FRUITLAND OUTCROP INITIAL RECONNAISSANCE REPORT

ARCHULETA COUNTY, COLORADO

NOVEMBER 2004

Prepared for:

ELM RIDGE RESOURCES, INC.
Dallas, Texas

And

PETROX RESOURCES, INC.
Meeker, Colorado

And

BP, INC.
Denver, Colorado

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EXECUTIVE SUMMARY

In June 2004, the United States Forest Service (USFS) and the Bureau of Land Management (BLM) issued a Draft Environmental Impact Statement (DEIS) pertaining to the oil and gas industry's request to conduct coal bed methane (CBM) production on Federal lands within the northern rim of the San Juan Basin (SJB). One of the potential impacts identified in the DEIS is methane seepage at the outcrop of the Fruitland Formation (Kf), a phenomenon already observed in many areas of the western half (La Plata County) of the northern rim of the SJB.

This Fruitland Formation (Kf) Outcrop Initial Reconnaissance Report has been prepared at the request of Elm Ridge Resources, Inc. (Elm Ridge), Petrox Resources, Inc. (Petrox), and BP, Inc. (BP). Elm Ridge and Petrox are the majority lease holders in the eastern half of the northern rim of the SJB in Archuleta County, Colorado. BP is responsible for monitoring the portion of the outcrop in La Plata County that was included in this initial reconnaissance only. Future monitoring of the portion of outcrop in La Plata County will be incorporated into the project for the western half of the outcrop. This initial reconnaissance has been initiated as a proactive effort to establish existing conditions of vegetation and seep activity along the Kf outcrop prior to future CBM development as recommended in the DEIS.

The project area includes approximately 18 miles of Kf outcrop starting four miles west of the La Plata County – Archuleta County boundary and extending southeast along the outcrop to the Southern Ute Indian Tribe (SUIT) Reservation Boundary near the confluence of the Piedra River and Stollsteimer Creek.

The objectives of this event were to conduct an initial reconnaissance with regard to seep activity. Over time, continued monitoring efforts will be implemented to document changes in methane seep activity within the project area. The overriding goal of the monitoring program is to ensure the safety of the public and the environment. LTE has already proposed to conduct infrared aerial imagery acquisition in May 2005 for the outcrop area within Archuleta County. The IR imagery will be used to further establish the preproduction conditions across the entire project area.

The scope of this initial reconnaissance event included an aerial reconnaissance of the entire outcrop followed by field inspection in suspect areas. Suspect areas are defined as areas of stressed and dead vegetation on the Kf outcrop and areas where surface water bodies, namely rivers, transect the Kf outcrop (i.e. the Piedra River south of US Highway 160).

The initial reconnaissance did not identify any areas along the outcrop that appeared to contain active methane seepage. All of the suspect areas identified appeared to be the result of beetle infestation, over grazing, and/or drought. No methane was detected at any of the more than 160 areas observed.

LTE recommends field verification of suspect areas identified during the proposed 2005 IR imagery acquisition program in July 2005. The field verification activities would be performed in a manner similar to this survey as a means to monitor the outcrop over time.

Based on recent complaints from private land owners received by the Colorado Oil and Gas Conservation Commission (COGCC) and other oil and gas companies, LTE recommends the implementation of a reconnaissance effort to identify and survey natural springs along the outcrop in July 2005. This task could easily be added to the regional methane seepage monitoring reconnaissance tasks along the outcrop. The purpose of this survey would be to identify potential discharge points for use in reservoir modeling but also to establish and maintain a record of active springs and historic dry springs.

Long term monitoring will provide valuable information regarding changes in methane seepage over time and space and allow for ongoing assessment of potential risks to human health and the environment.

