

ED.  
FYI  
LETS TALK  
BOB L.

770 Simms Street  
Suite 110  
Golden, CO 80401  
T: 303.239.8434  
F: 303.239.9982

May 23, 2000

Mr. Robert H. Chesson, C.P.G.  
Environmental Protection Specialist  
Colorado Oil & Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

ANALYTICAL \$430<sup>00</sup>

**RE: Cost Estimate for Limited Groundwater Sampling at #1 Dutch Abandoned Well Site; API 05-013-06235. COGCC Site Investigation and Remediation No. 355.**

Dear Mr. Chesson:

The Colorado Oil & Gas Conservation Commission (COGCC) requested a cost estimate from Cordilleran Compliance Services (Cordilleran) to complete limited groundwater sampling at the above-referenced abandoned well site in Boulder County, Colorado. The COGCC requested the sampling to further evaluate potential impacts to groundwater associated with the former well site. The results of a limited subsurface investigation completed by A.G. Wassenaar, Inc. (AGW) in 1999 indicated benzene in one groundwater sample (BH-1) collected at the former well site at a concentration of 16 micrograms per liter (ug/L).

The AGW investigation included the installation and sampling of nine direct push borings and groundwater monitoring wells spaced from 10 to 20 feet apart at the former well site. The boring logs for all of the AGW borings (except BH-5) indicate that the soil from the ground surface to a depth of approximately 12 or 13 feet below ground surface (bgs) was not stained or otherwise impacted by hydrocarbons. The report identifies only one soil sample (BH-3 at 13.5 feet bgs) that exceeded the 1,000-milligram per kilogram (mg/Kg) COGCC action level for total recoverable petroleum hydrocarbons (TRPH) in soil in sensitive areas and one groundwater sample (BH-1) that exceeded the maximum contaminant level (MCL) of 5 ug/L for benzene in groundwater. All other samples were either less than the detection limits and/or less than the regulatory action levels. In spite of these findings, AGW recommended the excavation and disposal of more than 1,100 cubic yards of soil from an area measuring 60 feet long x 30 feet wide x 13 feet deep.

The COGCC believes that the AGW investigation sufficiently delineated the extent of the hydrocarbon-impacted soil at the former well site. The focus of the sampling requested by the COGCC is to further evaluate the extent of the benzene in the groundwater near AGW boring BH-1. The scope of work initially requested by the COGCC is described in your letter dated May 10, 2000. The scope of work described the following section includes the modifications you requested during our telephone conversation on May 23, 2000.



02158790

## **ASSUMPTIONS AND SCOPE OF SERVICES**

Cordilleran's assumptions and the scope of work for the project as discussed with the COGCC are summarized below:

- Soil cuttings will not require containment and disposal but may be left on-site.
- All field activities will be performed in Level D protective clothing including steel-toed boots, hardhats, and safety glasses.
- Free access to the site will be provided. The field sampling activities will be completed during normal working hours (7:00 am to 6:00 pm).
- The depth to groundwater is assumed to be 10 to 13 feet bgs. The temporary mini-wells will consist of length of 3/8-inch diameter tubing installed two to four feet into the top of the saturated zone. No permanent surface completion will be installed.
- Evergreen Analytical, a laboratory contracted directly to the COGCC, will perform laboratory analysis. Cordilleran will deliver the groundwater samples to the laboratory. The cost of the analysis will be billed directly to the COGCC.

The Scope of Work requested by COGCC consists of three tasks and is summarized below:

### **Task 1 – Project Preparation**

During this task Cordilleran will prepare for the field sampling activities. Cordilleran will prepare a project specific Health and Safety Plan, arrange for utility locates, and establish contracts with the subcontractor.

### **Task 2 – Field Activities**

The field sampling activities are summarized in the following sections.

