

# **2017 OUTCROP ZONE REPORT**

## **FRUITLAND FORMATION OUTCROP ZONE ARCHULETA COUNTY, COLORADO**

**NOVEMBER 2017**

**Prepared for:**

**PETROX RESOURCES, INC.  
Meeker, Colorado**



*Advancing Opportunity*



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**NOVEMBER 2017**

**Prepared for:**

**PETROX RESOURCES, INC.  
39868 Highway 13  
Meeker, Colorado 81641-9635**

**Prepared by:**

**LT ENVIRONMENTAL, INC.  
4600 West 60<sup>th</sup> Avenue  
Arvada, Colorado 80003  
(303) 433-9788**





**2017 Fruitland Outcrop Monitoring Report**  
**LTE Project Number: 0191 17001**

**Prepared  
by:**

A handwritten signature in black ink, appearing to read 'Devin Henemann'.

Devin Henemann  
LTE Project Geologist

November 17, 2017

Date

**Reviewed  
by:**

A handwritten signature in black ink, appearing to read 'John D. Peterson'.

John D. Peterson, P.G.  
Chief Operating Officer

November 17, 2017

Date





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## EXECUTIVE SUMMARY

This 2017 Outcrop Zone Report meets the requirements set forth by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) in Decision Point 5 of the Record of Decision (ROD) in order to obtain approval of an application for permit to drill (APD) for coalbed methane (CBM) production of federal minerals in the Project Area. The Project Area includes approximately 18 miles of the Fruitland Formation (Kf) outcrop starting on the west end at the La Plata County-Archuleta County boundary near Beaver Creek and extends southeast along the Kf outcrop to the Southern Ute Indian Tribe (SUIT) Reservation boundary at Cabezón Canyon. In addition to the Kf outcrop, the Project Area includes a 1.5-mile buffer inward from the Kf and Kirtland Shale (Kk) boundary, known collectively as the “outcrop zone”.

In addition to compliance with the ROD, the monitoring program detailed in this report meets the requirements of Sections 1, 2, and 4 of the Conditions of Approval (COA) for the Candelaria 10U#3 fee CBM production well (Permit), issued by the Colorado Oil and Gas Conservation Commission (COGCC).

The objective of this 2017 Outcrop Zone Report is to characterize the Project Area and evaluate the existing conditions of current and future CBM production of federal minerals in the Fosset Gulch Unit within the outcrop zone. The 2017 reconnaissance survey represents the seventh evaluation of the Project Area for development of the Fosset Gulch Unit.

In 2017, Elm Ridge Resources, Inc (Elm Ridge) sold their assets in the Project Area to Catamount Energy Partners, LLC (Catamount). Catamount did not participate in the 2017 outcrop monitoring event. As a result, the Project Area and the scope of the 2017 monitoring event was split between Petrox and Catamount to include the drainage transects, regional reconnaissance, abandoned production wells, and coal mines located within the western portion of the Project Area considered to be the responsibility of Petrox (which includes the Fosset Gulch Unit). No monitoring activity was conducted on the eastern half of the Project Area deemed to be Catamount’s responsibility (which includes the Bull Creek and Pargin Mountain PA units). The attached figures illustrate the division of the project area. The natural spring survey, evaluation of COGCC monitoring well data, and evaluation of Petrox CBM production data was conducted for the entire Project Area.

Baseline conditions within the Project Area indicate conditions have not changed within the Project Area since 2004, despite ongoing CBM production since 1990 in the nearby Pargin Mountain Unit. As stated in Decision Point 5 of the ROD, oil and gas producers are allowed to monitor-as-you-go after CBM wells are drilled and begin production. This approach appears warranted as there are 13 years of outcrop monitoring baseline data, the construction and monitoring of seven COGCC monitoring wells, the installation and monitoring of BLM soil vapor tubes, and historical/ongoing reservoir pressure data, which all provide sufficient monitoring of the Kf outcrop, which has concluded there is virtually no methane seeping to the ground surface at the outcrop or active coal fires.



Throughout the lifecycle of CBM production in the Fosset Gulch Unit, Petrox will evaluate conditions to determine if production is contributing to methane seepage at the outcrop, coal fires, surface water depletion, or pressure changes in monitoring wells at or near the Kf outcrop. If CBM production is determined to be adversely impacting any of these conditions, Petrox will evaluate the mitigation strategies discussed in the ROD and work with the BLM, USFS, and/or COGCC to implement effective mitigation measures.

Based on the monitoring results, absence of additional planned drilling, lack of change in findings over the past 13 years, and evaluation of this report, LTE recommends that the technical working group (TWG) (comprised of the BLM, USFS, COGCC, the SUIT, Petrox, and LT Environmental, Inc. (LTE)) be reconvened in January 2018 to discuss and determine a change in scope of work for this project.



## 1.0 INTRODUCTION

This 2017 Outcrop Zone Report has been prepared at the request of Petrox Resources, Inc. (Petrox) for the Project Area within the eastern half of the Northern San Juan Basin (NSJB) in Archuleta County, Colorado. The Project Area includes approximately 18 miles of the Fruitland Formation (Kf) outcrop starting on the west end at the Archuleta County-La Plata County boundary near Beaver Creek and extends southeast along the Kf outcrop to the Southern Ute Indian Tribe (SUIT) Reservation boundary at Cabezon Canyon. In addition to the Kf outcrop, the Project Area includes a 1.5-mile buffer from the Kf and Kirtland Shale (Kk) boundary, known collectively as the “outcrop zone”. Figure 1 illustrates the Project Area.

### 1.1 BACKGROUND

This report meets the requirements set forth by the United States Forest Service (USFS) and the Bureau of Land Management (BLM) in Decision Point 5 of the Record of Decision (ROD) in order to obtain approval of an application for permit to drill (APD) for coalbed methane (CBM) production of federal minerals in the Project Area. The ROD was developed in response to the 2006 Final Environmental Impact Statement (FEIS) for the NSJB.

In July 2011, Petrox drilled a horizontal lateral of the Candelaria 10U#3 CBM production well from fee minerals through 172 feet of federal minerals in the northeast quarter of the northwest quarter of Section 15U, Township 34 North, Range 5 West in Archuleta County, Colorado. The APD from the BLM for the Candelaria 10U#3 was approved February 2, 2012.

In addition to compliance to the ROD, the monitoring program detailed in this report meets the requirements of Sections 1, 2, and 4 of the Conditions of Approval (COA) for the Candelaria 10U#3 CBM production well (Permit), issued by the Colorado Oil and Gas Conservation Commission (COGCC). Outcrop monitoring has been conducted by Elm Ridge in Archuleta County from 2004 to 2016 and by Petrox from 2004 to 2017.

In 2017, Elm Ridge Resources, Inc (Elm Ridge) sold their assets in the Project Area to Catamount Energy Partners, LLC (Catamount). Catamount did not participate in the 2017 outcrop monitoring event. At the time the 2016 Outcrop Report was completed, Elm Ridge did not have any active CBM production wells nor did they have any APDs planned within the outcrop zone.

As stipulated in the ROD, the technical working group (TWG), comprised of the BLM, USFS, COGCC, the SUIT, Petrox, and LT Environmental, Inc. (LTE), met in September 2012, December 2012, March 2013, and December 2014 to discuss the annual outcrop zone reports as well as future plans Petrox has for drilling within the outcrop zone. No TWG meetings have been held since December 2014.

### 1.2 PROJECT OBJECTIVE

The objective of this 2017 Outcrop Zone Report is to continue to characterize the Project Area and evaluate the existing conditions for current and future CBM production of federal minerals



within the outcrop zone. This 2017 Outcrop Zone Report marks the seventh year of evaluating the Project Area conditions based on the BLM Decision Point 5 of the ROD and will continue to be revised annually as new CBM production wells are drilled and monitoring continues. As discussed in Decision Point 5 of the ROD, Project Area conditions will be evaluated through a monitor-as-you-go approach, which allows the oil and gas producer to monitor the Project Area while they drill and produce CBM production wells. The 2017 monitoring event marks the 14<sup>th</sup> year of monitoring the Kf outcrop per Sections 1, 2, and 4 of the COA for the Permit approved by the COGCC.

### **1.3 SCOPE OF WORK**

The scope of work for this 2017 Outcrop Zone Report included the following tasks:

- Document changes to baseline conditions, if any, within the Project Area, which could include reservoir, geological, and/or hydrological data;
- Describe the monitoring and mitigation programs for the Project Area;
- Summarize the monitor-as-you-go results for the current 2017 monitoring program;
- Evaluate the Project Area as it relates to CBM production of federal minerals; and
- Prepare this report.

In 2017, Elm Ridge Resources, Inc (Elm Ridge) sold their assets in the Project Area to Catamount Energy Partners, LLC (Catamount). Catamount did not participate in the 2017 outcrop monitoring event. As a result, the Project Area and the scope of the 2017 monitoring event was split between Petrox and Catamount to include the drainage transects, regional reconnaissance, abandoned production wells, and coal mines located within the western portion of the Project Area considered to be the responsibility of Petrox (which includes the Fosset Gulch Unit). No monitoring activity was conducted on the eastern half of the Project Area deemed to be Catamount's responsibility (which includes the Bull Creek and Pargin Mountain PA units). The attached figures illustrate the division of the project area. The natural spring survey, evaluation of COGCC monitoring well data, and evaluation of Petrox CBM production data was conducted for the entire Project Area.

### **1.4 ORGANIZATION OF REPORT**

This report is organized into six sections including this introduction (Section 1.0). The documentation of project baseline conditions is described in Section 2.0. The monitoring and mitigation programs are discussed in Section 3.0. The monitor-as-you-go results are summarized in Section 4.0. The outcrop evaluation is detailed in Section 5.0. References are presented in Section 6.0. Figures, tables, and appendices follow the text in separate sections.





## 2.0 DOCUMENTATION OF PROJECT BASELINE CONDITIONS

Baseline conditions have been described in detail in the previous Outcrop Zone reports, which can be viewed on the COGCC website at <http://cogcc.state.co.us/>.

As stated in Decision Point 5 of the ROD, reporting of monthly gas and production data is to be included in the outcrop zone report. The table below summarizes total gas production rates and total produced water rates for the four Petrox CBM production wells (Fosset Gulch Unit (FGU) 9U#1, FGU 9U#4, Candelaria 33-5 FEE 10U#3 (lateral), and FGU 9U#2) within the Fosset Gulch Unit in Archuleta County from May 2014 through September 2017. No 2017 data was available for the FGU 9U#1A at the time this report was prepared:

### Gas and Produced Water Production Rates, Fosset Gulch Unit, Archuleta County, Colorado

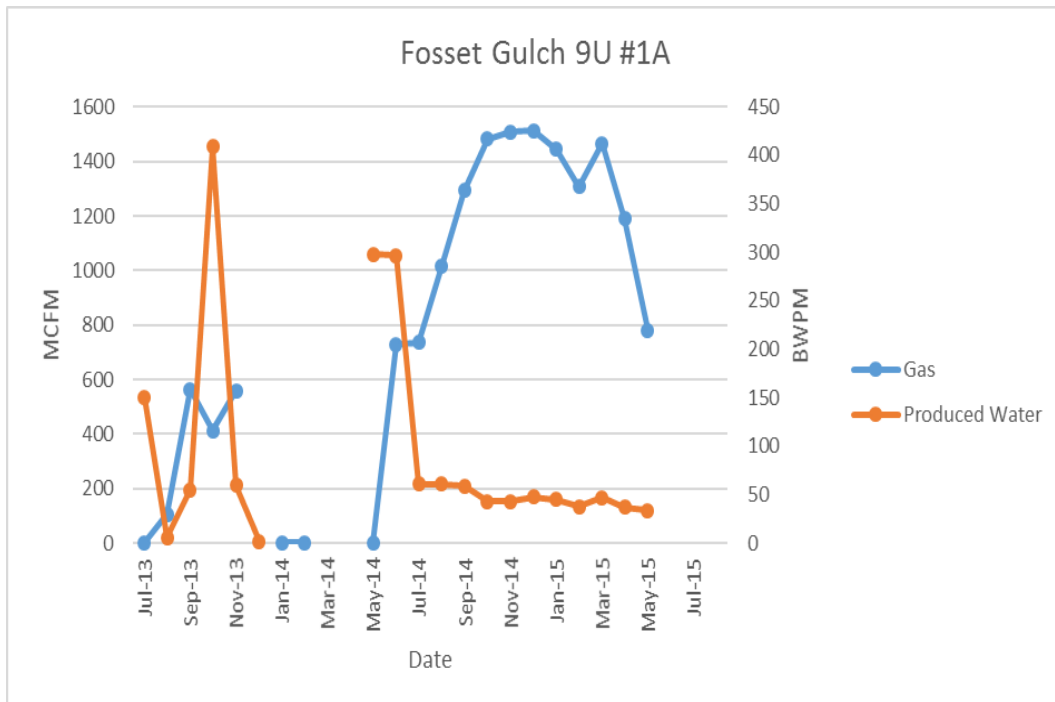
Month	Gas Production (Thousand Cubic Feet Per Month)	Water Production (Barrels per Month)
May 2014	12,548	922
June 2014	25,403	963
July 2014	26,278	492
August 2014	22,921	478
September 2014	19,973	462
October 2014	21,707	462
November 2014	20,019	444
December 2014	18,731	415
January 2015	14,921	359
February 2015	12,710	292
March 2015	12,997	319
April 2015	13,422	222
May 2015	9,349	271
June 2015	15,267	192
July 2015	13,602	215
August 2015	10,772	207
September 2015	12,317	202
October 2015	11,973	206
November 2015	10,598	208
December 2015	9,558	211
January 2016	6,254	177
February 2016	8,594	325
March 2016	6,942	149
April 2016	9,549	171
May 2016	6,837	146
June 2016	7,163	171
July 2016	10,356	173
August 2016	9,549	171





Month	Gas Production (Thousand Cubic Feet Per Month)	Water Production (Barrels per Month)
September 2016	7,614	138
October 2016	8,382	169
November 2016	5,514	169
December 2016	6,155	174
January 2017	6,614	138
February 2017	5,569	265
March 2017	5,664	131
April 2017	7,875	127
May 2017	8,114	173
June 2017	3,150	167
July 2017	3,434	173
August 2017	7,912	165
September 2017	7,890	162

Below are graphical representations of monthly gas and water production rates for each Fosset Gulch Unit production well:

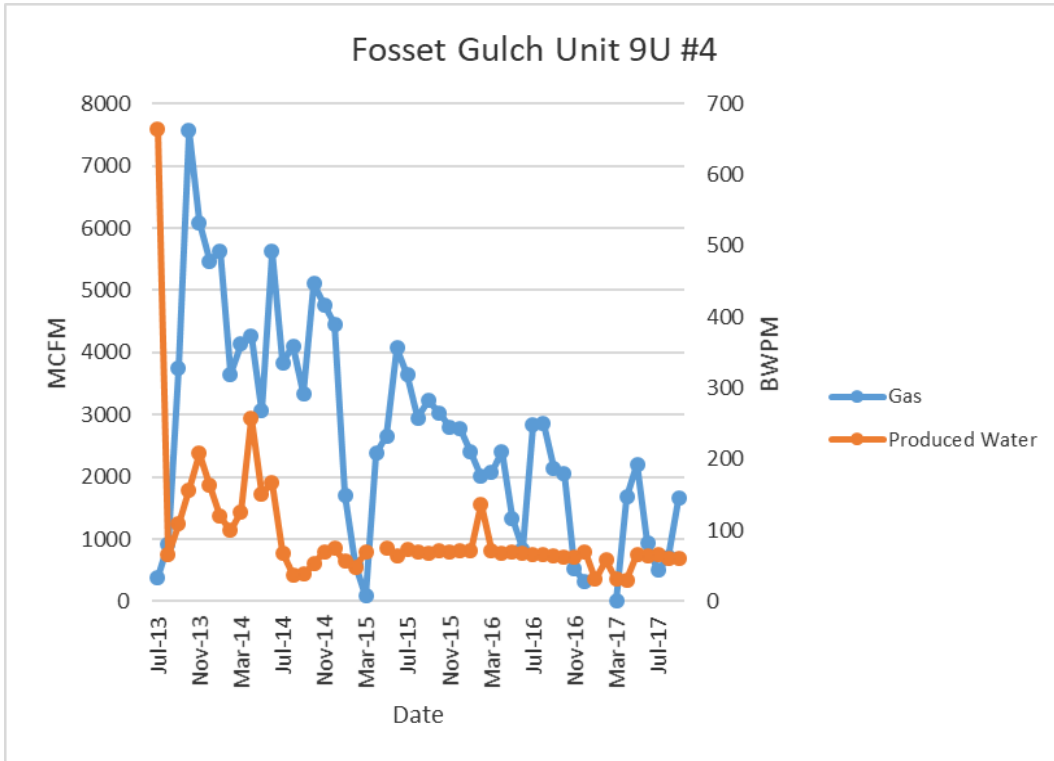


**Notes:**

MCFM – thousand cubic feet per month

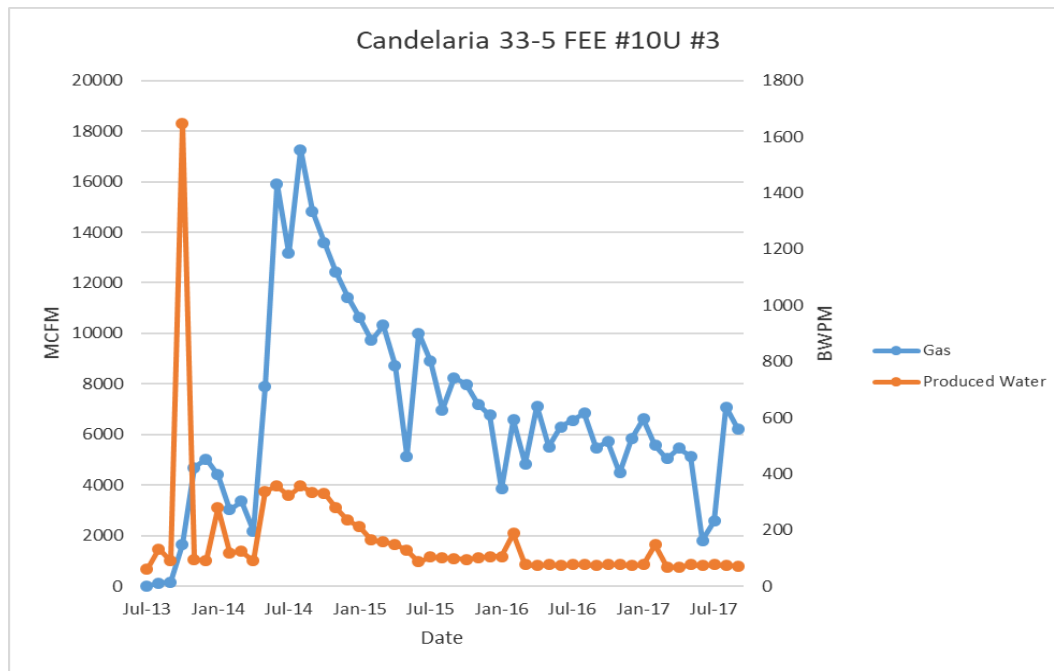
BWPM – barrels of water per month





**Notes:**

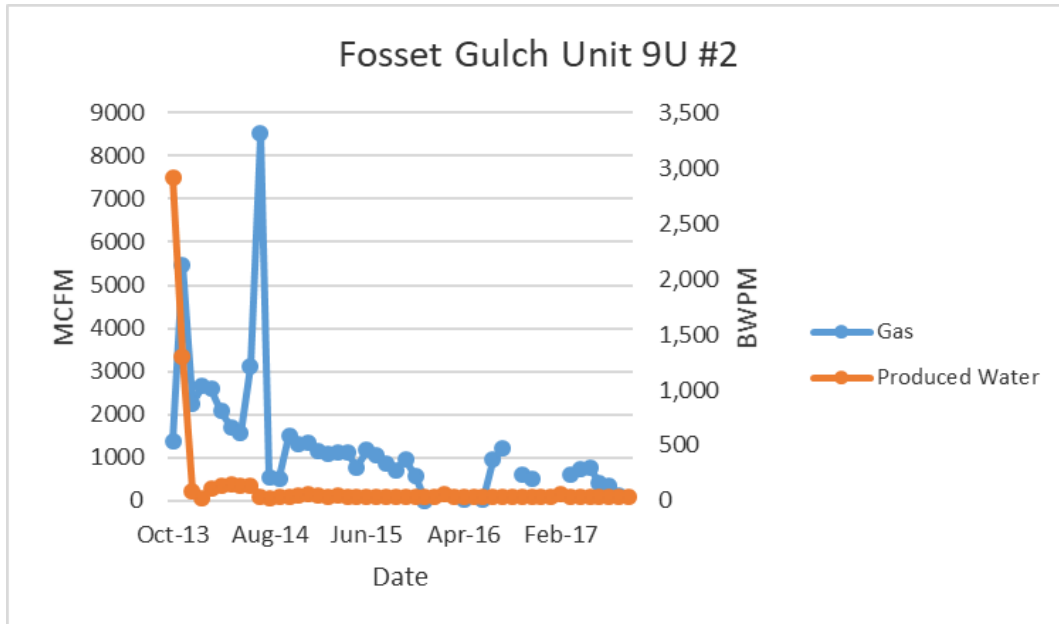
MCFM – thousand cubic feet per month  
 BWPM – barrels of water per month



**Notes:**

MCFM – thousand cubic feet per month  
 BWPM – barrels of water per month





**Notes:**

MCFM – thousand cubic feet per month

BWPM – barrels of water per month

The water production rates for the four Fosset Gulch Unit CBM production wells continue to agree with the conceptual model that the Kf is recharged by surface water infiltration into the formation at the Kf outcrop. Face cleats of coals within the formation tend to be parallel to the Kf outcrop in the Project Area, have low permeability (sealed), and allow for limited recharge of the aquifer as indicated by the limited water production in the CBM production wells.





### 3.0 MONITORING AND MITIGATION

Monitoring of the Kf outcrop has been in conducted since 2004 and is currently conducted using a variety of methods to characterize baseline conditions and identify changes, if they occur. These data collection systems provide a consistent and repeatable data set with which changes to Kf outcrop conditions can be easily identified should they occur. The current program is being conducted with the approval of the COGCC and the TWG.

Petrox has contracted LTE to conduct the following monitoring tasks to comply with the Permit:

- Conduct annual surveys of methane flux at the ground surface where surface water transects along the Kf outcrop. Only conducted for the western half of the Project Area in 2017;
- Measure methane flux at the nearby Big Horn-Schomburg #1 abandoned production well. The Big Horn-Schomburg #1 abandoned production well is located within the Project Area and determined to be Catamount's responsibility, therefore the methane flux survey at the Big Horn-Schomburg was not conducted in 2017;
- Identify and sample natural springs along the Kf outcrop;
- Conduct annual abandoned coal mine subsurface gas and coal fire surveys. Only conducted in the western half of the Project Area in 2017;
- Evaluate COGCC monitoring well data if available;
- Evaluate BLM soil vapor tube (SVT) data if available; and
- Field verify suspect methane seeps along the Kf outcrop using scheduled regional reconnaissance methods of aerial fly-overs with color infrared (CIR) imagery acquisition and field verification on a 3-year cycle. Field verification only conducted in the western half of the Project Area in 2017.

#### 3.1 MONITORING HISTORY

Below is a summary of monitoring activities that have occurred to-date in the Project Area:

- In September 2004, LTE conducted an initial investigation of the Kf outcrop in Archuleta County, which consisted of an aerial fly-over reconnaissance and field inspections of identified suspect areas defined by stressed and dead vegetation;
- In 2005, similar data were collected with the addition of CIR aerial imagery acquisition and sampling of natural springs along the Kf outcrop;
- In 2006, additional inspections of surface water in drainage transects of the Kf outcrop, collection of subsurface gas measurements from gas monitoring probes, and





soil gas surveys at two abandoned production well sites were included to expand the data set;

- Since 2007, equipment capable of measuring the flux of soil gas moving across the soil surface to the atmosphere has been used in conjunction with the above-described monitoring to quantify changes in methane seepage volumes;
- Since 2011, BLM SVT data and COGCC monitoring well pressure data have been reviewed and evaluated;
- TWG meetings have been held in September 2012, December 2012, March 2013, and December 2014. The meetings included members of BLM, USFS, COGCC, the SUT, Petrox, and LTE.

Detailed information for each year can be reviewed in the respective yearly reports, which are available on the COGCC website at <http://cogcc.state.co.us/>.

## **3.2 DETAILED MAPPING**

### **3.2.1 Property Access**

Prior to conducting field activities, land information is obtained from the Archuleta County Assessor's office. Parcel data is cross-referenced with the Kf outcrop geometry to identify owners of parcels located on the Kf outcrop. Much of the outcrop land is federal land with unrestricted access. An attempt to contact private landowners along the Kf outcrop in the Project Area is made prior to the initiation of field activities.

### **3.2.2 Drainage Transects**

LTE conducts drainage transect surveys along the Kf outcrop in the Project Area (Figure 1) at the following locations:

- Beaver Creek;
- Squaw Creek;
- Little Squaw Creek;
- Pole Gulch;
- Peterson Gulch (West and East);
- Candelaria Ranch;
- Piedra River;
- Stollsteimer Creek; and
- Cabezon Canyon.



In 2017, drainage transect surveys were not conducted at the Candelaria Ranch, Piedra River, Cabezon Canyon, and Stollsteimer Creek, which have been deemed to be Catamount's responsibility.

### **3.2.3 Field Mapping**

The grids for detailed mapping areas consist of a varying number of squares, ranging in area from 2,500 square feet to 40,000 square feet. The grid mapping system has proven to be systematic, consistent, repeatable, representative, and successful in delineating the lateral extent of seepage for similar projects within the NSJB. Grid spacing was expanded to a 400-foot spacing for 2013 and for subsequent years when regional reconnaissance events are not conducted (2016). During regional reconnaissance years, grid spacing is reduced to the 200-foot spacing as conducted from 2007 to 2012. A 50-foot grid spacing is used for the Big Horn-Schomburg #1 abandoned production well survey. This approach is cost efficient and effective in achieving early methane seepage detection, if it ever becomes present. A detailed description of the flux meter and mapping process are in the 2013 Outcrop Zone Report. Specifications of flux mapping equipment are included in the initial Outcrop Zone Report dated April 2012.

LTE conducted detailed flux mapping at five locations where surface water drainages transect the Kf outcrop in the Project Area from August 1 through August 27, 2017. Results of the 2017 mapping event are discussed in Section 4.2.

### **3.3 ABANDONED PRODUCTION WELL SURVEY**

In 2005, LTE conducted an initial subsurface soil gas survey and installed a permanent gas monitoring probe in the vicinity of the Big Horn-Schomburg #1 abandoned production well located near the Kf outcrop in the southeast quarter of Section 14U, Township 34 North, Range 5 West (Figure 1). The production well was drilled and abandoned in 1961 and reference information indicates the Kf is close to, or outcrops at, this location (USFS/BLM, 2006). Geologic maps from the FEIS indicate the abandoned production well is located in the transition zone between the Kf and the Kk.

Since 2010, LTE has conducted an annual soil gas flux survey at the Big Horn-Schomburg #1 abandoned production well. LTE personnel collect methane flux points in the same manner as flux surveys conducted for the drainage transects. If methane is detected in soil, the seep area is then delineated in all four directions. Additionally, flux points are collected next to the abandoned production well monument using the flux meter.

The Big Horn-Schomburg #1 abandoned production well is located within the Project Area determined to be Catamount's responsibility, therefore the methane flux survey at the Big Horn-Schomburg was not conducted in 2017.

### **3.4 REGIONAL RECONNAISSANCE**

Regional reconnaissance surveys of the Kf outcrop reconnaissance are conducted every three years (2004, 2008, 2011, 2014, and 2017) to supplement the detailed mapping of drainage transects. Reconnaissance includes low altitude, high-resolution CIR aerial imagery to map the





vegetation along the outcrop and identify suspect areas for further field investigation. Additionally, CIR imagery is used to assist in the scheduled regional reconnaissance monitoring of the Kf outcrop to identify potential locations of methane seepage or coal fires in between detailed mapping areas. While the imagery cannot identify specific seeps for coal fires, it can be useful in identifying areas of dead and/or stressed vegetation that may or may not be attributable to methane and/or coal fires. The regional reconnaissance is primarily used to identify potential methane seep areas, but anomalies from coal fires can be identified on the CIR imagery as well.

Suspect areas are defined as areas observed within the CIR image that appear anomalous when compared to the surrounding areas. For example, a light gray area surrounded by bright red areas would be considered a suspect area. The natural features that often produce such suspect areas include areas of dead/stressed vegetation, shadows, rocky outcrops, exposed surface soil, water bodies, and/or coal fires. A detailed description of the regional reconnaissance process is discussed in the 2011 Outcrop Zone Report.

The 2017 regional reconnaissance field inspection and verification survey was conducted from August 28 through August 31, 2017 and was limited to the western half of the Project Area. Results of the 2017 event are discussed in Section 4.4.

### **3.5 ABANDONED COAL MINE SURVEYS**

Abandoned coal mine surveys were implemented in 2011 to comply with Decision Point 5 of the ROD. The purpose of surveying the abandoned coal mines along the Kf outcrop is to monitor mines as a potential preferential pathway for methane seepage and locations of surface and/or near-surface coal fires. The surveys are conducted using traditional subsurface soil gas techniques as described in previous reports. Locations of abandoned coal mine survey sites are illustrated on Figure 1.

Abandoned coal mine surveys have been conducted on an annual basis since 2011. Based on the third TWG meeting, the frequency of the surveys was increased to quarterly in 2013. After one year of quarterly monitoring had been completed, the results indicated that the frequency of subsequent surveys should be reduced to annually. If during subsequent surveys, data suggests inconsistent readings, the TWG will convene to discuss the data and possible additional actions.

The 2017 abandoned coal mine surveys were conducted August 16 through August 17, 2017. The results of the 2017 event are discussed in Section 4.5.

### **3.6 NATURAL SPRING SURVEY**

At each accessible and flowing natural spring, field personnel collect water samples and monitor for methane near the natural springs using a portable four gas meter. Field personnel locate the position of the natural spring using a Global Positioning System (GPS). An estimated water discharge rate is measured using a graduated cylinder and stopwatch. When possible, water quality measurements, including pH, electrical conductivity (EC), and temperature are collected at each sampled natural spring.



Laboratory analytical water samples are collected at each accessible and flowing natural spring in bottles and containers prepared by the subcontracted analytical laboratories. Each sample bottle is labeled, indicating project and sample identification, the date and time of sample collection, and the sampler's initials. Samples are delivered directly or shipped to the laboratories under chain-of-custody protocols.

Water samples from the natural springs are collected and analyzed for the following:

- Major cations [dissolved sodium (Na), calcium (Ca), magnesium (Mg), potassium (K), and iron (Fe)] by United States Environmental Protection Agency (EPA) Method 200.7/4500;
- Alkalinity (carbonate/bicarbonate) by EPA Method 2320 B;
- Major anions [chloride (Cl), sulfate (SO<sub>4</sub>), bromide (Br), and fluoride (F)] by EPA Method 200.7/4500;
- pH by EPA Method 150.1;
- Specific conductance by EPA Method 120.1;
- Nitrate/Nitrite as Nitrogen (N) by EPA Method 353.3;
- Total dissolved solids (TDS) by EPA Method 2540 C;
- Dissolved methane by Method RSK 175; and
- Sodium Adsorption Ratio (SAR) by United States Department of Agriculture (USDA) Handbook 60.

Natural spring water samples are collected and then submitted to Four Corners Geoscience, Inc. for analysis of dissolved methane. General water chemistry samples are submitted to Green Analytical Laboratories. Figure 1 depicts the locations of known natural springs within the Kf outcrop in the Project Area.

The 2017 natural springs sampling event was conducted in May 2017. Results are discussed in Section 4.6.

### **3.7 COGCC MONITORING WELL DATA ANALYSIS**

In 2008, the COGCC initiated a Kf reservoir pressure monitoring well program in the Chimney Rock Area of Archuleta County with the cooperation of the USFS. The monitoring wells supplement data produced by an existing monitoring well network in La Plata County and on the SUIT reservation. The Archuleta County monitoring wells measure formation pressures in the coal seams in the Kf and were installed to establish baseline conditions prior to initiation of CBM development. There are seven monitoring wells within the Project Area (Figure 1). A telemetry system uploads well pressures twice daily from pairs of pressure transducers installed



within the wells. The data are documented and interpreted by the COGCC in annual reports available for public review.

Results for the 2017 COGCC monitoring well evaluation are included in Section 4.7.

### **3.8 BLM/USFS SOIL VAPOR TUBE DATA**

The BLM has been collecting subsurface methane concentrations from 67 permanent monitoring SVT probes located along eight transects running perpendicular to the Kf outcrop in Archuleta County (Figure 1). SVT data collection began in November 2001 at the Beaver Meadows and Yellow Jacket Pass transects. The first SVT data were collected from the other six transects in August or October 2004. Subsequent measurements have been collected approximately every other month. The most recent SVT data available to LTE at the time of this report were collected from summer 2016. SVT data collection at the Candelaria Pasture transect ended in August 2006 when the BLM was denied access to the property. When available, analysis of the BLM SVT monitoring data is conducted using the Mann-Kendall test included in the Excel<sup>®</sup> application MAKESENS. Results of the 2016 analysis are discussed in Section 4.8.

### **3.9 ADDITIONAL DATA COLLECTION FOR NEW PRODUCTION WELLS**

Per the agreement between the TWG and Petrox, Petrox will provide chemistry data, downhole pressure data, and new modelling runs using the data for new production wells drilled in the Fosset Gulch Unit. During the reporting period covered by this Outcrop Zone Report, no new production wells were drilled. Therefore, there is no new data to provide to the TWG at this time.

### **3.10 MITIGATION ALTERNATIVES**

The monitoring programs outlined above and detailed in previous Outcrop Zone reports (found on the COGCC website) provide early detection of potential methane seepage, coal fires, and/or affected natural springs on or adjacent to the Kf outcrop within the Project Area. Since field crews walk the major drainages annually and traverse large sections of the outcrop as part of the regional reconnaissance, observations of vegetative conditions, excessive heat emanating from the ground, smoke, and olfactory observations that may indicate the presence of a methane seepage and/or coal fire can be detected at the early onset of such impacts. Natural springs are sampled during the Spring season when most of the natural springs tend to flow.

As agreed upon in the third TWG meeting, triggers for TWG convening to discuss produced water issues will be either high produced water volumes (greater than (>) 100 barrels of water per day/well), fresh water composition (less than (<) 1,000 parts per million), or both. Additional triggers will be developed as CBM production evolves in the Fosset Gulch Unit. Mitigation alternatives will be developed on a case-by-case basis.

In the event methane seepage is identified along the Kf outcrop in Archuleta County, reasonable mitigation efforts, such as reduced or suspended gas production, if clearly demonstrated that such efforts will be effective in mitigating adverse impacts to water resources, vegetation, and/or public health and safety due to fugitive methane gas seeping to the ground surface, will be implemented. LTE has direct experience in conducting mitigation of active methane seeps to



address impacts to vegetation, public health and safety, and from unrecovered resources in La Plata County. If appropriate, Petrox will implement similar measures as necessary to mitigate such impacts, should they occur. The measures may include one or more of the potential options discussed in the *Preliminary Evaluation of Methane Seepage Mitigation Alternatives* report (LTE, 2006).

As agreed upon in the third TWG meeting, triggers for TWG convening to discuss potential/known methane seepage include, but are not limited to, methane seepage identified during drainage transect surveys or regional reconnaissance surveys, changes in reservoir permeability, and changes in drainage patterns. Mitigation alternatives will be developed on a case-by-case basis.

Evidence of coal fires have not been observed during the past 11 years of monitoring activities. The treatment of coal fires is both very dangerous and expensive. Near-surface coal fires can be extinguished by an extensive network of injection wells drilled into the affected seam where water, mud, or concrete slurries are used to smother the fire in conjunction with near-surface excavation activities. In La Plata County, efforts to extinguish active coal fires via injection near the Kf outcrop have been ineffective until recently, when one coal fire was extinguished within the SUIT reservation. Petrox and LTE will look into the SUIT's success in extinguishing their coal fire and evaluate the technical feasibility in the event a coal fire ignites along the Kf outcrop in Archuleta County and Petrox is deemed the responsible party.

The TWG will convene if monitoring of the Kf outcrop in the Project Area indicates a potential for surface and/or near-surface coal fires or if coal fires are observed during field activities. Mitigation alternatives will be evaluated on a case-by-case basis.



## **4.0 MONITOR-AS-YOU-GO RESULTS**

This section presents the 2017 monitoring results for the Project Area monitored by Petrox.

### **4.1 PROPERTY ACCESS**

LTE personnel were denied access to several properties; as a result, no monitoring activities were conducted on these properties during the 2017 monitoring event. The 2017 status of access to parcels is illustrated on Figure 2 and presented in Table 1.

### **4.2 DRAINAGE TRANSECT SURVEYS**

During 2017, LTE conducted inspections from August 1, 2017 to August 27, 2017, at the following five accessible locations where surface water drainages transect the Kf outcrop in Archuleta County:

- Beaver Creek;
- Squaw Creek and Little Squaw Creek;
- Pole Gulch and;
- Peterson Gulch.

#### **4.2.1 Water Surface Inspections**

Methane was not observed being discharged as bubbles on the water surface at the five drainage transects inspected during the 2017 monitoring event.

#### **4.2.2 Soil Gas Flux Measurements**

Using the flux meter, LTE personnel collected soil gas flux measurements along the five drainage transects during the 2017 monitoring event. Reportable methane flux (greater than 0.2 moles per square meter per day [ $\text{mol}/\text{m}^2\text{-day}$ ]) was not recorded at any of the 385 measurement points.

#### **4.2.3 Total Methane Volumetric Flux Estimation**

There was no reportable methane detected in Archuleta County during the 2017 flux survey and as a result, the total methane volumetric flux is 0.0 thousand cubic feet per day (MCFD).

The methane flux measurement locations for the five drainage transects are presented on Figure 3. Flux data is summarized in Table 2. The methane flux data are presented Appendix A.

#### **4.2.4 Historical Methane Flux Data Comparison**

From 2007 to 2009, total volumetric methane flux was calculated using all methane flux values recorded in the field, regardless of the technical limitations of the flux meter. However, methane



flux values below the reporting limit of 0.2 mol/m<sup>2</sup>·day are not considered accurate and/or repeatable by the manufacturer of the flux meter. Therefore, the total volumetric methane flux reported in prior years appears to be inflated with inaccurate data. In 2010, only two methane flux values were detected above the reporting limit. As a result, limited data points with reportable methane flux values cannot be used to accurately calculate total reportable methane volumetric flux. An attempt to calculate the total reportable methane volumetric flux with limited data points would ultimately lead to results that do not reflect the actual methane volumetric flux within Archuleta County.

Reportable methane flux was detected in five locations in 2007 and 2008, and then decreased to three locations in 2009. Reportable methane flux was not recorded at any locations during the 2010 survey. In 2011, only two locations detected reportable methane flux. Every location sampled in 2012, 2013, 2014, 2015, 2016, and 2017 were below the reportable detection limit. Limited reportable methane flux values and low historical volumetric methane fluxes detected in Archuleta County appear to be associated with background levels.

#### 4.2.5 Total Carbon Dioxide Volumetric Flux Estimation

As with estimating the total flux of methane at each drainage transect using data collected with the flux meter, LTE interpolated and gridded carbon dioxide flux data along each of the seven drainage transect areas, and then contoured and processed the data to estimate total flux. Carbon dioxide flux contours and values are included on Figure D in Appendix B.

For a better perspective of the carbon dioxide flux rates, LTE converted the mass flux values into volumetric flux units of cubic feet per day (CFD), assuming equal areas. The unit conversion is based on the molecular weight of the gas and the density of the gas at approximately 7,000 feet above mean sea level. For carbon dioxide flux, the calculation is as follows:

$\frac{\text{mol CO}_2}{\text{day}} \times \frac{44.01 \text{ g CO}_2}{\text{mol CO}_2} \times \frac{0.0253 \text{ ft}^3 \text{ CO}_2}{\text{g CO}_2} = \frac{\text{ft}^3 \text{ CO}_2}{\text{day}}$
<p>For example,</p> $1.0 \text{ mol/day CO}_2 = 1.11 \text{ CFD CO}_2$
<p><u>Notes:</u>  mol – mole    CO<sub>2</sub> – carbon dioxide                      g – gram                      ft<sup>3</sup> – cubic feet</p>

Since no methane flux was detected along the drainage transects, the carbon dioxide flux values do not appear to correlate with methane concentrations. It appears that carbon dioxide is naturally occurring along the drainage transects and as a result, carbon dioxide data is not discussed for each transect. Carbon dioxide flux data are included in Appendix B.





### **4.3 ABANDONED PRODUCTION WELL SURVEY**

The Big Horn-Schomburg #1 abandoned production well is located within the Project Area and determined to be Catamount's responsibility, therefore the methane flux survey at the Big Horn-Schomburg was not conducted in 2017.

### **4.4 REGIONAL RECONNAISSANCE**

The 2017 regional reconnaissance event included collecting CIR aerial imagery and reviewing for stressed vegetation, followed by field verification with the collection of subsurface soil gas concentration measurements within identified suspect areas. The 2017 regional reconnaissance included similar CIR imagery review and field verification tasks as conducted in 2005, 2008, 2011, and 2014.

Methane was not detected at the measurement points within the suspect areas in 2017. In general, poor vegetation health in suspect areas was a function of surface physical conditions, such as poor soil development on coal and rock outcrops and/or steep slopes. Based on field verification activities and the lack of measurable methane, it appears no new methane seeps were identified from the regional reconnaissance activities in 2017. Figure 4 illustrates the locations of the suspect seep areas where field verification was conducted. A summary of subsurface gas measurements for the suspect seep areas identified during the regional reconnaissance survey is included in Appendix C.

### **4.5 ABANDONED COAL MINE SURVEYS**

In 2011, LTE identified seven abandoned coal mines along the Kf outcrop. Due to continued property access denial, the Unnamed Abandoned Mine, Chimney Rock Coal site and the Cabezon Project mine were not surveyed in 2017. The Chimney Rock Mine and Stollsteimer Mine were not surveyed in 2017 as they have been deemed the responsibility of Catamount. Subsurface soil gas surveys conducted at the two abandoned coal mines along the Kf outcrop are discussed below. The abandoned coal mine surveys were conducted from August 16 to August 17, 2017. Figures 5 through 10 illustrate subsurface soil gas and temperature measurements. Subsurface soil gas and temperature measurements are presented in Appendix D.

Methane was not detected at any of the abandoned coal mines. Carbon monoxide is a by-product of coal combustion. With limited carbon monoxide and low subsurface temperatures, there does not appear to be active combustion/fires in the vicinity of these two coal mines. As additional verification, LTE did not observe other potential indicators of underground coal fires such as dead vegetation, charred ground, or visible smoke or steam during these surveys.

### **4.6 NATURAL SPRINGS SURVEY**

#### **4.6.1 Sampling Status**

A total of 35 potential natural springs were identified in 2017 on or near the Kf outcrop in Archuleta County. Of the 35 natural springs, 14 natural springs were sampled in 2017. Natural



springs that were not sampled were due to property access denial by landowners or the natural spring was dry or stagnant at the time of sampling.

The locations and sampling status of natural springs are presented on Figure 11. A summary of the natural springs sampled in 2017, along with past sampling status, is presented in Table 3.

#### **4.6.2 Field Measurements and Observations**

Field observations and measurements of temperature, pH, and EC were collected at each of the sampled natural springs. The 2017 field observations and measurements for the natural springs, including historical measurements, are summarized in Table 4.

Natural spring discharge rates were calculated by dividing the known volume of a container by the time required to fill the container. The flow rates measured in 2017 are similar to the low-flow rates measured during previous monitoring events. Natural spring discharge rates, including historical data, are presented in Table 5.