SECTION 1.0

INTRODUCTION

In June 2004, the United States Forest Service (USFS) and the Bureau of Land Management (BLM) issued a Draft Environmental Impact Statement (DEIS) pertaining to the oil and gas industry's request to conduct coal bed methane (CBM) production on Federal lands within the northern rim of the San Juan Basin (SJB). While CBM production has been on going in the area for at least the past 10 years, much of the project area of concern is undeveloped Federal lands, most of which lie in Archuleta County. One of the potential impacts identified in the DEIS is methane seepage at the outcrop of the Fruitland Formation (Kf), a phenomenon already observed in the western half of the northern rim in La Plata County (*Fruitland Outcrop Monitoring Report, October 2004*). The DEIS recommends surveys of the Kf outcrop to monitor the potential for methane seepage and document changes over time and space, if applicable.

This Fruitland Formation Outcrop Initial Reconnaissance Report has been prepared at the request of Elm Ridge Resources, Inc. (Elm Ridge), Petrox Resources, Inc. (Petrox), and BP, Inc. (BP). Elm Ridge and Petrox are the majority lease holders in the eastern half of the northern rim of the SJB in Archuleta County, Colorado. BP is responsible for monitoring the portion of the outcrop in La Plata County that was included in this initial reconnaissance survey. Future monitoring of the portion of outcrop in La Plata County will be incorporated into the project for the western half of the outcrop. This reconnaissance has been initiated as part of a proactive effort to establish existing conditions of vegetation and seep activity along the outcrop prior to future CBM development.

1.1 PROJECT AREA DESCRIPTION

The project area includes approximately 18 miles of Kf outcrop starting on the west end at the La Plata County – Archuleta County boundary near Beaver Creek and extending southeast along the outcrop to the Southern Ute Indian Tribe (SUIT) Reservation Boundary near confluence of the Piedra River and Stollsteimer Creek. During this initial reconnaissance, LTE also visited a four-mile portion of outcrop in La Plata County from East Pine to the La Plata-Archuleta County border. Figure 1A illustrates the project area. A detailed project area map is included as Figure 1B.

Based on LTE's experience in the western half of northern rim of the SJB, seep activity appears to be more active in lowland areas where surface water drainage features transect the outcrop. As part of this initial reconnaissance, LTE focussed much of the field efforts toward inspecting similar topographic features.

1.2 BACKGROUND INFORMATION

Since 1998, LT Environmental, Inc. (LTE) has conducted methane seep monitoring on the Kf outcrop in La Plata County, Colorado. This initial reconnaissance program in Archuleta County has been modeled after work already completed in the western half of the northern rim of the SJB.

As stated in the DEIS, methane seeps have been observed and reported in the SJB, particularly from the outcrop of the coal beds in the Fruitland Formation since the late 1800s. The report also states that existing data suggests that the intensity and areal extent of known seeps has increased during the last 20 years and that new seeps developed after CBM development began. While there is conflicting data regarding the changes in gas seepage over time and the cause of the seepage, seep activity can be monitored through detailed mapping, subsurface methane measurements, and reconnaissance across the outcrop looking for areas of stressed and dead vegetation.

The scope of this initial reconnaissance event included an aerial reconnaissance of the entire outcrop followed by field inspection in suspect areas. "Suspect areas" are areas of stressed and dead vegetation on the Kf outcrop and areas where surface water bodies, namely rivers, transect the Kf outcrop (i.e. the Piedra River south of US Highway 160).

1.3 PROPERTY ACCESS

LTE acquired land ownership information from the Archuleta County Assessor's Office prior to initiation of the field activities. LTE used a Geographic Information System (GIS) to cross-reference the parcel data and the Kf outcrop to select those parcels located on the Kf outcrop. LTE attempted to contact the landowners of property in lowland drainage areas that transect the outcrop. Much of the land covering the Kf outcrop was public forest lands, therefore, it was not necessary to obtain permission to access those parcels. Figures 2A through 2C illustrate the land ownership across the project area. Table 1 summarizes the land ownership information. For identification purposes, LTE established names for the areas of interest based primarily on the nearest drainage feature, land owner's name, or other distinguishing landmark.

