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June 30, 2006

Mr. Dennis Harwood  
Alaska Department of Environmental Conservation  
555 Cordova Street  
Anchorage, Alaska

**Re: Groundwater Sampling  
Coastal Drilling Facility  
Soldotna, Alaska  
8969-00**

Dear Mr. Harwood:

This letter report presents the results of groundwater sampling conducted at the Coastal Drilling Facility in Soldotna, Alaska. The purpose of the work was to update groundwater contamination levels related to past maintenance and drilling support activities at the former site. The work was performed under Contract Number No. 18902811 and Notice to Proceed No 18902811-02. The Coastal Drilling Facility is located at Mile 0.5, Kenai Spur Highway, in Soldotna, Alaska (Figure 1).

Background information for this project is presented in our Work Plan for the site dated February 2006.

## WORK PERFORMED

On May 25, 2006, a Hart Crowser environmental scientist traveled to the Coastal Drilling Facility. Our scope of work included groundwater measurements at:

- GMW-1 through GMW-7;
- B-2MW through B-4MW; and
- B-11MW.

Groundwater sampling was to be conducted at the following monitoring wells:



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- B-2MW;
- B-3MW;
- GW-5; and
- GW-6.

These locations are shown of Figure 2.

Upon arrival it was discovered that the area containing wells GMW-2 through GMW-7 were located in a fenced area with a locked gate. We phoned the Alaska Department of Environmental Conservation (ADEC) and were informed that at that time, the key could not be acquired and that we should measure the water level and sample any other wells we could access.

Attempts were then made to measure and sample four of the six monitoring wells located outside the fence. Water levels were acquired from B-2MW, B-3MW and GW-7. The casing in GW-1 was discovered to be broken at approximately the ground surface and within a 3-foot-high aboveground monument. B-4MW contained what appeared to be some type of remediation equipment within the casing and could not be measured. B-11MW had a combination padlock for which we did not have the combination.

After water level measurements were recorded, B-2MW, B-3MW and GW-7 were purged and sampled. Following removal of three casing volumes of water, temperature, pH, conductivity, and dissolved oxygen (DO) readings were recorded. Groundwater samples were then collected (Attachment 1 – Field Methods). A field duplicate labeled MW-50 was collected from monitoring well GMW-7.

Samples were delivered to Test America Laboratory (TAL) in Anchorage, Alaska, for analysis of the following analytes:

- Volatile organic compounds (VOC) by EPA Method 8021B;
- Gasoline-range organics (GRO) by Alaska Method AK 101;
- Diesel-range organics (DRO) by Alaska Method AK 102;
- Polychlorinated biphenyls (PCB) by EPA Method 8082; and



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- Lead, chromium, and barium by EPA Method 6010B.

The trip blank was analyzed for:

- VOC by EPA Method 8021B; and
- GRO by Alaska Method AK 101.

## **GROUNDWATER MEASUREMENTS**

Table 1 presents the water levels measured and the water parameters recorded during the sampling event. Groundwater levels were very similar to previous sampling events.

## **GROUNDWATER ANALYTICAL RESULTS**

Analytical results are summarized in Table 2 and laboratory reports are provided in Attachment 2 along with a review of laboratory data. No volatiles, GRO, DRO, or PCBs were detected in the samples.

Barium and chromium were detected in all three monitoring wells. All levels were below their respective ADEC cleanup levels (2.0 milligrams per liter [mg/L] barium, 0.1 mg/L chromium) except for a chromium concentration of 0.18 mg/L detected in B-2MW. The lead concentration in this well (0.085 mg/L) also exceeded the ADEC cleanup level of 0.015 mg/L. Lead was not detected in the other samples.

## **DISCUSSION**

Due to the inability to access the fenced wells, an overall assessment of the site cannot be made at this time. However, based on the wells measured, the groundwater conditions appear to be similar to previous sampling events. We would recommend that because the wells have not been surveyed since 2001 that a monitoring well elevation survey be included in the next scope of work for monitoring at this site.

The lead and chromium concentration in B-2MW were above their respective ADEC cleanup levels. Since Hart Crowser began sampling in 1998, this is the first occurrence of these metals at



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concentrations above the cleanup level. Future sampling events will reveal if this is an upward trend or whether this is a singular occurrence.

## INFORMATION LIMITATIONS

The work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature of the work completed in the same or similar localities at the time the work was performed. It is intended for the exclusive use of the ADEC for specific application to the project site. This report is not meant to represent a legal opinion, and no other warranty, express or implied, is made.

All ADEC groundwater cleanup levels included in this report are based on our estimate of site characteristics using the ADEC *Soil and Other Hazardous Substances Pollution Control (18 AAC 75)*, dated October 16, 2005. These cleanup levels do not represent ADEC interpretations and are presented only for comparison with your results. By using them, we are not implying that remedial actions at this site are required by ADEC. Specific ADEC interpretations may involve consideration of other factors upon which a range of cleanup standards may be established.

