



esi.craig@sopris.net
(970) 948-8978 Cell
(970) 963-8556 Office

August 28, 2013

Via email

carlos.lujan@state.co.us
david.andrews@state.co.us

Colorado Oil and Gas Conservation Commission
Attention: Mr. Carlos A. Luian, Ph.D
Environmental Protection Specialist and
Mr. Mr. David Andrews
West Region Supervisor
Northwest Region
796 Megan Avenue, Suite 201
Rifle, Colorado 81650

RE: Sampling and Laboratory Analysis of Gas Composition and Stable Isotopes of Methane
Analyses -The Werning Residence near Maralex Resources, Inc. Rifle Walton 25-2

Dear Messrs. Luian and Andrews

Environmental Services, Inc. (ESI) is pleased to present the reported laboratory results representing gas composition and stable isotopes of methane analyses for the Werning Residence.

BACKGROUND

The Werning residence (Site) is located near the Rifle Walton 25-2 Facility owned and operated by Maralex Resources, Inc. (Maralex). Maralex has received a Notice of Violation (NOV) from the Colorado Oil and Gas Conservation Commission (COGCC) requesting that a sample representing domestic well water within a half-mile radius of the Rifle Walton 25-2 be obtained and submitted to a laboratory for analysis. The initial sampling event occurred at the Werning residence on January 23, 2012. ESI previously prepared a report entitled *Sampling and Laboratory Analysis of Groundwater for the Werning Residence* dated April 4, 2012.

The conclusions regarding the reported concentration of methane were as follows:

A concentration of 2,400 µg/L (2.4 mg/L) was reported. Mr. Werning indicated that the well driller had reported that methane was present at the time the well was drilled. Per the COGCC Environmental Abatement Requirements that accompanied the NOV, the sample should be further analyzed for Gas Composition and Stable Isotopes of Methane. We understand that only Isotech Laboratories, Inc. (Isotech) of Champaign, Illinois has the capability to perform

Stable Isotopes of Methane which requires a one-liter of sample preserved with benzalkonium chloride. These preserved bottles will need to be obtained directly from Isotech.

SAMPLING

ESI returned to the Site on June 27, 2013 to obtain an additional groundwater sample for gas composition and stable isotopes of methane. During our Site visit we were accompanied by Mr. Leland Clifton with Maralex Resources and Mr. Carlos A. Luian, Ph.D, Environmental Protection Specialist, with Colorado Oil and Gas Conservation Commission.

Digital photographs are summarized in an attached Power Point presentation. The rate of flow was measured at approximately five gallons per minute during groundwater well purging. Approximately two hundred and fifty gallons of water were purged from the well, over a 50-minute period, and were allowed to flow downhill away from the Site's structures and at a location and direction previously acceptable to Mr. Werning on January 23, 2012. Evidence of turbidity was not observed during the groundwater well purging or sampling. Temperature and pH were measured in the field and were recorded at between 11.7 and 11.9 degrees Celsius and between 8.96 and 8.97 pH units over the last 15 minutes of monitoring. A Groundwater Sampling Field Data Sheet is attached.

Purge water discharging into a stainless steel vessel indicated the presence of effervescent water. The size of the gas bubbles ranged from small carbonaceous size to those the size or volume twice that of a thumb. Due to presence of effervescent water we generally followed a procedure for dissolved methane sampling contained in a document prepared by S.S Papadopoulos and Associates, Inc. of Boulder, Colorado and dated February 9, 2007. The document is entitled Piceance Basin Phase IV Baseline water Quality Study- Garfield County, Colorado and was prepared for the COGCC. During sampling, the rate of flow was reduced to approximately 0.1 of a gallon per minute. A copper hose attachment, equipped with 1/8-inch poly tubing, was attached to the end of a garden hose.

SAMPLE AND COOLER PREPARATION

Surgical gloves were donned during sampling and sample preparation. The sample was placed into containers provided by Isotech. The individual sample containers included completed labels that were secured with film tape. The samples were then placed into individual baggies, and immediately placed into a cooler with ice. The sample was logged and recorded on a Chain of Custody form.

Additional ice was placed into doubled two-gallon baggies and placed on each side and on top of the sample sufficient to maintain an internal cooler temperature of less than four degrees Celsius. The Chain of Custody form was placed into an individual baggie and affixed to the underside of the cooler lid. Copies of the Chain of Custody forms have been retained in the ESI project file. The coolers included a signed and dated security label. The cooler lids were secured with reinforced packing tape and film tape. The coolers were delivered to FedEx in Basalt, Colorado for Priority Overnight Delivery to Isotech of Champaign, Illinois. Copies of the FedEx Air Bills have been retained in the ESI project file and secured to a copy of the completed Chain of Custody.

LABORATORY DATA AND FINDINGS

The sample was analyzed for Gas Composition and Stable Isotopes of Methane. The laboratory report from Isotech laboratories Inc. (Job Number 22122) is attached. The reported laboratory results have been review by the COGCC and the source of methane in the Werning well appears to biogenic origin and not thermogenic.

LIMITATIONS

This report has been prepared in accordance with generally acceptable environmental engineering practices in the area to sample groundwater for the purpose of laboratory analysis. The information submitted in this report is primarily based on the observations and the review of reported laboratory data. The groundwater sample and the reported laboratory data are indicative of conditions only at those locations. This assessment is based on information made available to ESI at the time of our investigation and provides an indication of the status at that time. A complete definition of regional groundwater conditions would require substantial testing and a more detailed investigation. Because of uncertainties related to subsurface conditions and the changing nature of soil and groundwater conditions, it is not possible for ESI to provide guarantees with this assessment.

Should you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

ENVIRONMENTAL SERVICES, INC.

By 
D. Craig Heydenberk
Environmental Consultant

Attachments: Digital Photograph Log, Groundwater Sampling Field Data Sheet and Laboratory Report

cc : Mr. Jim Graves - Maralex Resources, Inc. mrinc20@qwestoffice.net
Mr. A. M. O'Hare - Maralex Resources, Inc. amohare@maralexinc.com
Naomi Azulai – Maralex Resources, Inc. naomi@maralexinc.com