1.3.1 Beaver Meadows

The first area inspected during this initial reconnaissance is located beyond the western boundary of the project area. The site is actually located in La Plata County along Forest Road 135 just west of Beaver Creek. The BLM has installed a permanent monitoring probe line in this area labeled as Beaver Meadows and probes are designated with the initials "BM". Ultimately, this area will become part of the La Plata County monitoring project at the request of BP. This area of outcrop is very near Shamrock Mines, as depicted on the Baldy Mountain US Geological Survey 7.5 Minute Quadrangle Topographic Map. This area is located in the southwest quarter of Section 13, Township 35 North, Range 6 West.

1.3.2 Beaver Creek

The Beaver Creek (BVC) area is located in Archuleta County on private property owned primarily by Mr. Thomas Wood. Two other land owners, one who denied access and one who could never be contacted, own property on the north and east sides of this study area. LTE was only able to access the Wood property at the time of this field work. The Beaver Creek area is located in the southeast quarter of Section 13 and the northeast quarter of Section 24, Township 35 North, Range 6 West.

1.3.3 Yellow Jacket Pass

The Yellow Jacket Pass (YJP) area is located along US Highway 160 where the highway transects the Kf outcrop. Squaw creek parallels US Highway 160 on the west side of the road. The study area is located on public forest lands in portions of Sections 4, 5, and 9 of Township 34 North, Range 5 West.

1.3.4 Little Squaw Creek

The Little Squaw Creek (LSC) area is located primarily in the northwest corner of Section 15, Township 34 North, Range 5 West. This valley transects the Kf outcrop near the east end of the ascent over YJP.

1.3.5 Pole Gulch

Pole Gulch (PG) is the next valley southwest of LSC along Fosset Gulch Road. This area is located in the northeast quarter of Section 15 and the northwest quarter of Section 14 in Township 34 North, Range 5 West. A small intermittent creek runs along the bottom of PG. The creek was not flowing at the time of LTE's inspection.

1.3.6 Candelaria Ranch

The Candelaria ranch is located at the junction of Fosset Gulch (FG) and Peterson Gulch (PG). FG is a lowland valley that parallels the northwest-southeast strike of the Kf outcrop in Sections 9U, 10U, and 15U, Township 34 North, Range 5 West. Most of this area is not located on the Kf outcrop with the exception of the eastern end of the valley that joins with Peterson Gulch at the primary Candelaria residence in Section 24, Township 34 North, Range 5 West. The Candelaria family owns several large tracts of land on the Kf outcrop at the east end of Fosset Gulch and along the Piedra River. LTE was granted access to the Candelaria properties during this site investigation.

1.3.7 Piedra River

The Piedra River (PDA) transects the Kf outcrop approximately two miles south of US Highway 160. This study area consists of several tracts of land owned by various members of the Candelaria Family. The valley floor is largely used for growing hay and grazing animals. As the river meanders through the valley, steep cliff walls with exposed sandstones, claystones, shales, and coal are visible. The area is located in the southwest corner of Section 24 and northwest corner of Section 25 in Township 34 North, Range 5 West.

1.3.8 Stollsteimer Creek

The Stollsteimer Creek (SC) area is located adjacent to Highway 151 and consists of a lowland valley with a meandering creek which was flowing at the time of LTE's inspection. A large portion of the study area is owned by Mr. Mel Martinez who did grant access to his property. Another portion of the area is owned by EF Coal Resources LP and contains a reclaimed coal mine called the Chimney Rock Mine. The area is located primarily in the central portion of Section 30, Township 34 North, Range 4 West.

1.3.9 Cabezon Canyon

The Cabezon Canyon (CC) area is located on the eastern end of the project area and consists of a valley and intermittent creek that transects the Kf outcrop in the north-south direction. The canyon consists of many small tracts of privately owned land for residential and small ranching purposes. LTE had difficulty contacting landowners in this valley but was granted access to the Muhlig Property which is located on the west side of the canyon on the basal portion of the Kf. The CC area is located in Section 33, Township 34 North, Range 4 West.