#### **Subsurface Sampling Activities**

Cordilleran will install seven direct-push borings for the collection of groundwater samples down gradient of the abandoned well site to evaluate the extent of the benzene in groundwater near BH-1 as described in the Scope of Work proposed by the COGCC. Each boring location will be screened using a metal detector to identify buried metal prior to advancing the boring. The soil borings will be advanced to a depth of approximately two to four feet below the groundwater surface to enable the collection of a groundwater sample. The AGW report indicates the depth to groundwater is approximately 13 feet bgs. Soil samples will be collected continuously as the boring is advanced using a Hurricane direct-push sampler. The soil cuttings will be logged, but no soil samples will be submitted for laboratory analysis.

#### **Ground Water Sampling**

After the borings are advanced to the desired depth, 3/8-inch diameter tubing mini-wells will be constructed in the borings. The groundwater samples will be pumped directly from each mini-well into prepared sample containers using a peristaltic pump. Groundwater sample containers will be labeled with the sample identification number, and the time and date of sampling. Samples will be placed in a cooler with ice and transported to the laboratory under chain of custody. Cordilleran will prepare geologic logs showing the geologic materials encountered in each boring and the mini-well construction details.

**Analytical Methods**

The groundwater samples will be analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA method 8020 (or 8021).

**Task 3 - Report Preparation**

Upon completion of field work and laboratory analysis Cordilleran will prepare a letter report summarizing the field sampling activities. The report will include a summary of the field activities, sample location map, borehole logs and laboratory results for the groundwater samples.

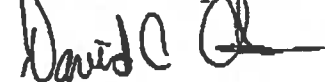
**FEE AND SCHEDULE**

The estimated cost to perform the above-described scope of services is \$4,850.00. A summary of the estimated costs is outlined in Table 1. Cordilleran will begin field activities immediately upon receiving written authorization to proceed. It is estimated that the field sampling activities can be completed in one day. A final report and our invoice for the work (as requested by you) will be submitted within 21 working days.

If this proposal meets your approval, please sign and return the proposal as our authorization to proceed. Thank you for the opportunity to assist you with this project. We look forward to working with you. If you have any questions, please call us at (303) 239-8434.

Sincerely,

*Cordilleran Compliance Services*



David C. Cloutier

Senior Project Manager



John D. Lohner

Principal Geologist

**NOTICE TO PROCEED**

The above proposal is understood and accepted.

BY: \_\_\_\_\_  
(Please Print)

FOR: \_\_\_\_\_  
(Company)

\_\_\_\_\_  
(Signature)

DATE: \_\_\_\_\_

**TABLE I**  
**Cost Estimate for**  
**Limited Subsurface Investigation**  
**at the #1 Dutch Abandoned Well Site In Boulder County, Colorado**

at the 71 DUTCH ASSOCIATED WORKERS IN DOMEST SERVICE						
LABOR	Principal Scientist	Senior Scientist	Project Scientist	Staff Scientist	CAD/ Graphics	Admin./ Clerical
TASK 1 (Project preparation)	1	8	0	0	1	1
TASK 2 (Field Activities)	1	12				
TASK 3 (Report Preparation)	1	16			2	1
TOTAL HOURS	3	36	0	0	3	2
RATE (\$)	\$85.00	\$75.00	\$65.00	\$55.00	\$45.00	\$35.00
LABOR COST	\$255.00	\$2,700.00	\$0.00	\$0.00	\$135.00	\$70.00
	Subtotal Labor					\$3,160.00
INTERNAL EXPENSES (Copies, Faxes, Long Distance, Courier, Postage, etc.)						
	Subtotal I.E.					\$135.00
EXTERNAL EXPENSES AND SERVICES						
	NUMBER	UNIT	UNIT COST	ITEM COST		
Subcontractor Geoprobe	1	Estimate	\$1,000.00	\$1,000.00		
Vehicle/Mileage	1	Estimate	\$60.00	\$60.00		
Field Supplies (Field kit, metal detector, packing, film)	1	Estimate	\$250.00	\$250.00		
Report Preparation (color copies)	1	Estimate	\$20.00	\$20.00		
	SUBTOTAL			\$1,330.00		
	FEE @ 15 %			\$199.50		
	TOTAL ES&E			\$1,529.50		
TOTAL PROJECT COST						
						\$4,847.50

Note: Actual project costs will vary for individual items. Estimated total project cost will not be exceeded without approval