#### **4.6.3 Natural Spring Sampling and Analysis**

The COGCC uses 2 milligrams per liter (mg/L) for methane in domestic water systems as the threshold to conduct further investigation of the origin of the methane in the water. The COGCC considers water systems containing dissolved methane concentrations above 2 mg/L as having an increased risk of desorption from the water and creating potentially explosive conditions in confined spaces. All concentrations of dissolved methane in the natural spring water samples were below the 2 mg/L threshold in 2017. Laboratory analytical results for dissolved methane in natural spring waters, including historical results, are summarized in Table 6.

The water from each of the natural springs sampled are calcium bicarbonate in makeup. Major ion chemistry of the natural springs is summarized in Table 7. Laboratory analytical reports are presented in Appendix E.

#### **4.6.4 Subsurface Soil Gas Measurements**

One set of subsurface soil gas measurements, using traditional subsurface soil gas sampling techniques, was collected at the 14 natural springs sampled in 2017. Methane was not detected in the subsurface at any of the 14 natural spring locations.

### **4.7 COGCC MONITORING WELL DATA ANALYSIS**

The COGCC provided LTE with twice-daily monitoring well pressure and temperature data from December 2010 through November 3, 2017, for each of the 4M/Archuleta monitoring wells. Historical data have been discussed in several reports on 4M project monitoring posted on the COGCC website. A general analysis of results for each well is discussed in the subsequent sections of this report. In general, all monitoring wells indicated the presence of free gas at the outcrop with no surface methane seeps. The locations of the COGCC monitoring wells are depicted on Figure 1.

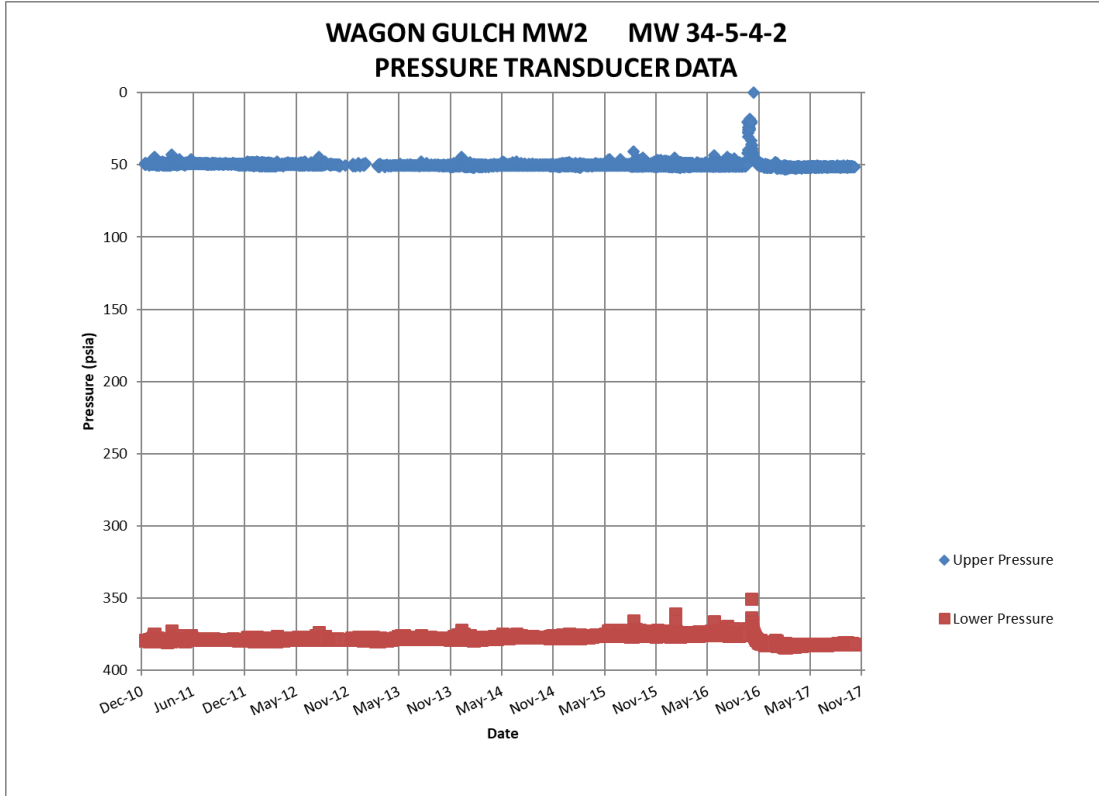
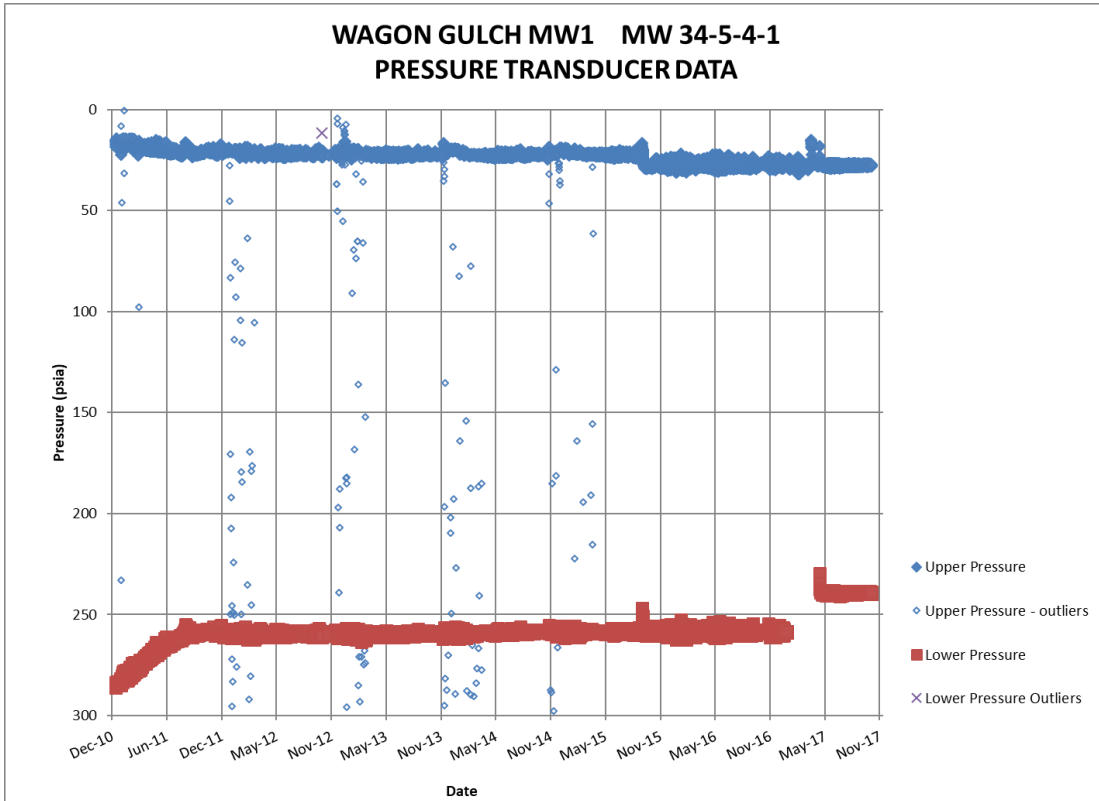


#### 4.7.1 Wagon Gulch

Wagon Gulch monitoring wells MW 34-5-4-1 and MW 34-5-4-2, located in Section 4 of Township 34 North, Range 5 West adjacent to the north central part of the Fosset Gulch Unit, have been monitored since December 2, 2008.

Monitoring well MW 35-5-4-1 did not reach an initial stable pressure for approximately three weeks following installation. From January 2008 through mid-November 2010, wellhead pressures declined following stabilization. At that time, the trend reversed and the wellhead pressure increased slightly through July 2011. From July 2011 to October 2015, the wellhead pressures have remained relatively stable. The graphs below depict upper (wellhead) and lower (bottomhole) transducer data from December 2010 to November 2017. A number of data outliers have been observed in the winter months. The majority of those readings were collected in the early morning hours, and they are attributed to overnight freezing of the transducer, which was mounted above the ground surface. In late 2015, the upper transducer was lowered to approximately 7 feet below ground surface, and since that time no outliers have been observed. Downhole pressures (from the “lower transducer”) remained stable through 2016. The lower transducer cable failed in January 2017. It was replaced with a shorter cable in May 2017, which accounts for the pressured shift from approximately 259 psia to 239 psia. The previous increase in bottomhole pressure from December 2008 to November 2010 indicates a net water level rise in the monitoring well since installation. Between November 2010 and November 2011, water levels decreased by approximately 20 feet and have been relatively stable since that time.

Monitoring well MW 34-5-4-2 was shut in for monitoring on December 4, 2008, but stable pressure transducer readings were not obtained until April 2009. From February 2009 to April 23, 2009, no data were available due to a pressure transducer malfunction as a result of freeze damage. At the time of the 2015 monitoring event, the water level inside the open wellhead was at a height of 2.5 feet above ground level. After the well was shut in following repairs, wellhead pressure buildup returned rapidly. The well has had a relatively constant wellhead pressure of 47 to 48 pounds per square inch, absolute (psia), and a bottomhole pressure of 375 psia between April and October 2009. In 2013, several data gaps were observed at the upper transducer, particularly in February and the first half of March 2013, which may also be due to freezing of the transducer. However, all the measured upper pressures have remained steady with a slight rise to a range of 48 psia to 50 psia at the wellhead. A slight downward trend in the bottomhole pressure has been observed since 2011, with an average bottomhole pressure of approximately 379 psia in January 2011, decreasing to an average of approximately 375 psia in the latter part of 2016. In October 2016 the well pressure was bled down to troubleshoot a malfunctioning lower transducer. In November 2017 they were replaced, with a new set depth approximately 7 feet deeper than before. This resulted in a slight increase in pressure to an average of 382 psia in November 2017.

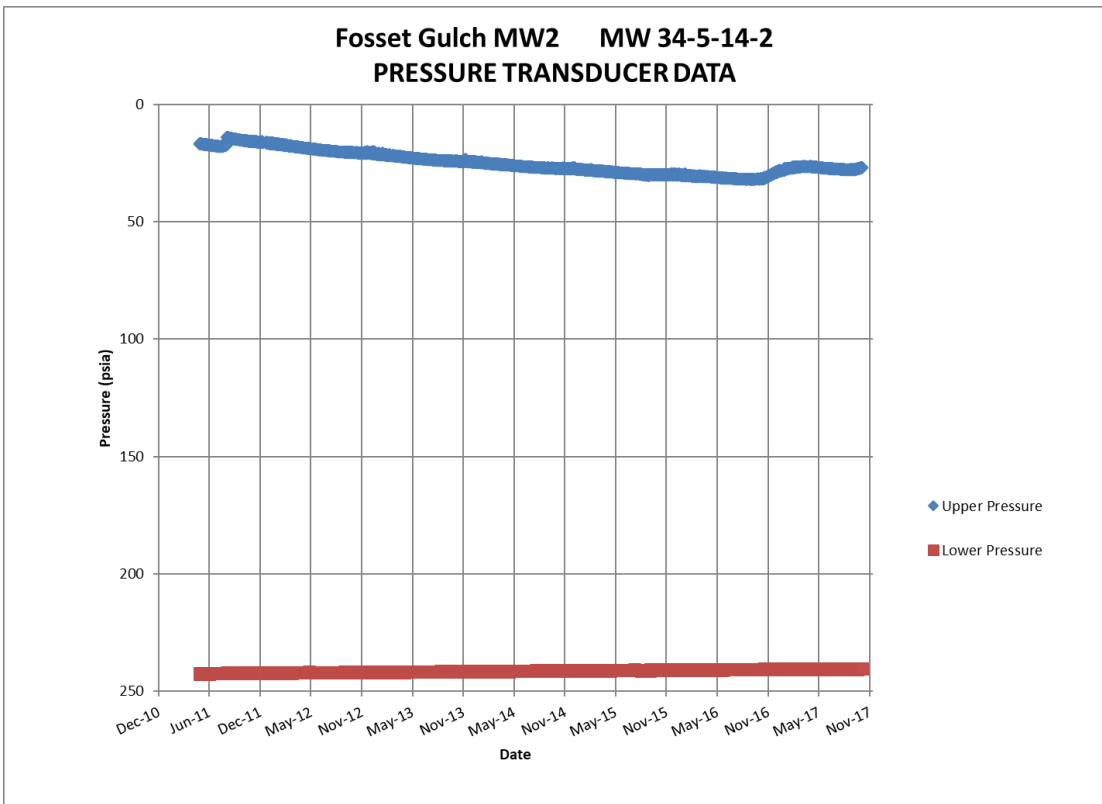
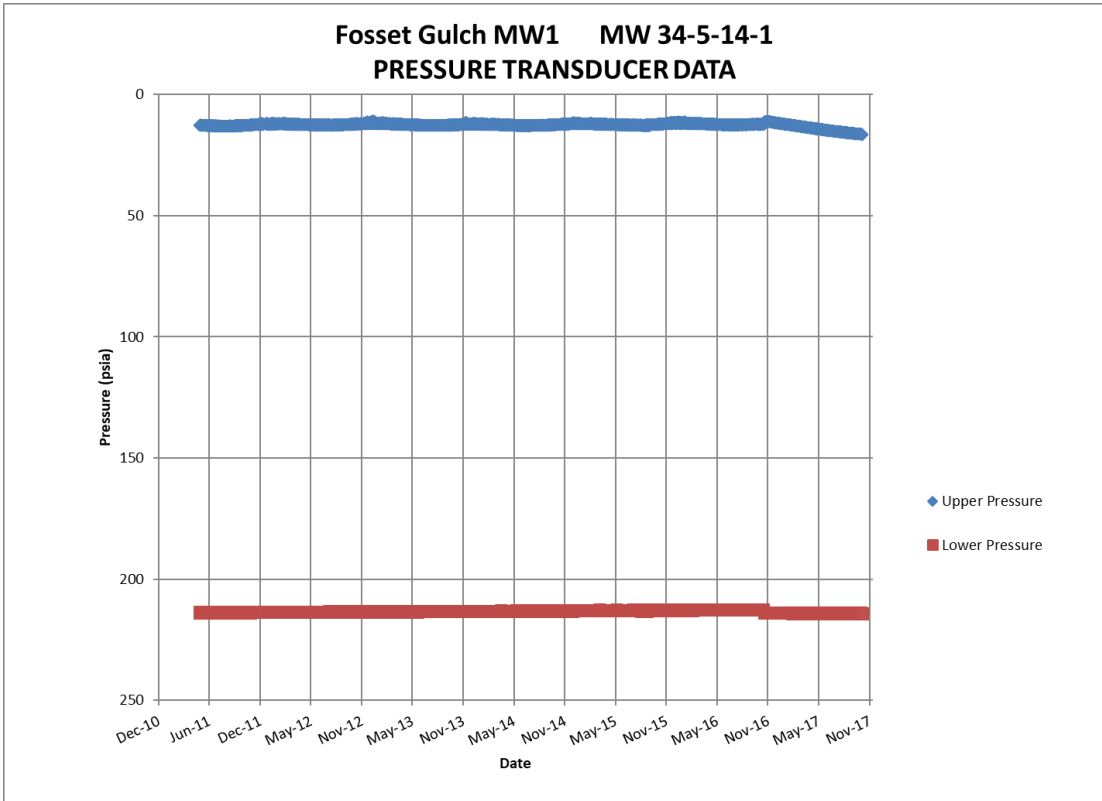




#### 4.7.2 Fosset Gulch

Fosset Gulch monitoring wells MW 34-5-14-1 and MW 34-5-14-2, located in Section 14 of Township 34 North, Range 5 West adjacent to the south-central part of the Fosset Gulch Unit, have been monitored by the COGCC since December 4, 2008. Historical data provided in COGCC annual reports indicate a relatively constant wellhead pressure in MW 34-5-14-1 until November 2009 when the water level began a gradual decline of about 8 feet until July 2010. The well was vented in August 2010 and water levels nearly recovered to previous levels. Pressure data from April 2011 through November 2017 are presented in the graphs below and exhibit a slight annual fluctuation in pressure from the summertime to the winter months. In November 2016, the cable on the lower transducer was replaced at a slightly higher set depth and a slight increase in bottomhole pressure from 212.6 psia to 214 psia was the result. After the well was shut in following the transducer replacement, the upper transducer has shown an upward trend from an average of 12.3 in 2015 and 2016 to an average of 16.0 in 2017, which could possibly indicate a slight actual rise in reservoir pressure.

Monitoring well MW 34-5-14-2 initially displayed wellhead pressure drops immediately corresponding to rises in water levels each time the well was vented to the atmosphere. The most recent venting event took place on August 3, 2011. Wellhead pressures through 2017 do not indicate that any subsequent venting has taken place. From August 2011 to November 2017, the bottomhole pressure has decreased slightly from approximately 242.4 psia to 240.4 psia, and the wellhead pressure has gradually increased from approximately 14 psia to 31 psia in November 2016, followed by a slight decrease in pressure from November 2016 to November 2017 to approximately 26.8 psia. The reversal in trend at the upper transducer occurred at the same time as the activities (bleeding down and then shutting in) at nearby well MW 34-5-14-1, which suggests there may be some indirect pressure effect between the two seams monitored

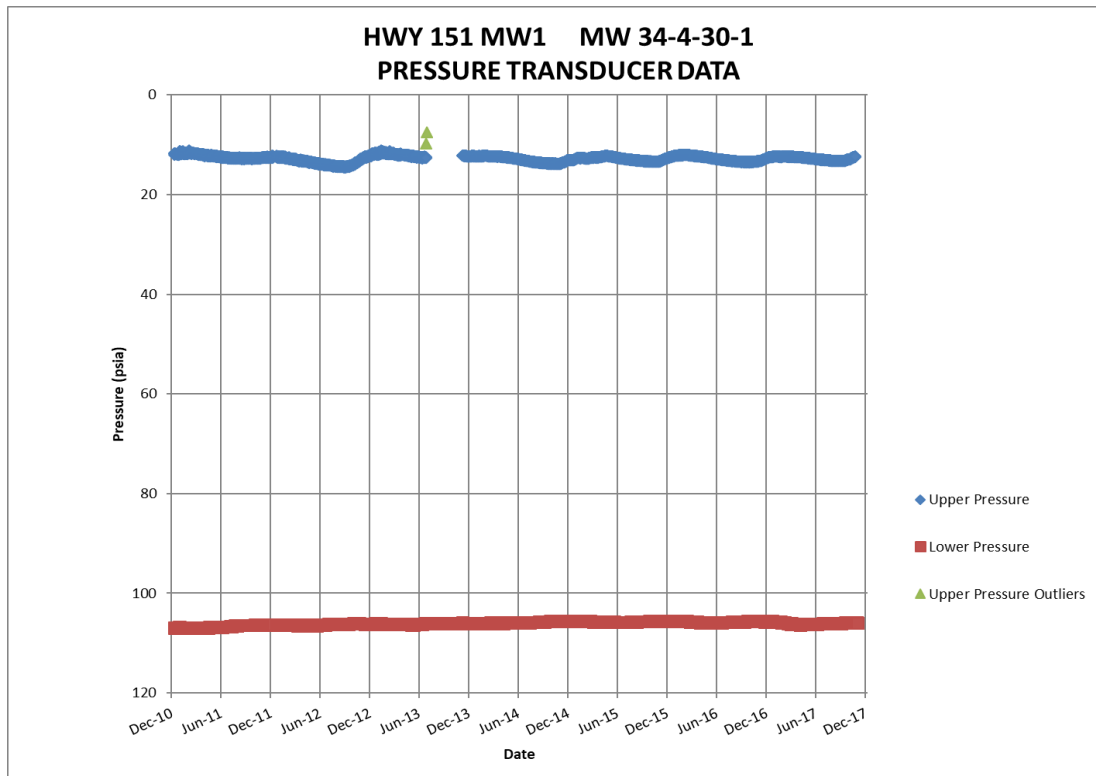


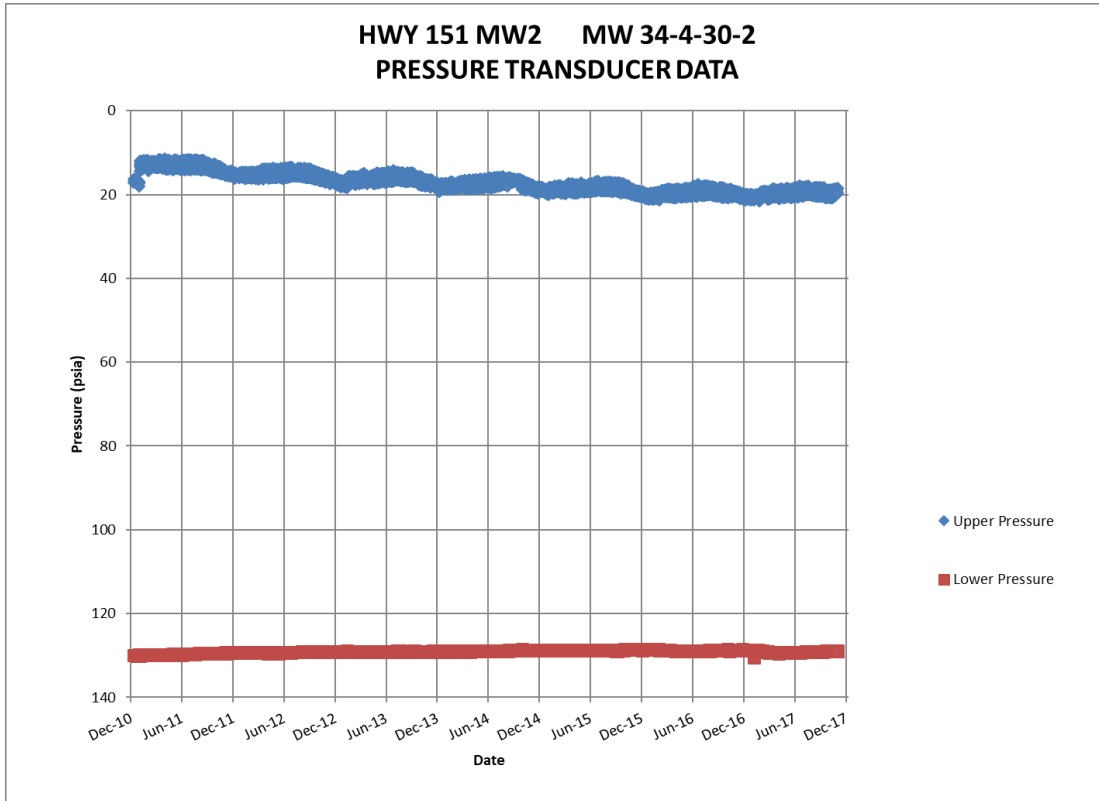


### 4.7.3 Highway 151

Monitoring wells MW 34-4-30-1 and MW 34-4-31-2, located in Section 30 of Township 34 North, Range West adjacent to the north end of the Fosset Gulch Unit, have been monitored since December 3, 2008. A small drop in wellhead pressure at MW 34-4-30-1 was observed on June 2, 2010, corresponding to wellhead venting. Pressure data from January 2011 through October 2017 are displayed in the graphs below. Wellhead pressures in monitoring well MW 34-4-30-1 have displayed some seasonal fluctuation, with lower values observed in the winter months and higher values in the summer. Overall the fluctuations range between approximately 11.5 psia and 14.5 psia. The upper transducer failed in July 2013 due to repeated exposure to temperature extremes in its housing on the side of the well. The transducer was replaced and readings from this transducer resumed on November 26, 2013. Seasonal fluctuations on the order of 0.2 to 0.5 psia are observed in the lower transducer, with an overall slight downward trend in bottomhole pressure over the period from 2011 to 2014. Pressures leveled off through 2015, and then began to trend slightly upward in 2016 through 2017. This may be related to the 2014 shutting in of production wells located approximately 2.5 miles southwest of the Highway 151 monitoring wells.

Monitoring well MW 34-4-30-2 displays similar trends in bottomhole pressure, with a downward trend over the period from 2011 to 2014, and a slight upward trend since 2016, overlain on minor seasonal fluctuations. Wellhead pressures display seasonal fluctuations on the order of 2 psia, with lower values in the Fall and higher values in the Spring. The upper transducer displays an overall upward trend over the period from 2011 to 2015 which then levels off in 2016 and 2017, from an average of approximately 13 psia to 20 psia.

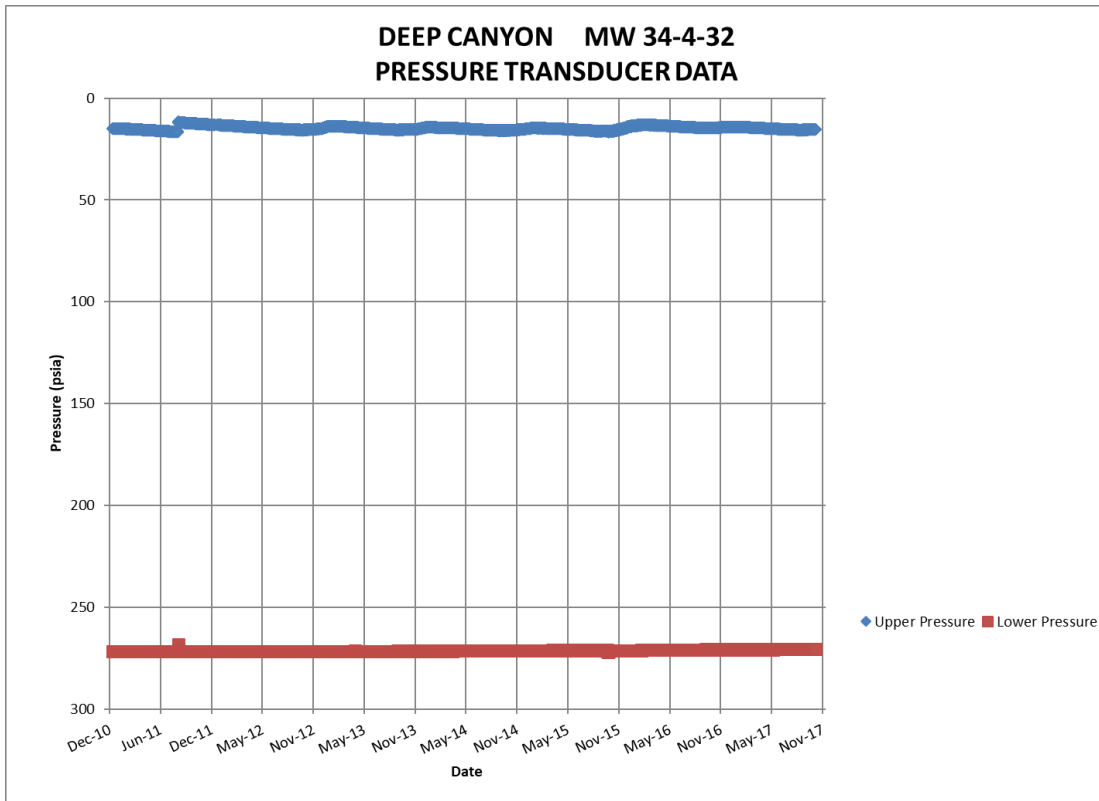




#### 4.7.4 Deep Canyon

The Deep Canyon monitoring well MW 34-4-32-1 came online in June 2010. The well pressure stabilized six days after the well was shut in and then displayed a nearly constant bottomhole pressure of 271.9 psia to 270.7 psia through October 2016. A change in the bottomhole pressure was observed on August 3, 2011, corresponding to a venting event, with recovery of bottomhole pressure within one day. Wellhead pressures have increased gradually from June 2010 to August 3, 2011, when pressures dropped from 16.5 to 11.5 psia. Wellhead pressures recovered slowly over the subsequent 12 months. From October 2012 to February 2013, wellhead pressures fell from approximately 15.5 psia to 14 psia and then recovered to 15.5 psia in September 2013. Data from September 2015 to February 2016 had to be downloaded directly from the transducer due to a problem with the telemetry. This resulted in a slight shift in pressures at both transducers over this period. Overall pressures at the upper transducer display slight seasonal fluctuations with an overall horizontal trend. Bottomhole pressures continue on a downward trend, with pressures declining from approximately 271.8 psia in 2011, to 270.6 in 2017.





#### 4.7.5 Overall COGCC Monitoring Well Analysis

All COGCC monitoring wells installed within the Kf outcrop as part of the 4M/Archuleta Project Area exhibit free gas. This free gas is not produced by withdrawing water out of the Kf and is able to build pressure back after venting. The COGCC monitoring well data indicate free gas is present at the Kf outcrop at depth. This conclusion is consistent with observations of pressure data for Petrox CBM production wells in the area, gas production without dewatering in existing production wells, and the Mansoori modeling results.

#### 4.8 BLM/USFS SOIL VAPOR TUBE DATA ANALYSIS

SVT monitoring data was obtained from the BLM for the period from February 2014 through July 2017 and found that no new methane concentration data had been collected from transects during that period of time. As a result, statistical analysis of the SVT data could not be conducted for this 2017 Outcrop Zone Report.

Historically, methane has been detected in the SVTs, with no methane flux measured in the vicinity of the SVTs, which supports the data reported herein demonstrating free gas is present at depth in the Kf outcrop; however, it is not migrating to the surface as a seep.





#### **4.9 ADDITIONAL DATA COLLECTION REPORTING**

As previously stated, no new production wells were drilled during the monitoring period. Therefore, no chemistry data, downhole pressure data, nor modelling data are available at this time.



## 5.0 OUTCROP EVALUATION

This 2017 outcrop evaluation is based on past work within the Project Area and current conditions documented during the 2017 monitoring event. Outcrop evaluations from the previous Outcrop Zone reports can be viewed on the COGCC website at <http://cogcc.state.co.us/>.

Based on reservoir, geological, and hydrogeological characteristics of the Kf and specifically within the Project Area, the potential for CBM development of federal minerals within the outcrop zone to adversely affect the Project Area appears low with regards to methane seepage and/or coal fires.

Baseline conditions within the Project Area indicate there is no methane seeping to the ground surface. Conditions have not changed within the Project Area since 2004 despite the presence of free gas in the subsurface at the outcrop. As stated in Decision Point 5 of the ROD, oil and gas producers are allowed to monitor-as-you-go. This approach appears warranted as there are 14 years of data in conjunction with monitoring wells, descriptive reservoir openhole logs, a drainage and performance simulation study, and pressure data history that indicate free gas in the subsurface and no detectable seeps at the ground surface. If methane seeps begin to develop and/or coal fires are observed during the production of CBM within the outcrop zone, then the mitigation strategies discussed in this report and the NSJB ROD will be reviewed and implemented where applicable.

Based on the monitoring results, absence of additional planned drilling, lack of change in findings over the past 13 years, and evaluation of this report, LTE recommends that the technical working group (TWG) (comprised of the BLM, USFS, COGCC, the SUIT, Petrox, and LT Environmental, Inc. (LTE)) be reconvened in January 2018 to discuss and determine a change in scope of work for this project.



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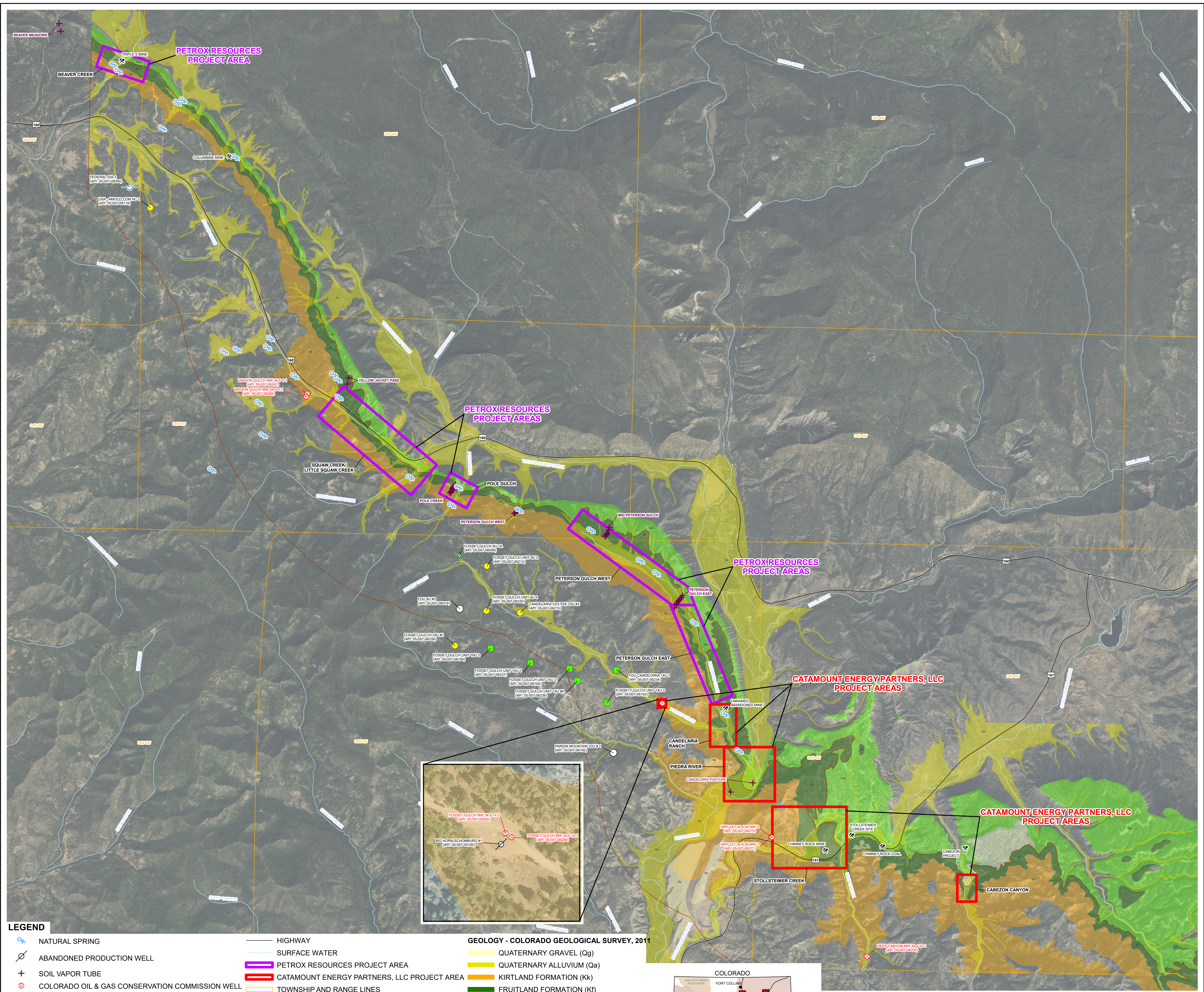
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## FIGURES



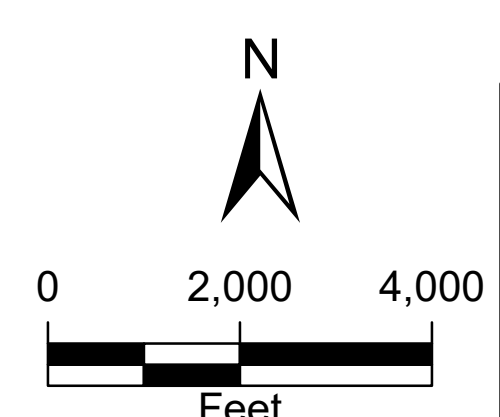
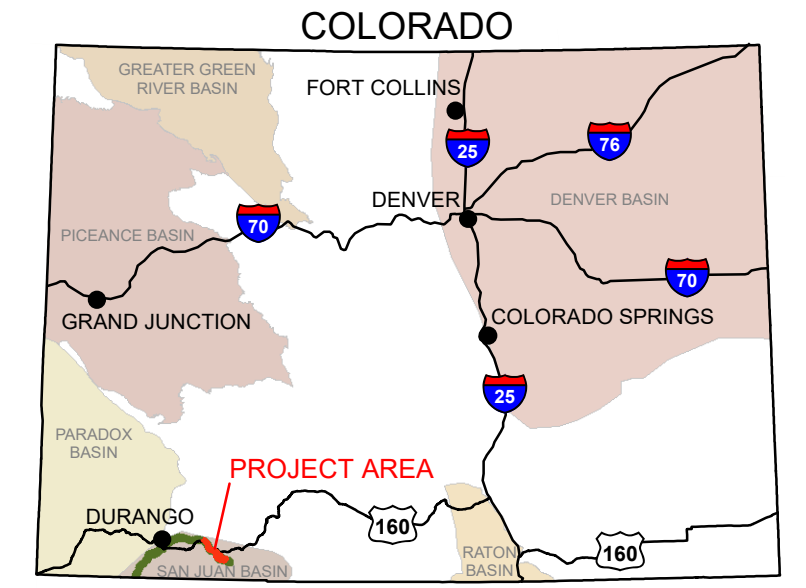


**LEGEND**

- NATURAL SPRING
- ABANDONED PRODUCTION WELL
- SOIL VAPOR TUBE
- COLORADO OIL & GAS CONSERVATION COMMISSION WELL
- COALBED METHANE WELLS (PETROX RESOURCES, INC.)**
- PRODUCING
- DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- HIGHWAY
- SURFACE WATER
- PETROX RESOURCES PROJECT AREA
- CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA
- TOWNSHIP AND RANGE LINES
- BUREAU OF LAND MANAGEMENT OUTCROP ZONE  
(1.5 MILES INWARD FROM Kf-Kk CONTACT)

**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

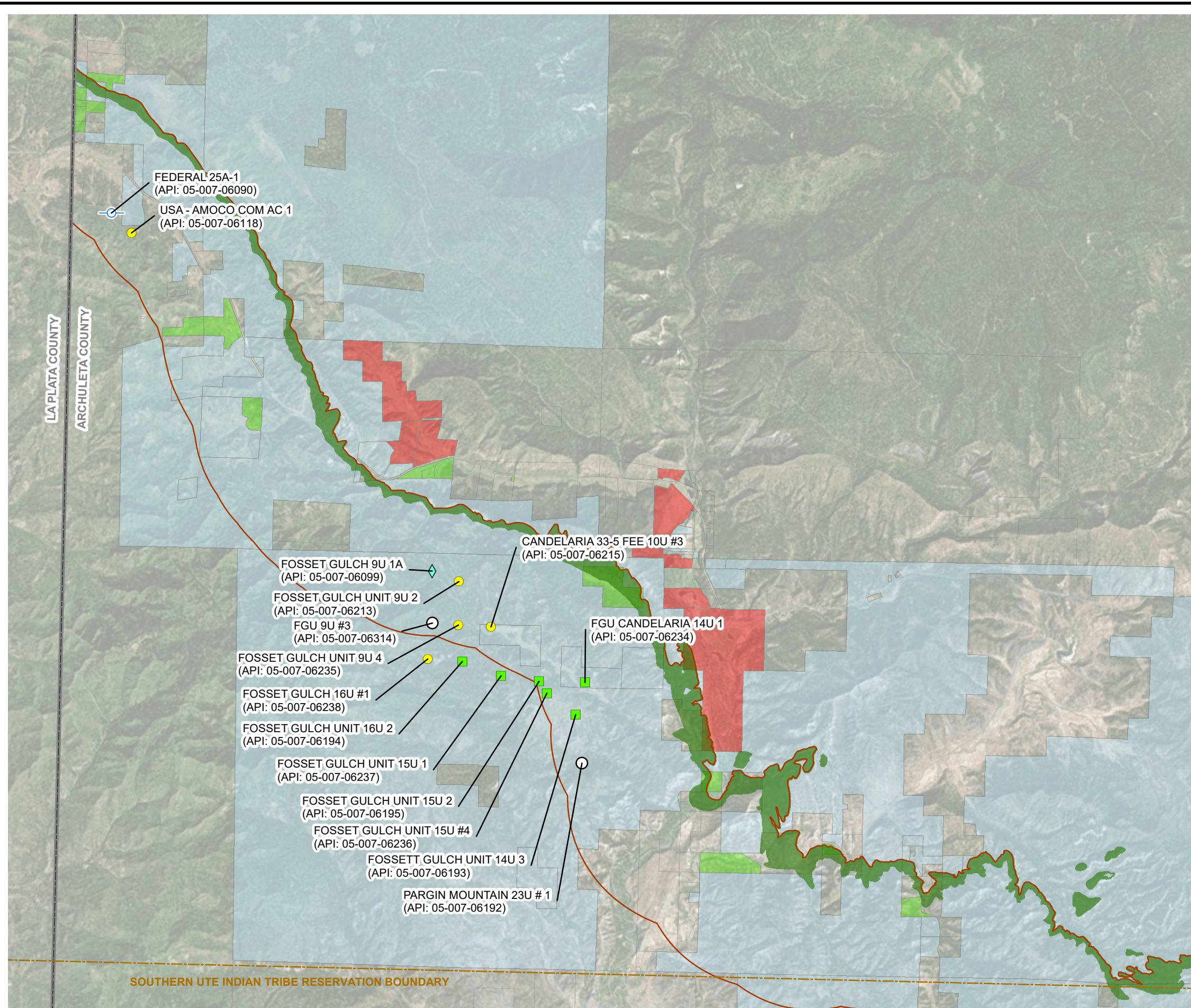
- QUATERNARY GRAVEL (Qg)
- QUATERNARY ALLUVIUM (Qa)
- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION TONGUE (Kpct)
- FRUITLAND FORMATION TONGUE (Kft)
- PICTURED CLIFFS FORMATION (Kpc)



**FIGURE 1  
PROJECT AREA MAP  
2017 OUTCROP ZONE REPORT  
ARCHULETA COUNTY, COLORADO**



P:\San Juan Basin GIS\Archuleta\Fruitland\_OMR\MXDs\Subgas\_Flux\2017\2017\_ARCH\_FIG 01 PROJECT AREA MAP.mxd



**LEGEND**

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- SOUTHERN UTE INDIAN TRIBE RESERVATION BOUNDARY
- COUNTY BOUNDARY
- BUREAU OF LAND MANAGEMENT OUTCROP ZONE  
(1.5 MILES INWARD FROM Kf-Kk CONTACT)