1.4 OBJECTIVES

The objectives of this monitoring event were to establish baseline conditions with regard to methane seep activity. Over time, continued monitoring efforts will be implemented to document changes in methane seep activity within the project area. The overriding goal of the monitoring program is to ensure the safety of the public and the environment.

It is important to note that this field event was performed as an initial reconnaissance survey and was not designed as a detailed mapping program nor was it designed so that all potential seep areas along the outcrop could be identified. The scope of work was developed to provide the most efficient means by which to characterize the general condition of seep activity, if any, along the entire project area and to inspect those areas with the greatest potential for seep activity based on patterns observed in the western half of the northern rim of the SJB. The survey was also designed to assist in the development of future monitoring programs such as identifying areas requiring more detailed mapping and/or identifying areas that would be best suited for permanent monitoring systems. The infrared (IR) imagery acquisition of the entire outcrop is scheduled for May 2005 with follow-up field verification in July 2005.

1.5 ORGANIZATION OF REPORT

This report is organized into four sections including this introduction, which presents the objective of the study and discusses background information related to the project. The field methods used to complete the scope of work are described in Section 2.0. Section 3.0 presents the results of the initial reconnaissance. The conclusions and recommendations are summarized in Section 4.0. Figures, tables, and appendices follow the text in separate sections. Pertinent photographs have been included in the text.

SECTION 2.0

FIELD METHODS

This section describes the approach and procedures used to conduct the initial reconnaissance event. Photographic documentation of the field activities is included throughout the report.

2.1 AERIAL RECONNAISSANCE

Due to the lack of previous methane seep field studies in Archuleta County, LTE elected to use a helicopter to conduct an initial reconnaissance of the entire outcrop area prior to conducting the ground survey. The initial aerial reconnaissance allowed LTE personnel experienced in conducting methane seep surveys to view the entire 18 miles of outcrop in a short time frame. Within three hours, LTE had flown the outcrop and were able to identify suspect areas of stressed and dead vegetation that required further inspection. In addition, the aerial reconnaissance assisted in identifying appropriate access routes to various areas across the outcrop.

The aerial reconnaissance was performed by helicopter through New Air Helicopters (New Air) based out of Durango, Colorado. LTE personnel directed the pilot at low altitude across the outcrop areas based on GPS location and geologic maps and by visual inspection of the outcropping strata. When areas of interest were observed, LTE noted the location on maps so that the area could be inspected on foot.

On September 20, 2004, LTE was on site to conduct the aerial reconnaissance. The reconnaissance started at the intersection of Pine River and the Kf and headed eastward and southeastward toward the SUIT Reservation boundary. The aircraft moved relatively slowly in order to facilitate visual observation of the ground and vegetative surface. In some cases, LTE directed the aircraft to circle over a suspect area so that better observations could be made. Usually, the aircraft was at an altitude of approximately 100 feet above the ground surface.

2.2 FIELD INSPECTION/VERIFICATION

Upon completion of the aerial reconnaissance activities, LTE initiated field inspection of suspect areas with the goal of identifying the presence or absence of methane. Due to private property considerations, not all areas of the outcrop could be inspected on foot because landowners did not grant access to the property.

Prior to initiation of all field activities, LTE obtained the land parcel database and geographic data from the Archuleta County Tax Assessor's Office. LTE then cross-referenced the parcel data with the Kf outcrop extent using a Geographic Information System (GIS) to identify those properties that intersect the boundaries of the outcrop. LTE then contacted landowners via telephone and requested access to the property to conduct the initial reconnaissance. Areas where access was denied is shown on Figures 2A through 2C which illustrate land ownership across the project area. A majority of the land intersecting the Kf outcrop in Archuleta County is public forest lands.