We hope this information is sufficient for your needs at this time. If you have any further questions, feel free to contact me at [Nino.Muniz@hartcrowser.com](mailto:Nino.Muniz@hartcrowser.com) or 907.276.7475.

Sincerely,

**HART CROWSER, INC.**

**HERMINIO R. MUNIZ, R.P.G.**

Sr. Associate Hydrogeologist

Attachments: Table 1: Groundwater Measurements  
Table 2: Groundwater Analytical Results  
Figure 1: Site Location and Vicinity Map  
Figure 2: Site Plan  
Attachment 1: Field Methods  
Attachment 2: Laboratory Reports

**Table 1 - Groundwater Measurements, May 25, 2006**  
**Coastal Drilling Facility**  
**Soldotna, Alaska**

Monitoring Well	Measuring Point Elevation in feet <sup>1,2</sup>	Depth to Water in feet	Groundwater Elevation in feet	Dissolved Oxygen mg/L	Temp in Degrees C	pH	Conductivity in $\mu$ S/cm
GW-7	103.45	32.91	70.54	5.0	5.9	9.5	57.7
B-2MW	103.45	40.36	63.09	4.8	6.9	4.3	40.9
B-3MW	102.50	37.92	64.58	3.6	7.5	5.1	33.2

Notes:

<sup>1</sup> Measuring points surveyed on 6/1/01. Benchmark elevation of 102.5 assumed at measuring point of B-3MW.

C - Celsius

$\mu$ S/cm- Micro Siemens per centimeter.

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**Table 2 - Groundwater Analytical Results**  
**Coastal Drilling Facility**  
**Soldotna, Alaska**

Monitoring Well	Analyte <sup>1</sup>							
	EPA 8021B VOC in mg/L	AK 101 GRO in mg/L	AK 102 DRO in mg/L	EPA 8082 PCBs in mg/L	Barium in mg/L	Chromium in mg/L	Lead in mg/L	
GW-7	ND	0.050 U	0.4 U	ND	0.81	0.06	0.050 U	
Field Dup (MW-50)	ND	0.050 U	0.4 U	ND	1.03	0.08	0.050 U	
B-2MW	ND	0.050 U	0.4 U	ND	0.70	<b>0.18</b>	<b>0.085</b>	
B-3MW	ND	0.050 U	0.4 U	ND	0.35	0.05	0.050 U	
Trip Bik	ND	0.050 U	NA	NA	NA	NA	NA	
<b>ADEC Cleanup Level<sup>2</sup></b>	<b>Various</b>	<b>1.3</b>	<b>1.5</b>	<b>0.005</b>	<b>2</b>	<b>0.1</b>	<b>0.015</b>	

Notes:

<sup>1</sup> See Appendix B for all other analytes/analysis and laboratory reporting limits.

<sup>2</sup> From ADEC Oil and Other Hazardous Substances Pollution Control (18 AAC 75.345, October 16, 2005);

Bolded results in excess of cleanup level.

EPA - U.S. Environmental Protection Agency

mg/L = Milligrams per liter

NA - Not Analyzed

ND - None Detected

U = Not detected at the laboratory reporting limit indicated.