**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- FRUITLAND FORMATION (Kf)

**2017 PROPERTY ACCESS STATUS**

- ACCESS APPROVED
- ACCESS DENIED
- NO RESPONSE

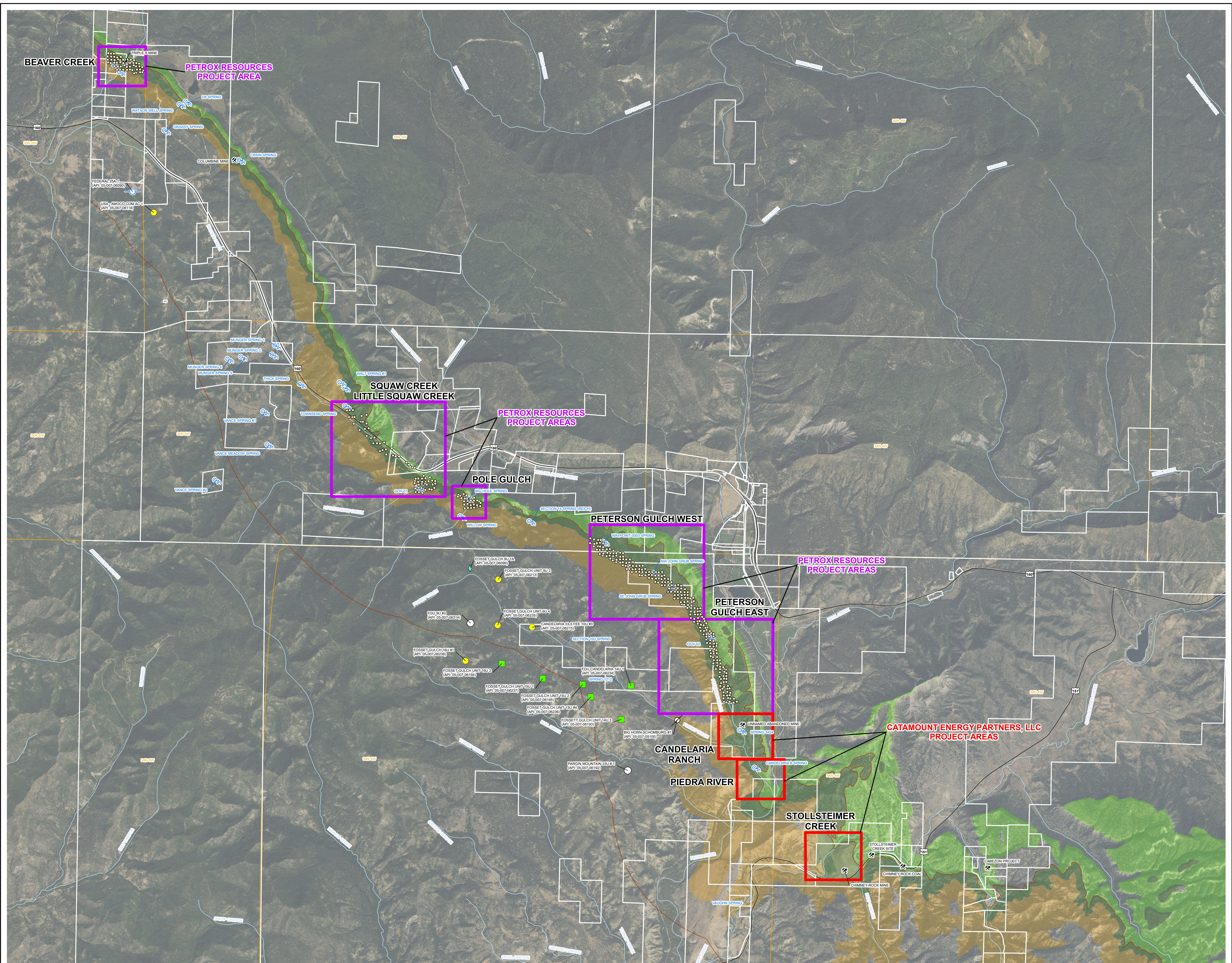
IMAGE COURTESY OF ESRI



**FIGURE 2**  
**PROPERTY ACCESS MAP**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

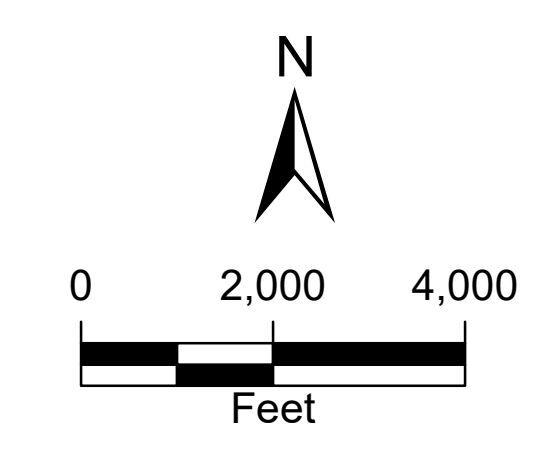
**PETROX RESOURCES**





LEGEND	
<b>METHANE FLUX MEASUREMENT (mol/m<sup>2</sup> • day)</b>	<b>COALBED METHANE WELLS (PETROX RESOURCES, INC.)</b>
○ 0.0000 - 0.1999	● PRODUCING
○ 0.2000 - 0.5000	◆ DRILLING
○ 0.5001 - 1.0000	○ SHUT IN
○ 1.0001 - 10.0000	■ WAITING ON INFORMATION
○ 10.0001 - 50.0000	○ PROPOSED WELL
○ 50.0001 - 100.0000	
○ 100.0001 - 200.0000	
	○ NATURAL SPRING
	⊗ ABANDONED MINE
	⊗ ABANDONED PRODUCTION WELL
	— HIGHWAY
	— SURFACE WATER
	— PROPERTY BOUNDARY & OWNER (WHITE)
	— BUREAU OF LAND MANAGEMENT OUTCROP ZONE (1.5 MILES INWARD FROM Kf-Kk CONTACT)
	— PETROX RESOURCES PROJECT AREA
	— CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA
	— TOWNSHIP AND RANGE LINES
	<b>GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011</b>
	— KIRTLAND FORMATION (Kk)
	— FRUITLAND FORMATION (Kf)
	— PICTURED CLIFFS FORMATION (Kpc)

mol/m<sup>2</sup> • day: MOLES PER SQUARE METER PER DAY

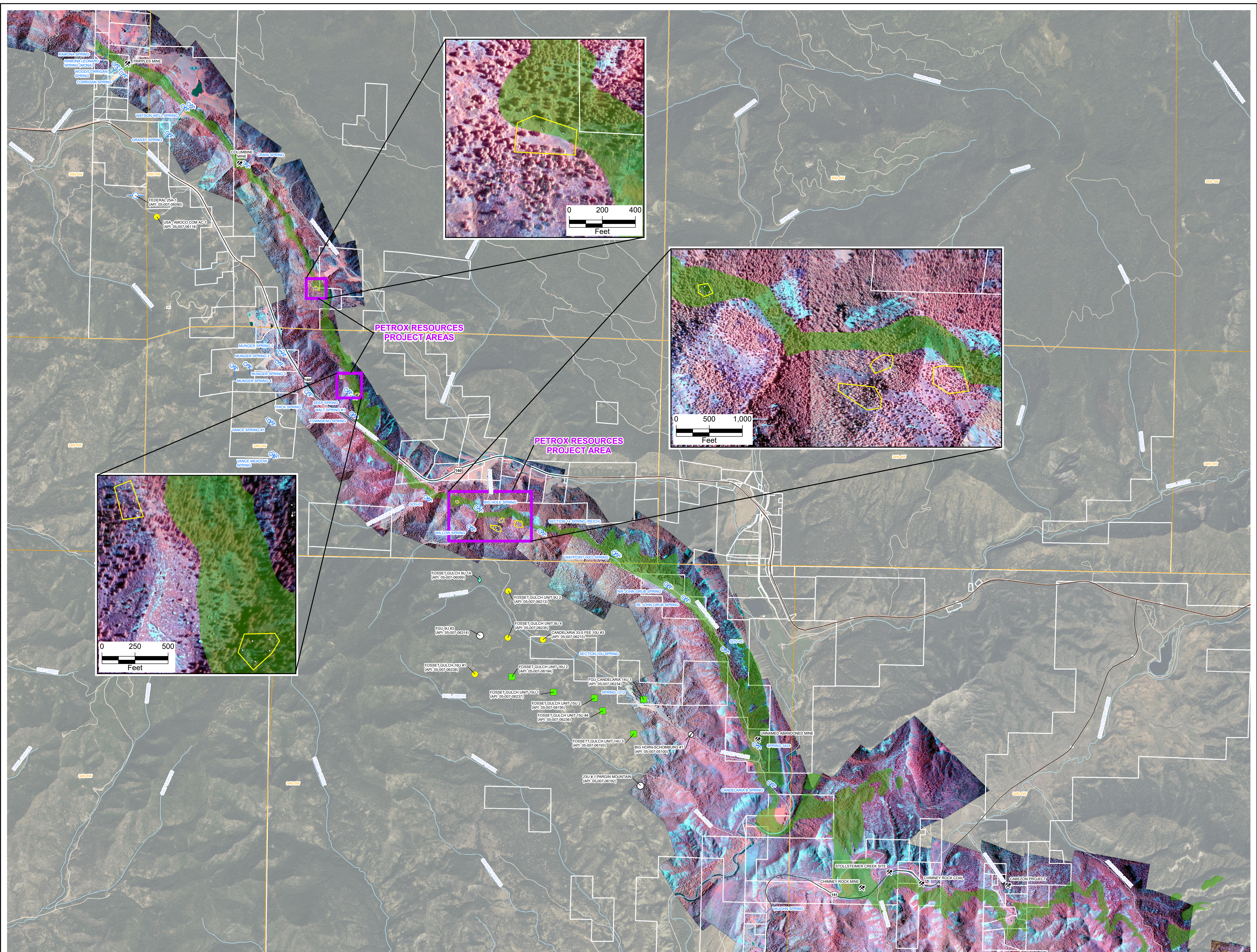


**FIGURE 3**  
**DRAINAGE TRANSECTS SURVEY**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**



**PETROX RESOURCES**

P:\San Juan Basin GIS\Archuleta\Fruitland\_OMR\MDs\Subgas\_Flux\2017\2017\_ARCH\_FIG 03 DRAINAGE TRANSECTS.mxd



**LEGEND**

**SUBSURFACE METHANE MEASUREMENT**

- 0 ppm
- 1 ppm - 500 ppm
- 501 ppm - 5%
- 6% - 15%
- 16% - 25%
- 26% - 50%
- 51% - 75%
- 76% - 100%

ppm: PARTS PER MILLION  
%: PERCENT  
ONLY MEASUREMENTS GREATER THAN 0 ppm ARE LABELED

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊗ ABANDONED PRODUCTION WELL
- ⊗ ABANDONED MINE
- PROPERTY BOUNDARY (WHITE)

**— HIGHWAY**

**— SURFACE WATER**

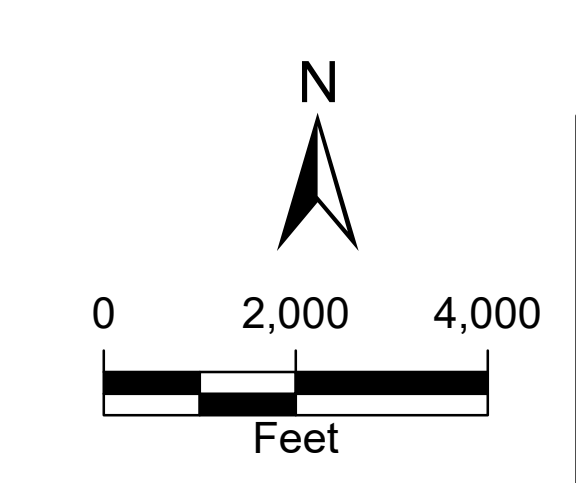
**— 2017 SUSPECT SEEP AREA**

**— PETROX RESOURCES PROJECT AREA**

**— TOWNSHIP AND RANGE LINES**

**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

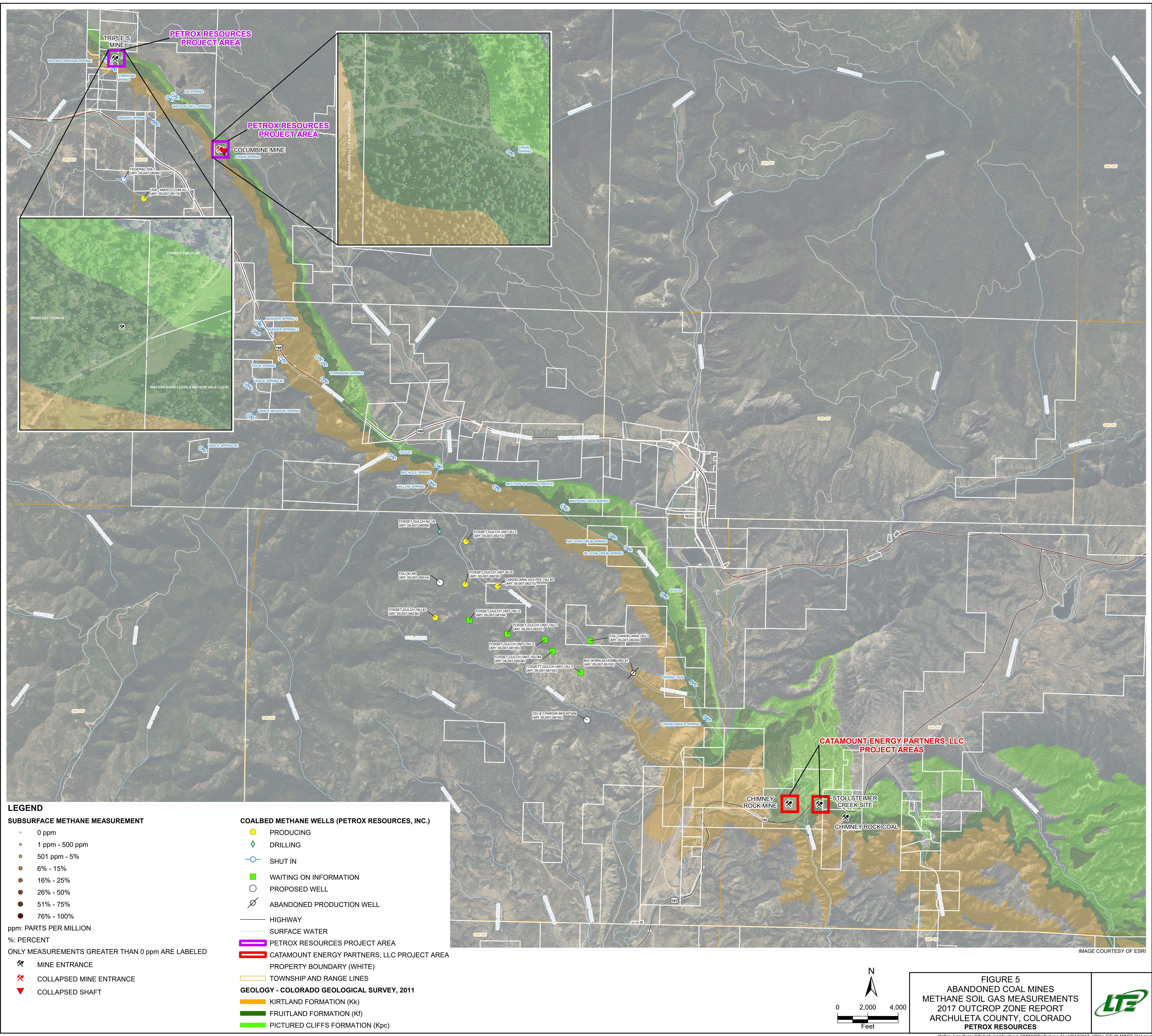
- FRUITLAND FORMATION (K1)



**FIGURE 4**  
SUSPECT SEEP LOCATION MAP  
2017 OUTCROP ZONE REPORT  
ARCHULETA COUNTY, COLORADO

**PETROX RESOURCES**

P:\San Juan Basin GIS\Archuleta\Fruitland\_OMRIMXD\Subgas\_Flux\2017\2017\_ARCH\_FIG 04 CIR SUSPECT SEEP.mxd



**LEGEND**

**SUBSURFACE METHANE MEASUREMENT**

- 0 ppm
- 1 ppm - 500 ppm
- 501 ppm - 5%
- 6% - 15%
- 16% - 25%
- 26% - 50%
- 51% - 75%
- 76% - 100%

ppm: PARTS PER MILLION  
%: PERCENT

ONLY MEASUREMENTS GREATER THAN 0 ppm ARE LABELED

- ⚡ MINE ENTRANCE
- ⚡ COLLAPSED MINE ENTRANCE
- ▼ COLLAPSED SHAFT

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊗ ABANDONED PRODUCTION WELL

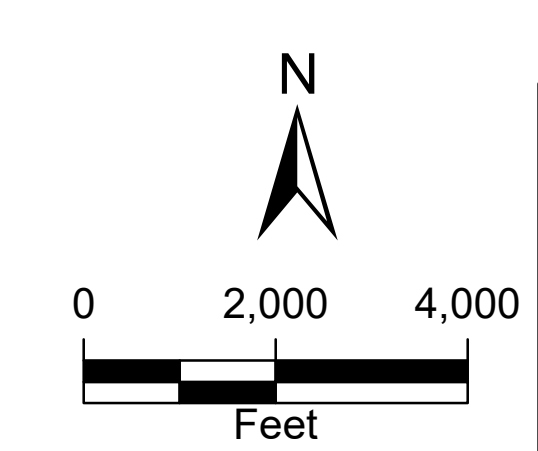
— HIGHWAY  
— SURFACE WATER

■ PETROX RESOURCES PROJECT AREA  
■ CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA

— PROPERTY BOUNDARY (WHITE)  
— TOWNSHIP AND RANGE LINES

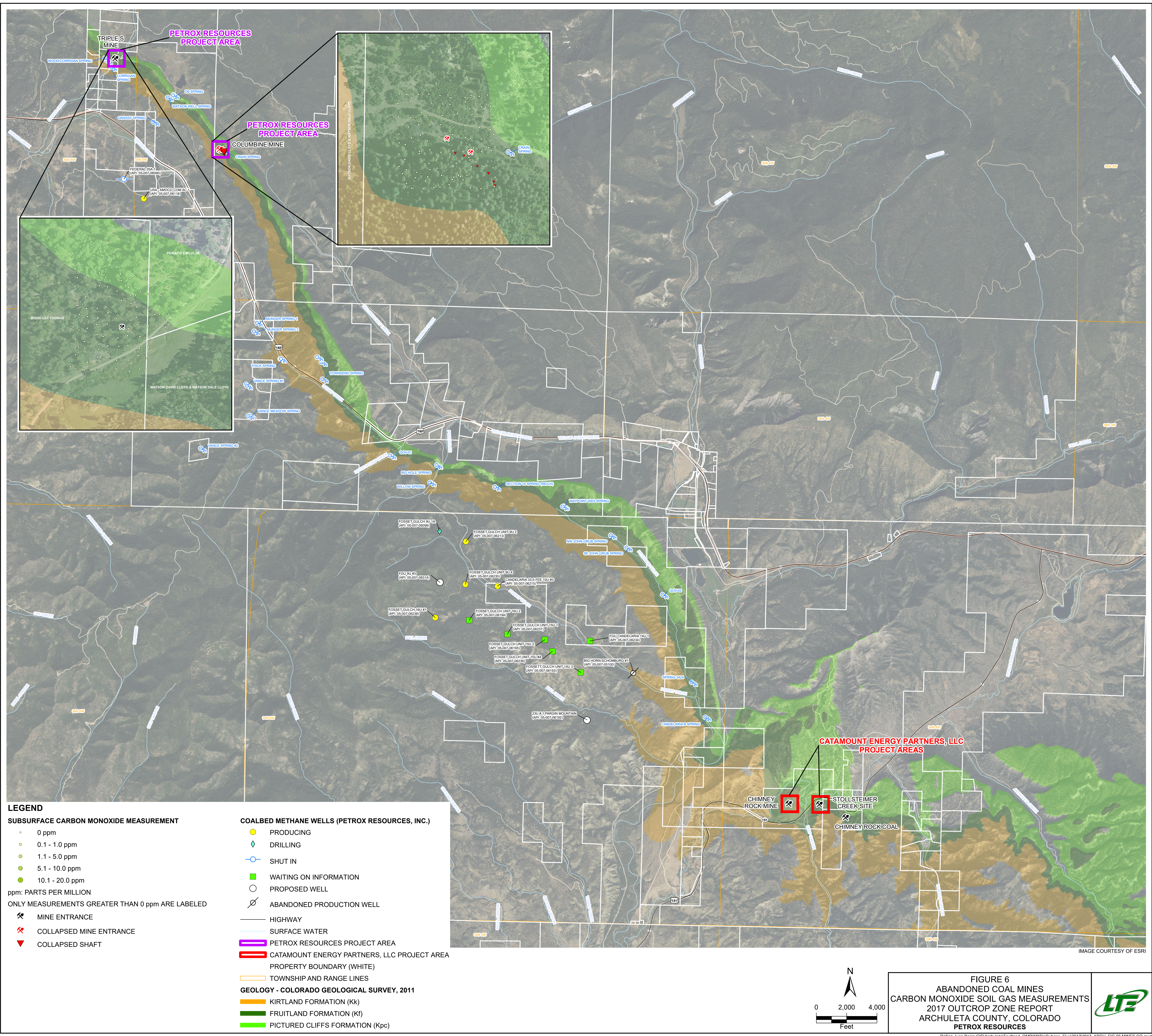
**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION (Kpc)



**FIGURE 5**  
**ABANDONED COAL MINES**  
**METHANE SOIL GAS MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**  
**PETROX RESOURCES**





**LEGEND**

**SUBSURFACE CARBON MONOXIDE MEASUREMENT**

- 0 ppm
- 0.1 - 1.0 ppm
- 1.1 - 5.0 ppm
- 5.1 - 10.0 ppm
- 10.1 - 20.0 ppm

ppm: PARTS PER MILLION  
 ONLY MEASUREMENTS GREATER THAN 0 ppm ARE LABELED

- ⚡ MINE ENTRANCE
- ⚡ COLLAPSED MINE ENTRANCE
- ▼ COLLAPSED SHAFT

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊘ ABANDONED PRODUCTION WELL

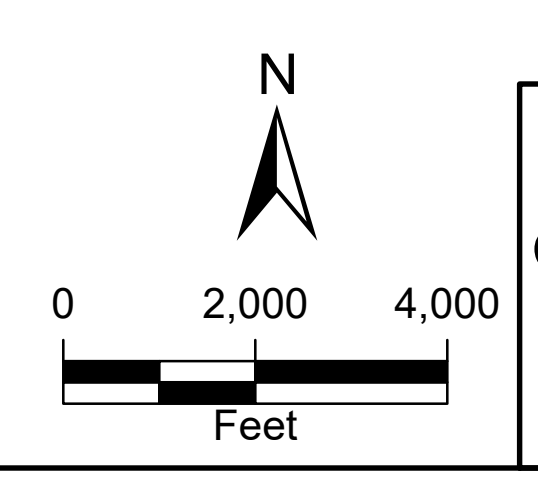
— HIGHWAY  
 — SURFACE WATER

**PETROX RESOURCES PROJECT AREA**  
**CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA**

— PROPERTY BOUNDARY (WHITE)  
 — TOWNSHIP AND RANGE LINES

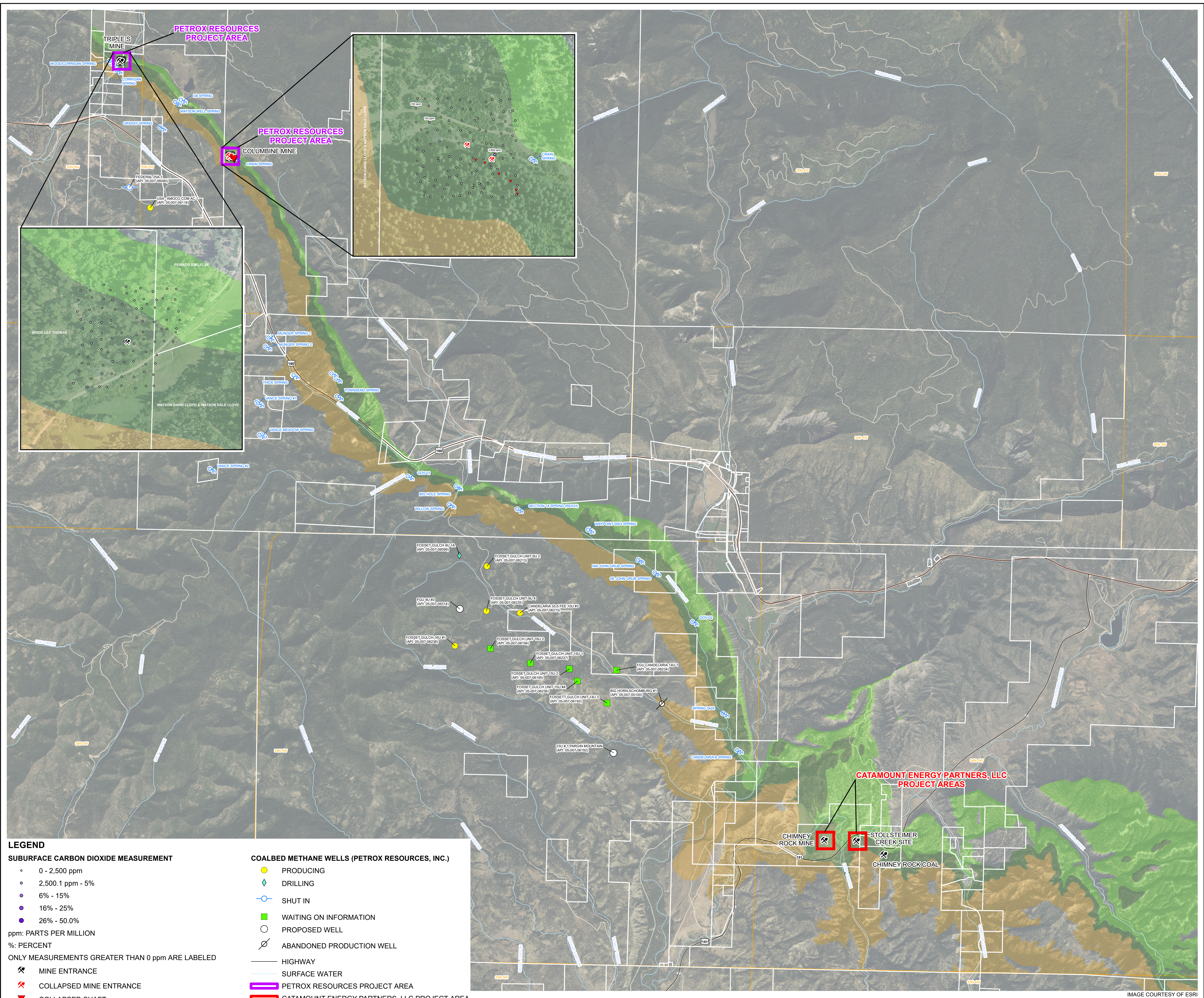
**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION (Kpc)



**FIGURE 6**  
 ABANDONED COAL MINES  
 CARBON MONOXIDE SOIL GAS MEASUREMENTS  
 2017 OUTCROP ZONE REPORT  
 ARCHULETA COUNTY, COLORADO  
**PETROX RESOURCES**





**LEGEND**

**SUBSURFACE CARBON DIOXIDE MEASUREMENT**

- 0 - 2,500 ppm
- 2,500.1 ppm - 5%
- 6% - 15%
- 16% - 25%
- 26% - 50.0%

ppm: PARTS PER MILLION  
%: PERCENT

ONLY MEASUREMENTS GREATER THAN 0 ppm ARE LABELED

- ⚡ MINE ENTRANCE
- ⚡ COLLAPSED MINE ENTRANCE
- ▼ COLLAPSED SHAFT

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊘ ABANDONED PRODUCTION WELL

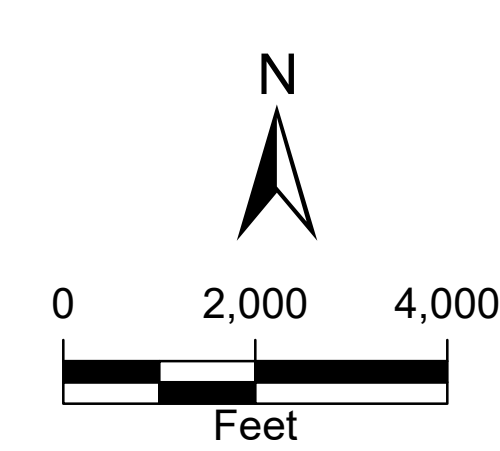
— HIGHWAY  
— SURFACE WATER

**PETROX RESOURCES PROJECT AREA**  
**CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA**

— PROPERTY BOUNDARY (WHITE)  
— TOWNSHIP AND RANGE LINES

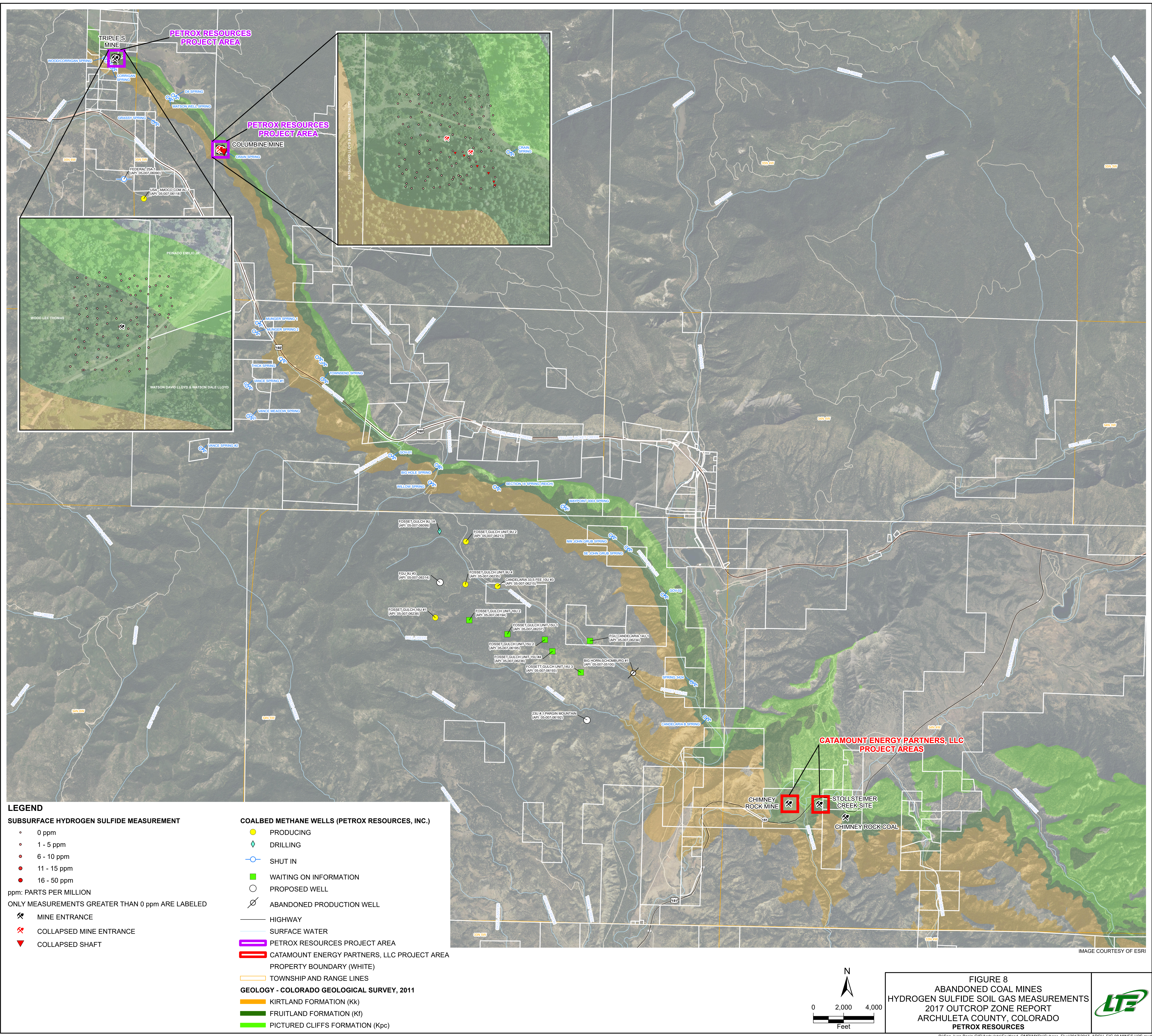
**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION (Kpc)



**FIGURE 7**  
**ABANDONED COAL MINES**  
**CARBON DIOXIDE SOIL GAS MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**  
**PETROX RESOURCES**





**LEGEND**

**SUBSURFACE HYDROGEN SULFIDE MEASUREMENT**

- 0 ppm
- 1 - 5 ppm
- 6 - 10 ppm
- 11 - 15 ppm
- 16 - 50 ppm

ppm: PARTS PER MILLION  
 ONLY MEASUREMENTS GREATER THAN 0 ppm ARE LABELED

- ⚡ MINE ENTRANCE
- ⚡ COLLAPSED MINE ENTRANCE
- ▼ COLLAPSED SHAFT

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊘ ABANDONED PRODUCTION WELL

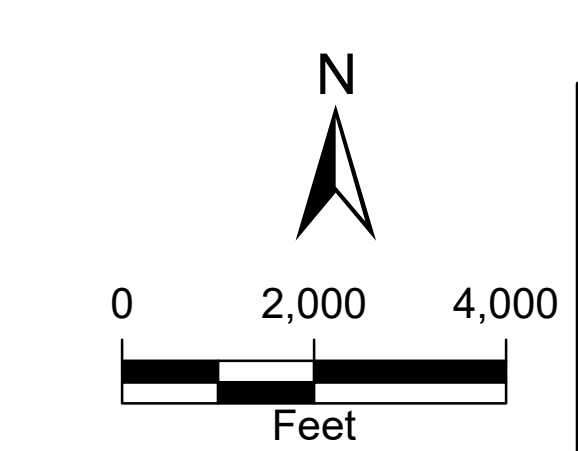
— HIGHWAY  
 — SURFACE WATER

**PETROX RESOURCES PROJECT AREA**  
**CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA**

— PROPERTY BOUNDARY (WHITE)  
 — TOWNSHIP AND RANGE LINES

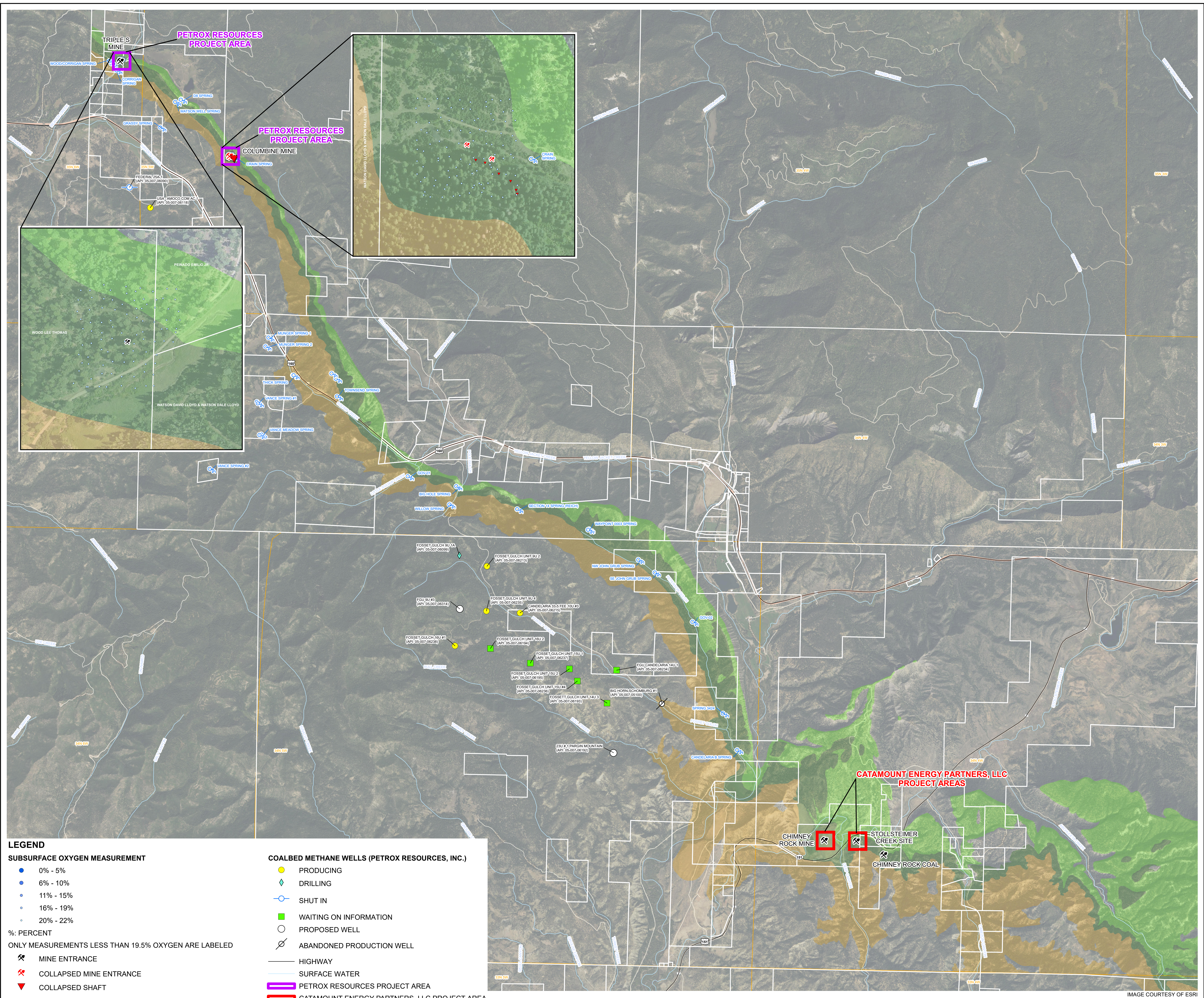
**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION (Kpc)



**FIGURE 8**  
 ABANDONED COAL MINES  
 HYDROGEN SULFIDE SOIL GAS MEASUREMENTS  
 2017 OUTCROP ZONE REPORT  
 ARCHULETA COUNTY, COLORADO  
**PETROX RESOURCES**





**LEGEND**

**SUBSURFACE OXYGEN MEASUREMENT**

- 0% - 5%
- 6% - 10%
- 11% - 15%
- 16% - 19%
- 20% - 22%

%: PERCENT  
 ONLY MEASUREMENTS LESS THAN 19.5% OXYGEN ARE LABELED

- ⚡ MINE ENTRANCE
- ⚡ COLLAPSED MINE ENTRANCE
- ▼ COLLAPSED SHAFT

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊘ ABANDONED PRODUCTION WELL

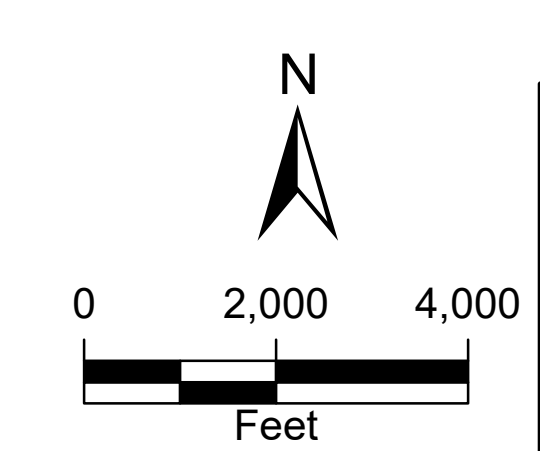
— HIGHWAY  
 — SURFACE WATER

■ PETROX RESOURCES PROJECT AREA  
 ■ CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA

— PROPERTY BOUNDARY (WHITE)  
 — TOWNSHIP AND RANGE LINES

**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION (Kpc)

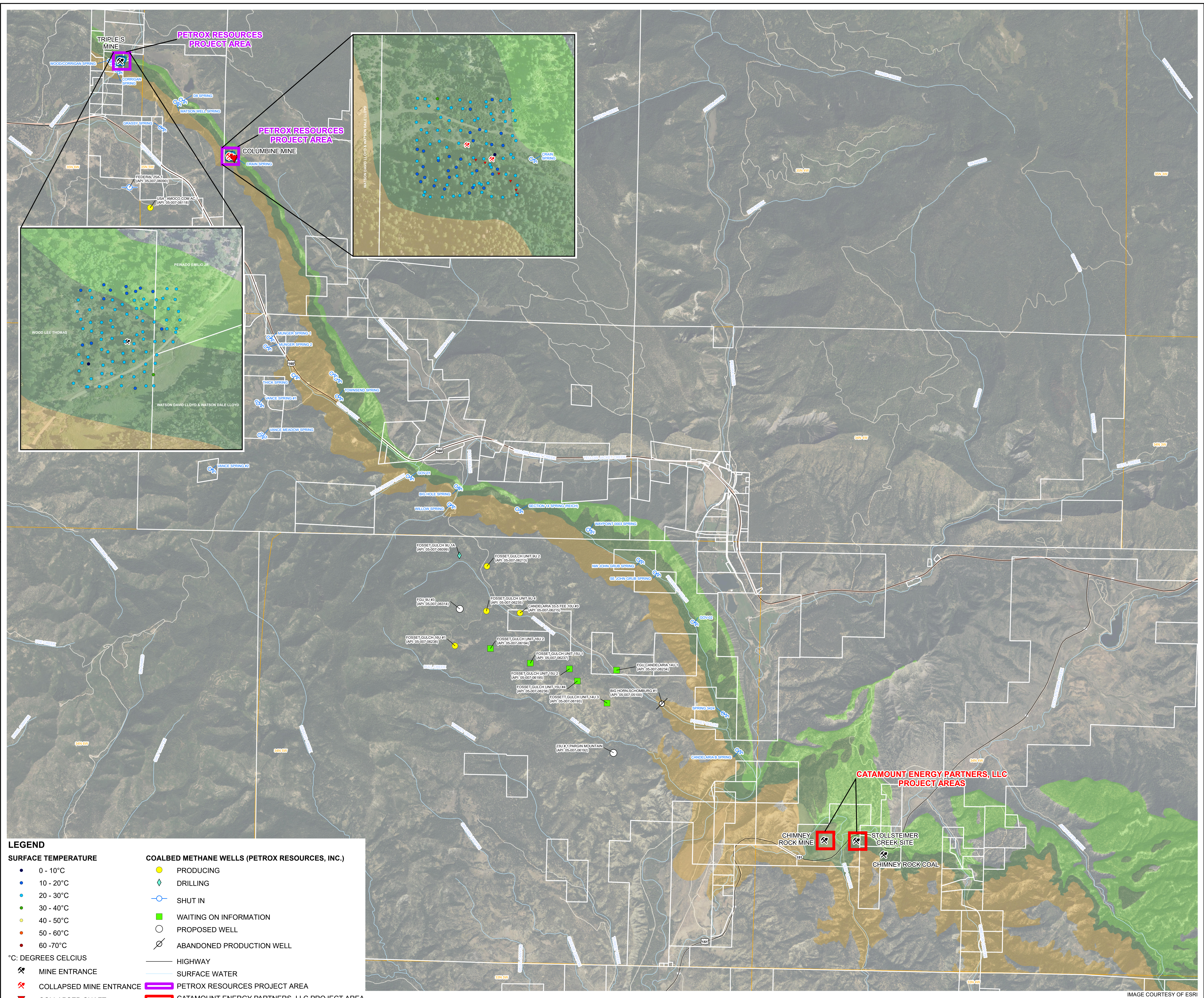


**FIGURE 9**  
 ABANDONED COAL MINES  
 OXYGEN SOIL GAS MEASUREMENTS  
 2017 OUTCROP ZONE REPORT  
 ARCHULETA COUNTY, COLORADO  
**PETROX RESOURCES**



P:\San Juan Basin GIS\Archuleta\Fruitland\_OMR\MXD\Subgas\_Flux\2017\2017\_ARCH\_FIG 09 MINES 02.mxd

IMAGE COURTESY OF ESRI



**LEGEND**

**SURFACE TEMPERATURE**

- 0 - 10°C
- 10 - 20°C
- 20 - 30°C
- 30 - 40°C
- 40 - 50°C
- 50 - 60°C
- 60 - 70°C

°C: DEGREES CELCIUS

⚡ MINE ENTRANCE

⚡ COLLAPSED MINE ENTRANCE

▼ COLLAPSED SHAFT

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL
- ⊗ ABANDONED PRODUCTION WELL

— HIGHWAY

— SURFACE WATER

— PETROX RESOURCES PROJECT AREA

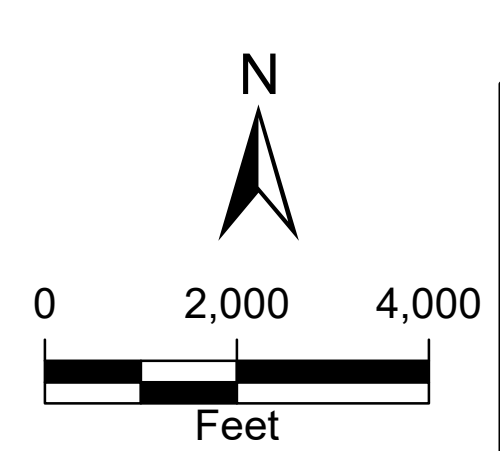
— CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA

— PROPERTY BOUNDARY (WHITE)

— TOWNSHIP AND RANGE LINES

**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

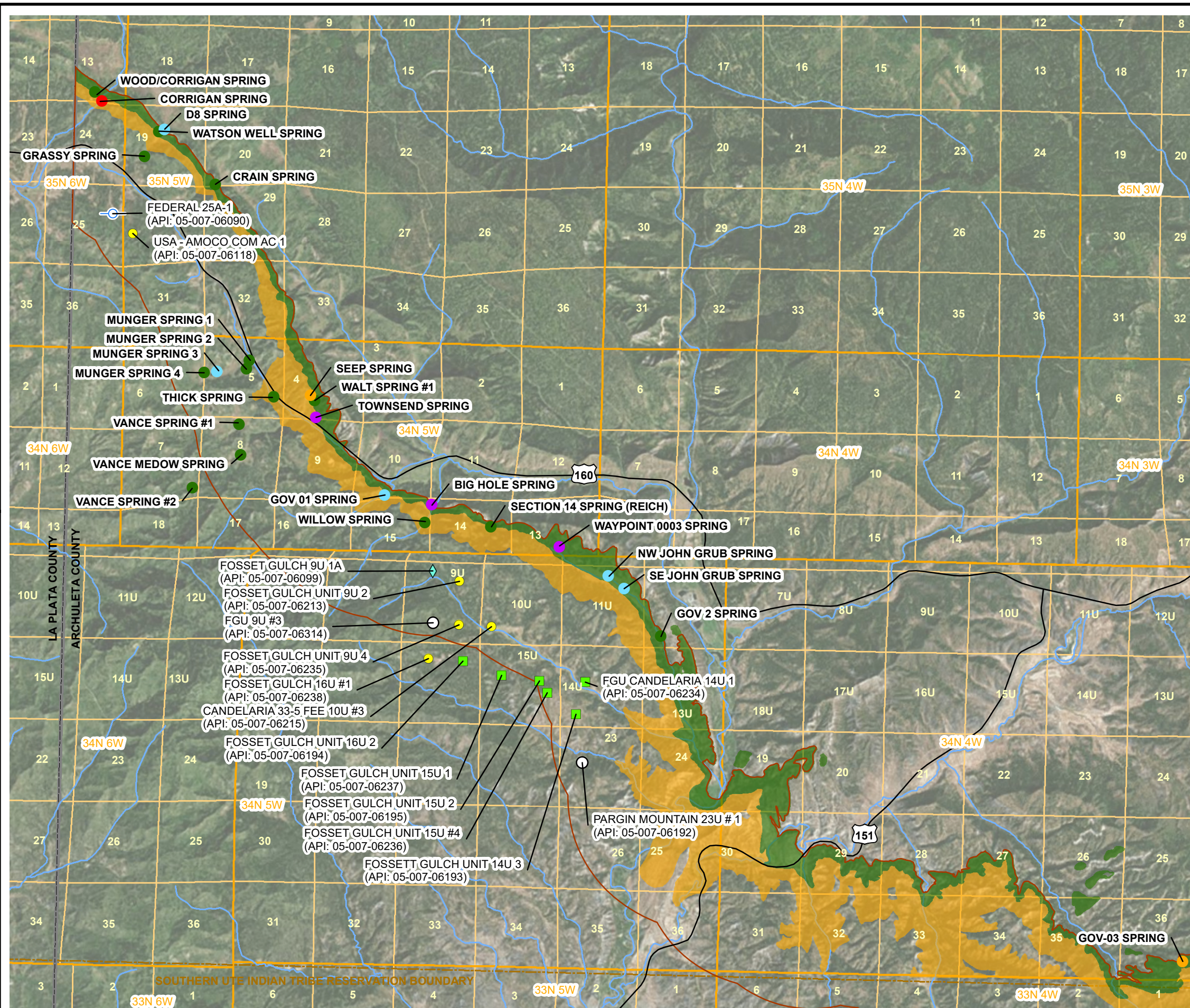
- KIRTLAND FORMATION (Kk)
- FRUITLAND FORMATION (Kf)
- PICTURED CLIFFS FORMATION (Kpc)



**FIGURE 10**  
**ABANDONED COAL MINES**  
**SURFACE TEMPERATURE SOIL GAS MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**  
**PETROX RESOURCES**



P:\San Juan Basin GIS\Archuleta\Fruitland\_OMR\MXD\Subgas\_Flux\2017\2017\_ARCH\_FIG 10 MINES TEMP.mxd



**LEGEND**

**COALBED METHANE WELLS (PETROX RESOURCES, INC.)**

- PRODUCING
- ◆ DRILLING
- SHUT IN
- WAITING ON INFORMATION
- PROPOSED WELL

**2017 NATURAL SPRING STATUS**

- SAMPLED
- STAGNANT
- DRY
- NOT LOCATED
- NO ACCESS/NO SAMPLE COLLECTED

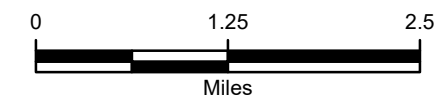
- HIGHWAY
- SURFACE WATER
- COUNTY BOUNDARY
- SOUTHERN UTE INDIAN TRIBE RESERVATION BOUNDARY
- TOWNSHIP AND RANGE LINES
- SECTION
- BUREAU OF LAND MANAGEMENT OUTCROP ZONE

**GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011**

- FRUITLAND FORMATION (Kf)
- KIRKLAND FORMATION (Kk)

SUBSURFACE METHANE MEASUREMENTS WERE COLLECTED FROM TEMPORARY SOIL PROBES ADVANCED WITH A SLIDE HAMMER AT EACH SAMPLED NATURAL SPRING LOCATION. THE CONCENTRATION OF SUBSURFACE METHANE WAS 0.0 PARTS PER MILLION METHANE FOR ALL MEASUREMENTS TAKEN.