The initial reconnaissance was conducted during the period from September 20 through September 24, 2004. The LTE field crew was equipped with the aerial photographs, topographic maps, digital camera, sampling equipment (slide-hammer and probe), global positioning system (GPS), and an MSA GasPort® capable of detecting methane, hydrogen sulfide (H_2S), oxygen (O_2), and carbon monoxide (CO).

The procedure of the reconnaissance program involved walking the suspect areas and along surface water drainage features which transect the outcrop and collecting subsurface methane gas concentration measurements. The subsurface methane measurements were collected within areas of dead or stressed vegetation or adjacent to dead or stressed trees. In areas where no dead or stressed vegetation was noted, LTE collected subsurface methane measurements at random intervals across the transect.

LTE mapped the dead or stressed trees, areas of dead or impacted grass using the GPS as appropriate in order to give the end user general information regarding the vegetative condition in the area. LTE did not attempt to prepare a comprehensive map of all dead or stressed vegetation features but rather a general overview of the areas investigated. Subsurface measurements of methane, H_2S, CO, and O_2 were collected in areas of stressed or dead vegetation but also in vegetated areas to demonstrate that the area was inspected.

When the surface water flow was relatively low enough, LTE waded through the creeks and walked along the banks looking for methane seep bubbles and dead or stressed vegetation.

2.2.1 Types of Features Observed

The types of features looked for during the survey included the following:

- non-vegetated areas;
- dead vegetated areas;
- stressed vegetated areas;
- dead trees;
- stressed trees; and
- visible methane seeps within surface water bodies.

LTE did not attempt to record all features observed or attempt to generate a comprehensive map of dead or stressed vegetation. Only features needed to characterize the general nature of the existing conditions were noted. The mapping results are presented in figures, which are contained in a separate section following the text. The subsurface methane measurement location symbols are graduated based on concentration. Trees and seeps are mapped as point features. Dead and stressed areas are mapped as polygon features.

2.2.2 Use of GPS

LTE used a Trimble GeoXT® GPS with a real-time correction processor to map each feature. The GeoXT® is a different unit from the GPS used in previous monitoring events, but the unit maintains the same survey accuracy. Specifications of the unit are included in Appendix A. The methane measurements and other relevant field notes were stored as attributes in the GPS unit with the associated GPS mapped positions. The GPS data were later downloaded and grouped according to the type of feature, as points, lines, or polygons.

The data were collected with GPS in the WGS 84 coordinate system and converted to decimal degrees NAD 83 for use in the Durango Methane ArcView® project file developed by LTE in 2001. On average, 20 GPS readings were collected for each point feature in order to obtain more accurate positioning. The perimeter of each mapped area was slowly traversed collecting positioning data at a rate of approximately one logged point per foot.

2.2.3 Gas Measurement Collection

A slide hammer was used to advance a 3/8-inch diameter steel rod (probe) to a depth of approximately 36 inches during the field investigation. Some probe holes were shallower than 36 inches due to the density of the ground surface. One-quarter inch diameter polyethylene tubing perforated at the bottom six inches was inserted into each probe hole to collect subsurface gas measurements. The MSA GasPort® field meter was utilized to measure the concentration of methane, H_2S, CO, and O_2 in each probe hole.

The MSA GasPort® is capable of detecting methane in concentrations from zero parts per million (ppm) to 100 percent (%) methane. Specifications for the unit are included in Appendix A. The field meter was calibrated to methane, H_2S, and CO each morning and again at midday to ensure the equipment was working properly.

2.3 LIMITATIONS

The type of terrain that exists along the Kf outcrop presents difficulties for both the GPS unit and collection of subsurface methane samples with the slide hammer.

North-facing slopes and heavily wooded areas are difficult to obtain accurate positioning by the GPS. Satellite signals are frequently bounced among the trees or lost completely. When satellite signals are limited, positioning accuracy decreases. In some cases, it is not possible to map by GPS. Readings collected with the GPS unit can be located within one-meter radius of accuracy. However, in heavily wooded areas and north-facing slopes the unit's accuracy will decrease.