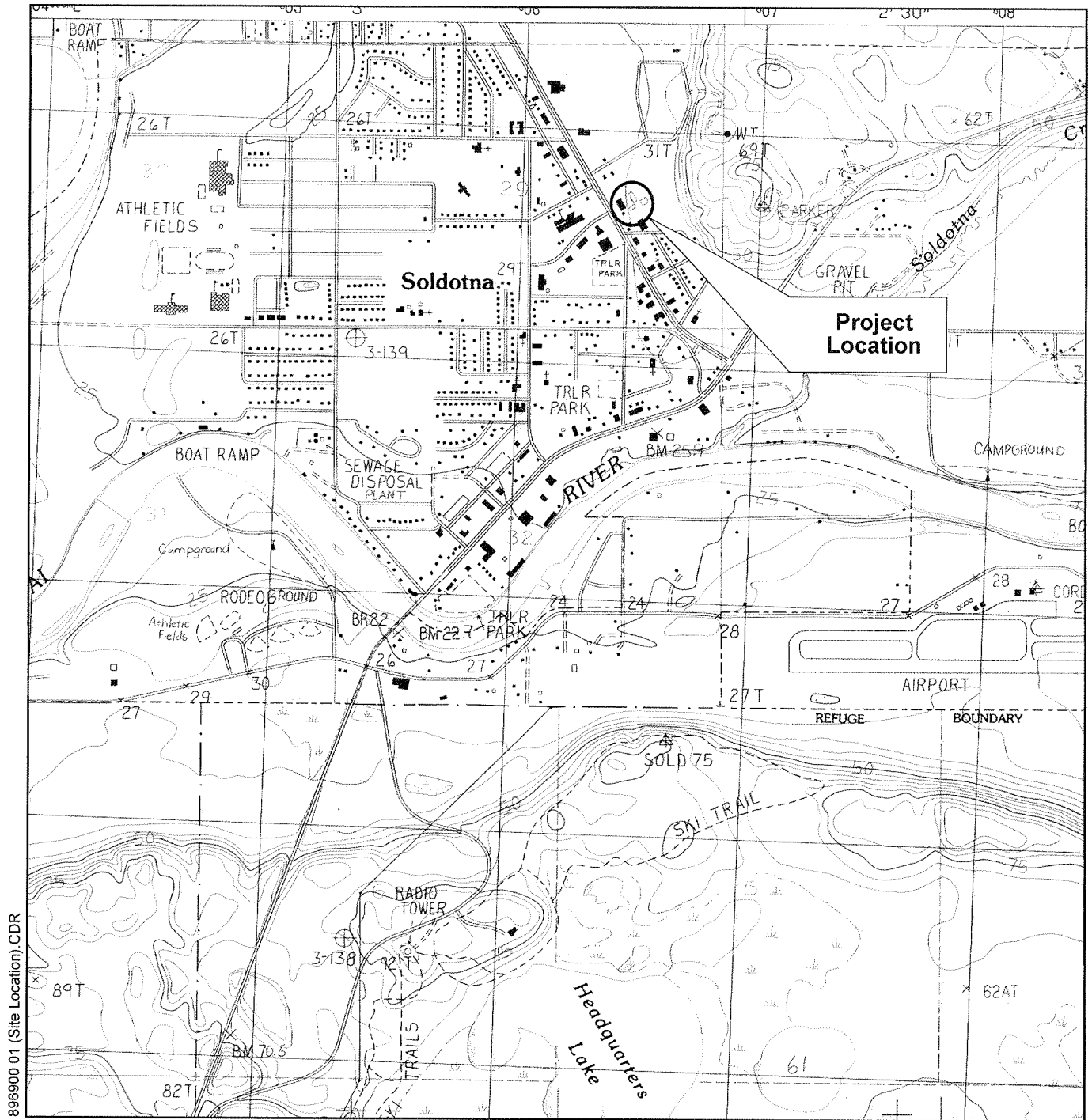
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# Site Location and Vicinity Map

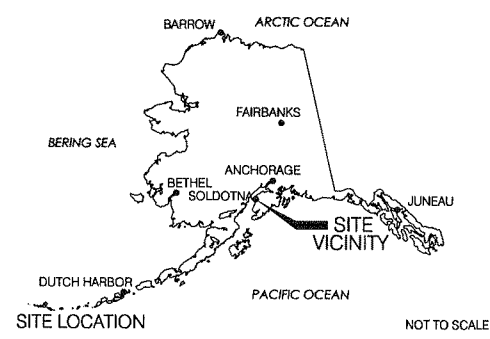
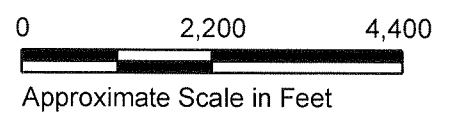
## Coastal Drilling Facility

### Soldotna, Alaska



896900 01 (Site Location), CDR

Source: USGS 1:25,000, Kenai (B-3) NW, Alaska 1986.