IMAGE COURTESY OF ESRI



**FIGURE 11**  
**NATURAL SPRINGS STATUS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES**



## **TABLES**



**TABLE 1  
PROPERTY OWNER AND ACCESS INFORMATION  
2017 FRUITLAND OUTCROP MONITORING  
ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

PERCEL NUMBER(S)	LANDOWNER NAME	CITY, STATE ZIPCODE
567924201002	CRAIG TODD M	COLORADO SPRINGS, CO 80908
567924100018	ZWISLER MARTIN AND JANE TRUST	PAGE, AZ 86040
589711200001, 568511400052	GRUBB JOHN W & PAMELA K	FLORA VISTA, NM 87415
568510401001, 568511301003, 568510401002	HUTCHERSON CHRISTOPHER J & HUTCHERSON KIMBERLEE M	PAGOSA SPRINGS, CO 81147
568332300040	COLORADO YELLOW JACKET LTD PTNSHP	BAYFIELD, CO 81122
567913400016	PEINADO EMILIO JR	BAYFIELD, CO 81122
589724400007	CANDELARIA LUCY S & GONZALES BERNADETTE M	ARBOLES, CO 81121
567924201001	ZWISLER JOHN J	BAYFIELD, CO 81122
589725400033	CANNON CLINT S	WALLER, TX 77484
567913300029	ZWISLER RAYMOND	BAYFIELD, CO 81122
567924200022	MCKIBBEN ROBERT L & RADEL A	BAYFIELD, CO 81122
589529100026	FERGUSON JACOB RYAN	PLANT CITY, FL 33565
589533200046	LEON EUGENIA	PAGOSA SPRINGS, CO 81147
568331400030, 586506100006	DELZELL KATHLEEN M TRUSTEE	BAYFIELD, CO 81122
568508100019	VANCE JULIE ANN	BAYFIELD, CO 81122
568503200003, 568511200012, 568510100053	ELLIOTT DENISE L	DURANGO, CO 81301
567924300025	SEBESTYEN NEIL STEPHEN & TINA L	BAYFIELD, CO 81122
589701200003, 568917200018	PIEDRA SPRINGS RANCH LLC	TULSA, OK 74137
589712100011, 589712400012	RAFTER T LAND & CATTLE LLC	TULSA, OK 74137

**Notes:**

Postcards not returned or returned as return to sender not included in this table

Green indicates access granted by landowner
Red indicates access denied by landowner
White indicates no response from landowner, treated as no access





**TABLE 3**  
**NATURAL SPRINGS SAMPLING STATUS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

NATURAL SPRING	MONTH AND YEAR													
	September 2005	May/June 2006	October 2007	October 2008	May 2009	October 2009	July 2010	May 2011	May 2012	May 2013	May 2014	May/June 2015	May/August 2016	May/August 2017
Beaver Creek	Not Sampled	Not Sampled	Not Sampled	Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Discontinued*	Discontinued*	Discontinued*	Discontinued*	Discontinued*
Big Hole Spring	Not Sampled	Sampled	Not Sampled	Dry	Not Located	Not Located	Dry	Dry	Not Sampled	Dry	Dry	Not Located	Not Located	Dry
Candelaria A Spring	Not Sampled	Not Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
Candelaria B Spring	Not Sampled	Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	Dry	Dry	No Access	No Access	No Access
Corrigan Spring	Not Sampled	Not Sampled	Not Sampled	Not Located	Sampled	Dry	Dry	Sampled	Sampled	Dry	Dry	Dry	Sampled	Not Sampled <sup>f</sup>
Crain Spring	Not Sampled	Sampled	Not Sampled	Sampled	Sampled	Dry	Sampled	No Access	Sampled	Sampled	Drv	Sampled	Sampled	Sampled
D8 Spring	--	--	--	--	--	--	--	--	--	--	--	Dry	Dry	Stagnant
Gov-1 Spring	--	--	--	--	--	--	--	--	--	Dry	Dry	Dry	Dry	Stagnant
Gov-2 Spring	--	--	--	--	--	--	--	--	--	Sampled	Sampled	Dry	Sampled	Sampled
Gov-3 Spring	--	--	--	--	--	--	--	--	--	Not Located	Dry	Not Located	Not Located	Not Located
Grassy Spring	Not Sampled	Sampled	Sampled	No Access	No Access	No Access	No Access	No Access	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
High Watson Spring	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	Not Sampled	No Access	Not Sampled	Discontinued**	Discontinued**	Discontinued**	Discontinued**	Discontinued**
Miser Spring & Pipeline	Not Sampled	Not Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	Discontinued**	Discontinued**	Discontinued**	Discontinued**	Discontinued**
Munger Spring 1	--	--	--	--	--	--	--	--	--	Dry	Sampled	Sampled	Sampled	Sampled
Munger Spring 2	--	--	--	--	--	--	--	--	--	Sampled	Dry	Sampled	Sampled	Sampled
Munger Spring 3	--	--	--	--	--	--	--	--	--	Dry	Dry	Dry	Stagnant	Stagnant
Munger Spring 4	--	--	--	--	--	--	--	--	--	Dry	Dry	Sampled	Stagnant	Sampled
NW John Grubb Spring	Sampled	Sampled	Sampled	Sampled	Sampled	Dry	Sampled	Sampled	Sampled	Dry	Dry	Dry	Dry	Stagnant
Ramona Leonard Spring (Mona)	Not Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
Ramona Spring	Not Sampled	Not Sampled	Not Sampled	Dry	Not Located	Not Located	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
SE John Grubb Spring	Sampled	Sampled	Sampled	Sampled	Sampled	Dry	Not Sampled	Sampled	Sampled	Dry	Dry	Dry	Dry	Stagnant
Section 10U Spring	Sampled	Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
Section 14 (Reich) Spring	Sampled	Sampled	Sampled	Sampled	Sampled	Dry	Sampled	No Access	Not Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
Seep Spring	Not Sampled	Not Sampled	Not Sampled	Dry	Not Located	Not Located	Not Located	Not Located	Dry	Not Located	Not Located	Not Located	Not Located	Not Located
Spring 1212	Sampled	Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
Spring 3424	Sampled	Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	Sampled	Sampled	Not Sampled



**TABLE 3  
NATURAL SPRINGS SAMPLING STATUS  
2017 OUTCROP ZONE REPORT  
ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

NATURAL SPRING	MONTH AND YEAR													
	September 2005	May/June 2006	October 2007	October 2008	May 2009	October 2009	July 2010	May 2011	May 2012	May 2013	May 2014	May/June 2015	May/August 2016	May/August 2017
Thick Spring	Not Sampled	Sampled	Sampled	Not Located	Sampled	Dry	Not Sampled	Sampled	Sampled	Sampled	Dry	Sampled	Sampled	Sampled
Townsend Spring	Not Sampled	Not Sampled	Not Sampled	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Vance Meadow Spring	Not Sampled	Sampled	Sampled	Sampled	Sampled	Dry	Dry	Sampled	Sampled	Dry	Dry	Dry	Dry	Sampled
Vance Spring #1	Not Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
Vance Spring #2	--	--	--	--	--	--	--	--	--	--	--	--	Sampled	Sampled
Vaughn Spring	Not Sampled	Not Sampled	Not Sampled	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access	No Access
Walt Spring #1	Not Sampled	Sampled	Not Sampled	Dry	Dry	Dry	Dry	Sampled	Dry	Sampled	Dry	Sampled	Sampled	Sampled
Watson Well Spring	Not Sampled	Sampled	Not Sampled	Sampled	Sampled	Sampled	Sampled	No Access	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
Waypoint 0003 Spring	Not Sampled	NS	Not Sampled	Not Located	Not Located	Not Located	Not Sampled	Not Located	Dry	Not Located	Not Located	Not Located	Dry	Dry
Willow Spring	Not Sampled	Sampled	Sampled	Sampled	Sampled	Dry	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Dry	Sampled
Wood/Corrigan Spring	Not Sampled	Not Sampled	Not Sampled	Dry	Sampled	Dry	Not Sampled	Sampled	Dry	Dry	Dry	Dry	Dry	Sampled

**Notes:**

-- denotes not part of the sampling program for that year

\* natural spring discontinued from sampling program due to its location in vicinity of Corrigan Spring

\*\* natural spring discontinued from sampling program due to location of spring outside of Kf outcrop and/or BLM outcrop zone

# not sampled due to upgradient irrigation ditch flowing



**TABLE 4**  
**NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
Beaver Creek	Discontinued*	September 2005	--	--	--	--	--
		May 2006	--	--	--	--	--
		October 2007	286.6	8.00	21.0	10.0	146.60
		October 2008	303.0	7.40	166.0	5.8	197.00
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	Discontinued*				
Big Hole Spring	Dry	September 2005	--	--	--	--	--
		May 2006	365.5	7.27	141.0	11.7	249.10
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Candelaria A Spring	Not Sampled due to access	September 2005	--	--	--	--	--
		May 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
May 2017	--	--	--	--	--		
Candelaria B Spring	Not Sampled due to access	September 2005	--	--	--	--	--
		May 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
May 2017	--	--	--	--	--		



**TABLE 4**  
**NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
Corrigan Spring	Not Sampled due to upgradient irrigation ditch flowing	September 2005	--	--	--	--	--
		June 2006	170.3	6.08	122.0	17.7	109.70
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	253.0	6.83	97.4	22.5	126.00
		May 2012	162.3	6.53	-45.2	11.5	81.20
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		June 2015	--	--	--	--	--
		May 2016	--	7.20	131.5	12.7	84.76
May 2017	--	--	--	--	--		
Crain Spring	Sampled	September 2005	--	--	--	--	--
		June 2006	570.3	7.50	-115.0	29.1	375.30
		October 2007	--	--	--	--	--
		October 2008	526.0	7.47	273.0	8.8	342.00
		May 2009	811.0	6.87	--	7.5	--
		October 2009	--	--	--	--	--
		July 2010	482.0	6.80	--	11.8	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	668.0	7.70	--	20.5	334.00
		May 2014	--	--	--	--	--
		June 2015	445.5	7.44	89.8	14.6	295.78
		May 2016	640.0	7.69	119.0	7.63	392.93
May 2017	468.5	7.66	602.3	10.82	295.92		
D8 Spring	Stagnant	June 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Gov-1 Spring	Stagnant	May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Gov-2 Spring	Sampled	May 2013	659.0	7.00	17.4	10.2	328.00
		May 2014	510.0	6.90	--	13.1	--
		May 2015	--	--	--	--	--
		May 2016	577.3	7.57	116.3	11.0	376.34
		May 2017	684.9	7.18	267.5	14.48	446.89
Gov-3 Spring	Not Located	May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--



**TABLE 4**  
**NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity ( $\mu\text{S}/\text{cm}$ )	pH (Units)	ORP (mV)	Temperature ( $^{\circ}\text{C}$ )	TDS (ppm)
Grassy Spring	Sampled	September 2005	--	--	--	--	--
		June 2006	570.3	7.50	-115.0	29.1	375.30
		October 2007	88.4	8.18	16.0	8.6	44.32
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	954.0	7.00	--	14.3	480.00
		May 2014	654.0	6.50	148.0	11.9	--
		June 2015	629.9	6.91	112.4	11.6	410.00
		May 2016	738.4	6.41	89.7	10.84	5,034.52
May 2017	853.7	7.54	311.3	13.58	549.33		
High Watson Spring	Discontinued**	September 2005	--	--	--	--	--
		June 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	789.0	7.49	18.1	16.7	392.00
		May 2013	Discontinued**				
Miser Spring and Pipeline	Discontinued**	September 2005	--	--	--	--	--
		June 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	Discontinued**				
Munger Spring 1	Sampled	May 2013	--	--	--	--	--
		May 2014	107.0	7.00	185.0	13.9	--
		June 2015	550.0	6.92	96.6	13.6	352.36
		May 2016	585.5	7.52	86.2	12.78	387.45
		May 2017	505.7	7.88	348.1	10.99	328.71
Munger Spring 2	Sampled	May 2013	358.0	7.40	--	18.9	176.00
		May 2014	--	--	--	--	--
		June 2015	320.4	6.88	57.2	13.1	207.60
		May 2016	404.2	7.62	70.3	14.20	261.47
		May 2017	437.4	7.66	268.3	19.01	284.20
Munger Spring 3	Stagnant	May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		June 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Munger Spring 4	Sampled	May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		June 2015	424.7	7.33	84.3	18.7	260.78
		May 2016	--	--	--	--	--
		May 2017	667.5	7.73	470.6	16.42	430.76



**TABLE 4**  
**NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
NW John Grub Spring	Stagnant	September 2005	415.8	6.97	--	15.8	282.30
		May 2006	421.7	7.83	108.0	27.0	275.90
		October 2007	292.2	7.28	-162.0	17.1	254.80
		October 2008	425.0	7.07	-15.0	15.7	276.00
		June 2009	339.0	8.70	--	14.5	--
		October 2009	--	--	--	--	--
		July 2010	441.0	5.91	--	16.4	--
		May 2011	561.0	7.08	21.7	21.0	278.00
		May 2012	540.0	6.77	20.3	22.0	271.00
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Ramona Leonard Spring (Mona)	Not Sampled due to access	September 2005	--	--	--	--	--
		May 2006	768.4	6.35	107.0	13.5	522.40
		October 2007	793.5	7.68	42.0	11.8	413.40
		October 2008	879.0	6.99	185.6	9.7	571.00
		May 2009	793.0	6.97	--	9.1	--
		October 2009	825.0	7.24	--	10.0	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Ramona Spring	Not sampled due to access	September 2005	--	--	--	--	--
		June 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
SE John Grub Spring	Stagnant	September 2005	524.5	7.04	--	15.6	358.50
		May 2006	509.5	7.86	-49.0	24.4	336.90
		October 2007	980.1	7.29	-68.0	18.4	513.00
		October 2008	528.0	7.18	63.5	12.4	342.00
		June 2009	542.0	6.58	12.0	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	428.0	7.08	16.0	23.6	213.00
		May 2012	341.0	7.13	-18.1	25.6	170.00
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--



**TABLE 4**  
**NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
Section 10U Spring	Not sampled due to access	September 2005	458.1	7.27	131.0	10.9	314.70
		May 2006	489.9	7.18	521.0	20.0	328.20
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Section 14 (Reich) Spring	Sampled	September 2005	412.2	7.93	--	20.2	277.50
		May 2006	372.9	7.48	79.0	13.3	251.50
		October 2007	394.7	7.92	0.0	10.7	198.70
		October 2008	445.0	7.09	45.0	8.6	290.00
		June 2009	607.0	6.89	--	9.0	--
		October 2009	--	--	--	NM	--
		July 2010	404.0	6.77	--	10.7	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	661.0	7.30	37.4	8.0	329.00
		May 2014	464.0	6.60	--	8.5	--
		May 2015	544.4	6.40	40.2	8.3	302.00
		May 2016	570.7	7.63	121.1	14.93	372.99
		May 2017	448.1	7.81	369.2	11.60	290.57
Seep Spring	Not located	September 2005	--	--	--	--	--
		May 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Spring 1212	Not sampled due to access	October 2005	420.0	6.59	--	9.1	--
		June 2006	356.6	7.29	75.0	15.3	243.90
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--



**TABLE 4**  
**NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
Spring 3424	Not Sampled	September 2005	725.2	6.86	71.0	16.5	504.00
		May 2006	641.5	7.97	-98.0	17.3	436.70
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		July 2015	1,004.2	6.64	130.2	12.9	652.73
		August 2016	851.2	7.07	--	20.29	555.56
		May 2017	--	--	--	--	--
Thick Spring	Sampled	September 2005	--	--	--	--	--
		May 2006	325.6	7.80	120.0	11.7	214.60
		October 2007	376.5	7.74	32.0	12.9	192.20
		October 2008	--	--	--	--	--
		May 2009	54.6	7.52	--	12.3	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	408.0	7.01	40.0	11.4	203.00
		May 2012	457.0	6.51	22.6	7.1	229.00
		May 2013	836.0	7.10	69.7	12.4	448.00
		May 2014	--	--	--	--	--
		May 2015	551.3	6.85	94.1	7.9	358.31
		May 2016	640.0	7.21	142.0	10.62	420.55
		May 2017	825.5	7.73	235.3	12.28	545.09
Townsend Spring	Dry	September 2005	--	--	--	--	--
		May 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Vance Meadow Spring	Dry	September 2005	--	--	--	--	--
		June 2006	459.9	7.20	-60.0	16.5	310.90
		October 2007	389.8	7.20	-67.0	12.2	195.10
		October 2008	476.0	7.90	249.6	8.0	308.00
		June 2009	455.0	7.23	--	13.7	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	365.0	7.24	22.9	16.9	182.00
		May 2012	360.0	8.30	33.1	18.1	179.00
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		June 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
May 2017	345.6	7.65	229.6	24.18	224.59		



**TABLE 4  
NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS  
2017 OUTCROP ZONE REPORT  
ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
Vance Spring #1	Sampled	September 2005	--	--	--	--	--
		May 2006	404.0	7.75	-12.0	11.6	269.60
		October 2007	417.1	7.34	519.0	9.6	213.20
		October 2008	464.0	7.20	120.3	7.2	302.00
		May 2009	399.0	7.88	--	12.8	--
		October 2009	481.0	7.41	--	6.8	--
		July 2010	421.0	7.13	--	15.8	--
		May 2011	298.0	6.72	6.0	10.7	151.00
		May 2012	332.0	6.86	51.2	8.7	166.00
		May 2013	505.0	6.90	30.9	15.4	253.00
		May 2014	324.0	7.80	67.8	15.9	--
		June 2015	299.4	7.54	95.0	16.8	194.91
		May 2016	434.2	7.63	106.4	20.46	281.51
		May 2017	435.6	7.55	248.8	12.13	284.35
Vance Spring #2	Sampled	May 2016	422.8	8.20	95.2	13.05	271.50
		May 2017	394.2	7.87	230.9	10.17	254.01
Vaughn Spring	Not Sampled due to access	September 2005	--	--	--	--	--
		June 2006	730.7	7.55	521.0	20.1	509.50
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Walt Spring #1	Sampled	September 2005	--	--	--	--	--
		May 2006	524.0	7.90	86.0	12.1	345.40
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	207.0	7.41	93.2	11.4	155.00
		May 2012	--	--	--	--	--
		May 2013	512.0	6.90	92.7	13.0	242.00
		May 2014	--	--	--	--	--
		May 2015	321.0	7.43	136.8	14.4	214.85
		May 2016	378.9	7.35	84.0	9.34	246.52
May 2017	420.6	7.73	251.7	10.07	272.77		
Watson Well Spring	Sampled	September 2005	--	--	--	--	--
		June 2006	745.5	7.29	34.0	13.0	507.70
		October 2007	--	--	--	--	--
		October 2008	869.0	6.90	273.2	13.9	565.00
		May 2009	705.0	6.90	--	9.9	--
		October 2009	852.0	6.90	--	13.4	--
		July 2010	570.0	6.75	--	17.8	--
		May 2011	--	--	--	--	--
		May 2012	836.0	6.46	9.5	20.3	418.00
		May 2013	903.0	7.20	--	10.3	453.00
		May 2014	654.0	6.40	148.0	11.9	--
		June 2015	708.1	6.99	93.9	14.0	460.35
		May 2016	814.8	7.22	96.9	9.77	527.31
		May 2017	514.0	7.38	390.3	12.11	333.14



**TABLE 4  
NATURAL SPRINGS FIELD OBSERVATIONS AND MEASUREMENTS  
2017 OUTCROP ZONE REPORT  
ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	2017 Field Observations/ Notes	Date	Water Quality Field Measurements				
			Conductivity (µS/cm)	pH (Units)	ORP (mV)	Temperature (°C)	TDS (ppm)
Waypoint 0003 Spring	Dry	September 2005	--	--	--	--	--
		May 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		June 2009	--	--	--	--	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	--	--	--	--	--
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		May 2014	--	--	--	--	--
		May 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	--	--	--	--	--
Willow Spring	Sampled	September 2005	--	--	--	--	--
		May 2006	252.9	7.39	122.0	14.0	178.70
		October 2007	318.3	7.42	508.0	13.9	161.40
		October 2008	325.0	7.09	243.4	6.6	211.00
		June 2009	285.0	7.54	--	10.4	--
		October 2009	--	--	--	--	--
		July 2010	284.0	6.70	--	12.4	--
		May 2011	277.0	6.30	116.5	10.4	139.00
		May 2012	335.0	6.79	29.5	10.6	167.00
		May 2013	341.0	7.20	35.9	14.2	172.00
		May 2014	263.0	7.20	298.2	7.4	--
		May 2015	328.2	7.12	84.4	9.4	214.79
		May 2016	--	--	--	--	--
		May 2017	236.1	7.80	252.4	9.41	150.5
Wood/Corrigan Spring	Sampled	September 2005	--	--	--	--	--
		June 2006	--	--	--	--	--
		October 2007	--	--	--	--	--
		October 2008	--	--	--	--	--
		May 2009	480.0	6.96	--	7.5	--
		October 2009	--	--	--	--	--
		July 2010	--	--	--	--	--
		May 2011	476.0	7.13	279.2	12.1	241.00
		May 2012	--	--	--	--	--
		May 2013	--	--	--	--	--
		July 2014	--	--	--	--	--
		June 2015	--	--	--	--	--
		May 2016	--	--	--	--	--
		May 2017	458.5	7.67	402.2	13.35	295.42

**Notes:**

µS/cm - microSiemens per centimeter      °C - degrees celsius      -- denotes not measured  
 ORP - oxidation reduction potential      TDS - total dissolved solids  
 mV - millivolts      ppm - parts per million

\* natural spring discontinued from sampling program due to its location in vicinity of Corrigan Spring

\*\*natural spring discontinued from sampling program due to location of spring outside of Kf outcrop and/or BLM outcrop zone



**TABLE 5**  
**NATURAL SPRINGS WATER FLOW RATE MEASUREMENTS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

NATURAL SPRING	FLOW RATES (Gallons/Minute)													
	September 2005	May/June 2006	October 2007	October 2008	May/June 2009	October 2009	July 2010	May 2011	May 2012	May 2013	May 2014	May/June 2015	May/August 2016	May/August 2017
Beaver Creek	--	--	7.00	--	--	--	--	--	--	Discontinued*	--	--	--	--
Big Hole Spring	--	<1	--	--	--	--	--	--	--	--	--	--	--	--
Candelaria A Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Candelaria B Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Corrigan Spring	--	--	--	--	--	--	--	--	--	--	--	--	1.3	--
Crain Spring	--	--	--	0.20	2.66	--	2.00	--	--	0.04	--	0.25	0.38	0.25
D8 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gov-1 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gov-2 Spring	--	--	--	--	--	--	--	--	--	0.35	--	--	0.5	--
Gov-3 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grassy Spring	--	--	<0.25	--	--	--	--	--	--	0.11	--	0.38	0.38	0.0625
High Watson Spring	--	--	--	--	--	--	--	--	--	Discontinued**	--	--	--	--
Miser Spring & Pipeline	--	--	--	--	--	--	--	--	--	Discontinued**	--	--	--	--
Munger Spring 1	--	--	--	--	--	--	--	--	--	--	--	0.18	0.75	0.56
Munger Spring 2	--	--	--	--	--	--	--	--	--	0.16	--	0.19	1.0	1.53
Munger Spring 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Munger Spring 4	--	--	--	--	--	--	--	--	--	--	--	--	--	0.72
NW John Grub Spring	0.10	<1	<0.5	0.90	--	--	--	--	--	--	--	--	--	--
Ramona Leonard Spring (Mona)	--	0.60	0.40	0.75	1.30	0.24	--	--	--	--	--	--	--	--
Ramona Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SE John Grub Spring	0.25	<1	<0.25	0	--	--	--	--	--	--	--	--	--	--
Section 10U Spring	0.90	1.00	--	--	--	--	--	--	--	--	--	--	--	--
Section 14 (Reich) Spring	--	<1	<0.5	0	1.50	--	1.30	--	--	2.18	--	--	0.33	0.3
Seep Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spring 1212	--	5.28	--	--	--	--	--	--	--	--	--	--	--	--
Spring 3424	1.00	1.00	--	--	--	--	--	--	--	--	--	--	--	--
Thick Spring	--	2.00	<1	--	--	--	--	0.20	0.15	0.12	--	0.61	0.44	0.375
Townsend Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vance Meadow Spring	--	<0.5	<0.5	0	--	--	0.27	0.20	--	--	--	--	--	1.30
Vance Spring #1	--	1.00	<0.5	0	1.90	0.20	--	0.40	0.53	0.14	--	0.04	0.88	0.625
Vance Spring #2	--	--	--	--	--	--	--	--	--	--	--	--	1.66	4.62
Vaughn Spring	--	<1	--	--	--	--	--	--	--	--	--	--	--	--
Walt Spring #1	--	--	<1	--	--	--	--	0.40	--	0.14	--	0.52	0.32	0.63
Watson Well Spring	--	--	--	--	--	--	--	--	0.88	--	--	--	--	--
Waypoint 0003 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow Spring	--	1.00	<0.25	0.03	0.60	--	0.50	0.30	1.06	0.24	--	--	--	--
Wood/Corrigan Spring	--	--	--	--	--	--	--	0.30	--	--	--	--	--	0.25

**Notes:**

-- denotes no measurement taken

< - less than designated flow rate

\* natural spring discontinued from sampling program due to its location in vicinity of Corrigan Spring

\*\*natural spring discontinued from sampling program due to location of spring outside of Kf outcrop and/or BLM outcrop zone



**TABLE 6**  
**NATURAL SPRINGS ANALYTICAL RESULTS - DISSOLVED METHANE**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

NATURAL SPRING	METHANE CONCENTRATIONS (mg/L)													
	September 2005	May/June 2006	October 2007	October 2008	May/June 2009	October 2009	July 2010	May 2011	May 2012	May 2013	May 2014	May/June/July 2015	May/August 2016	May/August 2017
Beaver Creek	--	NS	<0.02	<0.02	--	--	--	--	--	Discontinued*				
Big Hole Spring	--	0.0010	--	--	--	--	--	--	--	--	--	--	--	--
Candelaria A Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Candelaria B Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Corrigan Spring	--	<0.001	--	--	<0.02	--	--	<0.02	<0.02	--	--	--	<0.2	--
Crain Spring	--	0.0067	--	<0.02	<0.02	--	<0.02	--	--	<0.02	--	<0.2	<0.2	<0.0001
D8 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gov-1 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gov-2 Spring	--	--	--	--	--	--	--	--	--	<0.02	<0.02	--	<0.2	0.0002
Gov-3 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grassy Spring	--	--	<0.02	--	--	--	--	--	--	<0.02	<0.02	<0.2	<0.2	<0.0001
High Watson Spring	--	--	--	--	--	--	--	--	--	Discontinued**				
Miser Spring & Pipeline	--	--	--	--	--	--	--	--	--	Discontinued**				
Munger Spring 1	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2	0.00039
Munger Spring 2	--	--	--	--	--	--	--	--	--	<0.02	<0.02	<0.2	<0.2	0.0064
Munger Spring 3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Munger Spring 4	--	--	--	--	--	--	--	--	--	--	--	<0.2	--	0.0001
NW John Grub Spring	0.015	0.0016	0.30	0.0300	0.07	--	0.07	0.03	0.27	--	--	--	--	--
Ramona Leonard Spring (Mona)	<0.0005	<0.001	<0.02	<0.02	<0.02	<0.02	--	--	--	--	--	--	--	--
Ramona Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SE John Grub Spring	<0.0005	0.0025	0.6500	<0.02	0.02	--	--	0.023	0.29	--	--	--	--	--
Section 10U Spring	<0.0005	0.0062	--	--	--	--	--	--	--	--	--	--	--	--
Section 14 (Reich) Spring	0.0006	<0.001	0.0200	0.0200	<0.02	--	--	--	--	<0.02	<0.02	<0.2	<0.2	0.0017
Seep Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spring 1212	0.0005	<0.001	--	--	--	--	--	--	--	--	--	--	--	--
Spring 3424	0.0017	0.0230	--	--	--	--	--	--	--	--	--	<0.2	<0.2	--
Thick Spring	--	<0.001	<0.02	--	<0.02	--	--	<0.02	<0.02	<0.02	<0.02	<0.2	<0.2	0.00087
Townsend Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vance Meadow Spring	--	0.0110	0.06	<0.02	<0.02	--	--	<0.02	<0.02	--	--	--	--	0.0018
Vance Spring #1	--	0.0220	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	<0.2	<0.2	0.00039
Vance Spring #2	--	--	--	--	--	--	--	--	--	--	--	<0.2	<0.2	<0.0001
Vaughn Spring	--	0.0037	--	--	--	--	--	--	--	--	--	--	--	--
Walt Spring #1	--	<0.001	--	--	--	--	--	<0.02	--	<0.02	--	<0.2	<0.2	<0.0001
Watson Well Spring	--	0.0160	--	<0.02	<0.02	<0.02	--	--	<0.02	--	<0.02	<0.2	<0.2	0.0011
Waypoint 0003 Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow Spring	--	<0.001	<0.02	<0.02	<0.02	--	<0.02	--	<0.02	<0.02	<0.02	<0.2	<0.2	0.0001
Wood/Corrigan Spring	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00029

**Notes:**  
mg/L - milligrams per liter  
-- denotes a sample was not collected/analyzed  
< - indicates not detected above the detection limit  
\* natural spring discontinued from sampling program due to its location in vicinity of Corrigan Spring  
\*\*natural spring discontinued from sampling program due to location of spring outside of Kf outcrop and/or BLM outcrop zone



**TABLE 7**  
**NATURAL SPRINGS ANALYTICAL RESULTS - MAJOR IONS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	Date	Cations				Anions				
		Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	
Beaver Creek	October 2008	35.0	10.70	8.60	1.90	<10	128.0	33.0	<10	
	May 2009	--	--	--	--	--	--	--	--	
	July 2010	--	--	--	--	--	--	--	--	
	May/June 2011	--	--	--	--	--	--	--	--	
	May 2012	--	--	--	--	--	--	--	--	
	May 2013	Discontinued*								
	May 2014	Discontinued*								
	May 2015	Discontinued*								
Corrigan Spring	May/June 2011	31.9	7.60	7.20	0.50	<10	64.0	19.0	<10	
	May 2012	21.9	5.02	4.23	1.10	<10	290.0	62.0	<10	
	May 2013	--	--	--	--	--	--	--	--	
	May 2014	--	--	--	--	--	--	--	--	
	June 2015	--	--	--	--	--	--	--	--	
	May 2016	14.9	3.36	<5.00	<5.00	<10.0	45.0	8.76	<1.00	
Crain Spring	October 2008	65.6	18.80	15.20	1.60	<10	214.0	98.0	<10	
	May 2009	74.7	21.10	19.60	1.40	<10	230.0	134.0	<10	
	July 2010	68.3	18.30	14.40	1.90	<10	190.0	76.0	<10	
	May 2011	--	--	--	--	--	--	--	--	
	May 2012	--	--	--	--	--	--	--	--	
	May 2013	79.5	21.90	22.50	2.55	<10	179.0	126.0	<10	
	May 2014	--	--	--	--	--	--	--	--	
	June 2015	71.5	21.70	22.00	2.03	<10	250.0	96.0	<20	
	May 2016	75	20.5	20.4	<5.00	40.0	260	85.2	1.45	
May 2017	63.4	16.7	15.7	1.31	<10.0	46.0	45.5	1.41		
Gov-1 Spring	May 2013	--	--	--	--	--	--	--	--	
	May 2014	--	--	--	--	--	--	--	--	
	May 2015	--	--	--	--	--	--	--	--	
	May 2016	--	--	--	--	--	--	--	--	
Gov-2 Spring	May 2013	80.9	24.60	16.00	1.50	<10	244.0	74.0	<10	
	May 2014	87.7	25.20	15.90	1.23	<10	272.0	72.0	<10	
	May 2015	--	--	--	--	--	--	--	--	
	May 2016	72.8	20.0	14.1	1.23	20.0	195	84.0	1.39	
	May 2017	89.2	24.0	15.1	1.18	<10.0	214	113	1.36	
Gov-3 Spring	May 2013	--	--	--	--	--	--	--	--	
	May 2014	--	--	--	--	--	--	--	--	
	May 2015	--	--	--	--	--	--	--	--	
	May 2016	--	--	--	--	--	--	--	--	
Grassy Spring	May 2012	95.1	27.90	23.80	2.89	12	246.0	158.0	<10	
	May 2013	108.0	34.70	32.10	4.25	<10	216.0	250.0	<10	
	May 2014	98.9	31.00	32.10	4.62	<10	248.0	176.0	50	
	June 2015	99.1	29.80	26.40	2.77	<10	290.0	166.0	120	
	May 2016	96.3	27.5	23.3	<5.00	<10	300	129	2.17	
	May 2017	110	31.5	27.4	2.46	<10.0	270	189	2.00	
Munger Spring 1	May 2014	73.7	15.90	20.90	2.76	<10	162.0	33.0	77	
	June 2015	78.1	17.00	22.00	2.56	<10	155.0	28.7	106	
	May 2016	70.2	13.9	21.3	2.24	<10	190	26.0	64.2	
	May 2017	55.4	11.3	19.4	2.17	<10.0	145	21.0	50.3	
Munger Spring 2	May 2013	47.5	8.55	19.60	1.70	<10	117.0	19.0	36	
	May 2014	--	--	--	--	--	--	--	--	
	June 2015	42.8	8.07	18.70	2.94	<10	150.0	13.2	34	
	May 2016	48.6	8.77	18.80	1.87	<10.0	190	15.4	16.9	
	May 2017	50.9	10.0	18.6	3.03	<10.0	195	6.58	6.07	
Munger Spring 4	June 2015	78.2	11.10	12.50	1.67	<10	260.0	<10.0	<10	
	May 2016	--	--	--	--	--	--	--	--	
	May 2017	100	13.4	14.2	1.85	<10.0	286	8.60	1.94	



**TABLE 7**  
**NATURAL SPRINGS ANALYTICAL RESULTS - MAJOR IONS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	Date	Cations				Anions			
		Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)
NW John Grub Spring	October 2008	59.1	12.80	<0.5	0.60	<10	187.0	54.0	<10
	May 2009	30.9	16.00	11.30	0.60	<10	117.0	67.0	<10
	July 2010	66.1	14.00	12.00	0.80	<10	175.0	71.0	<10
	May 2011	72.9	18.70	14.50	1.60	<10	230.0	106.0	<10
	May 2012	84.7	21.90	16.70	2.27	<10	290.0	62.0	<10
	May 2013	--	--	--	--	--	--	--	--
	May 2014	--	--	--	--	--	--	--	--
	May 2015	--	--	--	--	--	--	--	--
	May 2016	--	--	--	--	--	--	--	--
Ramona Leonard Spring	October 2008	138.0	27.70	9.60	1.60	<10	200.0	340.0	<10
	May 2009	120.0	23.10	8.50	1.30	<10	181.0	250.0	<10
	July 2010	--	--	--	--	--	--	--	--
	May 2011	--	--	--	--	--	--	--	--
	May 2012	--	--	--	--	--	--	--	--
	May 2013	--	--	--	--	--	--	--	--
	May 2014	--	--	--	--	--	--	--	--
	May 2015	--	--	--	--	--	--	--	--
	May 2016	--	--	--	--	--	--	--	--
SE John Grub Spring	October 2008	65.3	16.90	14.00	0.70	<10	214.0	78.0	<10
	May 2009	72.2	16.60	14.30	0.60	10	238.0	57.0	<10
	July 2010	--	--	--	--	--	--	--	--
	May 2011	56.1	12.60	11.20	1.30	<10	171.0	60.0	<10
	May 2012	101.0	27.80	22.00	3.79	<10	300.0	108.0	<10
	May 2013	--	--	--	--	--	--	--	--
	May 2014	--	--	--	--	--	--	--	--
	May 2015	--	--	--	--	--	--	--	--
	May 2016	--	--	--	--	--	--	--	--
Section 14 (Reich) Spring	October 2008	48.8	6.00	27.00	0.60	<10	189.0	43.0	<10
	May 2009	62.8	6.70	24.50	1.00	10	188.0	61.0	<10
	July 2010	57.5	6.10	24.70	0.80	<10	169.0	55.0	<10
	May 2011	--	--	--	--	--	--	--	--
	May 2012	--	--	--	--	--	--	--	--
	May 2013	93.8	10.20	26.10	1.25	<10	240.0	75.0	<10
	May 2014	84.5	9.24	26.80	1.19	<10	222.0	66.0	<10
	May 2015	86.6	9.19	25.20	1.51	<10	252.0	65.0	<10
	May 2016	77.0	9.70	28.80	<5.00	20.0	207	58.4	1.36
Spring 3424	July 2015	124.0	53.00	24.40	2.19	<10	250.0	270.0	<10
	May 2016	109	42.8	24.8	2.57	<10	300	224	2.87
Thick Spring	October 2008	--	--	--	--	--	--	--	--
	May 2009	44.6	8.20	14.40	0.80	<10	124.0	28.0	22
	July 2010	--	--	--	--	--	--	--	--
	May 2011	48.7	9.70	15.60	<0.5	<10	136.0	31.0	32
	May 2012	51.6	10.50	16.20	1.39	<10	126.0	23.0	36
	May 2013	49.9	10.40	17.10	2.22	<10	131.0	25.0	40
	May 2014	--	--	--	--	--	--	--	--
	May 2015	65.3	14.20	18.30	1.50	<10	132.0	25.7	71.0
	May 2016	72.9	13.70	19.00	1.10	<10	130.0	28.0	77.6
May 2017	84.2	15.3	24.1	<1.00	<10.0	146	42.0	94.0	
Vance Meadow Spring	October 2008	68.3	9.00	14.40	2.60	<10	244.0	11.0	<10
	May 2009	66.7	8.20	14.00	2.70	<10	236.0	11.0	<10
	July 2010	--	--	--	--	--	--	--	--
	May 2011	50.1	6.70	12.00	2.20	<10	178.0	<10	<10
	May 2012	47.8	8.49	16.50	2.36	<10	144.0	27.0	<10
	May 2013	--	--	--	--	--	--	--	--
	May 2014	--	--	--	--	--	--	--	--
	May 2015	--	--	--	--	--	--	--	--
	May 2016	--	--	--	--	--	--	--	--
May 2017	45.2	6.26	10.9	2.36	<10.0	161	4.70	<1.00	