Soil probing in consolidated materials along the outcrop was limited. LTE used the slide hammer to probe to a maximum depth of 36 inches below ground surface (bgs). In some cases, probing depths of 18 inches bgs were laborious to achieve. If refusal occurred, measurements were taken at the depth bored. All probe holes were advanced to a depth ranging from 6 inches to 36 inches bgs depending on the type of surface cover present.

Finally, LTE was restricted by property owners from accessing several areas within the project area. These areas are denoted on Figures 2A through 2C.

SECTION 3.0

INITIAL RECONNAISSANCE RESULTS

This section describes the results of the aerial reconnaissance observations and the field investigation activities conducted within the project area during the period from September 20, 2004 through September 24, 2004. The suspect areas and areas of interest identified during the initial reconnaissance are illustrated on Figures 3A through 3C. Detailed maps of each area investigated on foot are included in Figures 4 through 13.

For each figure reference, LTE has designated a text reference label to easily identify the location discussed. Each label consists of a two-letter abbreviation for the mapping area followed by a number (i.e. BM-1). Aerial photographs used as the basemap in the figures for this report are dated August 1999. The aerial photos do not depict physical changes that may have occurred since that date.

3.1 BEAVER MEADOWS

As previously stated, the Beaver Meadows area is located in La Plata County and will ultimately be moved from this project area into the project covering the western half of the Kf outcrop. This area ties the existing La Plata County Project to the Archuleta County Project completing the review of the entire northern rim of the SJB.

Dead tree area, (likely beetle kill) east of Beaver Creek

The aerial reconnaissance of this area did not identify any significant suspect areas. LTE investigated this area on September 20, 2004 because it is a lowland area that transects the Kf outcrop. The area inspected consisted of the valley floor area and small open meadow. Areas of stressed/dead vegetation (predominantly grasses) were noted on the floor of the valley but methane was not detected in the subsurface in these areas (BM-1, Figure 4). LTE also collected

14 measurements from several sample locations along the valley floor and a few of the BLM's permanent monitoring probes, which have been installed along the eastern portion of the valley on the east side of Forest Road 135. No methane was detected at any of the measurement locations or within the permanent probes.

3.2 BEAVER CREEK

LTE inspected the Beaver Creek area on September 21, 2004. During the aerial reconnaissance, several large areas of dead trees on the outcrop area east of Beaver Creek were noted (BVC-1, Figure 5). LTE was denied access to the suspect area east of the valley containing the large area of dead trees. Based on LTE's experience, the extent of dead vegetation, and initial visual appearance, it is likely that the area is a result of beetle infestation rather than methane seepage. Since no methane was detected in the lowland area of Beaver Creek, it is unlikely that methane would be present in the upland area east of the creek.

LTE inspected the valley floor of the Beaver Creek area and also looked for visible seeps within the creek. LTE collected field measurements from eight sample locations. No methane was detected at any of the locations. LTE did not identify any areas that contained dead or stressed vegetation that appeared to be impacted by methane with the exception of a small area on the Peinado parcel, at the north end of the valley (BVC-2, Figure 5). Some non-vegetated areas were noted on the valley floor but it is likely that this area was disturbed by brush clearing activities rather than methane. LTE did not have access to the Peinado parcel to confirm the presence or absence of methane in the cleared area.

Beaver Creek Valley, view east.

During inspection of the Beaver Creek area, LTE noted a large aspen tree grove on the east side of the valley that was not fully vegetated. It is likely that the trees have already begun to lose their leaves for the fall. However, previous studies conducted by BP in the western portion of the northern rim of the SJB have related some aspen tree groves to existing or historic methane

Aspen grove on Watson Property, view east.

seep areas. The relationship posited by BP is based on aspen trees being the first trees to grow back after a die-back of a forest, or based on subsurface structures (like fractures and faults) causing increased water flow in the subsurface. The increased water flow may also increase gas seepage flow but also provide the good watering system needed for aspen growth. This grove is located on the Watson property where LTE was not granted access.

