft~~	8.85	17.87	1.51
Depth 3: 24 ~~(m) ft~~	8.89	17.85	1.90
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.94 2 7.95 3 7.94

Recorded by: Craig Wells Other Monitoring Personnel: Steve Harquail

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Water Quality Monitoring Form

Station ID: TF-WCD-3		Date: 09-30-05	Time: 12:38
Project Name: Gasco		Project Number: 000029-02	
Coordinates Datum:			
Lat/Northing:		Long/Easting:	

Weather/River Stage/Flow Observations: 71°, overcast, calm

Status/Description of Operation at Time of Sampling: moving material on barge

Depth to Bottom: 25 ~~(m) Ft~~

	Dissolved Oxygen (mg/L)	Temperature (C)	Turbidity (NTU)
Depth 1: 1 ~~(m) Ft~~	8.97	17.88	1.80
Depth 2: 12.5 ~~(m) Ft~~	8.98	17.87	1.76
Depth 3: 24 ~~(m) Ft~~	8.89	17.85	1.88
Other:			

Evidence of floating or suspended materials:	none
Evidence of oil/hydrocarbon sheen: (Thickness, contiguous?, size, rate of dissipation)	none
Discoloration and Turbidity:	none
Velocity at stated depth:	
Color:	
Odor:	
Other Observations:	

Comments:

pH: 1 7.94 2 7.95 3 7.96

Recorded by: Craig Wells Other Monitoring Personnel: Steve Haquail