**TABLE 7**  
**NATURAL SPRINGS ANALYTICAL RESULTS - MAJOR IONS**  
**2017 OUTCROP ZONE REPORT**  
**ARCHULETA COUNTY, COLORADO**

**PETROX RESOURCES, INC.**

Natural Spring	Date	Cations				Anions			
		Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)
Vance Spring #1	October 2008	52.5	6.60	13.10	5.90	<10	182.0	19.0	<10
	May 2009	57.8	7.70	14.30	4.20	<10	208.0	<10	<10
	July 2010	63.4	8.40	14.90	5.80	<10	226.0	<10	<10
	May/June 2011	36.6	4.80	10.60	7.50	<10	133.0	16.0	<10
	May 2012	40.6	5.16	12.20	7.89	<10	125.0	25.0	<10
	May 2013	47.6	5.90	13.30	12.30	<10	98.0	73.0	<10
	May 2014	45.2	5.44	12.40	8.75	<10	152.0	26.0	<10
	June 2015	44.7	5.59	13.40	8.48	<10	170.0	16.9	<10
	May 2016	58.8	7.33	13.9	10.7	60.0	230	12.5	1.79
May 2017	43.9	6.04	12.8	18.0	<10.0	157	9.35	6.32	
Vance Spring #2	May 2016	66.1	11.8	10.5	<5.00	<10.0	270	53.3	1.17
	May 2017	50.3	9.45	10.0	3.59	<10.0	158	36.9	1.05
Walt Spring #1	May 2011	43.8	13.60	11.70	0.60	<10	141.0	65.0	<10
	May 2012	--	--	--	--	--	--	--	--
	May 2013	52.0	16.70	13.20	1.61	<10	149.0	84.0	<10
	May 2014	--	--	--	--	--	--	--	--
	May 2015	41.4	13.20	11.10	1.41	<10	140.0	47.9	<10
	May 2016	44.2	13.50	12.2	1.23	<10	136	50.5	1.18
	May 2017	53.4	16.5	11.5	1.37	<10.0	166	56.2	1.40
Watson Well Spring	October 2008	109.0	38.70	25.50	2.40	<10	394.0	134.0	<10
	May 2009	86.8	30.70	20.50	1.90	<10	288.0	94.0	<10
	July 2010	78.1	26.90	18.10	2.50	12	218.0	84.0	<10
	May 2011	--	--	--	--	--	--	--	--
	May 2012	102.0	39.40	21.40	2.04	<10	348.0	118.0	<10
	May 2013	104.0	41.20	20.00	2.35	<10	326.0	108.0	<10
	May 2014	103.0	40.10	20.40	2.36	<10	324.0	78.0	<10
	June 2015	98.4	39.20	19.20	2.36	<10	340.0	85.6	<10
	May 2016	104	39.2	17.8	<5.00	40.0	380	76.0	2.16
May 2017	54.7	19.6	18.0	1.64	<10.0	183	50.2	2.54	
Willow Spring	October 2008	39.3	5.80	16.50	1.40	<10	157.0	19.0	<10
	May 2009	34.5	5.10	16.10	1.40	<10	122.0	18.0	<10
	July 2010	39.2	5.70	16.30	1.80	<10	131.0	16.0	<10
	May 2011	32.7	5.20	14.90	1.00	<10	129.0	16.0	<10
	May 2012	38.0	5.81	16.90	1.17	<10	132.0	20.0	<10
	May 2013	35.7	5.72	17.00	1.23	<10	124.0	27.0	<10
	May 2014	--	--	--	--	--	--	--	--
	May 2015	--	--	--	--	--	--	--	--
	May 2016	--	--	--	--	--	--	--	--
May 2017	30.5	4.61	15.2	1.72	<10.0	108	15.7	1.63	
Wood Corigan Spring	October 2008	--	--	--	--	--	--	--	--
	May 2009	65.7	11.60	10.70	1.60	<10	142.0	122.0	<10
	July 2010	--	--	--	--	--	--	--	--
	May 2011	66.9	12.80	10.40	0.80	<10	135.0	126.0	<10
	May 2012	21.9	5.02	4.23	1.10	<10	64.0	19.0	<10
	May 2013	--	--	--	--	--	--	--	--
	May 2014	--	--	--	--	--	--	--	--
	June 2015	--	--	--	--	--	--	--	--
May 2016	--	--	--	--	--	--	--	--	
May 2017	66.0	12.4	9.45	1.79	<10.0	144	73.8	1.81	

**Notes:**

mg/L - milligrams per liter

-- denotes not sampled/analyzed

< - less than the laboratory reporting limit

\* natural spring discontinued from sampling program due to its location in vicinity of Corrigan Spring



**APPENDIX A**  
**FLUX METER DATA**



Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
BeaverCreek080117_01	BC	1234753.972448	2424954.770648	01-08-2017 10:17:03	0.000000	0.004102	0.545084	782.6	30.2	0	0.017	2.259
BeaverCreek080117_02	BC	1234970.47818	2425005.010986	01-08-2017 10:20:41	0.000000	0.003126	0.351536	783.2	31.5	-0.52	0.013	1.462
BeaverCreek080117_03	BC	1234983.41838	2424790.281612	01-08-2017 10:24:47	0.000000	0.001674	0.362056	782.0	32.7	-0.001	0.007	1.514
BeaverCreek080117_04	BC	1235197.489363	2424949.056575	01-08-2017 10:29:21	0.000000	0.004052	0.805415	782.0	33.7	-0.84	0.017	3.379
BeaverCreek080117_05	BC	1235199.750281	2424789.309811	01-08-2017 10:32:17	0.000000	0.003802	0.573371	781.6	34.5	0	0.016	2.413
BeaverCreek080117_06	BC	1235174.534597	2424559.565166	01-08-2017 10:35:36	0.000000	0.002609	0.428857	782.0	35.2	-1.576	0.011	1.808
BeaverCreek080117_07	BC	1235216.74773	2424399.807441	01-08-2017 10:38:44	0.000000	0.002603	0.368414	781.6	35.8	-0.623	0.011	1.557
BeaverCreek080117_08	BC	1235380.342295	2424377.368346	01-08-2017 10:41:56	0.000000	0.001181	0.482771	781.7	36.4	-1.065	0.005	2.044
BeaverCreek080117_09	BC	1235379.357375	2424612.550077	01-08-2017 10:45:10	0.000000	0.003771	0.321908	781.2	36.9	0	0.016	1.366
BeaverCreek080117_10	BC	1235359.161703	2424805.110975	01-08-2017 10:49:34	0.000000	0.000707	0.526453	782.1	37.4	-0.848	0.003	2.235
BeaverCreek080117_11	BC	1235555.576468	2424786.151044	01-08-2017 10:53:10	0.000000	0.002588	1.176455	782.5	37.9	-0.97	0.011	5
BeaverCreek080117_12	BC	1235578.717705	2424601.664062	01-08-2017 10:56:32	0.000000	0.003055	0.850841	782.2	38.2	-1.941	0.013	3.621
BeaverCreek080117_13	BC	1235586.61428	2424361.072541	01-08-2017 11:00:31	0.000000	0.004684	0.774425	780.8	38.7	-0.801	0.02	3.307
BeaverCreek080117_14	BC	1235782.655117	2424414.980606	01-08-2017 11:03:30	0.000000	0.003274	0.407441	780.6	39.0	-1.143	0.014	1.742
BeaverCreek080117_15	BC	1235758.963476	2424578.615134	01-08-2017 11:06:53	0.000000	0.003735	0.439574	780.1	39.4	-3.57	0.016	1.883
BeaverCreek080117_16	BC	1235755.568533	2424761.688298	01-08-2017 11:09:46	0.000000	0.002563	0.337589	779.3	39.7	-2.167	0.011	1.449
BeaverCreek080117_17	BC	1235520.935555	2424967.813425	01-08-2017 11:13:50	0.000000	0.003260	2.229283	780.1	40.2	-1.719	0.014	9.574
BeaverCreek080117_18	BC	1235396.325942	2425029.643579	01-08-2017 11:17:01	0.000000	0.002096	0.527901	780.9	40.5	-3.53	0.009	2.267
BeaverCreek080117_19	BC	1235355.285872	2425143.400537	01-08-2017 11:19:42	0.000000	0.004426	0.968962	781.6	40.7	-0.846	0.019	4.16
BeaverCreek080117_20	BC	1235554.938114	2425191.597597	01-08-2017 11:22:48	0.000000	0.005584	0.574466	781.5	41.0	-1.95	0.024	2.469
BeaverCreek080117_21	BC	1235388.03517	2425330.240512	01-08-2017 11:27:00	0.000000	0.001859	0.542458	781.3	41.4	-2.169	0.008	2.335
BeaverCreek080117_22	BC	1235228.537833	2425158.703433	01-08-2017 11:30:12	0.000000	0.001394	0.313708	782.0	41.6	-0.172	0.006	1.35
BeaverCreek080117_23	BC	1235167.27731	2425340.802074	01-08-2017 11:33:52	0.000000	0.001395	0.327968	782.7	41.8	-2.53	0.006	1.411
BeaverCreek080117_24	BC	1235029.690925	2425412.146186	01-08-2017 11:37:44	0.000000	0.002787	0.905869	782.2	41.9	-1.011	0.012	3.901
BeaverCreek080117_25	BC	1234952.636833	2425184.490642	01-08-2017 11:43:47	0.000000	0.003726	1.089426	784.7	42.0	-1.916	0.016	4.678
BeaverCreek080117_26	BC	1234776.871394	2425149.258116	01-08-2017 11:46:47	0.000000	0.003490	0.432255	783.9	42.0	-1.789	0.015	1.858

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
BeaverCreek080117_27	BC	1234768.672528	2425330.229874	01-08-2017 11:49:59	0.000000	0.001626	0.265756	783.0	42.1	-2.464	0.007	1.144
BeaverCreek080117_28	BC	1234752.219826	2425570.508372	01-08-2017 11:57:31	0.000000	0.001161	0.390920	783.4	42.3	-1.754	0.005	1.683
BeaverCreek080117_29	BC	1234936.13443	2425556.930972	01-08-2017 12:00:55	0.000000	0.000464	0.397847	781.7	42.2	-0.214	0.002	1.716
BeaverCreek080117_30	BC	1235192.602806	2425667.881834	01-08-2017 12:05:11	0.000000	0.003249	0.653313	782.5	42.2	-2.886	0.014	2.815
BeaverCreek080117_31	BC	1235177.16544	2425752.535655	01-08-2017 12:07:13	0.000000	0.002090	0.554763	782.7	42.1	-1.832	0.009	2.389
BeaverCreek080117_32	BC	1235417.478159	2425592.653752	01-08-2017 12:12:59	0.000000	0.000927	0.466272	782.0	42.3	-1.77	0.004	2.011
BeaverCreek080117_33	BC	1235382.424643	2425811.827704	01-08-2017 12:16:25	0.000000	0.003243	0.631680	781.5	42.4	-1.207	0.014	2.727
BeaverCreek080117_34	BC	1235352.173702	2426007.877222	01-08-2017 12:20:00	0.000000	0.000927	0.430116	782.1	42.5	-3.015	0.004	1.856
BeaverCreek080117_35	BC	1235180.893613	2425965.37962	01-08-2017 12:23:56	0.000000	0.001854	0.710200	782.5	42.6	-2.345	0.008	3.064
BeaverCreek080117_36	BC	1235167.653542	2426143.241554	01-08-2017 12:27:40	0.000000	0.002777	1.266016	781.1	42.5	-1.376	0.012	5.47
BeaverCreek080117_37	BC	1235143.198281	2426317.426471	01-08-2017 12:31:24	0.000000	0.000000	0.572079	778.5	42.5	-1.036	-0.005	2.48
BeaverCreek080117_38	BC	1235035.382419	2425990.010877	01-08-2017 12:37:28	0.000000	0.004371	0.617890	776.6	42.6	-1.455	0.019	2.686
BeaverCreek080117_39	BC	1234970.441579	2426132.128488	01-08-2017 12:43:35	0.000000	0.000462	0.716799	780.1	42.5	-2.029	0.002	3.101
BeaverCreek080117_40	BC	1234971.375354	2426336.632174	01-08-2017 12:48:01	0.000000	0.000693	0.212154	778.6	42.3	-1.495	0.003	0.919
BeaverCreek080117_41	BC	1234926.576387	2426507.992154	01-08-2017 12:51:40	0.000000	0.000462	0.319804	778.6	42.0	-1.181	0.002	1.384
BeaverCreek080117_42	BC	1234778.992607	2426380.201213	01-08-2017 12:56:02	0.000000	0.000692	0.141088	776.3	41.8	-1.057	0.003	0.612
BeaverCreek080117_43	BC	1234708.350777	2426569.689781	01-08-2017 12:59:46	0.000000	0.002074	0.299366	775.3	41.5	-0.635	0.009	1.299
BeaverCreek080117_44	BC	1234609.39861	2426517.220517	01-08-2017 13:03:07	0.000000	0.001611	0.336076	773.9	41.3	-2.008	0.007	1.46
BeaverCreek080117_45	BC	1234608.259427	2426376.678471	01-08-2017 13:07:31	0.000000	0.000231	0.273248	775.0	41.2	-1.805	0.001	1.185
BeaverCreek080117_46	BC	1234773.702917	2426180.595223	01-08-2017 13:11:40	0.000000	0.002766	0.875096	774.6	41.2	-0.001	0.012	3.797
BeaverCreek080117_47	BC	1234579.516477	2426127.690084	01-08-2017 13:15:38	0.000000	0.004387	0.706702	776.2	41.3	-2.214	0.019	3.061
BeaverCreek080117_48	BC	1234542.777442	2426012.612435	01-08-2017 13:18:58	0.000000	0.003008	0.939340	778.1	41.4	-1.02	0.013	4.06
BeaverCreek080117_49	BC	1234744.068104	2425900.34795	01-08-2017 13:22:30	0.000000	0.005322	0.562326	778.5	41.5	-0.802	0.023	2.43
BeaverCreek080117_50	BC	1234777.589299	2425747.249261	01-08-2017 13:25:21	0.000000	0.003012	0.414909	779.6	41.6	0	0.013	1.791
BeaverCreek080117_51	BC	1234949.996489	2425759.057717	01-08-2017 13:28:19	0.000000	0.005332	0.191489	780.4	41.7	-1.311	0.023	0.826
PetersonGulch080217_01	PetG	1205843.848203	2454164.058959	02-08-2017 09:13:00	0.000000	0.000736	0.433012	793.0	29.0	-1.452	0.003	1.764

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080217_02	PetG	1205779.342396	2454390.926616	02-08-2017 09:16:32	0.000000	0.000737	0.535644	793.4	29.0	-1.078	0.003	2.181
PetersonGulch080217_03	PetG	1205748.328158	2454645.220008	02-08-2017 09:19:18	0.000000	0.001719	1.241388	793.6	29.1	-0.865	0.007	5.055
PetersonGulch080217_04	PetG	1205746.13989	2454806.411761	02-08-2017 09:21:51	0.000000	0.000982	0.468933	793.4	29.1	-0.052	0.004	1.91
PetersonGulch080217_05	PetG	1205535.265615	2454955.9616	02-08-2017 09:24:42	0.000000	0.001228	0.349384	793.7	29.2	-0.787	0.005	1.423
PetersonGulch080217_06	PetG	1205570.041127	2454761.022039	02-08-2017 09:26:53	0.000000	0.001228	0.615459	794.5	29.3	-0.55	0.005	2.505
PetersonGulch080217_07	PetG	1205546.574084	2454567.170919	02-08-2017 09:29:21	0.000000	0.001473	0.351232	793.7	29.3	-2.167	0.006	1.431
PetersonGulch080217_08	PetG	1205498.989118	2454407.680118	02-08-2017 09:31:36	0.000000	0.000981	0.284867	793.7	29.4	0	0.004	1.161
PetersonGulch080217_09	PetG	1205543.499213	2454146.459741	02-08-2017 09:34:26	0.000000	0.001472	0.455757	794.0	29.6	0	0.006	1.858
PetersonGulch080217_10	PetG	1205347.526543	2454374.304325	02-08-2017 09:37:25	0.000000	0.001715	0.238823	793.4	29.8	-0.908	0.007	0.975
PetersonGulch080217_100	PetG	1202965.933156	2459586.687	02-08-2017 13:23:56	0.000000	0.001406	0.418546	795.4	44.3	-0.059	0.006	1.786
PetersonGulch080217_101	PetG	1202923.141358	2459766.521407	02-08-2017 13:25:45	0.000000	0.004222	0.596472	796.1	44.3	-0.697	0.018	2.543
PetersonGulch080217_102	PetG	1202706.670085	2460000.125627	02-08-2017 13:27:47	0.000000	0.001406	0.252782	795.4	44.4	-0.075	0.006	1.079
PetersonGulch080217_103	PetG	1202752.696282	2459772.867264	02-08-2017 13:29:38	0.000000	0.005389	0.687681	795.5	44.4	-0.121	0.023	2.935
PetersonGulch080217_104	PetG	1202765.955816	2459562.253088	02-08-2017 13:31:22	0.000000	0.006792	0.399546	795.4	44.5	-0.754	0.029	1.706
PetersonGulch080217_105	PetG	1202735.600455	2459324.94373	02-08-2017 13:33:07	0.000000	0.003984	0.418832	796.0	44.5	-1.413	0.017	1.787
PetersonGulch080217_106	PetG	1202766.29299	2459189.45967	02-08-2017 13:34:47	0.000000	0.005151	0.343741	795.5	44.6	-0.362	0.022	1.468
PetersonGulch080217_107	PetG	1202753.449274	2459029.120088	02-08-2017 13:36:20	0.000000	0.008430	0.438809	795.5	44.6	-0.962	0.036	1.874
PetersonGulch080217_108	PetG	1202553.035527	2458959.302828	02-08-2017 13:38:31	0.000000	0.000234	0.203434	794.9	44.8	-1.035	0.001	0.87
PetersonGulch080217_109	PetG	1202548.977308	2459147.903311	02-08-2017 13:40:18	0.000000	0.002807	0.535377	795.1	44.8	-1.222	0.012	2.289
PetersonGulch080217_11	PetG	1205349.469157	2454642.125221	02-08-2017 09:40:25	0.000000	0.003430	0.245737	794.1	30.0	-1.873	0.014	1.003
PetersonGulch080217_110	PetG	1202558.033626	2459379.99412	02-08-2017 13:41:59	0.000000	0.004679	0.408736	795.6	44.9	-0.759	0.02	1.747
PetersonGulch080217_111	PetG	1202540.638913	2459559.440058	02-08-2017 13:43:35	0.000000	0.007721	0.626090	795.6	44.9	-0.553	0.033	2.676
PetersonGulch080217_112	PetG	1202532.935096	2459741.338718	02-08-2017 13:44:56	0.000000	0.002808	0.343460	795.6	44.9	0	0.012	1.468
PetersonGulch080217_113	PetG	1202525.104759	2459981.700511	02-08-2017 13:46:27	0.000000	0.006551	0.386510	795.6	44.9	-0.001	0.028	1.652
PetersonGulch080217_114	PetG	1202519.695088	2460176.938516	02-08-2017 13:48:08	0.000000	0.007723	0.218812	795.8	44.9	-0.157	0.033	0.935
PetersonGulch080217_115	PetG	1202351.634175	2460174.548759	02-08-2017 13:50:00	0.000000	0.003983	0.236880	797.0	45.0	0	0.017	1.011

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080217_116	PetG	1202175.485368	2460515.347792	02-08-2017 13:52:15	0.000000	0.000234	0.277656	796.6	45.1	-0.309	0.001	1.186
PetersonGulch080217_117	PetG	1202137.026275	2460337.953511	02-08-2017 13:53:57	0.000000	0.004681	0.351993	796.6	45.2	0	0.02	1.504
PetersonGulch080217_118	PetG	1202164.138648	2460192.021636	02-08-2017 13:55:29	0.000000	0.007019	0.449212	796.6	45.3	-0.001	0.03	1.92
PetersonGulch080217_119	PetG	1202185.060459	2460022.538664	02-08-2017 13:57:00	0.000000	0.006551	0.365921	796.6	45.3	-0.001	0.028	1.564
PetersonGulch080217_12	PetG	1205342.962977	2454768.386076	02-08-2017 09:42:43	0.000000	0.000245	0.418484	794.2	30.2	-1.48	0.001	1.709
PetersonGulch080217_120	PetG	1202363.080072	2459983.735265	02-08-2017 13:58:34	0.000000	0.003274	0.244884	796.6	45.4	-0.353	0.014	1.047
PetersonGulch080217_121	PetG	1202344.789877	2459807.070231	02-08-2017 14:00:06	0.000000	0.007718	0.369782	796.6	45.4	0	0.033	1.581
PetersonGulch080217_122	PetG	1202163.22738	2459801.905768	02-08-2017 14:01:41	0.000000	0.005900	0.337959	803.8	45.4	-0.485	0.025	1.432
PetersonGulch080217_123	PetG	1202145.415271	2459568.970806	02-08-2017 14:03:50	0.000000	0.001634	0.148895	795.1	45.5	-0.895	0.007	0.638
PetersonGulch080217_124	PetG	1202129.748171	2459354.56348	02-08-2017 14:05:44	0.000000	0.000000	0.496501	794.4	45.6	-0.397	-0.001	2.13
PetersonGulch080217_125	PetG	1202343.460888	2459371.982723	02-08-2017 14:07:42	0.000000	0.001632	0.675139	794.5	45.6	0	0.007	2.896
PetersonGulch080217_126	PetG	1202351.535498	2459570.214139	02-08-2017 14:09:32	0.000000	0.003269	0.264550	795.5	45.5	-0.583	0.014	1.133
PetersonGulch080217_13	PetG	1205308.66557	2454953.8352	02-08-2017 09:44:51	0.000000	0.002939	0.310756	794.5	30.3	-1.189	0.012	1.269
PetersonGulch080217_14	PetG	1205147.504518	2454941.044169	02-08-2017 09:47:20	0.000000	0.003180	0.504117	794.1	30.5	-1.015	0.013	2.061
PetersonGulch080217_15	PetG	1205129.3887	2454747.81081	02-08-2017 09:49:30	0.000000	0.001713	0.399323	794.9	30.7	-5.589	0.007	1.632
PetersonGulch080217_16	PetG	1205150.501885	2454571.713858	02-08-2017 09:52:15	0.000000	0.001466	0.499301	794.1	30.9	-2.667	0.006	2.044
PetersonGulch080217_17	PetG	1204874.205271	2454749.314782	02-08-2017 09:55:34	0.000000	0.001951	0.832688	793.7	31.3	-0.838	0.008	3.415
PetersonGulch080217_18	PetG	1204779.558274	2454933.65219	02-08-2017 09:58:03	0.000000	0.001463	0.277669	793.8	31.4	-2.438	0.006	1.139
PetersonGulch080217_19	PetG	1204901.412439	2454971.369575	02-08-2017 10:00:06	0.000000	0.001707	0.348644	794.4	31.6	-2.477	0.007	1.43
PetersonGulch080217_20	PetG	1205172.618792	2455182.469228	02-08-2017 10:03:09	0.000000	0.001949	0.721015	794.2	31.8	-2.201	0.008	2.96
PetersonGulch080217_21	PetG	1205179.812388	2455370.934396	02-08-2017 10:05:34	0.000000	0.001218	0.416152	794.2	31.9	-2.328	0.005	1.709
PetersonGulch080217_22	PetG	1205087.913428	2455589.329593	02-08-2017 10:08:01	0.000000	0.003650	0.381840	794.0	32.0	-1.441	0.015	1.569
PetersonGulch080217_23	PetG	1198937.550698	2461944.626035	02-08-2017 10:10:19	0.000000	0.001216	0.659303	794.0	32.1	-1.515	0.005	2.71
PetersonGulch080217_24	PetG	1204963.152424	2456006.13506	02-08-2017 10:13:02	0.000000	0.004134	0.353864	794.0	32.2	-2.001	0.017	1.455
PetersonGulch080217_25	PetG	1204928.771306	2456180.001612	02-08-2017 10:15:11	0.000000	0.000000	0.428658	794.5	32.3	-0.949	-0.004	1.762
PetersonGulch080217_26	PetG	1204722.272973	2456187.635739	02-08-2017 10:17:31	0.000000	0.001949	0.343429	795.7	32.4	-0.763	0.008	1.41

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080217_27	PetG	1204710.763295	2456007.606084	02-08-2017 10:19:35	0.000000	0.003404	0.433505	794.8	32.6	-1.134	0.014	1.783
PetersonGulch080217_28	PetG	1204778.886309	2455770.935942	02-08-2017 10:22:09	0.000000	0.002672	0.180461	794.5	32.8	-0.924	0.011	0.743
PetersonGulch080217_29	PetG	1204929.231058	2455771.902842	02-08-2017 10:24:15	0.000000	0.003638	0.535002	794.1	33.1	-2.089	0.015	2.206
PetersonGulch080217_30	PetG	1204919.148516	2455595.428759	02-08-2017 10:26:34	0.000000	0.004363	0.323127	794.5	33.4	-1.026	0.018	1.333
PetersonGulch080217_31	PetG	1204744.903882	2455567.35274	02-08-2017 10:28:39	0.000000	0.000968	0.530487	794.6	33.8	-0.689	0.004	2.191
PetersonGulch080217_32	PetG	1204770.550858	2455349.980557	02-08-2017 10:30:55	0.000000	0.001692	0.160487	794.5	34.3	-1.188	0.007	0.664
PetersonGulch080217_33	PetG	1204922.67575	2455400.715816	02-08-2017 10:32:55	0.000000	0.000725	1.103987	795.3	34.7	-0.709	0.003	4.569
PetersonGulch080217_34	PetG	1204950.144268	2455213.747149	02-08-2017 10:35:02	0.000000	0.003859	0.333525	794.8	35.1	-1.072	0.016	1.383
PetersonGulch080217_35	PetG	1204749.943587	2455171.958687	02-08-2017 10:37:11	0.000000	0.000724	0.121143	796.1	35.4	-2.688	0.003	0.502
PetersonGulch080217_36	PetG	1204598.838414	2455393.883656	02-08-2017 10:39:52	0.000000	0.001683	0.295732	794.2	35.8	0	0.007	1.23
PetersonGulch080217_37	PetG	1204488.401014	2455549.643237	02-08-2017 10:42:05	0.000000	0.002163	0.349033	794.8	36.1	-1.512	0.009	1.452
PetersonGulch080217_38	PetG	1204381.985225	2455761.155257	02-08-2017 10:46:27	0.000000	0.000481	0.331588	795.5	36.5	-0.176	0.002	1.38
PetersonGulch080217_39	PetG	1204521.981597	2455780.223609	02-08-2017 10:55:52	0.000000	0.000000	0.411694	794.8	36.7	-1.893	0	1.716
PetersonGulch080217_40	PetG	1204543.312984	2455995.462056	02-08-2017 10:58:04	0.000000	0.004318	0.473806	794.5	36.6	-3.826	0.018	1.975
PetersonGulch080217_41	PetG	1204556.440623	2456194.60099	02-08-2017 11:00:19	0.000000	0.000480	0.338259	794.8	36.5	-4.932	0.002	1.409
PetersonGulch080217_42	PetG	1204544.779186	2456375.097067	02-08-2017 11:02:31	0.000000	0.000962	0.163004	795.7	36.4	-3.106	0.004	0.678
PetersonGulch080217_43	PetG	1204538.646198	2456609.171273	02-08-2017 11:04:53	0.000000	0.000000	0.245942	794.9	36.4	-2.979	0	1.024
PetersonGulch080217_44	PetG	1204376.858621	2456793.696599	02-08-2017 11:07:24	0.000000	0.002643	0.290244	795.2	36.4	-2.061	0.011	1.208
PetersonGulch080217_45	PetG	1204360.997284	2456564.513313	02-08-2017 11:09:41	0.000000	0.004568	0.329134	795.7	36.4	-0.406	0.019	1.369
PetersonGulch080217_46	PetG	1204323.999458	2456392.284679	02-08-2017 11:11:39	0.000000	0.003363	0.336531	795.0	36.4	-0.614	0.014	1.401
PetersonGulch080217_47	PetG	1204365.687985	2456168.347791	02-08-2017 11:13:51	0.000000	0.003602	0.154164	795.0	36.5	-1.84	0.015	0.642
PetersonGulch080217_48	PetG	1204342.615232	2456003.039207	02-08-2017 11:15:52	0.000000	0.002879	0.342402	794.9	36.7	-1.653	0.012	1.427
PetersonGulch080217_49	PetG	1204186.782236	2456171.447774	02-08-2017 11:18:33	0.000000	0.001438	0.333920	794.9	37.0	0	0.006	1.393
PetersonGulch080217_50	PetG	1204155.960708	2456341.012891	02-08-2017 11:20:50	0.000000	0.000958	0.041691	795.3	37.3	-1.644	0.004	0.174
PetersonGulch080217_51	PetG	1204181.494223	2456601.174875	02-08-2017 11:23:22	0.000000	0.002395	0.304872	795.7	37.6	-1.482	0.01	1.273
PetersonGulch080217_52	PetG	1204139.999274	2456793.414122	02-08-2017 11:25:57	0.000000	0.004301	0.220305	794.9	38.0	-2.338	0.018	0.922

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080217_53	PetG	1204134.869249	2457009.902565	02-08-2017 11:28:25	0.000000		0.194312	794.9	38.3	-1.184		0.814
PetersonGulch080217_54	PetG	1204149.679888	2457203.737617	02-08-2017 11:30:42	0.000000	0.005008	0.334353	794.9	38.6	-4.095	0.021	1.402
PetersonGulch080217_55	PetG	1204156.261184	2457398.677996	02-08-2017 11:32:58	0.000000	0.004767	0.212391	795.3	38.9	-2.03	0.02	0.891
PetersonGulch080217_56	PetG	1203957.516588	2457543.330565	02-08-2017 11:35:25	0.000000	0.003811	0.111241	795.5	39.2	-0.727	0.016	0.467
PetersonGulch080217_57	PetG	1203921.784604	2457354.238318	02-08-2017 11:37:32	0.000000	0.005472	0.439907	795.3	39.5	-3.486	0.023	1.849
PetersonGulch080217_58	PetG	1203945.832197	2457185.138074	02-08-2017 11:39:33	0.000000	0.000000	0.036387	795.5	39.7	-1.769	0	0.153
PetersonGulch080217_59	PetG	1203943.568806	2456952.680673	02-08-2017 11:42:20	0.000000	0.004273	0.258767	795.1	40.1	-2.909	0.018	1.09
PetersonGulch080217_60	PetG	1203931.696112	2456776.163228	02-08-2017 11:44:26	0.000000	0.001897	0.347933	795.1	40.4	-1.49	0.008	1.467
PetersonGulch080217_61	PetG	1203959.857678	2456565.365455	02-08-2017 11:46:31	0.000000	0.001659	0.662029	795.1	40.7	-3.772	0.007	2.794
PetersonGulch080217_62	PetG	1203954.295277	2456412.852805	02-08-2017 11:48:37	0.000000	0.000237	0.125975	795.1	40.9	-2.424	0.001	0.532
PetersonGulch080217_63	PetG	1203760.417201	2456730.543767	02-08-2017 11:51:37	0.000000	0.001420	0.307559	795.4	41.3	-2.147	0.006	1.3
PetersonGulch080217_64	PetG	1203783.505301	2456991.524615	02-08-2017 11:53:55	0.000000	0.002127	0.255252	795.1	41.5	-2.705	0.009	1.08
PetersonGulch080217_65	PetG	1203783.40404	2457190.202438	02-08-2017 11:56:04	0.000000	0.004018	0.273467	795.4	41.6	-5.061	0.017	1.157
PetersonGulch080217_66	PetG	1203763.747826	2457380.920163	02-08-2017 11:58:13	0.000000	0.001890	0.347745	795.0	41.6	-3.146	0.008	1.472
PetersonGulch080217_67	PetG	1203570.041359	2457202.432892	02-08-2017 12:00:36	0.000000	0.000473	0.030721	795.5	41.7	-2.627	0.002	0.13
PetersonGulch080217_68	PetG	1203547.130159	2457353.653916	02-08-2017 12:02:49	0.000000	0.000708	0.315140	794.9	41.8	-3.306	0.003	1.335
PetersonGulch080217_69	PetG	1203560.159118	2457564.376489	02-08-2017 12:05:18	0.000000	0.002597	0.582975	795.6	42.0	-2.164	0.011	2.469
PetersonGulch080217_70	PetG	1203742.139874	2457596.490067	02-08-2017 12:07:31	0.000000	0.001180	0.355155	795.4	42.1	-2.846	0.005	1.505
PetersonGulch080217_71	PetG	1203766.049938	2457799.190071	02-08-2017 12:09:54	0.000000	0.004481	0.210364	795.4	42.3	-2.873	0.019	0.892
PetersonGulch080217_72	PetG	1203765.246202	2457992.122742	02-08-2017 12:12:20	0.000000	0.001415	0.148801	795.6	42.4	-4.369	0.006	0.631
PetersonGulch080217_73	PetG	1203756.607275	2458214.722492	02-08-2017 12:14:51	0.000000	0.001885	0.224357	795.6	42.6	-2.799	0.008	0.952
PetersonGulch080217_74	PetG	1203753.490516	2458389.147832	02-08-2017 12:17:12	0.000000	0.000471	0.185424	795.9	42.8	-7.307	0.002	0.787
PetersonGulch080217_75	PetG	1203770.076809	2458595.471167	02-08-2017 12:20:10	0.000000	0.004006	0.246743	796.6	43.0	-4.688	0.017	1.047
PetersonGulch080217_76	PetG	1203562.205904	2458735.038344	02-08-2017 12:28:46	0.000000	0.000000	0.069861	795.6	43.2	0	0	0.297
PetersonGulch080217_77	PetG	1203517.618206	2458578.830507	02-08-2017 12:30:56	0.000000	0.003530	0.216251	795.9	43.2	0	0.015	0.919
PetersonGulch080217_78	PetG	1203555.229018	2458369.775	02-08-2017 12:33:18	0.000000	0.002118	0.101451	795.9	43.1	0	0.009	0.431

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080217_79	PetG	1203541.022704	2458173.338312	02-08-2017 12:35:30	0.000000	0.003060	0.545554	795.8	43.1	0	0.013	2.318
PetersonGulch080217_80	PetG	1203580.470057	2457961.481413	02-08-2017 12:37:38	0.000000	0.002587	0.496256	795.5	43.2	0	0.011	2.11
PetersonGulch080217_81	PetG	1203597.458517	2457775.146265	02-08-2017 12:39:42	0.000000	0.003526	0.454634	795.1	43.2	0	0.015	1.934
PetersonGulch080217_82	PetG	1203403.389602	2457781.429968	02-08-2017 12:41:56	0.000000	0.000470	0.018346	795.8	43.3	0	0.002	0.078
PetersonGulch080217_83	PetG	1203356.189327	2457980.673255	02-08-2017 12:44:24	0.000000	0.000235	0.000000	795.4	43.4	0	0.001	-0.175
PetersonGulch080217_84	PetG	1203365.613797	2458213.0091	02-08-2017 12:46:45	0.000000	0.000000	0.028186	795.2	43.5	0	-0.003	0.12
PetersonGulch080217_85	PetG	1203373.362904	2458389.697439	02-08-2017 12:48:46	0.000000	0.002115	0.146405	795.6	43.5	0	0.009	0.623
PetersonGulch080217_86	PetG	1203332.626673	2458552.320212	02-08-2017 12:50:52	0.000000	0.000000	0.397249	795.8	43.5	-3.895	-0.001	1.69
PetersonGulch080217_87	PetG	1203360.02587	2458757.48335	02-08-2017 12:53:30	0.000000	0.001175	0.267261	795.8	43.5	0	0.005	1.137
PetersonGulch080217_88	PetG	1203341.482576	2458963.944396	02-08-2017 12:55:52	0.000000	0.006812	0.782672	795.5	43.6	-1.252	0.029	3.332
PetersonGulch080217_89	PetG	1203140.812961	2459167.026966	02-08-2017 12:58:29	0.000000	0.001410	0.208692	795.9	43.6	-0.001	0.006	0.888
PetersonGulch080217_90	PetG	1203157.880438	2458964.615322	02-08-2017 13:00:40	0.000000	0.002819	0.304482	795.9	43.7	0	0.012	1.296
PetersonGulch080217_91	PetG	1203142.703968	2458786.962844	02-08-2017 13:03:08	0.000000	0.000235	0.026780	795.8	43.7	-1.543	0.001	0.114
PetersonGulch080217_92	PetG	1203144.476504	2458602.071652	02-08-2017 13:05:13	0.000000	0.003287	0.167631	795.6	43.8	-0.001	0.014	0.714
PetersonGulch080217_93	PetG	1203116.267206	2458348.048577	02-08-2017 13:07:54	0.000000	0.004695	0.665550	795.8	43.9	0	0.02	2.835
PetersonGulch080217_94	PetG	1203159.085265	2458176.113923	02-08-2017 13:10:08	0.000000	0.002813	0.373365	794.5	43.9	0	0.012	1.593
PetersonGulch080217_95	PetG	1202951.696535	2458581.770936	02-08-2017 13:13:52	0.000000	0.000937	0.210573	794.5	44.1	-5.047	0.004	0.899
PetersonGulch080217_96	PetG	1202943.638376	2458762.542157	02-08-2017 13:15:49	0.000000	0.007036	0.302538	795.5	44.1	0	0.03	1.29
PetersonGulch080217_97	PetG	1202953.031488	2458981.061624	02-08-2017 13:18:22	0.000000	0.000469	0.026480	795.1	44.2	0	0.002	0.113
PetersonGulch080217_98	PetG	1202946.097001	2459188.344721	02-08-2017 13:20:38	0.000000	0.005393	0.727782	795.8	44.3	-0.002	0.023	3.104
PetersonGulch080217_99	PetG	1202944.468279	2459411.681842	02-08-2017 13:22:30	0.000000	0.007030	0.292701	795.4	44.3	-1.131	0.03	1.249
PetersonGulch080317_127	PetG	1201901.76154	2459747.266546	03-08-2017 10:50:09	0.000000	0.000000	0.440761	795.6	27.7	-1.475	-0.014	1.782
PetersonGulch080317_128	PetG	1201757.510528	2459825.614904	03-08-2017 10:53:24	0.000000	0.002468	0.105141	796.0	28.5	-1.549	0.01	0.426
PetersonGulch080317_129	PetG	1201743.540141	2459951.106921	03-08-2017 10:55:49	0.000000	0.002955	0.369678	795.9	29.1	-0.096	0.012	1.501
PetersonGulch080317_130	PetG	1201915.913545	2459966.840649	03-08-2017 10:58:21	0.000000	0.000738	0.187148	796.3	29.7	0	0.003	0.761
PetersonGulch080317_131	PetG	1201948.161628	2460174.484371	03-08-2017 11:00:36	0.000000	0.000983	0.438054	797.1	30.3	-0.001	0.004	1.783

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080317_132	PetG	1201907.16712	2460416.464607	03-08-2017 11:02:49	0.000000	0.002209	0.065768	797.5	30.8	0	0.009	0.268
PetersonGulch080317_133	PetG	1201965.259343	2460546.73043	03-08-2017 11:05:01	0.000000	0.002695	0.089180	797.5	31.3	0	0.011	0.364
PetersonGulch080317_134	PetG	1201506.634531	2460783.368277	03-08-2017 11:07:21	0.000000	0.000979	0.070942	797.6	31.8	-4.973	0.004	0.29
PetersonGulch080317_135	PetG	1201700.231808	2460408.675511	03-08-2017 11:09:27	0.000000	0.002198	0.504513	797.5	32.3	0	0.009	2.066
PetersonGulch080317_136	PetG	1201732.956196	2460195.45468	03-08-2017 11:11:35	0.000000	0.002194	0.112391	797.5	32.8	0	0.009	0.461
PetersonGulch080317_137	PetG	1201551.256376	2460154.861014	03-08-2017 11:14:24	0.000000	0.002918	0.350937	797.1	33.4	-0.566	0.012	1.443
PetersonGulch080317_138	PetG	1201541.469971	2460387.179735	03-08-2017 11:17:38	0.000000	0.003880	0.421991	796.7	34.1	-1.587	0.016	1.74
PetersonGulch080317_139	PetG	1201541.838241	2460601.502543	03-08-2017 11:20:01	0.000000	0.001454	0.224922	797.5	34.6	-2.532	0.006	0.928
PetersonGulch080317_140	PetG	1201506.634531	2460783.368277	03-08-2017 11:23:16	0.000000	0.001210	0.301968	797.7	35.2	0	0.005	1.248
PetersonGulch080317_141	PetG	1201525.644122	2460957.08276	03-08-2017 11:25:43	0.000000	0.000242	0.649912	798.7	35.7	-0.069	0.001	2.687
PetersonGulch080317_142	PetG	1201351.023798	2460918.376248	03-08-2017 11:28:05	0.000000	0.001447	0.306057	797.7	36.2	-1.992	0.006	1.269
PetersonGulch080317_143	PetG	1201335.320777	2460788.645102	03-08-2017 11:34:55	0.000000	0.001682	0.314122	798.0	37.4	0	0.007	1.307
PetersonGulch080317_144	PetG	1201308.306039	2460591.264041	03-08-2017 11:37:12	0.000000	0.002401	0.304193	798.2	37.8	-0.001	0.01	1.267
PetersonGulch080317_145	PetG	1201325.784325	2460369.439351	03-08-2017 11:39:43	0.000000	0.001197	0.368560	797.2	38.2	-0.482	0.005	1.539
PetersonGulch080317_146	PetG	1201143.09822	2460334.378209	03-08-2017 11:42:20	0.000000	0.002151	0.491035	796.7	38.7	-0.699	0.009	2.055
PetersonGulch080317_147	PetG	1200931.908195	2460370.100138	03-08-2017 11:46:39	0.000000	0.003337	0.067692	796.5	39.4	-0.508	0.014	0.284
PetersonGulch080317_148	PetG	1200878.918732	2460577.270913	03-08-2017 11:49:40	0.000000	0.001428	0.327388	796.1	39.8	-0.001	0.006	1.376
PetersonGulch080317_149	PetG	1200694.963265	2460562.977022	03-08-2017 11:52:41	0.000000	0.004525	0.288872	797.6	40.1	-1.705	0.019	1.213
PetersonGulch080317_150	PetG	1200578.994794	2460800.980177	03-08-2017 11:56:56	0.000000	0.002851	0.200301	796.8	40.5	-0.145	0.012	0.843
PetersonGulch080317_151	PetG	1200718.99136	2460786.204381	03-08-2017 11:59:18	0.000000	0.000951	0.237662	797.5	40.7	0	0.004	1
PetersonGulch080317_152	PetG	1200736.295644	2460902.481922	03-08-2017 12:01:41	0.000000	0.001189	0.285097	798.4	40.9	0	0.005	1.199
PetersonGulch080317_153	PetG	1200929.965516	2460807.395614	03-08-2017 12:05:10	0.000000	0.000475	0.164479	798.6	41.1	0	0.002	0.692
PetersonGulch080317_154	PetG	1201151.96102	2460620.769982	03-08-2017 12:08:05	0.000000	0.000000	0.240383	797.8	41.3	-0.376	-0.005	1.013
PetersonGulch080317_155	PetG	1201143.9495	2460795.285127	03-08-2017 12:11:01	0.000000	0.000474	0.082718	797.1	41.4	-1.85	0.002	0.349
PetersonGulch080317_156	PetG	1201156.696121	2460970.197854	03-08-2017 12:13:18	0.000000	0.001422	0.403235	797.5	41.5	-2.224	0.006	1.701
PetersonGulch080317_157	PetG	1201000.815831	2461066.501035	03-08-2017 12:15:44	0.000000	0.001422	0.315521	798.0	41.7	-0.505	0.006	1.331