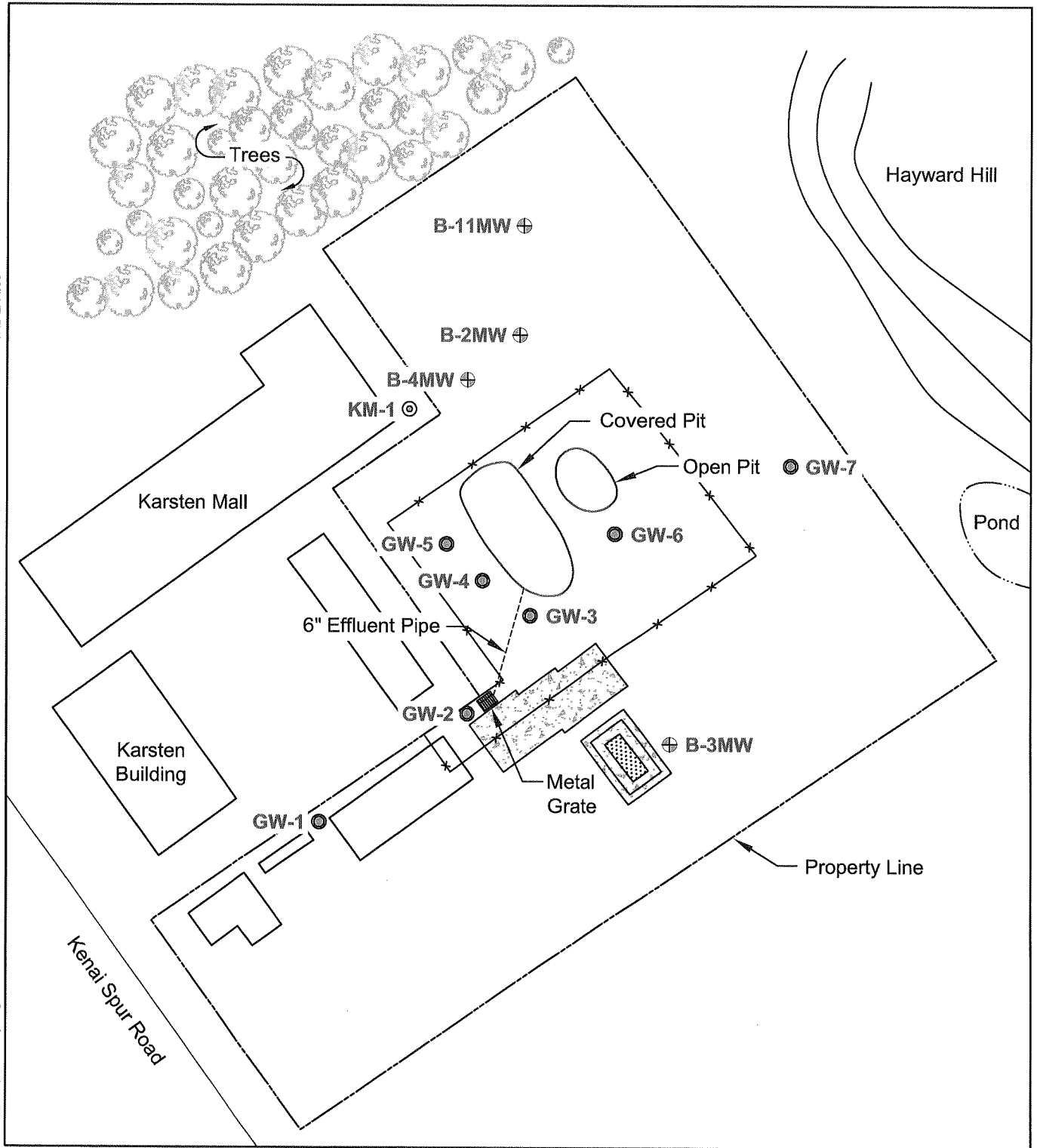


**HARTCROWSER**  
 8969-00 6/06  
 Figure 1

**Site Plan  
Coastal Drilling Facility  
Soldotna, Alaska**

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896900\_02 (Site Plan).dwg

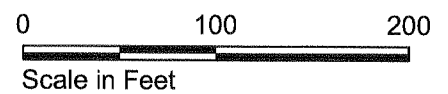


Source: Shannon & Wilson, Inc., August, 1992.

GW-5 ● Monitoring Well Installed by ENSR (1988) and Harding Lawson (1990)

KM-1 ● Karsten Mall Class A Water Well

B-11MW ⊕ Boring/Monitoring Well Installed by Shanon & Wilson, Inc. (1991-1992)



**HARTCROWSER**  
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Figure 2



**ATTACHMENT 1  
FIELD METHODS**

## **ATTACHMENT 1 FIELD METHODS**

This attachment documents the procedures Hart Crowser used in performing the fieldwork related to this investigation. This discussion includes information on the following subjects:

- Monitoring Well Water Level Measurements;
- Groundwater Sampling; and
- Decontamination Procedures.

In general, all fieldwork methodologies were conducted in accordance with 18 AAC 75.

### ***Monitoring Well Water Level Measurements***

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Water levels were measured using an electronic well sounder. All measurements were made to the nearest 0.01 foot.

### ***Groundwater Sampling***

A minimum of three casing volumes of groundwater were removed from each well to be sampled using a disposable Teflon bailer and single use bailer rope. Field parameters of dissolved oxygen (DO), temperature, conductivity, and pH were then measured using a Horiba-U22 unit. Using the same bailer, samples for benzene, toluene, ethylbenzene, and xylenes (BTEX) were first collected and placed in 40-milliliter (ml) VOA vials provided by the laboratory. Other parameters were then collected in bottles provided by the laboratory. Metals samples were passed through a 0.45 micron filter prior to filling the sample container. Immediately following sample collection, samples were placed in coolers with "blue-ice" and delivered to Test America Laboratory (TAL) under standard chain-of-custody procedures.

### ***Decontamination Procedures***

All non-disposable sampling equipment including the well sounder were cleaned prior to and between sampling/measurement attempts using an anionic detergent wash (Alconox) and potable water rinses.