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080317_158	PetG	1200884.450186	2461176.434011	03-08-2017 12:17:54	0.000000	0.001185	0.706972	797.8	41.8	0	0.005	2.984
PetersonGulch080317_159	PetG	1200735.104254	2461218.610178	03-08-2017 12:20:44	0.000000	0.000237	0.265132	797.9	42.1	-1.356	0.001	1.12
PetersonGulch080317_160	PetG	1200602.033406	2461316.680092	03-08-2017 12:23:09	0.000000	0.001421	0.150423	798.7	42.2	-0.892	0.006	0.635
PetersonGulch080317_161	PetG	1200476.735431	2461154.335865	03-08-2017 12:25:40	0.000000	0.004732	0.791490	798.3	42.4	-0.256	0.02	3.345
PetersonGulch080317_162	PetG	1200514.019283	2460989.322943	03-08-2017 12:28:12	0.000000	0.002129	0.356190	798.2	42.5	-0.59	0.009	1.506
PetersonGulch080317_163	PetG	1200337.167891	2460936.425673	03-08-2017 12:31:03	0.000000	0.000473	0.359375	797.9	42.7	0	0.002	1.521
PetersonGulch080317_164	PetG	1200137.370552	2460972.456867	03-08-2017 12:34:07	0.000000	0.000708	0.215016	797.8	43.0	-0.292	0.003	0.911
PetersonGulch080317_165	PetG	1200134.388734	2461177.361992	03-08-2017 12:37:01	0.000000	0.000000	0.453141	797.6	43.1	0	-0.005	1.921
PetersonGulch080317_166	PetG	1200191.262848	2461337.383292	03-08-2017 12:39:17	0.000000	0.000946	0.336935	800.3	43.2	-1.382	0.004	1.424
PetersonGulch080317_167	PetG	1200341.100793	2461384.037802	03-08-2017 12:41:06	0.000000	0.000472	0.247709	798.7	43.2	-0.967	0.002	1.049
PetersonGulch080317_168	PetG	1200329.932308	2461269.987195	03-08-2017 12:44:21	0.000000	0.000000	0.314143	798.3	43.2	-0.987	-0.001	1.331
PetersonGulch080717_169	PetG	1199934.8706	2461333.858168	07-08-2017 11:54:15	0.000000	0.000000	1.010815	795.9	31.0	0	-0.021	4.13
PetersonGulch080717_170	PetG	1199909.884154	2461149.07265	07-08-2017 11:57:40	0.000000	0.001709	0.692361	795.2	31.5	0	0.007	2.836
PetersonGulch080717_171	PetG	1199779.171016	2461329.952193	07-08-2017 12:00:04	0.000000	0.001707	0.570005	795.5	31.9	0	0.007	2.337
PetersonGulch080717_172	PetG	1199591.558098	2461318.928436	07-08-2017 12:02:44	0.000000	0.002442	0.192413	797.7	32.4	0	0.01	0.788
PetersonGulch080717_173	PetG	1199391.745786	2461363.436912	07-08-2017 12:05:05	0.000000	0.002191	0.686043	796.1	32.7	0	0.009	2.818
PetersonGulch080717_174	PetG	1199371.651178	2461560.091228	07-08-2017 12:07:43	0.000000	0.001703	0.676417	796.7	33.1	0	0.007	2.78
PetersonGulch080717_175	PetG	1199170.208763	2461550.654876	07-08-2017 12:10:11	0.000000	0.002676	0.167351	797.5	33.5	0	0.011	0.688
PetersonGulch080717_176	PetG	1198930.283103	2461564.380299	07-08-2017 12:12:18	0.000000	0.000972	0.225322	797.7	33.8	0	0.004	0.927
PetersonGulch080717_177	PetG	1198755.211727	2461597.380748	07-08-2017 12:14:45	0.000000	0.001457	0.171901	797.6	34.1	0	0.006	0.708
PetersonGulch080717_178	PetG	1198573.845687	2461595.086479	07-08-2017 12:16:57	0.000000	0.002669	0.519557	797.7	34.3	0	0.011	2.141
PetersonGulch080717_179	PetG	1198511.53287	2461734.400179	07-08-2017 12:19:32	0.000000	0.000970	0.570347	797.9	34.6	0	0.004	2.352
PetersonGulch080717_180	PetG	1198323.42684	2461783.902	07-08-2017 12:21:58	0.000000	0.001697	0.349070	798.4	34.9	0	0.007	1.44
PetersonGulch080717_181	PetG	1198128.987723	2461755.740758	07-08-2017 12:24:22	0.000000	0.001212	0.290437	799.0	35.1	0	0.005	1.198
PetersonGulch080717_182	PetG	1198162.08575	2461990.478438	07-08-2017 12:26:45	0.000000	0.002665	0.100540	798.7	35.2	0	0.011	0.415
PetersonGulch080717_183	PetG	1197995.116858	2462003.529325	07-08-2017 12:29:04	0.000000	0.003874	0.000000	798.8	35.4	0	0.016	-2.463

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080717_184	PetG	1197780.962649	2461914.312674	07-08-2017 12:31:59	0.000000	0.001453	0.306260	799.2	35.6	0	0.006	1.265
PetersonGulch080717_185	PetG	1197913.076002	2462171.650017	07-08-2017 12:36:13	0.000000	0.003138	0.635113	797.9	36.0	0	0.013	2.631
PetersonGulch080717_186	PetG	1197770.215841	2462169.424252	07-08-2017 12:38:30	0.000000	0.002418	1.328771	799.8	36.2	0	0.01	5.495
PetersonGulch080717_187	PetG	1197577.911331	2462156.267261	07-08-2017 12:41:32	0.000000	0.000966	0.111313	799.4	36.5	-0.025	0.004	0.461
PetersonGulch080717_188	PetG	1197293.120384	2462134.611116	07-08-2017 12:45:31	0.000000	0.002890	0.265861	798.3	36.9	0	0.012	1.104
PetersonGulch080717_189	PetG	1197160.755012	2462227.078536	07-08-2017 12:48:04	0.000000	0.004825	0.694029	800.2	37.1	0	0.02	2.877
PetersonGulch080717_190	PetG	1196914.069981	2462234.203143	07-08-2017 12:50:28	0.000000	0.001207	0.000000	801.1	37.3	0	0.005	-0.318
PetersonGulch080717_191	PetG	1196740.8518	2462179.943184	07-08-2017 12:52:58	0.000000	0.001445	0.162591	800.3	37.6	0	0.006	0.675
PetersonGulch080717_192	PetG	1196490.381393	2462179.017908	07-08-2017 12:56:26	0.000000	0.007694	0.305590	799.6	37.9	0	0.032	1.271
PetersonGulch080717_193	PetG	1196566.303106	2462320.743512	07-08-2017 12:58:44	0.000000	0.001682	0.124224	799.6	38.1	0	0.007	0.517
PetersonGulch080717_194	PetG	1196339.313684	2462389.35892	07-08-2017 13:01:12	0.000000	0.002165	0.756658	800.9	38.3	0	0.009	3.146
PetersonGulch080717_195	PetG	1196146.487368	2462396.804475	07-08-2017 13:03:36	0.000000	0.001442	0.107433	801.1	38.6	0	0.006	0.447
PetersonGulch080717_196	PetG	1195973.791541	2462379.828161	07-08-2017 13:06:19	0.000000	0.001922	0.149878	801.1	38.8	0	0.008	0.624
PetersonGulch080717_197	PetG	1195764.788018	2462409.913602	07-08-2017 13:08:54	0.000000	0.001680	0.342770	801.1	39.0	0	0.007	1.428
PetersonGulch080717_198	PetG	1195720.269536	2462559.108202	07-08-2017 13:11:49	0.000000	0.001199	0.274097	801.1	39.3	-0.13	0.005	1.143
PetersonGulch080717_199	PetG	1195762.775261	2462757.029934	07-08-2017 13:14:22	0.000000	0.001919	0.573506	801.8	39.5	-0.006	0.008	2.391
PetersonGulch080717_200	PetG	1195700.541484	2463004.216747	07-08-2017 13:18:47	0.000000	0.000000	0.419033	801.7	40.0	0	-0.008	1.75
PetersonGulch080717_201	PetG	1195762.214579	2463204.162857	07-08-2017 13:21:44	0.000000	0.001436	0.593005	802.0	40.3	0	0.006	2.478
PetersonGulch080717_202	PetG	1195946.344692	2463024.538511	07-08-2017 13:24:17	0.000000	0.002627	0.158123	801.0	40.5	0	0.011	0.662
PetersonGulch080717_203	PetG	1195961.907867	2462790.066927	07-08-2017 13:27:10	0.000000	0.000717	0.144615	802.1	40.7	0	0.003	0.605
PetersonGulch080717_204	PetG	1195990.628877	2462663.49625	07-08-2017 13:29:26	0.000000	0.001911	0.498215	801.7	40.8	0	0.008	2.086
PetersonGulch080717_205	PetG	1196144.334852	2462604.578541	07-08-2017 13:31:41	0.000000	0.003583	0.371677	801.8	40.8	0	0.015	1.556
PetersonGulch080717_206	PetG	1196167.021208	2462760.904378	07-08-2017 13:34:05	0.000000	0.000000	0.296414	802.0	40.9	0	-0.002	1.241
PetersonGulch080717_207	PetG	1196314.332512	2462800.117488	07-08-2017 13:36:22	0.000000	0.002387	0.680910	801.4	40.8	0	0.01	2.852
PetersonGulch080717_208	PetG	1196373.67361	2462620.730725	07-08-2017 13:39:09	0.000000	0.000000	0.407840	801.3	40.9	0	-0.016	1.709
PetersonGulch080717_209	PetG	1196568.072827	2462629.466346	07-08-2017 13:41:48	0.000000	0.000000	0.190127	801.0	40.9	0	-0.014	0.797

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080717_210	PetG	1196579.522013	2462753.07557	07-08-2017 13:44:15	0.000000	0.000000	0.224941	800.1	40.9	0	-0.007	0.944
PetersonGulch080717_211	PetG	1196737.343402	2462654.31878	07-08-2017 13:46:37	0.000000	0.001429	0.128339	799.5	40.9	0	0.006	0.539
PetersonGulch080717_212	PetG	1196682.215561	2462418.753291	07-08-2017 13:50:03	0.000000	0.001191	0.363868	800.1	41.1	0	0.005	1.528
PetersonGulch080717_213	PetG	1196972.596782	2462392.204878	07-08-2017 13:53:42	0.000000	0.000953	0.265139	800.9	41.3	0	0.004	1.113
PetersonGulch080717_214	PetG	1196986.368088	2462554.999956	07-08-2017 13:58:03	0.000000	0.001667	0.152859	801.0	41.5	-0.234	0.007	0.642
PetersonGulch080717_215	PetG	1197172.786811	2462561.161035	07-08-2017 14:00:21	0.000000	0.000000	0.229303	799.9	41.7	-1.447	-0.003	0.965
PetersonGulch080717_216	PetG	1197192.422009	2462418.380454	07-08-2017 14:02:35	0.000000	0.001663	0.265353	800.2	41.9	-0.719	0.007	1.117
PetersonGulch080717_217	PetG	1197350.364041	2462380.851676	07-08-2017 14:04:47	0.000000	0.000950	0.503779	800.2	42.1	-1.07	0.004	2.122
PetersonGulch080717_218	PetG	1197344.987912	2462553.263818	07-08-2017 14:07:19	0.000000	0.000000	0.060768	800.6	42.3	-2.047	-0.003	0.256
PetersonGulch080717_219	PetG	1197522.440249	2462564.695085	07-08-2017 14:10:14	0.000000	0.000710	1.606392	798.9	42.5	0	0.003	6.786
PetersonGulch080717_220	PetG	1197607.337547	2462439.320096	07-08-2017 14:13:08	0.000000	0.000237	0.171266	799.1	42.8	0	0.001	0.724
PetersonGulch080717_221	PetG	1197748.824586	2462523.479768	07-08-2017 14:15:38	0.000000	0.000947	0.146292	799.9	42.9	-0.002	0.004	0.618
PetersonGulch080717_222	PetG	1197801.425062	2462423.212071	07-08-2017 14:18:12	0.000000	0.000000	0.357165	799.0	43.0	-0.446	-0.007	1.511
PetersonGulch080717_223	PetG	1197889.112708	2462363.168718	07-08-2017 14:20:53	0.000000	0.004016	0.415263	798.7	43.1	-0.218	0.017	1.758
PetersonGulch080717_224	PetG	1198125.382288	2462200.461397	07-08-2017 14:23:50	0.000000	0.000944	0.164905	798.2	43.3	0	0.004	0.699
PetersonGulch080717_225	PetG	1198320.437302	2462160.01042	07-08-2017 14:26:12	0.000000	0.000236	0.477054	798.9	43.4	-1.255	0.001	2.021
PetersonGulch080717_226	PetG	1198327.074116	2461998.990762	07-08-2017 14:28:22	0.000000	0.003535	0.609700	797.9	43.5	-0.001	0.015	2.587
PetersonGulch080717_227	PetG	1198525.402024	2461986.756533	07-08-2017 14:30:39	0.000000	0.002592	0.616182	798.0	43.6	-0.001	0.011	2.615
PetersonGulch080717_228	PetG	1198753.29465	2461967.89845	07-08-2017 14:33:09	0.000000	0.000000	0.336787	797.6	43.6	-1.115	-0.002	1.43
PetersonGulch080717_229	PetG	1198736.284143	2461782.366828	07-08-2017 14:35:21	0.000000	0.003766	0.713490	797.2	43.6	0	0.016	3.031
PetersonGulch080717_230	PetG	1198937.550698	2461944.626035	07-08-2017 14:37:54	0.000000	0.000000	0.161523	797.4	43.6	0	-0.002	0.686
PetersonGulch080717_231	PetG	1199006.867413	2461814.051295	07-08-2017 14:40:17	0.000000	0.000000	0.639960	796.8	43.6	-2.685	-0.003	2.72
PetersonGulch080717_232	PetG	1199166.52647	2461764.907873	07-08-2017 14:42:37	0.000000	0.000000	0.315980	796.8	43.6	0	0	1.343
PetersonGulch080717_233	PetG	1199208.049885	2461950.901031	07-08-2017 14:45:10	0.000000	0.000941	0.323939	796.7	43.6	0	0.004	1.377
PetersonGulch080717_234	PetG	1199362.62705	2461968.351562	07-08-2017 14:47:23	0.000000	0.000000	0.089775	795.9	43.6	-0.917	-0.004	0.382
PetersonGulch080717_235	PetG	1199351.073712	2461798.62758	07-08-2017 14:50:01	0.000000	0.000235	0.540902	796.1	43.6	-0.002	0.001	2.301

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PetersonGulch080717_236	PetG	1199517.372578	2461764.671694	07-08-2017 14:53:01	0.000000	0.000235	0.447926	796.3	43.6	-1.027	0.001	1.905
PetersonGulch080717_237	PetG	1199556.907912	2461565.48948	07-08-2017 14:55:59	0.000000	0.000705	0.382463	796.1	43.6	-1.097	0.003	1.627
PetersonGulch080717_238	PetG	1199783.505673	2461498.654137	07-08-2017 14:58:15	0.000000	0.003526	0.314018	796.0	43.6	-3.062	0.015	1.336
PetersonGulch080717_239	PetG	1199805.065245	2461770.912738	07-08-2017 15:03:10	0.000000	0.000000	0.090228	795.5	43.5	0	-0.001	0.384
PetersonGulch080717_240	PetG	1199951.739745	2461775.690357	07-08-2017 15:05:43	0.000000	0.002585	0.000000	795.4	43.4	-0.001	0.011	-0.043
PetersonGulch080717_241	PetG	1200002.223769	2461613.068892	07-08-2017 15:07:58	0.000000	0.001176	0.340921	795.5	43.3	-0.819	0.005	1.45
PetersonGulch080717_242	PetG	1200120.951364	2461538.632847	07-08-2017 15:09:59	0.000000	0.000705	0.253270	795.4	43.2	-1.039	0.003	1.077
PoleGulch080417_01	PoleG	1208160.542483	2446583.036573	04-08-2017 11:00:05	0.000000	0.005312	0.371351	792.4	33.8	-1.722	0.022	1.538
PoleGulch080417_02	PoleG	1208289.319582	2446551.897621	04-08-2017 11:02:45	0.000000	0.007478	0.337942	792.4	34.1	0	0.031	1.401
PoleGulch080417_03	PoleG	1208296.781699	2446417.350837	04-08-2017 11:06:23	0.000000	0.007706	0.464315	791.9	34.4	0	0.032	1.928
PoleGulch080417_04	PoleG	1208327.935158	2446207.242434	04-08-2017 11:09:53	0.000000	0.011288	0.573519	790.5	34.7	0	0.047	2.388
PoleGulch080417_05	PoleG	1208476.294817	2446126.468014	04-08-2017 11:13:00	0.000000	0.010534	0.060333	788.8	35.0	0	0.044	0.252
PoleGulch080417_06	PoleG	1208531.560545	2446021.253707	04-08-2017 11:15:56	0.000000	0.005015	0.237627	787.6	35.3	0	0.021	0.995
PoleGulch080417_07	PoleG	1208423.718186	2445981.856907	04-08-2017 11:19:14	0.000000	0.009289	0.214373	786.8	35.8	0	0.039	0.9
PoleGulch080417_08	PoleG	1208572.969668	2446346.52424	04-08-2017 11:23:46	0.000000	0.006195	0.126993	788.3	36.3	-0.019	0.026	0.533
PoleGulch080417_09	PoleG	1208504.689288	2446522.453383	04-08-2017 11:27:48	0.000000	0.006660	0.272096	788.2	36.8	0	0.028	1.144
PoleGulch080417_10	PoleG	1208275.707894	2446746.954707	04-08-2017 11:32:21	0.000000	0.005244	0.213818	790.7	37.1	0	0.022	0.897
PoleGulch080417_11	PoleG	1208180.60582	2446790.539791	04-08-2017 11:36:36	0.000000	0.000000	0.561056	792.8	37.3	0	-0.001	2.349
PoleGulch080417_12	PoleG	1208350.606452	2446990.456524	04-08-2017 11:39:42	0.000000	0.002628	0.341224	793.4	37.4	0	0.011	1.428
PoleGulch080417_13	PoleG	1208176.363831	2446982.953166	04-08-2017 11:44:33	0.000000	0.005734	0.247538	793.6	37.5	0	0.024	1.036
PoleGulch080417_14	PoleG	1208185.347307	2447187.450168	04-08-2017 11:45:48	0.000000	0.003345	0.866382	793.6	37.5	0	0.014	3.626
PoleGulch080417_15	PoleG	1208119.6358	2447308.647518	04-08-2017 11:48:40	0.000000	0.003102	0.226464	792.6	37.5	0	0.013	0.949
PoleGulch080417_16	PoleG	1208027.189039	2447390.722833	04-08-2017 11:51:07	0.000000	0.002862	0.375183	792.2	37.5	0	0.012	1.573
PoleGulch080417_17	PoleG	1207834.234136	2447367.919461	04-08-2017 11:54:11	0.000000	0.001907	0.867039	791.8	37.5	0	0.008	3.637
PoleGulch080417_18	PoleG	1207804.292471	2447197.819064	04-08-2017 11:57:06	0.000000	0.004048	0.228347	790.6	37.4	-0.001	0.017	0.959
PoleGulch080417_19	PoleG	1207891.064644	2447177.489922	04-08-2017 11:59:30	0.000000	0.000000	0.241650	790.5	37.4	0	-0.015	1.015

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
PoleGulch080417_20	PoleG	1207732.299727	2446994.40968	04-08-2017 12:02:15	0.000000	0.001192	0.442465	791.3	37.3	0	0.005	1.856
PoleGulch080417_21	PoleG	1207940.389381	2446977.134855	04-08-2017 12:05:04	0.000000	0.000000	0.658857	791.5	37.3	0	-0.023	2.763
PoleGulch080417_22	PoleG	1207887.990875	2446785.408438	04-08-2017 12:07:35	0.000000	0.004536	0.444964	792.1	37.2	0	0.019	1.864
PoleGulch080417_23	PoleG	1207725.50791	2446808.224955	04-08-2017 12:10:17	0.000000	0.006205	0.812141	791.9	37.2	0	0.026	3.403
PoleGulch080417_24	PoleG	1207724.231925	2446610.01332	04-08-2017 12:13:17	0.000000	0.001194	0.104074	791.8	37.1	0	0.005	0.436
PoleGulch080417_25	PoleG	1207688.998735	2446409.840904	04-08-2017 12:16:21	0.000000	0.004774	0.425366	791.8	37.1	0	0.02	1.782
PoleGulch080417_26	PoleG	1207936.575978	2446380.568234	04-08-2017 12:19:57	0.000000	0.000000	0.733029	791.0	37.2	0	-0.015	3.075
PoleGulch080417_27	PoleG	1208126.358318	2446370.92961	04-08-2017 12:22:42	0.000000	0.005722	0.034093	791.1	37.2	-0.002	0.024	0.143
PoleGulch080417_28	PoleG	1207966.405176	2446584.215543	04-08-2017 12:25:26	0.000000	0.000000	0.045316	791.4	37.2	0	-0.019	0.19
SquawCreek080417_01	SC	1209611.889716	2444268.321408	04-08-2017 08:39:57	0.000000	0.000000	0.474346	794.8	23.2	0	-0.003	1.891
SquawCreek080417_02	SC	1209561.921222	2443996.48718	04-08-2017 08:41:35	0.000000	0.000000	0.597202	794.8	24.1	0	-0.008	2.388
SquawCreek080417_03	SC	1209696.672935	2443881.921526	04-08-2017 08:44:08	0.000000	0.000000	0.499165	794.8	24.4	0	-0.002	1.998
SquawCreek080417_04	SC	1209533.59538	2443774.413786	04-08-2017 08:47:57	0.000000	0.006736	0.239507	795.3	25.0	0	0.027	0.96
SquawCreek080417_05	SC	1209540.983815	2443548.845295	04-08-2017 08:51:26	0.000000	0.002488	0.116194	795.0	25.7	0	0.01	0.467
SquawCreek080417_06	SC	1209523.719848	2443385.18917	04-08-2017 08:55:07	0.000000	0.003468	0.000000	793.2	26.3	0	0.014	-0.064
SquawCreek080417_07	SC	1209380.022616	2443335.594896	04-08-2017 08:57:48	0.000000	0.006169	0.000000	791.1	26.7	0	0.025	-0.297
SquawCreek080417_08	SC	1209251.660707	2443322.755874	04-08-2017 09:00:08	0.000000	0.006645	0.684410	790.3	27.2	0	0.027	2.781
SquawCreek080417_09	SC	1209328.268438	2443541.834735	04-08-2017 09:03:38	0.000000	0.004178	1.124822	790.5	27.7	0	0.017	4.577
SquawCreek080417_10	SC	1209161.614689	2443578.549714	04-08-2017 09:06:33	0.000000	0.005905	0.252459	792.8	28.2	0	0.024	1.026
SquawCreek080417_11	SC	1209215.60475	2443758.529982	04-08-2017 09:08:49	0.000000	0.005414	0.360301	794.0	28.6	-0.198	0.022	1.464
SquawCreek080417_12	SC	1209328.533034	2443787.940708	04-08-2017 09:11:13	0.000000	0.006880	0.293881	793.8	29.0	0	0.028	1.196
SquawCreek080417_13	SC	1209318.888867	2443999.592421	04-08-2017 09:16:03	0.000000	0.008576	0.270279	793.7	29.8	0	0.035	1.103
SquawCreek080417_14	SC	1209373.166048	2444175.461017	04-08-2017 09:25:10	0.000000	0.003911	0.566372	794.9	31.0	0	0.016	2.317
SquawCreek080417_15	SC	1209413.422531	2444405.85527	04-08-2017 09:28:52	0.000000	0.004150	0.601438	794.8	31.4	0	0.017	2.464
SquawCreek080417_16	SC	1209383.948909	2444589.878421	04-08-2017 09:31:19	0.000000	0.004149	0.135199	794.9	31.5	0	0.017	0.554
SquawCreek080417_17	SC	1209225.717324	2444590.511135	04-08-2017 09:35:09	0.000000	0.001707	1.111627	795.0	31.8	0	0.007	4.559

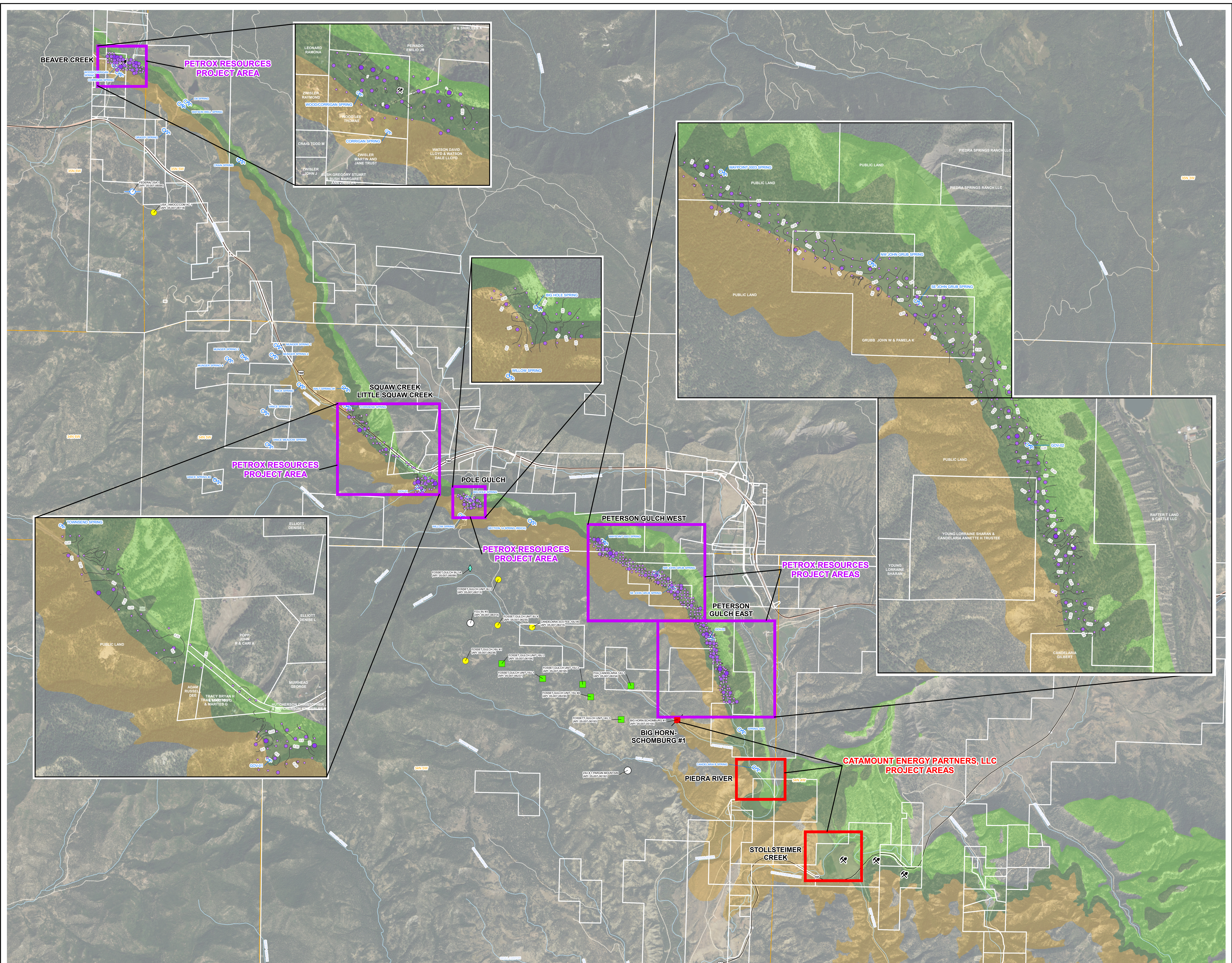
Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
SquawCreek080417_18	SC	1209166.674694	2444428.328026	04-08-2017 09:39:11	0.000000	0.001704	0.134625	794.0	31.9	0	0.007	0.553
SquawCreek080417_19	SC	1208957.105668	2444537.919958	04-08-2017 09:44:11	0.000000	0.002187	0.046421	793.2	32.1	0	0.009	0.191
SquawCreek080417_20	SC	1208853.848128	2444372.268557	04-08-2017 09:49:52	0.000000	0.001695	0.139469	790.5	32.2	0	0.007	0.576
SquawCreek080417_21	SC	1208878.940238	2444232.702377	04-08-2017 09:55:45	0.000000	0.002672	0.271284	792.9	32.2	0	0.011	1.117
SquawCreek080417_22	SC	1208832.097874	2443986.006514	04-08-2017 09:57:23	0.000000	0.003157	0.152036	792.9	32.2	0	0.013	0.626
SquawCreek080417_23	SC	1208646.909293	2443799.237375	04-08-2017 10:00:29	0.000000	0.002917	0.509080	793.7	32.2	0	0.012	2.094
SquawCreek080417_24	SC	1208686.802419	2443585.703865	04-08-2017 10:04:56	0.000000	0.005346	0.362543	793.3	32.2	0	0.022	1.492
SquawCreek080417_25	SC	1208699.482453	2443383.839229	04-08-2017 10:07:59	0.000000	0.003156	0.226239	792.5	32.2	0	0.013	0.932
SquawCreek080417_26	SC	1208923.122153	2443363.462271	04-08-2017 10:12:08	0.000000	0.006318	0.374936	793.3	32.2	0	0.026	1.543
SquawCreek080417_27	SC	1208966.240576	2443574.493732	04-08-2017 10:16:04	0.000000	0.004614	0.225580	793.0	32.3	0	0.019	0.929
SquawCreek080417_28	SC	1208950.385608	2443736.522018	04-08-2017 10:20:43	0.000000	0.003401	0.701565	793.6	32.4	0	0.014	2.888
SquawCreek080417_29	SC	1209216.671777	2443973.599897	04-08-2017 10:25:06	0.000000	0.007532	0.559796	794.0	32.5	0	0.031	2.304
SquawCreek080417_30	SC	1209164.812817	2444074.646176	04-08-2017 10:27:19	0.000000	0.003160	0.154605	794.4	32.5	0	0.013	0.636
SquawCreek082717_01	SC	1210395.341089	2442971.187544	27-08-2017 09:47:57	0.000000	0.000744	0.016376	795.7	26.8	-7.35	0.003	0.066
SquawCreek082717_02	SC	1210223.687201	2443190.097723	27-08-2017 09:51:38	0.000000	0.000247	0.055878	796.1	28.0	-0.001	0.001	0.226
SquawCreek082717_03	SC	1210198.978531	2443323.950169	27-08-2017 09:53:58	0.000000	0.000740	0.074200	796.1	28.9	-0.002	0.003	0.301
SquawCreek082717_04	SC	1210520.822412	2442827.689479	27-08-2017 09:58:46	0.000000	0.002209	0.115621	796.7	30.4	0	0.009	0.471
SquawCreek082717_05	SC	1210905.129007	2442360.256001	27-08-2017 10:03:03	0.000000	0.000732	0.423281	795.7	31.9	0	0.003	1.735
SquawCreek082717_06	SC	1210906.838823	2442145.393147	27-08-2017 10:10:20	0.000000	0.000000	0.183623	795.0	34.2	0	-0.001	0.759
SquawCreek082717_07	SC	1210952.462837	2441988.078755	27-08-2017 10:13:22	0.000000	0.000241	0.112687	793.3	35.0	0	0.001	0.468
SquawCreek082717_08	SC	1211016.003995	2441567.817882	27-08-2017 10:18:51	0.000000	0.000721	0.114618	794.5	36.1	-0.546	0.003	0.477
SquawCreek082717_09	SC	1211226.491471	2441177.462578	27-08-2017 10:24:01	0.000000	0.000478	0.346384	791.9	36.9	-0.809	0.002	1.45
SquawCreek082717_10	SC	1211289.456817	2441341.956134	27-08-2017 10:27:50	0.000000	0.000238	0.286099	790.3	37.4	-1.173	0.001	1.202
SquawCreek082717_11	SC	1211334.305204	2441550.210954	27-08-2017 10:31:50	0.000000	0.000000	0.521700	792.6	37.9	-0.445	0	2.189
SquawCreek082717_12	SC	1211704.95239	2441185.905116	27-08-2017 10:38:56	0.000000	0.000000	0.200667	793.6	38.3	-1.554	-0.002	0.842
SquawCreek082717_13	SC	1211710.869632	2440998.48292	27-08-2017 10:41:40	0.000000	0.000714	0.284821	792.6	38.4	-0.659	0.003	1.197

Site Pt	Area Abbrev	Northing	Easting	DATE TIME:	CH4 flux	H2S flux	CO2 flux	PRESSURE (HPa):	TEMP DegC	CH4 slope	H2S slope	CO2 slope
SquawCreek082717_14	SC	1211710.809479	2440772.085796	27-08-2017 10:46:10	0.000000	0.000714	0.427375	792.9	38.5	-0.93	0.003	1.796
SquawCreek082717_15	SC	1212062.594712	2440845.456592	27-08-2017 10:52:00	0.000000	0.000238	0.202670	792.2	38.7	-2.825	0.001	0.853
SquawCreek082717_16	SC	1212027.975585	2440635.979889	27-08-2017 10:56:42	0.000000	0.001900	0.355761	792.1	38.8	-0.55	0.008	1.498
SquawCreek082717_17	SC	1212163.833859	2440364.160305	27-08-2017 11:00:58	0.000000	0.000237	0.204186	790.3	38.9	-0.989	0.001	0.862
SquawCreek082717_18	SC	1212523.979965	2439925.601361	27-08-2017 11:06:03	0.000000	0.000708	1.018521	788.6	39.4	0	0.003	4.316
SquawCreek082717_19	SC	1212921.677375	2439563.279361	27-08-2017 11:13:57	0.000000	0.000000	0.292617	790.6	40.2	-1.875	-0.002	1.24
SquawCreek082717_20	SC	1213331.600731	2439271.363385	27-08-2017 11:21:14	0.000000	0.000000	0.579630	788.8	40.6	-0.57	0	2.465
SquawCreek082717_21	SC	1213740.756999	2439144.503085	27-08-2017 11:27:19	0.000000	0.000000	0.118785	789.3	40.7	-0.1	-0.002	0.505
SquawCreek082717_22	SC	1213755.691312	2439312.683385	27-08-2017 11:29:51	0.000000	0.000000	0.113828	787.8	40.8	-0.003	-0.001	0.485
SquawCreek082717_23	SC	1213755.802689	2439510.406432	27-08-2017 11:33:08	0.000000	0.001173	0.298072	787.2	40.8	-1.49	0.005	1.271
SquawCreek082717_24	SC	1213465.132444	2440350.146871	27-08-2017 11:42:11	0.000000	0.000701	0.226015	785.3	41.1	-0.571	0.003	0.967
SquawCreek082717_25	SC	1213398.776089	2440045.595793	27-08-2017 11:46:10	0.000000	0.000000	0.000000	783.9	41.2	-1.291	-0.001	-0.086
SquawCreek082717_26	SC	1213043.078908	2440015.39224	27-08-2017 11:52:00	0.000000	0.000000	0.062516	785.0	41.6	-0.872	-0.003	0.268
SquawCreek082717_27	SC	1213037.146986	2440126.865952	27-08-2017 11:54:19	0.000000	0.000000	0.083318	788.1	41.8	-1.022	-0.005	0.356
SquawCreek082717_28	SC	1212933.293937	2440350.95464	27-08-2017 11:57:05	0.000000	0.000468	0.330402	788.7	42.1	-2.733	0.002	1.412
SquawCreek082717_29	SC	1212635.936065	2440482.977462	27-08-2017 12:00:38	0.000000	0.000000	0.173581	789.5	42.5	-3.028	-0.002	0.742
SquawCreek082717_30	SC	1212597.520391	2440248.472255	27-08-2017 12:04:42	0.000000	0.000702	0.734561	790.5	43.0	-0.546	0.003	3.141
SquawCreek082717_31	SC	1213320.043518	2439481.812936	27-08-2017 12:11:13	0.000000	0.004201	0.292437	790.4	43.6	-2.161	0.018	1.253
SquawCreek082717_32	SC	1213330.40953	2439607.79684	27-08-2017 12:13:26	0.000000	0.002559	0.019074	788.5	43.9	0	0.011	0.082
SquawCreek082717_33	SC	1211763.927662	2441444.043735	27-08-2017 12:25:10	0.000000	0.000000	0.160509	788.5	44.8	-3.109	-0.012	0.692
SquawCreek082717_34	SC	1211404.581778	2441909.916975	27-08-2017 12:29:09	0.000000	0.001397	0.122245	791.8	44.9	-0.756	0.006	0.525

**APPENDIX B**

**CARBON DIOXIDE FLUX CONTOUR MAP**

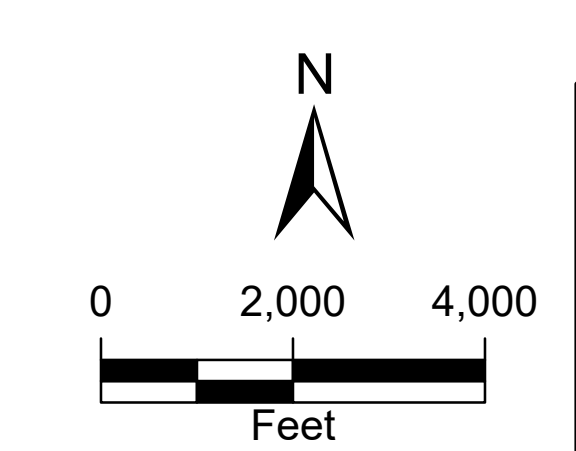




**LEGEND**

<b>CARBON DIOXIDE FLUX MEASUREMENT (mol/m<sup>2</sup> · day)</b>	<b>COALBED METHANE WELLS (PETROX RESOURCES, INC.)</b>
• 0.0000 - 0.0100	● PRODUCING
• 0.0101 - 0.5000	◆ DRILLING
• 0.5001 - 1.0000	○ SHUT IN
• 1.0001 - 25.0000	■ WAITING ON INFORMATION
• 25.0001 - 225.0000	○ PROPOSED WELL
⊗ MINE ENTRANCE	○ ABANDONED PRODUCTION WELL
	○ NATURAL SPRING

— CARBON DIOXIDE FLUX CONTOUR IN mol/m <sup>2</sup> · day (INTERVAL VARIES)
— HIGHWAY
— SURFACE WATER
— PETROX RESOURCES PROJECT AREA
— CATAMOUNT ENERGY PARTNERS, LLC PROJECT AREA
— TOWNSHIP AND RANGE LINES
<b>GEOLOGY - COLORADO GEOLOGICAL SURVEY, 2011</b>
— KIRTLAND FORMATION (Kk)
— FRUITLAND FORMATION (Kf)
— PICTURED CLIFFS FORMATION (Kpc)



APPENDIX B  
 CARBON DIOXIDE FLUX CONTOUR MAP  
 2017 OUTCROP ZONE REPORT  
 ARCHULETA COUNTY, COLORADO



mol/m<sup>2</sup> · day: MOLES PER SQUARE METER PER DAY

P:\San Juan Basin GIS\Archuleta\Fruitland\_OMR\MXD\Subgas\_Flux\2017\2017\_ARCH\_FIG B CO2 FLUX CONTOURS.mxd

**APPENDIX C**  
**REGIONAL RECONNAISSANCE SOIL GAS MEASUREMENTS**



Sub_CH <sub>4</sub>	Sub_O <sub>2</sub>	Sub_H <sub>2</sub> S	Sub_CO	GPS_Date	GPS_Time	Datafile	Northing	Easting
0	20.9	0	0	8/29/2017	08:39:55am	IR9_082817.cor	1207264.802	2448972.523
0	20.9	0	0	8/29/2017	08:45:46am	IR9_082817.cor	1207439.305	2448898.692
0	20.9	0	0	8/29/2017	08:49:35am	IR9_082817.cor	1207477.514	2449041.525
0	20.9	0	0	8/29/2017	08:52:32am	IR9_082817.cor	1207476.545	2449179.694
0	20.9	0	0	8/29/2017	08:54:54am	IR9_082817.cor	1207370.968	2449262.561
0	20.9	0	0	8/29/2017	08:57:44am	IR9_082817.cor	1207235.424	2449298.199
0	20.9	0	0	8/29/2017	09:02:38am	IR9_082817.cor	1207185.759	2449151.844
0	20.9	0	0	8/29/2017	09:32:57am	IR9_082817.cor	1207497.339	2448015.189
0	20.9	0	0	8/29/2017	09:38:51am	IR9_082817.cor	1207556.829	2448163.371
0	20.9	0	0	8/29/2017	09:42:29am	IR9_082817.cor	1207656.23	2448188.437
0	20.9	0	0	8/29/2017	09:46:04am	IR9_082817.cor	1207649.99	2448073.444
0	20.9	0	0	8/29/2017	09:49:23am	IR9_082817.cor	1207581.226	2447953.744
0	20.9	0	0	8/29/2017	09:58:27am	IR9_082817.cor	1207210.641	2447870.296
0	20.9	0	0	8/29/2017	10:04:22am	IR9_082817.cor	1207123.59	2447968.802
0	20.9	0	0	8/29/2017	10:07:51am	IR9_082817.cor	1206996.454	2447990.298
0	20.9	0	0	8/29/2017	10:12:33am	IR9_082817.cor	1206921.425	2447865.983
0	20.9	0	0	8/29/2017	10:16:57am	IR9_082817.cor	1207014.452	2447777.849
0	20.9	0	0	8/29/2017	10:21:36am	IR9_082817.cor	1207134.841	2447724.469
0	20.9	0	0	8/29/2017	10:26:02am	IR9_082817.cor	1207179.486	2447562.89
0	20.9	0	0	8/29/2017	11:31:06am	IR9_082817.cor	1208681.658	2445451.146
0	20.9	0	0	8/29/2017	11:35:25am	IR9_082817.cor	1208759.525	2445380.28
0	20.9	0	0	8/29/2017	11:37:43am	IR9_082817.cor	1208687.157	2445313.987
0	20.9	0	0	8/31/2017	08:37:46am	IR 10 083117.cor	1215165.696	2439199.95
0	20.9	0	0	8/31/2017	08:43:13am	IR 10 083117.cor	1215235.446	2439274.379
0	20.9	0	0	8/31/2017	08:45:32am	IR 10 083117.cor	1215246.318	2439406.179
0	20.9	0	0	8/31/2017	08:47:53am	IR 10 083117.cor	1215162.67	2439403.274
0	20.9	0	0	8/31/2017	08:50:17am	IR 10 083117.cor	1215080.99	2439295.176
0	20.9	0	0	8/31/2017	09:21:12am	IR 10 083117.cor	1216179.417	2438320.055
0	20.9	0	0	8/31/2017	09:23:16am	IR 10 083117.cor	1216284.463	2438301.923
0	20.9	0	0	8/31/2017	09:25:24am	IR 10 083117.cor	1216366.792	2438266.297
0	20.9	0	0	8/31/2017	09:27:20am	IR 10 083117.cor	1216398.497	2438342.083
0	20.9	0	0	8/31/2017	09:29:12am	IR 10 083117.cor	1216295.631	2438374.479
0	20.9	0	0	8/31/2017	09:31:37am	IR 10 083117.cor	1216204.987	2438405.083
0	20.9	0	0	8/31/2017	10:53:41am	IR 10 083117.cor	1221696.167	2436734.947
0	20.9	0	0	8/31/2017	10:58:42am	IR 10 083117.cor	1221581.48	2436709.926

Sub_CH <sub>4</sub>	Sub_O <sub>2</sub>	Sub_H <sub>2</sub> S	Sub_CO	GPS_Date	GPS_Time	Datafile	Northing	Easting
0	20.9	0	0	8/31/2017	11:00:57am	IR 10 083117.cor	1221556.603	2436825.124
0	20.9	0	0	8/31/2017	11:02:48am	IR 10 083117.cor	1221549.805	2436965.965
0	20.9	0	0	8/31/2017	11:04:23am	IR 10 083117.cor	1221643.973	2436963.266
0	20.9	0	0	8/31/2017	11:06:22am	IR 10 083117.cor	1221667.345	2436831.318

**APPENDIX D**

**ABANDONED COAL MINE SUBSURFACE SOIL GAS AND TEMPERATURE  
MEASUREMENTS**



Sub_O <sub>2</sub>	Sub_CH <sub>4</sub>	Sub_H <sub>2</sub> S	Sub_CO	Sub_CO <sub>2</sub>	Temp °C	GPS_Date	GPS_Time	Datafile	Northing	Easting
20.8	0	0	0	0	22	8/16/2017	09:02:35am	IPPLES_081617.	1235007.661	2425136.885
20.8	0	0	0	0	21	8/16/2017	09:06:40am	IPPLES_081617.	1234990.672	2425198.411
20.7	0	0	0	0	22	8/16/2017	09:07:55am	IPPLES_081617.	1234990.589	2425205.427
20.8	0	0	0	0	24	8/16/2017	09:16:54am	IPPLES_081617.	1234991.756	2425259.804
20.9	0	0	0	0	24	8/16/2017	09:18:45am	IPPLES_081617.	1234990.414	2425294.004
20.6	0	0	0	0	26	8/16/2017	09:22:31am	IPPLES_081617.	1235053.14	2425317.822
20.9	0	0	0	0	28	8/16/2017	09:24:10am	IPPLES_081617.	1235053.663	2425272.038
20.8	0	0	0	0	27	8/16/2017	09:26:56am	IPPLES_081617.	1235028.756	2425220.678
20.9	0	0	0	0	26	8/16/2017	09:28:59am	IPPLES_081617.	1235066.051	2425163.489
20.8	0	0	0	0	25	8/16/2017	09:30:29am	IPPLES_081617.	1235104.096	2425177.889
20.9	0	0	0	0	0	8/16/2017	09:33:15am	IPPLES_081617.	1235099.202	2425208.417
20.9	0	0	0	0	25	8/16/2017	09:34:46am	IPPLES_081617.	1235131.624	2425205.89
20.9	0	0	0	0	23	8/16/2017	09:36:27am	IPPLES_081617.	1235143.684	2425162.194
20.7	0	0	0	0	20	8/16/2017	09:38:21am	IPPLES_081617.	1235188.74	2425179.649
20.8	0	0	0	0	20	8/16/2017	09:40:06am	IPPLES_081617.	1235197.294	2425221.593
20.9	0	0	0	0	22	8/16/2017	09:41:53am	IPPLES_081617.	1235254.836	2425222.211
20.9	0	0	0	0	24	8/16/2017	09:43:20am	IPPLES_081617.	1235266.054	2425182.117
20.9	0	0	0	0	24	8/16/2017	09:44:48am	IPPLES_081617.	1235295.591	2425217.74
20.9	0	0	0	0	21	8/16/2017	09:45:44am	IPPLES_081617.	1235310.735	2425171.551
20.8	0	0	0	0	22	8/16/2017	09:46:50am	IPPLES_081617.	1235347.732	2425155.2
20.9	0	0	0	0	24	8/16/2017	09:50:34am	IPPLES_081617.	1235355.62	2425213.24
20.9	0	0	0	0	24	8/16/2017	09:52:09am	IPPLES_081617.	1235413.419	2425224.073
20.9	0	0	0	0	22	8/16/2017	09:53:46am	IPPLES_081617.	1235401.941	2425159.84
20.9	0	0	0	0	20	8/16/2017	09:55:14am	IPPLES_081617.	1235447.717	2425171.685
20.9	0	0	0	0	21	8/16/2017	09:56:46am	IPPLES_081617.	1235447.369	2425214.922
20.9	0	0	0	0	20	8/16/2017	09:58:51am	IPPLES_081617.	1235474.061	2425281.092
20.9	0	0	0	0	20	8/16/2017	10:00:46am	IPPLES_081617.	1235448.605	2425312.13
20.9	0	0	0	0	21	8/16/2017	10:02:21am	IPPLES_081617.	1235402.328	2425321.661
20.9	0	0	0	0	20	8/16/2017	10:04:14am	IPPLES_081617.	1235407.847	2425281.103
20.9	0	0	0	0	24	8/16/2017	10:05:23am	IPPLES_081617.	1235364.738	2425272.976
20.8	0	0	0	0	26	8/16/2017	10:07:00am	IPPLES_081617.	1235356.134	2425333.638
20.6	0	0	0	0	24	8/16/2017	10:09:15am	IPPLES_081617.	1235304.29	2425313.74
20.9	0	0	0	0	24	8/16/2017	10:10:48am	IPPLES_081617.	1235295.838	2425270.274
20.8	0	0	0	0	21	8/16/2017	10:12:46am	IPPLES_081617.	1235274.627	2425322.906
20.8	0	0	0	0	24	8/16/2017	10:14:43am	IPPLES_081617.	1235219.834	2425319.784
20.8	0	0	0	0	25	8/16/2017	10:16:24am	IPPLES_081617.	1235246.751	2425271.25
20.7	0	0	0	0	22	8/16/2017	10:19:26am	IPPLES_081617.	1235215.641	2425268.475
20.7	0	0	0	0	21	8/16/2017	10:20:34am	IPPLES_081617.	1235167.582	2425269.891
20.7	0	0	0	0	23	8/16/2017	10:22:05am	IPPLES_081617.	1235156.466	2425299.654
20.7	0	0	0	0	24	8/16/2017	10:24:07am	IPPLES_081617.	1235110.408	2425322.431
20.7	0	0	0	0	27	8/16/2017	10:25:23am	IPPLES_081617.	1235093.533	2425277.463
20.7	0	0	0	0	22	8/16/2017	10:28:39am	IPPLES_081617.	1234996.063	2425364.324
20.6	0	0	0	0	25	8/16/2017	10:31:36am	IPPLES_081617.	1235038.924	2425365.481
20.5	0	0	0	0	26	8/16/2017	10:33:11am	IPPLES_081617.	1235038.727	2425423.432
20.9	0	0	0	0	25	8/16/2017	10:35:04am	IPPLES_081617.	1235111.344	2425421.671

Sub_O <sub>2</sub>	Sub_CH <sub>4</sub>	Sub_H <sub>2</sub> S	Sub_CO	Sub_CO <sub>2</sub>	Temp °C	GPS_Date	GPS_Time	Datafile	Northing	Easting
20.9	0	0	0	0	25	8/16/2017	10:36:37am	IPPLES_081617.	1235107.847	2425377.158
20.9	0	0	0	0	25	8/16/2017	10:38:09am	IPPLES_081617.	1235149.258	2425371.759
20.8	0	0	0	0	22	8/16/2017	10:40:10am	IPPLES_081617.	1235161.103	2425419.64
20.6	0	0	0	0	21	8/16/2017	10:42:12am	IPPLES_081617.	1235195.021	2425423.918
20.8	0	0	0	0	22	8/16/2017	10:43:50am	IPPLES_081617.	1235205.273	2425379.585
20.8	0	0	0	0	24	8/16/2017	10:45:28am	IPPLES_081617.	1235245.466	2425365.538
20.9	0	0	0	0	22	8/16/2017	10:47:08am	IPPLES_081617.	1235237.072	2425436.733
20.9	0	0	0	0	22	8/16/2017	10:48:13am	IPPLES_081617.	1235251.073	2425465.583
20.8	0	0	0	0	25	8/16/2017	10:49:37am	IPPLES_081617.	1235302.855	2425465.34
20.8	0	0	0	0	24	8/16/2017	10:50:50am	IPPLES_081617.	1235319.064	2425437.553
20.9	0	0	0	0	25	8/16/2017	10:52:12am	IPPLES_081617.	1235334.668	2425389.805
20.8	0	0	0	0	24	8/16/2017	10:53:40am	IPPLES_081617.	1235381.282	2425368.219
20.8	0	0	0	0	24	8/16/2017	10:55:05am	IPPLES_081617.	1235361.741	2425435.502
20.8	0	0	0	0	25	8/16/2017	10:56:34am	IPPLES_081617.	1235361.426	2425460.124
20.8	0	0	0	0	24	8/16/2017	10:58:07am	IPPLES_081617.	1235381.439	2425484.529
20.8	0	0	0	0	25	8/16/2017	10:59:46am	IPPLES_081617.	1235406.19	2425469.407
20.9	0	0	0	0	24	8/16/2017	11:01:32am	IPPLES_081617.	1235400.231	2425425.41
20.9	0	0	0	0	20	8/16/2017	11:03:04am	IPPLES_081617.	1235433.501	2425389.13
20.9	0	0	0	0	19	8/16/2017	11:04:40am	IPPLES_081617.	1235465.541	2425386.054
20.9	0	0	0	0	20	8/16/2017	11:06:30am	IPPLES_081617.	1235442.797	2425431.449
20.9	0	0	0	0	20	8/16/2017	11:07:47am	IPPLES_081617.	1235458.135	2425453.75
20.9	0	0	0	0	20	8/16/2017	11:09:35am	IPPLES_081617.	1235442.2	2425513.457
20.8	0	0	0	0	25	8/16/2017	11:10:51am	IPPLES_081617.	1235455.51	2425580.117
20.8	0	0	0	0	25	8/16/2017	11:11:41am	IPPLES_081617.	1235454.083	2425624.507
20.7	0	0	0	0	23	8/16/2017	11:13:46am	IPPLES_081617.	1235404.396	2425618.749
20.7	0	0	0	0	25	8/16/2017	11:15:38am	IPPLES_081617.	1235409.788	2425560.725
20.7	0	0	0	0	25	8/16/2017	11:17:22am	IPPLES_081617.	1235403.018	2425529.979
20.8	0	0	0	0	25	8/16/2017	11:18:42am	IPPLES_081617.	1235366.038	2425523.137
20.7	0	0	0	0	21	8/16/2017	11:20:02am	IPPLES_081617.	1235359.975	2425586.551
20.7	0	0	0	0	25	8/16/2017	11:21:54am	IPPLES_081617.	1235347.767	2425634.746
20.6	0	0	0	0	26	8/16/2017	11:24:06am	IPPLES_081617.	1235307.104	2425640.772
20.8	0	0	0	0	21	8/16/2017	11:26:17am	IPPLES_081617.	1235307.051	2425578.053
20.7	0	0	0	0	24	8/16/2017	11:28:21am	IPPLES_081617.	1235297.867	2425519.512
20.7	0	0	0	0	20	8/16/2017	11:31:17am	IPPLES_081617.	1235264.632	2425554.99
20.7	0	0	0	0	22	8/16/2017	11:37:29am	IPPLES_081617.	1235265.527	2425579.504
20.7	0	0	0	0	25	8/16/2017	11:40:29am	IPPLES_081617.	1235249.231	2425621.369
20.7	0	0	0	0	22	8/16/2017	11:41:53am	IPPLES_081617.	1235266.042	2425624.436
20.8	0	0	0	0	25	8/16/2017	11:43:22am	IPPLES_081617.	1235203.597	2425608.917
20.8	0	0	0	0	27	8/16/2017	11:44:31am	IPPLES_081617.	1235207.821	2425566.021
20.8	0	0	0	0	28	8/16/2017	11:47:15am	IPPLES_081617.	1235205.351	2425522.544
20.8	0	0	0	0	26	8/16/2017	11:49:13am	IPPLES_081617.	1235216.538	2425468.822
20.9	0	0	0	0	26	8/16/2017	11:51:38am	IPPLES_081617.	1235156.1	2425481.178
20.9	0	0	0	0	30	8/16/2017	11:53:59am	IPPLES_081617.	1235142.189	2425531.619
20.8	0	0	0	0	29	8/16/2017	11:55:32am	IPPLES_081617.	1235101.719	2425524.225
20.9	0	0	0	0	30	8/16/2017	11:56:48am	IPPLES_081617.	1235097.995	2425479.358

Sub_O <sub>2</sub>	Sub_CH <sub>4</sub>	Sub_H <sub>2</sub> S	Sub_CO	Sub_CO <sub>2</sub>	Temp °C	GPS_Date	GPS_Time	Datafile	Northing	Easting
20.8	0	0	0	0	24	8/16/2017	11:58:04am	IPPLES_081617	1235061.596	2425473.069
20.7	0	0	0	0	32	8/16/2017	12:00:30pm	IPPLES_081617	1235048.169	2425515.732
20.6	0	0	0	0	30	8/16/2017	12:01:42pm	IPPLES_081617	1234995.732	2425517.575
20.7	0	0	0	0	25	8/16/2017	12:02:48pm	IPPLES_081617	1234995.132	2425480.45
20.8	0	0	0	0	20	8/16/2017	12:04:07pm	IPPLES_081617	1234984.035	2425429.576
20.9	0	0	0	0	26	8/17/2017	09:28:16am	UMBINE_08171	1229342.9	2432164.45
20.7	0	0	0	100	29	8/17/2017	09:30:30am	UMBINE_08171	1229317.861	2432110.03
20.8	0	0	0	0	28	8/17/2017	09:32:38am	UMBINE_08171	1229319.691	2432049.096
20.8	0	0	0	100	30	8/17/2017	09:33:59am	UMBINE_08171	1229386.186	2432046.647
20.7	0	0	0	0	29	8/17/2017	09:36:00am	UMBINE_08171	1229433.015	2432054.831
20.8	0	0	0	0	25	8/17/2017	09:37:01am	UMBINE_08171	1229430.287	2432090.362
20.8	0	0	0	0	29	8/17/2017	09:38:16am	UMBINE_08171	1229397.004	2432108.121
20.8	0	0	0	0	29	8/17/2017	09:39:23am	UMBINE_08171	1229383.699	2432152.032
20.7	0	0	0	0	31	8/17/2017	09:43:02am	UMBINE_08171	1229431.151	2432148.544
20.8	0	0	0	0	30	8/17/2017	09:44:48am	UMBINE_08171	1229433.15	2432199.58
20.8	0	0	0	0	28	8/17/2017	09:46:04am	UMBINE_08171	1229388.673	2432213.938
20.7	0	0	0	0	22	8/17/2017	09:47:58am	UMBINE_08171	1229383.482	2432268.567
20.8	0	0	0	0	21	8/17/2017	09:49:47am	UMBINE_08171	1229425.597	2432255.111
20.7	0	0	0	0	21	8/17/2017	09:51:21am	UMBINE_08171	1229414.713	2432304.986
20.7	0	0	0	0	20	8/17/2017	09:52:49am	UMBINE_08171	1229381.284	2432304.324
20.8	0	0	0	0	24	8/17/2017	09:55:22am	UMBINE_08171	1229393.486	2432380.182
20.8	0	0	0	0	24	8/17/2017	09:56:28am	UMBINE_08171	1229416.544	2432379.215
20.7	0	0	0	0	20	8/17/2017	09:58:00am	UMBINE_08171	1229426.742	2432408.078
20.8	0	0	0	0	22	8/17/2017	09:59:15am	UMBINE_08171	1229421.763	2432448.71
20.7	0	0	0	0	28	8/17/2017	10:00:28am	UMBINE_08171	1229428.48	2432490.514
20.7	0	0	0	0	29	8/17/2017	10:02:05am	UMBINE_08171	1229374.335	2432505.16
20.9	0	0	0	0	24	8/17/2017	10:03:27am	UMBINE_08171	1229328.305	2432517.625
20.8	0	0	0	0	24	8/17/2017	10:04:41am	UMBINE_08171	1229323.263	2432470.578
20.8	0	0	0	0	29	8/17/2017	10:06:03am	UMBINE_08171	1229369.133	2432461.062
20.7	0	0	0	0	30	8/17/2017	10:08:01am	UMBINE_08171	1229331.356	2432413.364
20.8	0	0	0	0	25	8/17/2017	10:09:18am	UMBINE_08171	1229359.628	2432402.081
20.9	0	0	0	0	29	8/17/2017	10:11:01am	UMBINE_08171	1229337.291	2432341.261
20.7	0	0	0	0	25	8/17/2017	10:12:31am	UMBINE_08171	1229328.705	2432324.694
20.7	0	0	0	0	30	8/17/2017	10:14:17am	UMBINE_08171	1229326.307	2432265.171
20.8	0	0	0	0	30	8/17/2017	10:15:20am	UMBINE_08171	1229327.607	2432204.341
20.7	0	0	0	0	22	8/17/2017	10:16:54am	UMBINE_08171	1229279.814	2432205.421
20.6	0	0	0	0	30	8/17/2017	10:18:36am	UMBINE_08171	1229281.457	2432149.317
20.7	0	0	0	0	24	8/17/2017	10:19:37am	UMBINE_08171	1229269.949	2432098.703
20.7	0	0	0	0	28	8/17/2017	10:20:42am	UMBINE_08171	1229283.97	2432071.725
20.7	0	0	0	0	25	8/17/2017	10:22:14am	UMBINE_08171	1229234.688	2432051.342
20.8	0	0	0	0	30	8/17/2017	10:23:32am	UMBINE_08171	1229215.858	2432113.799
20.8	0	0	0	0	29	8/17/2017	10:24:29am	UMBINE_08171	1229229.624	2432157.79
20.9	0	0	0	0	29	8/17/2017	10:25:43am	UMBINE_08171	1229201.118	2432192.539
20.8	0	0	0	0	29	8/17/2017	10:26:56am	UMBINE_08171	1229220.068	2432249.898
20.9	0	0	0	0	24	8/17/2017	10:28:06am	UMBINE_08171	1229280.799	2432258.537

Sub_O <sub>2</sub>	Sub_CH <sub>4</sub>	Sub_H <sub>2</sub> S	Sub_CO	Sub_CO <sub>2</sub>	Temp °C	GPS_Date	GPS_Time	Datafile	Northing	Easting
20.7	0	0	0	0	20	8/17/2017	10:30:15am	UMBINE_08171	1229270.642	2432303.416
20.9	0	0	0	0	20	8/17/2017	10:32:02am	UMBINE_08171	1229232.169	2432318.118
20.9	0	0	0	0	20	8/17/2017	10:34:44am	UMBINE_08171	1229284.893	2432348.667
20.9	0	0	0	0	30	8/17/2017	10:35:44am	UMBINE_08171	1229277.11	2432378.301
20.9	0	0	0	0	30	8/17/2017	10:38:06am	UMBINE_08171	1229217.994	2432380.968
20.9	0	0	0	0	15	8/17/2017	10:38:51am	UMBINE_08171	1229214.128	2432406.225
20.9	0	0	0	0	15	8/17/2017	10:40:20am	UMBINE_08171	1229209.695	2432459.454
20.9	0	0	0	0	19	8/17/2017	10:43:14am	UMBINE_08171	1229267.026	2432450.08
20.9	0	0	0	0	26	8/17/2017	10:44:26am	UMBINE_08171	1229255.626	2432504.006
20.7	0	0	0	0	30	8/17/2017	10:45:36am	UMBINE_08171	1229232.68	2432520.256
20.9	0	0	0	0	30	8/17/2017	10:48:02am	UMBINE_08171	1229167.422	2432496.634
20.7	0	0	0	0	30	8/17/2017	10:49:08am	UMBINE_08171	1229151.808	2432508.324
20.9	0	0	0	0	30	8/17/2017	10:50:28am	UMBINE_08171	1229148.487	2432460.59
20.9	0	0	0	2800	0	8/17/2017	10:51:46am	UMBINE_08171	1229166.267	2432420.63
20.8	0	0	0	0	30	8/17/2017	10:53:37am	UMBINE_08171	1229118.465	2432397.432
20.8	0	0	0	0	21	8/17/2017	10:54:55am	UMBINE_08171	1229106.425	2432403.342
20.8	0	0	0	0	19	8/17/2017	10:58:09am	UMBINE_08171	1229097.083	2432432.933
20.8	0	0	0	0	19	8/17/2017	10:59:49am	UMBINE_08171	1229073.726	2432409.978
20.7	0	0	0	0	30	8/17/2017	11:01:28am	UMBINE_08171	1229072.9	2432473.692
20.8	0	0	0	0	21	8/17/2017	11:06:17am	UMBINE_08171	1229067.396	2432517.779
20.8	0	0	0	0	22	8/17/2017	11:07:53am	UMBINE_08171	1229021.148	2432527.573
20.8	0	0	0	0	21	8/17/2017	11:09:30am	UMBINE_08171	1228975.918	2432523.442
20.8	0	0	0	0	30	8/17/2017	11:10:40am	UMBINE_08171	1228964.243	2432458.012
20.7	0	0	0	0	30	8/17/2017	11:12:26am	UMBINE_08171	1228968.096	2432405.125
20.7	0	0	0	0	21	8/17/2017	11:13:58am	UMBINE_08171	1228987.521	2432359.075
20.7	0	0	0	0	20	8/17/2017	11:15:19am	UMBINE_08171	1229007.896	2432368.842
20.8	0	0	0	0	24	8/17/2017	11:16:14am	UMBINE_08171	1229031.433	2432388.479
20.8	0	0	0	0	29	8/17/2017	11:17:46am	UMBINE_08171	1229024.918	2432356.463
20.8	0	0	0	0	21	8/17/2017	11:18:29am	UMBINE_08171	1229030.361	2432346.611
20.8	0	0	0	0	28	8/17/2017	11:19:52am	UMBINE_08171	1229021.011	2432322.52
20.8	0	0	0	0	20	8/17/2017	11:20:45am	UMBINE_08171	1229009.949	2432316.238
20.9	0	0	0	0	20	8/17/2017	11:22:07am	UMBINE_08171	1228984.242	2432300.079
20.9	0	0	0	0	21	8/17/2017	11:23:48am	UMBINE_08171	1229029.749	2432262.967
20.9	0	0	0	0	21	8/17/2017	11:25:26am	UMBINE_08171	1228972.249	2432254.694
20.9	0	0	0	0	30	8/17/2017	11:26:43am	UMBINE_08171	1228969.568	2432224.529
20.8	0	0	0	0	22	8/17/2017	11:28:17am	UMBINE_08171	1229022.83	2432194.588
20.9	0	0	0	0	20	8/17/2017	11:29:39am	UMBINE_08171	1229003.076	2432182.61
20.9	0	0	0	0	21	8/17/2017	11:31:01am	UMBINE_08171	1228964.758	2432171.957
20.9	0	0	0	0	28	8/17/2017	11:32:40am	UMBINE_08171	1228966.018	2432114.579
20.9	0	0	0	0	21	8/17/2017	11:34:05am	UMBINE_08171	1228974.533	2432083.51
20.9	0	0	0	0	30	8/17/2017	11:35:23am	UMBINE_08171	1228989.6	2432089.215
20.9	0	0	0	0	20	8/17/2017	11:37:19am	UMBINE_08171	1229018.368	2432133.194
20.8	0	0	0	0	24	8/17/2017	11:38:51am	UMBINE_08171	1229044.911	2432140.265
20.9	0	0	0	0	20	8/17/2017	11:40:39am	UMBINE_08171	1229037.956	2432069.424
20.8	0	0	0	0	19	8/17/2017	11:41:51am	UMBINE_08171	1229057.925	2432088.638

Sub_O <sub>2</sub>	Sub_CH <sub>4</sub>	Sub_H <sub>2</sub> S	Sub_CO	Sub_CO <sub>2</sub>	Temp °C	GPS_Date	GPS_Time	Datafile	Northing	Easting
20.9	0	0	0	0	20	8/17/2017	11:43:06am	UMBINE_08171	1229074.288	2432052.257
20.9	0	0	0	0	20	8/17/2017	11:44:48am	UMBINE_08171	1229108.843	2432080.813
20.8	0	0	0	0	20	8/17/2017	11:46:13am	UMBINE_08171	1229138.36	2432152.868
20.9	0	0	0	0	20	8/17/2017	11:47:55am	UMBINE_08171	1229089.902	2432200.121
20.9	0	0	0	0	20	8/17/2017	11:49:00am	UMBINE_08171	1229106.265	2432237.635
20.9	0	0	0	0	20	8/17/2017	11:50:15am	UMBINE_08171	1229058.964	2432205.131
20.9	0	0	0	0	22	8/17/2017	11:52:08am	UMBINE_08171	1229065.598	2432240.822
20.9	0	0	0	0	22	8/17/2017	11:53:42am	UMBINE_08171	1229077.125	2432313.347
20.9	0	0	0	0	20	8/17/2017	11:54:52am	UMBINE_08171	1229089.85	2432335.113
20.9	0	0	0	0	24	8/17/2017	11:56:28am	UMBINE_08171	1229120.553	2432302.125
20.9	0	0	0	0	24	8/17/2017	11:58:03am	UMBINE_08171	1229146.735	2432368.143
20.9	0	0	0	0	24	8/17/2017	11:59:36am	UMBINE_08171	1229151.251	2432318.973
20.9	0	0	0	0	20	8/17/2017	12:01:15pm	UMBINE_08171	1229144.86	2432259.344
20.9	0	0	0	0	20	8/17/2017	12:03:05pm	UMBINE_08171	1229157.069	2432204.798
20.9	0	0	0	0	22	8/17/2017	12:04:26pm	UMBINE_08171	1229149.401	2432152.434
20.9	0	0	0	0	22	8/17/2017	12:06:15pm	UMBINE_08171	1229135.628	2432052.201
20.9	0	0	0	0	20	8/17/2017	12:07:40pm	UMBINE_08171	1229191.125	2432053.165
20.8	0	0	0	0	20	8/17/2017	12:08:46pm	UMBINE_08171	1229182.797	2432082.901

**APPENDIX E**  
**NATURAL SPRINGS LABORATORY ANALYTICAL REPORTS**





75 Suttle Street  
Durango, CO 81303  
970.247.4220 Phone  
970.247.4227 Fax  
[www.greenanalytical.com](http://www.greenanalytical.com)

19 May 2017

Devin Hencmann  
LT Environmental  
848 E 2nd Ave  
Durango, CO 81301  
RE: La Plata Springs

Enclosed are the results of analyses for samples received by the laboratory on 05/05/17 13:30.  
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt  
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



LT Environmental  
848 E 2nd Ave  
Durango CO, 81301

Project: La Plata Springs  
Project Name / Number: 005217001  
Project Manager: Devin Hencmann

Reported:  
05/19/17 13:33

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Hoier Spring	1705059-01	Water	05/05/17 09:25	05/05/17 13:30
Darwin Rather Spring #1	1705059-02	Water	05/05/17 10:55	05/05/17 13:30
Animas River Spring	1705059-03	Water	05/05/17 12:45	05/05/17 13:30

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. In no event shall Green Analytical Laboratories be liable for incidental or consequential damages. GALs liability, and clients exclusive remedy for any claim arising, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever, shall be deemed waived unless made in writing and received within thirty days after completion of the applicable service.



LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: La Plata Springs Project Name / Number: 005217001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:33
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**Hoier Spring**

**1705059-01 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	119	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Total as CaCO3*	119	10.0		mg/L	1	05/18/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/11/17	EPA300.0		JDA
Chloride*	1.41	1.00	0.143	mg/L	1	05/15/17	EPA300.0		JDA
Fluoride*	0.204	0.100	0.0160	mg/L	1	05/15/17	EPA300.0		JDA
Total Dissolved Solids*	175	10.0		mg/L	1	05/10/17	EPA160.1		LLG
Sulfate*	15.5	1.00	0.156	mg/L	1	05/15/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	25.4	0.100	0.036	mg/L	1	05/09/17	EPA200.7		JDA
Iron*	0.121	0.050	0.014	mg/L	1	05/09/17	EPA200.7		JDA
Magnesium*	12.3	0.100	0.026	mg/L	1	05/09/17	EPA200.7		JDA
Potassium*	1.11	1.00	0.094	mg/L	1	05/09/17	EPA200.7		JDA
Sodium*	11.8	1.00	0.087	mg/L	1	05/09/17	EPA200.7		JDA

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: La Plata Springs Project Name / Number: 005217001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:33
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**Darwin Rather Spring #1**

**1705059-02 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	189	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Total as CaCO3*	189	10.0		mg/L	1	05/18/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/11/17	EPA300.0		JDA
Chloride*	13.1	1.00	0.143	mg/L	1	05/15/17	EPA300.0		JDA
Fluoride*	0.133	0.100	0.0160	mg/L	1	05/15/17	EPA300.0		JDA
Total Dissolved Solids*	250	10.0		mg/L	1	05/10/17	EPA160.1		LLG
Sulfate*	28.8	1.00	0.156	mg/L	1	05/15/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	58.0	0.100	0.036	mg/L	1	05/09/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/09/17	EPA200.7		JDA
Magnesium*	17.2	0.100	0.026	mg/L	1	05/09/17	EPA200.7		JDA
Potassium*	1.21	1.00	0.094	mg/L	1	05/09/17	EPA200.7		JDA
Sodium*	7.83	1.00	0.087	mg/L	1	05/09/17	EPA200.7		JDA

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: La Plata Springs Project Name / Number: 005217001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:33
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**Animas River Spring**

**1705059-03 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	525	10.0		mg/L	5	05/18/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	05/18/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	05/18/17	2320 B		LLG
Alkalinity, Total as CaCO3*	525	10.0		mg/L	5	05/18/17	2320 B		LLG
Bromide	0.347	0.100	0.0251	mg/L	1	05/11/17	EPA300.0		JDA
Chloride*	61.1	5.00	0.717	mg/L	5	05/15/17	EPA300.0		JDA
Fluoride*	<0.500	0.500	0.0798	mg/L	5	05/15/17	EPA300.0		JDA
Total Dissolved Solids*	2800	10.0		mg/L	1	05/10/17	EPA160.1		LLG
Sulfate*	1270	50.0	7.82	mg/L	50	05/16/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	273	0.100	0.036	mg/L	1	05/09/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/09/17	EPA200.7		JDA
Magnesium*	205	0.100	0.026	mg/L	1	05/09/17	EPA200.7		JDA
Potassium*	5.21	1.00	0.094	mg/L	1	05/09/17	EPA200.7		JDA
Sodium*	262	1.00	0.087	mg/L	1	05/09/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: La Plata Springs Project Name / Number: 005217001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:33
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**General Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705071 - General Prep - Wet Chem**

<b>Blank (B705071-BLK1)</b>		Prepared: 05/09/17 Analyzed: 05/10/17								
Bromide	ND	0.100	mg/L							
<b>LCS (B705071-BS1)</b>		Prepared: 05/09/17 Analyzed: 05/10/17								
Bromide	2.57	0.100	mg/L	2.50		103	90-110			
<b>LCS Dup (B705071-BSD1)</b>		Prepared: 05/09/17 Analyzed: 05/10/17								
Bromide	2.55	0.100	mg/L	2.50		102	90-110	0.586	20	

**Batch B705082 - General Prep - Wet Chem**

<b>Blank (B705082-BLK1)</b>		Prepared & Analyzed: 05/10/17								
Total Dissolved Solids	ND	10.0	mg/L							
<b>Duplicate (B705082-DUP1)</b>		Source: 1705034-01 Prepared & Analyzed: 05/10/17								
Total Dissolved Solids	380	10.0	mg/L		385			1.31	20	
<b>Reference (B705082-SRM1)</b>		Prepared: 05/10/17 Analyzed: 05/12/17								
Total Dissolved Solids	405	10.0	mg/L	390		104	85-115			

**Batch B705115 - General Prep - Wet Chem**

<b>Blank (B705115-BLK1)</b>		Prepared & Analyzed: 05/15/17								
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
<b>LCS (B705115-BS1)</b>		Prepared & Analyzed: 05/15/17								
Chloride	22.8	1.00	mg/L	25.0		91.4	90-110			
Fluoride	2.36	0.100	mg/L	2.50		94.5	90-110			
Sulfate	23.6	1.00	mg/L	25.0		94.3	90-110			
<b>LCS Dup (B705115-BSD1)</b>		Prepared & Analyzed: 05/15/17								
Chloride	23.3	1.00	mg/L	25.0		93.1	90-110	1.93	20	
Fluoride	2.40	0.100	mg/L	2.50		95.9	90-110	1.47	20	
Sulfate	24.0	1.00	mg/L	25.0		96.0	90-110	1.74	20	

**Batch B705135 - General Prep - Wet Chem**

<b>Blank (B705135-BLK1)</b>		Prepared: 05/17/17 Analyzed: 05/18/17								
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
<b>LCS (B705135-BS1)</b>		Prepared: 05/17/17 Analyzed: 05/18/17								
Alkalinity, Total as CaCO3	106	10.0	mg/L	100		106	85-115			

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: La Plata Springs Project Name / Number: 005217001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:33
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**General Chemistry - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705135 - General Prep - Wet Chem (Continued)**

**LCS Dup (B705135-BSD1)**

Prepared: 05/17/17 Analyzed: 05/18/17

Alkalinity, Total as CaCO3	107	10.0	mg/L	100		107	85-115	0.939	20	
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**Dissolved Metals by ICP - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705073 - Diss. 200.7/200.8**

**Blank (B705073-BLK1)**

Prepared & Analyzed: 05/09/17

Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							

**LCS (B705073-BS1)**

Prepared & Analyzed: 05/09/17

Calcium	4.80	0.100	mg/L	5.00		96.1	85-115			
Iron	4.84	0.050	mg/L	5.00		96.8	85-115			
Magnesium	24.5	0.100	mg/L	25.0		98.1	85-115			
Potassium	9.74	1.00	mg/L	10.0		97.4	85-115			
Sodium	7.89	1.00	mg/L	8.10		97.4	85-115			

**LCS Dup (B705073-BSD1)**

Prepared & Analyzed: 05/09/17

Calcium	4.99	0.100	mg/L	5.00		99.7	85-115	3.70	20	
Iron	4.85	0.050	mg/L	5.00		97.0	85-115	0.142	20	
Magnesium	25.1	0.100	mg/L	25.0		101	85-115	2.40	20	
Potassium	10.2	1.00	mg/L	10.0		102	85-115	4.26	20	
Sodium	8.09	1.00	mg/L	8.10		99.8	85-115	2.48	20	

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LT Environmental  
848 E 2nd Ave  
Durango CO, 81301

Project: La Plata Springs  
Project Name / Number: 005217001  
Project Manager: Devin Hencmann

Reported:  
05/19/17 13:33

Notes and Definitions

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis  
\*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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# Attachment La Plata

## Project Information

### LT Environmental

848 E 2nd Ave  
Durango, CO 81301

Phone: (970) 385-1096  
Fax: -

LTE

~~3/16/2016~~

2017

Laboratory PM: Debbie Zufelt

---

Project Name:	La Plata Springs	Invoice To:	LT Environmental
Project Number:	[none] 605217001	Invoice Bid:	(list pricing)
Client PM:	Devin Henemann	Invoice Manager:	Devin Henemann

Comments:

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Analysis	Comment
Alkalinity, Bicarbonate	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Bromide	
Calcium Dissolved by ICP	
Chloride	
Fluoride	
Iron Dissolved by ICP	
Magnesium Dissolved by ICP	
Potassium Dissolved by ICP	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Sulfate	

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75 Suttle Street  
Durango, CO 81303  
970.247.4220 Phone  
970.247.4227 Fax  
[www.greenanalytical.com](http://www.greenanalytical.com)

19 May 2017

Devin Hencmann  
LT Environmental  
848 E 2nd Ave  
Durango, CO 81301  
RE: Archuleta Springs

Enclosed are the results of analyses for samples received by the laboratory on 05/08/17 14:15.  
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt  
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Thick Spring	1705066-01	Water	05/08/17 11:05	05/08/17 14:15
Willow Spring	1705066-02	Water	05/08/17 11:45	05/08/17 14:15
Walt Spring	1705066-03	Water	05/08/17 12:35	05/08/17 14:15

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**Thick Spring**

**1705066-01 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	146	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Total as CaCO3*	146	10.0		mg/L	1	05/18/17	2320 B		LLG
Bromide	0.152	0.100	0.0251	mg/L	1	05/11/17	EPA300.0		JDA
Chloride*	94.0	5.00	0.717	mg/L	5	05/16/17	EPA300.0		JDA
Conductivity*	656	10.0		uS/cm	1	05/10/17	2510 B		BDV
Fluoride*	0.118	0.100	0.0160	mg/L	1	05/16/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	05/16/17	EPA353.2	M5	LLG
pH*	6.84			pH Units	1	05/10/17	EPA150.1		BDV
Total Dissolved Solids*	385	10.0		mg/L	1	05/11/17	EPA160.1		LLG
Sulfate*	42.0	1.00	0.156	mg/L	1	05/16/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	84.2	0.100	0.036	mg/L	1	05/09/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/09/17	EPA200.7		JDA
Magnesium*	15.3	0.100	0.026	mg/L	1	05/09/17	EPA200.7		JDA
Potassium*	<1.00	1.00	0.094	mg/L	1	05/09/17	EPA200.7		JDA
Sodium*	24.1	1.00	0.087	mg/L	1	05/09/17	EPA200.7		JDA

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Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**Willow Spring**

**1705066-02 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	108	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Total as CaCO3*	108	10.0		mg/L	1	05/18/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/11/17	EPA300.0		JDA
Chloride*	1.63	1.00	0.143	mg/L	1	05/16/17	EPA300.0		JDA
Conductivity*	238	10.0		uS/cm	1	05/10/17	2510 B		BDV
Fluoride*	0.219	0.100	0.0160	mg/L	1	05/16/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	05/16/17	EPA353.2		LLG
pH*	7.25			pH Units	1	05/10/17	EPA150.1		BDV
Total Dissolved Solids*	150	10.0		mg/L	1	05/11/17	EPA160.1		LLG
Sulfate*	15.7	1.00	0.156	mg/L	1	05/16/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	30.5	0.100	0.036	mg/L	1	05/09/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/09/17	EPA200.7		JDA
Magnesium*	4.61	0.100	0.026	mg/L	1	05/09/17	EPA200.7		JDA
Potassium*	1.72	1.00	0.094	mg/L	1	05/09/17	EPA200.7		JDA
Sodium*	15.2	1.00	0.087	mg/L	1	05/09/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**Walt Spring**

**1705066-03 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	166	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/18/17	2320 B		LLG
Alkalinity, Total as CaCO3*	166	10.0		mg/L	1	05/18/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/11/17	EPA300.0		JDA
Chloride*	1.40	1.00	0.143	mg/L	1	05/16/17	EPA300.0		JDA
Conductivity*	431	10.0		uS/cm	1	05/10/17	2510 B		BDV
Fluoride*	0.114	0.100	0.0160	mg/L	1	05/16/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	05/16/17	EPA353.2		LLG
pH*	7.03			pH Units	1	05/10/17	EPA150.1		BDV
Total Dissolved Solids*	275	10.0		mg/L	1	05/11/17	EPA160.1		LLG
Sulfate*	56.2	5.00	0.782	mg/L	5	05/16/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	53.4	0.100	0.036	mg/L	1	05/09/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/09/17	EPA200.7		JDA
Magnesium*	16.5	0.100	0.026	mg/L	1	05/09/17	EPA200.7		JDA
Potassium*	1.37	1.00	0.094	mg/L	1	05/09/17	EPA200.7		JDA
Sodium*	11.5	1.00	0.087	mg/L	1	05/09/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**General Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705071 - General Prep - Wet Chem**

<b>Blank (B705071-BLK1)</b>		Prepared: 05/09/17 Analyzed: 05/10/17								
Bromide	ND	0.100	mg/L							
<b>LCS (B705071-BS1)</b>		Prepared: 05/09/17 Analyzed: 05/10/17								
Bromide	2.57	0.100	mg/L	2.50		103	90-110			
<b>LCS Dup (B705071-BSD1)</b>		Prepared: 05/09/17 Analyzed: 05/10/17								
Bromide	2.55	0.100	mg/L	2.50		102	90-110	0.586	20	

**Batch B705091 - General Prep - Wet Chem**

<b>Blank (B705091-BLK1)</b>		Prepared & Analyzed: 05/11/17								
Total Dissolved Solids	ND	10.0	mg/L							
<b>Duplicate (B705091-DUP1)</b>		Source: 1705063-01 Prepared & Analyzed: 05/11/17								
Total Dissolved Solids	250	10.0	mg/L		260			3.92	20	
<b>Reference (B705091-SRM1)</b>		Prepared & Analyzed: 05/11/17								
Total Dissolved Solids	415	10.0	mg/L	390		106	85-115			

**Batch B705099 - General Prep - Wet Chem**

<b>Duplicate (B705099-DUP1)</b>		Source: 1705063-01 Prepared & Analyzed: 05/10/17								
Conductivity	449	10.0	uS/cm		442			1.57	20	
<b>Reference (B705099-SRM1)</b>		Prepared & Analyzed: 05/10/17								
Conductivity	484		uS/cm	496		97.6	90-110			

**Batch B705101 - General Prep - Wet Chem**

<b>Duplicate (B705101-DUP1)</b>		Source: 1705063-01 Prepared & Analyzed: 05/10/17								
pH	7.91		pH Units		7.89			0.253	20	
<b>Reference (B705101-SRM1)</b>		Prepared & Analyzed: 05/10/17								
pH	9.12		pH Units	9.08		100	7.807-102.19			

**Batch B705116 - General Prep - Wet Chem**

<b>Blank (B705116-BLK1)</b>		Prepared & Analyzed: 05/15/17								
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
<b>LCS (B705116-BS1)</b>		Prepared & Analyzed: 05/15/17								
Chloride	23.5	1.00	mg/L	25.0		94.2	90-110			

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Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**General Chemistry - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705116 - General Prep - Wet Chem (Continued)**

**LCS (B705116-BS1) (Continued)**

Prepared & Analyzed: 05/15/17

Fluoride	2.44	0.100	mg/L	2.50		97.4	90-110			
Sulfate	24.2	1.00	mg/L	25.0		97.0	90-110			

**LCS Dup (B705116-BSD1)**

Prepared & Analyzed: 05/15/17

Chloride	23.4	1.00	mg/L	25.0		93.4	90-110	0.819	20	
Fluoride	2.42	0.100	mg/L	2.50		96.9	90-110	0.494	20	
Sulfate	24.1	1.00	mg/L	25.0		96.3	90-110	0.737	20	

**Batch B705126 - General Prep - Wet Chem**

**Blank (B705126-BLK1)**

Prepared & Analyzed: 05/16/17

Nitrate/Nitrite as N	ND	0.020	mg/L							
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**LCS (B705126-BS1)**

Prepared & Analyzed: 05/16/17

Nitrate/Nitrite as N	1.01	0.020	mg/L	1.00		101	90-110			
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**LCS Dup (B705126-BSD1)**

Prepared & Analyzed: 05/16/17

Nitrate/Nitrite as N	1.02	0.020	mg/L	1.00		102	90-110	0.413	20	
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**Batch B705135 - General Prep - Wet Chem**

**Blank (B705135-BLK1)**

Prepared: 05/17/17 Analyzed: 05/18/17

Alkalinity, Total as CaCO3	ND	10.0	mg/L							
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**LCS (B705135-BS1)**

Prepared: 05/17/17 Analyzed: 05/18/17

Alkalinity, Total as CaCO3	106	10.0	mg/L	100		106	85-115			
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**LCS Dup (B705135-BSD1)**

Prepared: 05/17/17 Analyzed: 05/18/17

Alkalinity, Total as CaCO3	107	10.0	mg/L	100		107	85-115	0.939	20	
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Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/19/17 13:40
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**Dissolved Metals by ICP - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705073 - Diss. 200.7/200.8**

**Blank (B705073-BLK1)**

Prepared & Analyzed: 05/09/17

Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							

**LCS (B705073-BS1)**

Prepared & Analyzed: 05/09/17

Calcium	4.80	0.100	mg/L	5.00		96.1	85-115			
Iron	4.84	0.050	mg/L	5.00		96.8	85-115			
Magnesium	24.5	0.100	mg/L	25.0		98.1	85-115			
Potassium	9.74	1.00	mg/L	10.0		97.4	85-115			
Sodium	7.89	1.00	mg/L	8.10		97.4	85-115			

**LCS Dup (B705073-BSD1)**

Prepared & Analyzed: 05/09/17

Calcium	4.99	0.100	mg/L	5.00		99.7	85-115	3.70	20	
Iron	4.85	0.050	mg/L	5.00		97.0	85-115	0.142	20	
Magnesium	25.1	0.100	mg/L	25.0		101	85-115	2.40	20	
Potassium	10.2	1.00	mg/L	10.0		102	85-115	4.26	20	
Sodium	8.09	1.00	mg/L	8.10		99.8	85-115	2.48	20	

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Notes and Definitions

- M5 Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis  
\*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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Attachment, Archuleta  
Project Information

LT Environmental

848 E 2nd Ave 019117001  
Durango, CO 81301  
Laboratory PM: Debbie Zufelt

Phone: (970) 385-1096  
Fax: -

LTE  
~~5/16/2018~~  
2017

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Project Name:	Archuleta Springs	Invoice To:	LT Environmental
Project Number:	[none]	Invoice Bid:	(list pricing)
Client PM:	Devin Henemann	Invoice Manager:	Devin Henemann
Comments:			

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Analysis	Comment
Alkalinity, Bicarbonate	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Bromide * I C	
Calcium Dissolved by ICP	
Chloride * I C	
Conductivity	
Fluoride * I C	by I C?
Iron Dissolved by ICP	
Magnesium Dissolved by ICP	
Nitrate/Nitrite as N *	
pH	
Potassium Dissolved by ICP	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Sulfate * I C	by

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75 Suttle Street  
Durango, CO 81303  
970.247.4220 Phone  
970.247.4227 Fax  
[www.greenanalytical.com](http://www.greenanalytical.com)

26 May 2017

Devin Hencmann  
LT Environmental  
848 E 2nd Ave  
Durango, CO 81301  
RE: Archuleta Springs

Enclosed are the results of analyses for samples received by the laboratory on 05/12/17 16:50.  
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt  
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at

<http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



LT Environmental  
848 E 2nd Ave  
Durango CO, 81301

Project: Archuleta Springs  
Project Name / Number: 019117001  
Project Manager: Devin Hencmann

Reported:  
05/26/17 10:05

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Vance 1	1705124-01	Water	05/12/17 11:15	05/12/17 16:50
Vance 2	1705124-02	Water	05/12/17 12:05	05/12/17 16:50
Vance Meadow Spring	1705124-03	Water	05/12/17 13:00	05/12/17 16:50
Munger 1	1705124-04	Water	05/12/17 13:40	05/12/17 16:50
Munger 2	1705124-05	Water	05/12/17 14:20	05/12/17 16:50
Munger 4	1705124-06	Water	05/12/17 14:45	05/12/17 16:50

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/26/17 10:05
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**Vance 1**

**1705124-01 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	157	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	157	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	6.32	1.00	0.143	mg/L	1	05/23/17	EPA300.0		JDA
Conductivity*	361	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.148	0.100	0.0160	mg/L	1	05/23/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	05/25/17	EPA353.2		LLG
pH*	7.52			pH Units	1	05/17/17	EPA150.1	H4	BDV
Total Dissolved Solids*	245	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	9.35	1.00	0.156	mg/L	1	05/23/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	43.9	0.100	0.036	mg/L	1	05/17/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/17/17	EPA200.7		JDA
Magnesium*	6.04	0.100	0.026	mg/L	1	05/17/17	EPA200.7		JDA
Potassium*	18.0	1.00	0.094	mg/L	1	05/17/17	EPA200.7		JDA
Sodium*	12.8	1.00	0.087	mg/L	1	05/17/17	EPA200.7		JDA

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**Vance 2**

**1705124-02 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	158	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	158	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	1.05	1.00	0.143	mg/L	1	05/23/17	EPA300.0		JDA
Conductivity*	346	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.111	0.100	0.0160	mg/L	1	05/23/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	05/25/17	EPA353.2		LLG
pH*	7.09			pH Units	1	05/17/17	EPA150.1	H4	BDV
Total Dissolved Solids*	250	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	36.9	1.00	0.156	mg/L	1	05/23/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	50.3	0.100	0.036	mg/L	1	05/17/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/17/17	EPA200.7		JDA
Magnesium*	9.45	0.100	0.026	mg/L	1	05/17/17	EPA200.7		JDA
Potassium*	3.59	1.00	0.094	mg/L	1	05/17/17	EPA200.7		JDA
Sodium*	10.0	1.00	0.087	mg/L	1	05/17/17	EPA200.7		JDA

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**Vance Meadow Spring**

**1705124-03 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	161	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	161	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	<1.00	1.00	0.143	mg/L	1	05/23/17	EPA300.0		JDA
Conductivity*	295	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.158	0.100	0.0160	mg/L	1	05/23/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	05/25/17	EPA353.2		LLG
pH*	7.78			pH Units	1	05/17/17	EPA150.1	H4	BDV
Total Dissolved Solids*	205	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	4.70	1.00	0.156	mg/L	1	05/23/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	45.2	0.100	0.036	mg/L	1	05/17/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/17/17	EPA200.7		JDA
Magnesium*	6.26	0.100	0.026	mg/L	1	05/17/17	EPA200.7		JDA
Potassium*	2.36	1.00	0.094	mg/L	1	05/17/17	EPA200.7		JDA
Sodium*	10.9	1.00	0.087	mg/L	1	05/17/17	EPA200.7		JDA

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**Munger 1**

**1705124-04 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	145	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	145	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	0.129	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	50.3	1.00	0.143	mg/L	1	05/23/17	EPA300.0		JDA
Conductivity*	449	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.130	0.100	0.0160	mg/L	1	05/23/17	EPA300.0		JDA
Nitrate/Nitrite as N*	0.103	0.020	0.011	mg/L	1	05/25/17	EPA353.2		LLG
pH*	7.08			pH Units	1	05/17/17	EPA150.1	H4	BDV
Total Dissolved Solids*	300	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	21.0	1.00	0.156	mg/L	1	05/23/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	55.4	0.100	0.036	mg/L	1	05/17/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/17/17	EPA200.7		JDA
Magnesium*	11.3	0.100	0.026	mg/L	1	05/17/17	EPA200.7		JDA
Potassium*	2.17	1.00	0.094	mg/L	1	05/17/17	EPA200.7		JDA
Sodium*	19.4	1.00	0.087	mg/L	1	05/17/17	EPA200.7		JDA

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**Munger 2**

**1705124-05 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	195	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	195	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	6.07	1.00	0.143	mg/L	1	05/23/17	EPA300.0		JDA
Conductivity*	379	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.216	0.100	0.0160	mg/L	1	05/23/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	05/25/17	EPA353.2		LLG
pH*	7.46			pH Units	1	05/17/17	EPA150.1	H4	BDV
Total Dissolved Solids*	230	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	6.58	1.00	0.156	mg/L	1	05/23/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	50.9	0.100	0.036	mg/L	1	05/17/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/17/17	EPA200.7		JDA
Magnesium*	10.0	0.100	0.026	mg/L	1	05/17/17	EPA200.7		JDA
Potassium*	3.03	1.00	0.094	mg/L	1	05/17/17	EPA200.7		JDA
Sodium*	18.6	1.00	0.087	mg/L	1	05/17/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/26/17 10:05
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**Munger 4**

**1705124-06 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	286	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	286	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	1.94	1.00	0.143	mg/L	1	05/23/17	EPA300.0		JDA
Conductivity*	628	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.316	0.100	0.0160	mg/L	1	05/23/17	EPA300.0		JDA
Nitrate/Nitrite as N*	13.1	0.100	0.055	mg/L	5	05/25/17	EPA353.2		LLG
pH*	7.53			pH Units	1	05/17/17	EPA150.1	H4	BDV
Total Dissolved Solids*	385	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	8.60	1.00	0.156	mg/L	1	05/23/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	100	0.100	0.036	mg/L	1	05/17/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/17/17	EPA200.7		JDA
Magnesium*	13.4	0.100	0.026	mg/L	1	05/17/17	EPA200.7		JDA
Potassium*	1.85	1.00	0.094	mg/L	1	05/17/17	EPA200.7		JDA
Sodium*	14.2	1.00	0.087	mg/L	1	05/17/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/26/17 10:05
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**General Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705145 - General Prep - Wet Chem**

<b>Duplicate (B705145-DUP2)</b>		<b>Source: 1705118-01</b>		Prepared & Analyzed: 05/17/17						
pH	8.36		pH Units		8.32			0.480	20	
<b>Reference (B705145-SRM1)</b>		Prepared & Analyzed: 05/17/17								
pH	9.00		pH Units	9.08		99.1	7.807-102.19			

**Batch B705148 - General Prep - Wet Chem**

<b>Duplicate (B705148-DUP2)</b>		<b>Source: 1705118-01</b>		Prepared & Analyzed: 05/17/17						
Conductivity	438	10.0	uS/cm		424			3.25	20	
<b>Reference (B705148-SRM1)</b>		Prepared & Analyzed: 05/17/17								
Conductivity	487		uS/cm	496		98.2	90-110			

**Batch B705151 - General Prep - Wet Chem**

<b>Blank (B705151-BLK1)</b>		Prepared & Analyzed: 05/18/17								
Total Dissolved Solids	ND	10.0	mg/L							
<b>Duplicate (B705151-DUP1)</b>		<b>Source: 1705113-01</b>		Prepared & Analyzed: 05/18/17						
Total Dissolved Solids	280	10.0	mg/L		295			5.22	20	
<b>Reference (B705151-SRM1)</b>		Prepared: 05/18/17 Analyzed: 05/22/17								
Total Dissolved Solids	400	10.0	mg/L	390		103	85-115			

**Batch B705159 - General Prep - Wet Chem**

<b>Blank (B705159-BLK1)</b>		Prepared & Analyzed: 05/22/17								
Bromide	ND	0.100	mg/L							
<b>LCS (B705159-BS1)</b>		Prepared & Analyzed: 05/22/17								
Bromide	2.53	0.100	mg/L	2.50		101	90-110			
<b>LCS Dup (B705159-BSD1)</b>		Prepared & Analyzed: 05/22/17								
Bromide	2.53	0.100	mg/L	2.50		101	90-110	0.356	20	

**Batch B705174 - General Prep - Wet Chem**

<b>Blank (B705174-BLK1)</b>		Prepared: 05/22/17 Analyzed: 05/23/17								
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
<b>LCS (B705174-BS1)</b>		Prepared: 05/22/17 Analyzed: 05/23/17								
Chloride	23.5	1.00	mg/L	25.0		94.1	90-110			

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*Debbie Zufelt*

Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/26/17 10:05
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**General Chemistry - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705174 - General Prep - Wet Chem (Continued)**

**LCS (B705174-BS1) (Continued)**

Prepared: 05/22/17 Analyzed: 05/23/17

Fluoride	2.40	0.100	mg/L	2.50		95.8	90-110			
Sulfate	24.2	1.00	mg/L	25.0		96.8	90-110			

**LCS Dup (B705174-BSD1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Chloride	23.5	1.00	mg/L	25.0		94.2	90-110	0.0467	20	
Fluoride	2.38	0.100	mg/L	2.50		95.4	90-110	0.460	20	
Sulfate	24.1	1.00	mg/L	25.0		96.5	90-110	0.348	20	

**Batch B705193 - General Prep - Wet Chem**

**Blank (B705193-BLK1)**

Prepared: 05/23/17 Analyzed: 05/25/17

Alkalinity, Total as CaCO3	ND	10.0	mg/L							
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**LCS (B705193-BS1)**

Prepared: 05/23/17 Analyzed: 05/25/17

Alkalinity, Total as CaCO3	106	10.0	mg/L	100		106	85-115			
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**LCS Dup (B705193-BSD1)**

Prepared: 05/23/17 Analyzed: 05/25/17

Alkalinity, Total as CaCO3	107	10.0	mg/L	100		107	85-115	0.939	20	
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**Batch B705214 - General Prep - Wet Chem**

**Blank (B705214-BLK1)**

Prepared & Analyzed: 05/25/17

Nitrate/Nitrite as N	ND	0.020	mg/L							
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**LCS (B705214-BS1)**

Prepared & Analyzed: 05/25/17

Nitrate/Nitrite as N	0.985	0.020	mg/L	1.00		98.5	90-110			
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**LCS Dup (B705214-BSD1)**

Prepared & Analyzed: 05/25/17

Nitrate/Nitrite as N	0.990	0.020	mg/L	1.00		99.0	90-110	0.537	20	
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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 05/26/17 10:05
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**Dissolved Metals by ICP - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705125 - Diss. 200.7/200.8**

**Blank (B705125-BLK1)**

Prepared: 05/15/17 Analyzed: 05/17/17

Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							

**LCS (B705125-BS1)**

Prepared: 05/15/17 Analyzed: 05/17/17

Calcium	4.59	0.100	mg/L	5.00		91.7	85-115			
Iron	4.65	0.050	mg/L	5.00		93.1	85-115			
Magnesium	23.8	0.100	mg/L	25.0		95.3	85-115			
Potassium	9.57	1.00	mg/L	10.0		95.7	85-115			
Sodium	7.85	1.00	mg/L	8.10		96.9	85-115			

**LCS Dup (B705125-BSD1)**

Prepared: 05/15/17 Analyzed: 05/17/17

Calcium	4.56	0.100	mg/L	5.00		91.1	85-115	0.645	20	
Iron	4.69	0.050	mg/L	5.00		93.8	85-115	0.735	20	
Magnesium	23.8	0.100	mg/L	25.0		95.1	85-115	0.201	20	
Potassium	9.59	1.00	mg/L	10.0		95.9	85-115	0.228	20	
Sodium	7.78	1.00	mg/L	8.10		96.0	85-115	0.955	20	

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	<b>Reported:</b> 05/26/17 10:05
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**Notes and Definitions**

- H4 pH analysis performed more than 48 hours after sampling.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis  
\*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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(970) 247-4220  
 Fax: (970) 247-4227

service@greenanalytical.com or dzulfelt@greenanalytical.com  
 75 Suttle St Durango, CO 81303

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

Company Name (if Applicable): <u>LT Environ mental, Inc,</u> Contact Person: <u>Devin Hennemann</u> Address: <u>848 E 2nd Ave</u> City: <u>Durango</u> State: <u>CO</u> zip: <u>81301</u> Phone #: <u>(970) 385-1096</u> Email: <u>dttd@lhennemann@LTEnv.com</u> Project Name (optional): <u>Archeleta Springs</u> Project Number (optional): <u>019117001</u> Sampler Name (Print): <u>Emilee Skyles / Michael Wicker</u>		Bill to (if different): P.O. #: Company: Attn: Address: City: State: Zip: Phone #: Email:		<b>ANALYSIS REQUEST</b>		
For Lab Use	Sample Name or Location <u>Yanve 1</u> <u>Yanve 2</u> <u>Yanve Meadow Spring</u> <u>Munger 1</u> <u>Munger 2</u> <u>Munger 4</u>	Date <u>5-12-17</u>	Time <u>11:15</u> <u>12:05</u> <u>13:00</u> <u>13:40</u> <u>14:20</u> <u>14:45</u>	Matrix (check one) <input type="checkbox"/> GROUNDWATER <input checked="" type="checkbox"/> SURFACEWATER <input type="checkbox"/> WASTEWATER <input type="checkbox"/> PRODUCEDWATER <input type="checkbox"/> SOIL <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> OTHER :	# of containers No preservation (general) HNO <sub>3</sub> HCl H <sub>2</sub> SO <sub>4</sub> Other: Other:	See Attachment →
	Relinquished By: <u>[Signature]</u>	Received By: <u>Daniel Zupf</u>	Date: <u>5-12-17</u>	Time: <u>1650</u>	Report to State? (Circle) Yes      No	
	Relinquished By: _____	Received By: _____	Date: _____	Time: _____	Report to State? (Circle) Yes      No	
	Relinquished By: _____	Received By: _____	Date: _____	Time: _____	Report to State? (Circle) Yes      No	
	Relinquished By: _____	Received By: _____	Date: _____	Time: _____	Report to State? (Circle) Yes      No	
Delivered By: (Circle One) Sampler - UPS - FedEx - Kangaroo - Other:		Temperature at receipt: <u>7.4/7.6°C</u>		CHECKED BY: <u>DZ</u>		

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\* Chain of Custody must be signed in "Relinquished By:" as an acceptance of services and all applicable charges.  
 † GAL cannot always accept verbal changes. Please fax or email written change requests.

Attachment, Archuleta  
**Project Information**

**LT Environmental**

848 E 2nd Ave 019117001  
Durango, CO 81301

Phone: (970) 385-1096

Fax: -

LTE

~~5/16/2016~~

2017

Laboratory PM: **Debbie Zufelt**

---

<b>Project Name:</b>	Archuleta Springs	<b>Invoice To:</b>	LT Environmental
<b>Project Number:</b>	[none]	<b>Invoice Bid:</b>	(list pricing)
<b>Client PM:</b>	Devin Hencmann	<b>Invoice Manager:</b>	Devin Hencmann

**Comments:**

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<b>Analysis</b>	<b>Comment</b>
Alkalinity, Bicarbonate	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Bromide	
Calcium Dissolved by ICP	
Chloride	
Conductivity	
Fluoride	
Iron Dissolved by ICP	
Magnesium Dissolved by ICP	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Sulfate	

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75 Suttle Street  
Durango, CO 81303  
970.247.4220 Phone  
970.247.4227 Fax  
[www.greenanalytical.com](http://www.greenanalytical.com)

01 June 2017

Devin Hencmann  
LT Environmental  
848 E 2nd Ave  
Durango, CO 81301  
RE: Archuleta Springs

Enclosed are the results of analyses for samples received by the laboratory on 05/15/17 15:25.  
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt  
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at

<http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Grassy Spring	1705126-01	Water	05/15/17 12:00	05/15/17 15:25
Watson Well Spring	1705126-02	Water	05/15/17 12:20	05/15/17 15:25
Crane Sampling	1705126-03	Water	05/15/17 12:55	05/15/17 15:25
Woods Corigan	1705126-04	Water	05/15/17 13:53	05/15/17 15:25

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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**Grassy Spring**

**1705126-01 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	270	10.0		mg/L	5	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	270	10.0		mg/L	5	05/25/17	2320 B		LLG
Bromide	0.233	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	2.00	1.00	0.143	mg/L	1	05/24/17	EPA300.0		JDA
Conductivity*	769	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.188	0.100	0.0160	mg/L	1	05/24/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	06/01/17	EPA353.2	M5	LLG
pH*	7.15			pH Units	1	05/17/17	EPA150.1		BDV
Total Dissolved Solids*	540	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	189	10.0	1.56	mg/L	10	05/24/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	110	0.100	0.036	mg/L	1	05/23/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/23/17	EPA200.7		JDA
Magnesium*	31.5	0.100	0.026	mg/L	1	05/23/17	EPA200.7		JDA
Potassium*	2.46	1.00	0.094	mg/L	1	05/23/17	EPA200.7		JDA
Sodium*	27.4	1.00	0.087	mg/L	1	05/23/17	EPA200.7		JDA

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**Watson Well Spring**

**1705126-02 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	183	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	183	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/25/17	EPA300.0		JDA
Chloride*	2.54	1.00	0.143	mg/L	1	05/24/17	EPA300.0		JDA
Conductivity*	441	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.106	0.100	0.0160	mg/L	1	05/24/17	EPA300.0		JDA
Nitrate/Nitrite as N*	3.28	0.020	0.011	mg/L	1	06/01/17	EPA353.2		LLG
pH*	7.02			pH Units	1	05/17/17	EPA150.1		BDV
Total Dissolved Solids*	305	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	50.2	1.00	0.156	mg/L	1	05/24/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	54.7	0.100	0.036	mg/L	1	05/23/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/23/17	EPA200.7		JDA
Magnesium*	19.6	0.100	0.026	mg/L	1	05/23/17	EPA200.7		JDA
Potassium*	1.64	1.00	0.094	mg/L	1	05/23/17	EPA200.7		JDA
Sodium*	18.0	1.00	0.087	mg/L	1	05/23/17	EPA200.7		JDA

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**Crane Sampling**

**1705126-03 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	46.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	46.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/25/17	EPA300.0		JDA
Chloride*	1.41	1.00	0.143	mg/L	1	05/24/17	EPA300.0		JDA
Conductivity*	452	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.112	0.100	0.0160	mg/L	1	05/24/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	06/01/17	EPA353.2		LLG
pH*	7.22			pH Units	1	05/17/17	EPA150.1		BDV
Total Dissolved Solids*	275	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	45.5	5.00	0.782	mg/L	5	05/25/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	63.4	0.100	0.036	mg/L	1	05/23/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/23/17	EPA200.7		JDA
Magnesium*	16.7	0.100	0.026	mg/L	1	05/23/17	EPA200.7		JDA
Potassium*	1.31	1.00	0.094	mg/L	1	05/23/17	EPA200.7		JDA
Sodium*	15.7	1.00	0.087	mg/L	1	05/23/17	EPA200.7		JDA

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Debbie Zufelt, Reports Manager

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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**Woods Corigan**

**1705126-04 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	144	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/25/17	2320 B		LLG
Alkalinity, Total as CaCO3*	144	10.0		mg/L	1	05/25/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/22/17	EPA300.0		JDA
Chloride*	1.81	1.00	0.143	mg/L	1	05/24/17	EPA300.0		JDA
Conductivity*	420	10.0		uS/cm	1	05/17/17	2510 B		BDV
Fluoride*	0.124	0.100	0.0160	mg/L	1	05/24/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	06/01/17	EPA353.2		LLG
pH*	7.10			pH Units	1	05/17/17	EPA150.1		BDV
Total Dissolved Solids*	325	10.0		mg/L	1	05/18/17	EPA160.1		LLG
Sulfate*	73.8	5.00	0.782	mg/L	5	05/25/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	66.0	0.100	0.036	mg/L	1	05/23/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/23/17	EPA200.7		JDA
Magnesium*	12.4	0.100	0.026	mg/L	1	05/23/17	EPA200.7		JDA
Potassium*	1.79	1.00	0.094	mg/L	1	05/23/17	EPA200.7		JDA
Sodium*	9.45	1.00	0.087	mg/L	1	05/23/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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**General Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705146 - General Prep - Wet Chem**

<b>Duplicate (B705146-DUP1)</b>		<b>Source: 1705126-01</b>		Prepared & Analyzed: 05/17/17						
pH	7.16		pH Units		7.15			0.140	20	
<b>Reference (B705146-SRM1)</b>		Prepared & Analyzed: 05/17/17								
pH	9.03		pH Units	9.08		99.4	7.807-102.19			

**Batch B705149 - General Prep - Wet Chem**

<b>Duplicate (B705149-DUP1)</b>		<b>Source: 1705126-01</b>		Prepared & Analyzed: 05/17/17						
Conductivity	778	10.0	uS/cm		769			1.16	20	
<b>Reference (B705149-SRM1)</b>		Prepared & Analyzed: 05/17/17								
Conductivity	490		uS/cm	496		98.8	90-110			

**Batch B705151 - General Prep - Wet Chem**

<b>Blank (B705151-BLK1)</b>		Prepared & Analyzed: 05/18/17								
Total Dissolved Solids	ND	10.0	mg/L							
<b>Duplicate (B705151-DUP1)</b>		<b>Source: 1705113-01</b>		Prepared & Analyzed: 05/18/17						
Total Dissolved Solids	280	10.0	mg/L		295			5.22	20	
<b>Reference (B705151-SRM1)</b>		Prepared: 05/18/17 Analyzed: 05/22/17								
Total Dissolved Solids	400	10.0	mg/L	390		103	85-115			

**Batch B705159 - General Prep - Wet Chem**

<b>Blank (B705159-BLK1)</b>		Prepared & Analyzed: 05/22/17								
Bromide	ND	0.100	mg/L							
<b>LCS (B705159-BS1)</b>		Prepared & Analyzed: 05/22/17								
Bromide	2.53	0.100	mg/L	2.50		101	90-110			
<b>LCS Dup (B705159-BSD1)</b>		Prepared & Analyzed: 05/22/17								
Bromide	2.53	0.100	mg/L	2.50		101	90-110	0.356	20	

**Batch B705193 - General Prep - Wet Chem**

<b>Blank (B705193-BLK1)</b>		Prepared: 05/23/17 Analyzed: 05/25/17								
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
<b>LCS (B705193-BS1)</b>		Prepared: 05/23/17 Analyzed: 05/25/17								
Alkalinity, Total as CaCO3	106	10.0	mg/L	100		106	85-115			
<b>LCS Dup (B705193-BSD1)</b>		Prepared: 05/23/17 Analyzed: 05/25/17								
Alkalinity, Total as CaCO3	107	10.0	mg/L	100		107	85-115	0.939	20	

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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**General Chemistry - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705193 - General Prep - Wet Chem (Continued)**

**Batch B705194 - General Prep - Wet Chem**

**Blank (B705194-BLK1)** Prepared: 05/23/17 Analyzed: 05/24/17

Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							

**LCS (B705194-BS1)** Prepared: 05/23/17 Analyzed: 05/24/17

Chloride	23.3	1.00	mg/L	25.0	93.0	90-110				
Fluoride	2.36	0.100	mg/L	2.50	94.5	90-110				
Sulfate	23.8	1.00	mg/L	25.0	95.3	90-110				

**LCS Dup (B705194-BSD1)** Prepared: 05/23/17 Analyzed: 05/24/17

Chloride	22.9	1.00	mg/L	25.0	91.7	90-110	1.46	20		
Fluoride	2.35	0.100	mg/L	2.50	93.9	90-110	0.637	20		
Sulfate	23.5	1.00	mg/L	25.0	94.2	90-110	1.18	20		

**Batch B705210 - General Prep - Wet Chem**

**Blank (B705210-BLK1)** Prepared: 05/24/17 Analyzed: 05/25/17

Bromide	ND	0.100	mg/L							
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**LCS (B705210-BS1)** Prepared: 05/24/17 Analyzed: 05/25/17

Bromide	2.47	0.100	mg/L	2.50	98.6	90-110				
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**LCS Dup (B705210-BSD1)** Prepared: 05/24/17 Analyzed: 05/25/17

Bromide	2.48	0.100	mg/L	2.50	99.3	90-110	0.647	20		
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**Batch B705240 - General Prep - Wet Chem**

**Blank (B705240-BLK1)** Prepared: 05/30/17 Analyzed: 06/01/17

Nitrate/Nitrite as N	ND	0.020	mg/L							
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**LCS (B705240-BS1)** Prepared: 05/30/17 Analyzed: 06/01/17

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00	103	90-110				
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**LCS Dup (B705240-BSD1)** Prepared: 05/30/17 Analyzed: 06/01/17

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00	103	90-110	0.0679	20		
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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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**Dissolved Metals by ICP - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705188 - Diss. 200.7/200.8**

**Blank (B705188-BLK1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							

**LCS (B705188-BS1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Calcium	4.97	0.100	mg/L	5.00		99.4	85-115			
Iron	4.95	0.050	mg/L	5.00		99.1	85-115			
Magnesium	25.3	0.100	mg/L	25.0		101	85-115			
Potassium	10.0	1.00	mg/L	10.0		100	85-115			
Sodium	8.13	1.00	mg/L	8.10		100	85-115			

**LCS Dup (B705188-BSD1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Calcium	4.86	0.100	mg/L	5.00		97.2	85-115	2.27	20	
Iron	4.92	0.050	mg/L	5.00		98.4	85-115	0.675	20	
Magnesium	24.8	0.100	mg/L	25.0		99.1	85-115	1.88	20	
Potassium	9.91	1.00	mg/L	10.0		99.1	85-115	1.22	20	
Sodium	8.03	1.00	mg/L	8.10		99.2	85-115	1.25	20	

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:39
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Notes and Definitions

- M5 Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis  
\*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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Attachment, Archuleta  
**Project Information**

**LT Environmental**

848 E 2nd Ave 019117001  
Durango, CO 81301

Phone: (970) 385-1096  
Fax: -

LTE  
~~5/16/2018~~  
2017

Laboratory PM: Debbie Zufelt

---

Project Name:	Archuleta Springs	Invoice To:	LT Environmental
Project Number:	[none]	Invoice Bid:	(list pricing)
Client PM:	Devin Hencmann	Invoice Manager:	Devin Hencmann
Comments:			

Analysis	Comment
Alkalinity, Bicarbonate	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Bromide	
Calcium Dissolved by ICP	
Chloride	
Conductivity	
Fluoride	
Iron Dissolved by ICP	
Magnesium Dissolved by ICP	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Sulfate	

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75 Suttle Street  
Durango, CO 81303  
970.247.4220 Phone  
970.247.4227 Fax  
[www.greenanalytical.com](http://www.greenanalytical.com)

01 June 2017

Devin Hencmann  
LT Environmental  
848 E 2nd Ave  
Durango, CO 81301  
RE: Archuleta Springs

Enclosed are the results of analyses for samples received by the laboratory on 05/16/17 15:25.  
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt  
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (\*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at

<http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



LT Environmental  
848 E 2nd Ave  
Durango CO, 81301

Project: Archuleta Springs  
Project Name / Number: 019117001  
Project Manager: Devin Hencmann

Reported:  
06/01/17 16:43

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Gov 2 Spring	1705134-01	Water	05/16/17 12:20	05/16/17 15:25
Section 14 Reich Spring	1705134-02	Water	05/16/17 13:50	05/16/17 15:25

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:43
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**Gov 2 Spring**

**1705134-01 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	214	10.0		mg/L	1	05/26/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/26/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/26/17	2320 B		LLG
Alkalinity, Total as CaCO3*	214	10.0		mg/L	1	05/26/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/25/17	EPA300.0		JDA
Chloride*	1.36	1.00	0.143	mg/L	1	05/24/17	EPA300.0		JDA
Conductivity*	607	10.0		uS/cm	1	05/19/17	2510 B		BDV
Fluoride*	0.246	0.100	0.0160	mg/L	1	05/24/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	06/01/17	EPA353.2		LLG
pH*	7.24			pH Units	1	05/17/17	EPA150.1		BDV
Total Dissolved Solids*	370	10.0		mg/L	1	05/22/17	EPA160.1		LLG
Sulfate*	113	5.00	0.782	mg/L	5	05/25/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	89.2	0.100	0.036	mg/L	1	05/23/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/23/17	EPA200.7		JDA
Magnesium*	24.0	0.100	0.026	mg/L	1	05/23/17	EPA200.7		JDA
Potassium*	1.18	1.00	0.094	mg/L	1	05/23/17	EPA200.7		JDA
Sodium*	15.1	1.00	0.087	mg/L	1	05/23/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:43
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**Section 14 Reich Spring**

**1705134-02 (Water)**

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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**General Chemistry**

Alkalinity, Bicarbonate as CaCO3*	174	10.0		mg/L	1	05/26/17	2320 B		LLG
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	1	05/26/17	2320 B		LLG
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	1	05/26/17	2320 B		LLG
Alkalinity, Total as CaCO3*	174	10.0		mg/L	1	05/26/17	2320 B		LLG
Bromide	<0.100	0.100	0.0251	mg/L	1	05/25/17	EPA300.0		JDA
Chloride*	1.42	1.00	0.143	mg/L	1	05/24/17	EPA300.0		JDA
Conductivity*	415	10.0		uS/cm	1	05/19/17	2510 B		BDV
Fluoride*	0.516	0.100	0.0160	mg/L	1	05/24/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.200	0.200	0.109	mg/L	10	06/01/17	EPA353.2		LLG
pH*	7.27			pH Units	1	05/17/17	EPA150.1		BDV
Total Dissolved Solids*	230	10.0		mg/L	1	05/22/17	EPA160.1		LLG
Sulfate*	45.8	5.00	0.782	mg/L	5	05/25/17	EPA300.0		JDA

**Dissolved Metals by ICP**

Calcium*	55.6	0.100	0.036	mg/L	1	05/23/17	EPA200.7		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	05/23/17	EPA200.7		JDA
Magnesium*	7.58	0.100	0.026	mg/L	1	05/23/17	EPA200.7		JDA
Potassium*	<1.00	1.00	0.094	mg/L	1	05/23/17	EPA200.7		JDA
Sodium*	27.7	1.00	0.087	mg/L	1	05/23/17	EPA200.7		JDA

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:43
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**General Chemistry - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705146 - General Prep - Wet Chem**

<b>Duplicate (B705146-DUP2)</b>		<b>Source: 1705137-03</b>		Prepared & Analyzed: 05/17/17						
pH	7.84		pH Units		7.83			0.128	20	
<b>Reference (B705146-SRM1)</b>		Prepared & Analyzed: 05/17/17								
pH	9.03		pH Units	9.08		99.4	7.807-102.19			

**Batch B705167 - General Prep - Wet Chem**

<b>Blank (B705167-BLK1)</b>		Prepared & Analyzed: 05/22/17								
Total Dissolved Solids	ND	10.0	mg/L							
<b>Duplicate (B705167-DUP1)</b>		<b>Source: 1705134-01</b>		Prepared & Analyzed: 05/22/17						
Total Dissolved Solids	380	10.0	mg/L		370			2.67	20	
<b>Reference (B705167-SRM1)</b>		Prepared & Analyzed: 05/22/17								
Total Dissolved Solids	415	10.0	mg/L	390		106	85-115			

**Batch B705194 - General Prep - Wet Chem**

<b>Blank (B705194-BLK1)</b>		Prepared: 05/23/17 Analyzed: 05/24/17								
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
<b>LCS (B705194-BS1)</b>		Prepared: 05/23/17 Analyzed: 05/24/17								
Chloride	23.3	1.00	mg/L	25.0		93.0	90-110			
Fluoride	2.36	0.100	mg/L	2.50		94.5	90-110			
Sulfate	23.8	1.00	mg/L	25.0		95.3	90-110			
<b>LCS Dup (B705194-BSD1)</b>		Prepared: 05/23/17 Analyzed: 05/24/17								
Chloride	22.9	1.00	mg/L	25.0		91.7	90-110	1.46	20	
Fluoride	2.35	0.100	mg/L	2.50		93.9	90-110	0.637	20	
Sulfate	23.5	1.00	mg/L	25.0		94.2	90-110	1.18	20	

**Batch B705210 - General Prep - Wet Chem**

<b>Blank (B705210-BLK1)</b>		Prepared: 05/24/17 Analyzed: 05/25/17								
Bromide	ND	0.100	mg/L							
<b>LCS (B705210-BS1)</b>		Prepared: 05/24/17 Analyzed: 05/25/17								
Bromide	2.47	0.100	mg/L	2.50		98.6	90-110			
<b>LCS Dup (B705210-BSD1)</b>		Prepared: 05/24/17 Analyzed: 05/25/17								
Bromide	2.48	0.100	mg/L	2.50		99.3	90-110	0.647	20	

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:43
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**General Chemistry - Quality Control  
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705233 - General Prep - Wet Chem**

**Duplicate (B705233-DUP1)** Source: 1705151-01 Prepared & Analyzed: 05/19/17

Conductivity	620	10.0	uS/cm		600			3.28	20	
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**Reference (B705233-SRM1)** Prepared & Analyzed: 05/19/17

Conductivity	497		uS/cm	496		100	90-110			
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**Batch B705236 - General Prep - Wet Chem**

**Blank (B705236-BLK1)** Prepared & Analyzed: 05/26/17

Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L							
Alkalinity, Total as CaCO3	ND	10.0	mg/L							

**LCS (B705236-BS1)** Prepared & Analyzed: 05/26/17

Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L				85-115			
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L				85-115			
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L				85-115			
Alkalinity, Total as CaCO3	105	10.0	mg/L	100		105	85-115			

**LCS Dup (B705236-BSD1)** Prepared & Analyzed: 05/26/17

Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L				85-115		20	
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L				85-115		20	
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L				85-115		20	
Alkalinity, Total as CaCO3	106	10.0	mg/L	100		106	85-115	0.948	20	

**Batch B705240 - General Prep - Wet Chem**

**Blank (B705240-BLK1)** Prepared: 05/30/17 Analyzed: 06/01/17

Nitrate/Nitrite as N	ND	0.020	mg/L							
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**LCS (B705240-BS1)** Prepared: 05/30/17 Analyzed: 06/01/17

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110			
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**LCS Dup (B705240-BSD1)** Prepared: 05/30/17 Analyzed: 06/01/17

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110	0.0679	20	
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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	Reported: 06/01/17 16:43
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**Dissolved Metals by ICP - Quality Control**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B705188 - Diss. 200.7/200.8**

**Blank (B705188-BLK1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							

**LCS (B705188-BS1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Calcium	4.97	0.100	mg/L	5.00		99.4	85-115			
Iron	4.95	0.050	mg/L	5.00		99.1	85-115			
Magnesium	25.3	0.100	mg/L	25.0		101	85-115			
Potassium	10.0	1.00	mg/L	10.0		100	85-115			
Sodium	8.13	1.00	mg/L	8.10		100	85-115			

**LCS Dup (B705188-BSD1)**

Prepared: 05/22/17 Analyzed: 05/23/17

Calcium	4.86	0.100	mg/L	5.00		97.2	85-115	2.27	20	
Iron	4.92	0.050	mg/L	5.00		98.4	85-115	0.675	20	
Magnesium	24.8	0.100	mg/L	25.0		99.1	85-115	1.88	20	
Potassium	9.91	1.00	mg/L	10.0		99.1	85-115	1.22	20	
Sodium	8.03	1.00	mg/L	8.10		99.2	85-115	1.25	20	

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LT Environmental 848 E 2nd Ave Durango CO, 81301	Project: Archuleta Springs Project Name / Number: 019117001 Project Manager: Devin Hencmann	<b>Reported:</b> 06/01/17 16:43
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**Notes and Definitions**

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis  
\*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

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Lab #: 610487      Job #: 34779      IS-65828      Co. Job#:

Sample Name: Thick      Co. Lab#:

Company: LT Environmental

API/Well:

Container: Dissolved Gas Bottle

Field/Site Name: Archuleta Springs

Location:

Formation/Depth:

Sampling Point:

Date Sampled: 5/08/2017 11:05      Date Received: 5/10/2017      Date Reported: 5/15/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.21					
Oxygen -----	17.83					
Nitrogen -----	73.91					
Carbon Dioxide -----	7.05					
Methane -----	0.0035				0.0013	0.00087
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.63

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 610488      Job #: 34779      IS-65828      Co. Job#:

Sample Name: Willow      Co. Lab#:

Company: LT Environmental

API/Well:

Container: Dissolved Gas Bottle

Field/Site Name: Archuleta Springs

Location:

Formation/Depth:

Sampling Point:

Date Sampled: 5/08/2017 11:45      Date Received: 5/10/2017      Date Reported: 5/15/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.29					
Oxygen -----	18.54					
Nitrogen -----	77.88					
Carbon Dioxide -----	2.29					
Methane -----	0.0006				0.0002	0.0001
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00010	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.65

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 610489 Job #: 34779 IS-65828 Co. Job#:

Sample Name: Walt Co. Lab#:

Company: LT Environmental

API/Well:

Container: Dissolved Gas Bottle

Field/Site Name: Archuleta Springs

Location:

Formation/Depth:

Sampling Point:

Date Sampled: 5/08/2017 12:35 Date Received: 5/10/2017 Date Reported: 5/15/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.20					
Oxygen -----	16.49					
Nitrogen -----	77.77					
Carbon Dioxide -----	4.54					
Methane -----	nd				< 0.0002	< 0.0001
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.62

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611965      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Vance 1      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/12/2017 11:15      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.046					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.31					
Oxygen -----	21.95					
Nitrogen -----	73.84					
Carbon Dioxide -----	2.85					
Methane -----	0.0024				0.00059	0.00039
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.75

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611966 Job #: 34869 IS-65828 Co. Job#:

Sample Name: Vance 2 Co. Lab#:

Company: LT Environmental

API/Well:

Container: Dissolved Gas Bottle

Field/Site Name: Archuleta Spring Sampling

Location:

Formation/Depth:

Sampling Point:

Date Sampled: 5/12/2017 12:05 Date Received: 5/17/2017 Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.13					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.31					
Oxygen -----	18.04					
Nitrogen -----	73.83					
Carbon Dioxide -----	6.69					
Methane -----	nd				< 0.0002	< 0.0001
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00010	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.75

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611967      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Vance Meadow      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/12/2017 13:00      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.24					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.27					
Oxygen -----	20.34					
Nitrogen -----	76.53					
Carbon Dioxide -----	1.61					
Methane -----	0.0112				0.0026	0.0018
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00010	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.75

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611968      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Munger 1      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/12/2017 13:40      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.49					
Oxygen -----	2.02					
Nitrogen -----	87.32					
Carbon Dioxide -----	9.17					
Methane -----	0.0024				0.00058	0.00039
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00010	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.75

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611969      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Munger 2      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/12/2017 14:20      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.11					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.50					
Oxygen -----	18.57					
Nitrogen -----	74.26					
Carbon Dioxide -----	5.51					
Methane -----	0.0547				0.0096	0.0064
Ethane -----	nd				< 0.00010	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00009	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.80

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611970      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Munger 4      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/12/2017 14:45      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.43					
Oxygen -----	13.10					
Nitrogen -----	80.65					
Carbon Dioxide -----	4.82					
Methane -----	0.0007				0.0002	0.0001
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00010	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.72

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611971      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Grassy Spring      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/15/2017 12:00      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.25					
Oxygen -----	16.11					
Nitrogen -----	75.97					
Carbon Dioxide -----	6.67					
Methane -----	nd				< 0.0002	< 0.0001
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.64

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611972      Job #: 34869      IS-65828      Co. Job#:  
 Sample Name: Watson Well Spring      Co. Lab#:  
 Company: LT Environmental  
 API/Well:  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location:  
 Formation/Depth:  
 Sampling Point:  
 Date Sampled: 5/15/2017 12:20      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.34					
Oxygen -----	21.75					
Nitrogen -----	69.93					
Carbon Dioxide -----	6.97					
Methane -----	0.0062				0.0016	0.0011
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00009	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.71

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611973      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Crain Spring      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/15/2017 12:55      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.51					
Oxygen -----	12.78					
Nitrogen -----	79.46					
Carbon Dioxide -----	6.25					
Methane -----	nd				< 0.0002	< 0.0001
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00009	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.71

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 611974      Job #: 34869      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Woods Corigan      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Spring Sampling  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/15/2017 13:53      Date Received: 5/17/2017      Date Reported: 5/26/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.71					
Oxygen -----	nd					
Nitrogen -----	90.46					
Carbon Dioxide -----	7.83					
Methane -----	0.0021				0.00044	0.00029
Ethane -----	nd				< 0.00010	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00009	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.76

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 612006      Job #: 34884      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Gov-2 Spring      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Springs  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/16/2017 12:20      Date Received: 5/18/2017      Date Reported: 6/02/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.78					
Oxygen -----	0.13					
Nitrogen -----	87.93					
Carbon Dioxide -----	10.16					
Methane -----	0.0013				0.0003	0.0002
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00009	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.77

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 612007      Job #: 34884      IS-65828      Co. Job#: \_\_\_\_\_  
 Sample Name: Section 14 Reich Spring      Co. Lab#: \_\_\_\_\_  
 Company: LT Environmental  
 API/Well: \_\_\_\_\_  
 Container: Dissolved Gas Bottle  
 Field/Site Name: Archuleta Springs  
 Location: \_\_\_\_\_  
 Formation/Depth: \_\_\_\_\_  
 Sampling Point: \_\_\_\_\_  
 Date Sampled: 5/16/2017 13:50      Date Received: 5/18/2017      Date Reported: 6/02/2017

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.38					
Oxygen -----	21.38					
Nitrogen -----	73.28					
Carbon Dioxide -----	3.95					
Methane -----	0.0095				0.0025	0.0017
Ethane -----	nd				< 0.0001	< 0.0001
Ethylene -----	nd					
Propane -----	nd				< 0.00010	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

**Remarks:**

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.71

\*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.