3.3 YELLOW JACKET PASS

During the aerial reconnaissance, LTE noted a small cluster of dead pine trees on the outcrop northwest of the top of YJP at US Highway 160 (suspect area noted on Figures 3A and 3B). LTE believed these trees were dead as a result of beetle infestation, therefore we did not attempt to investigate this area on foot. Furthermore, access to the area was limited and would have required more than two miles of hiking to reach the area. This small area will be included in the 2005 reconnaissance work.

No suspect areas at the intersection of US Highway 160 and the Kf outcrop were noted through the aerial reconnaissance. As part of the ground activities, LTE walked and sampled along both sides of US Highway 160 where the highway transects the outcrop. Squaw Creek also runs parallel to US Highway 160 on the west side of the road. LTE inspected the creek, which was running at the time, for visible methane seeps. No methane was detected in the subsurface soil at any of the 25 measurement locations in the Yellow Jacket Pass area.

3.4 LITTLE SQUAW CREEK

No suspect areas were noted during the aerial reconnaissance of the Little Squaw Creek area. During the ground inspection activities, LTE walked the valley floor and collected subsurface methane measurements at 13 sample locations. Methane was not detected at any of the measurement locations. One area of dead willow trees was noted adjacent to the dry creek bed

but methane was not detected in the area (LSC-1, Figure 7). Another large area of stressed scrub oak trees was noted in the valley but no methane was detected.

3.5 POLE GULCH

During the aerial reconnaissance, LTE noted an area of dead pine trees east of the valley of Pole Gulch (PG-1, Figure 8). It appeared that the dead tree area was a result of beetle infestation based on field inspection of the area.

LTE inspected the Pole Gulch area on September 22, 2004 including the entire valley across the Kf and the upland area identified during the aerial reconnaissance. Other than the dead pine trees in the upland area that were killed by beetle infestation, no other significant areas of dead or stressed vegetation were noted in the valley. No methane was detected at the 12 subsurface measurement locations within Pole Gulch.

3.6 CANDELARIA RANCH

The Candelaria residence/ranch at the confluence of Peterson Gulch and Fosset Gulch (CR-1, Figure 9). During the aerial reconnaissance, LTE noted several suspect areas around these residences and the barn and stables areas.

LTE inspected the area on foot on September 22, 2004. A total of 25 subsurface methane measurements were collected at Candelaria Ranch. No methane was detected in any of the areas. Much of the dead/stressed vegetation appears to be from stock animals trampling on the vegetation. In addition, a large outcrop of coal and shale also accounts for a large area of non-vegetation (CR-2, Figure 9).

Candelaria residence/ranch, view northeast.

No suspect areas were noted in the large valley floor of the central portion of Peterson Gulch during the aerial reconnaissance. LTE did note suspect areas on the southeastern portion of Peterson Gulch just north of the Candelaria residence/ranch (CR-3, Figure 9).

LTE inspected the suspect areas north of the Candelaria residence/ranch. Several areas of dead/stressed scrub oak were inspected and areas of non-vegetation were also noted in addition to an old coal mine area. No methane was detected in this area.

3.7 PIEDRA RIVER

During the aerial reconnaissance, LTE noted several small areas of dead or stressed vegetation along the valley floor primarily on the northern end of the area correlating to the basal portion of the Kf outcrop based on surface geology (PDA-1, Figure 10).

LTE conducted the ground activities on September 23, 2004. LTE walked along the river and tried to identify seeps within the surface water body. However, the area had received large amounts of precipitation several days prior to the field activities resulting in high turbid flows within the river which made identifying seeps difficult. LTE did not identify any visible seep activity along the banks of the river. No methane was detected in any of the 19 subsurface measurements collected along the valley floor.

Subsurface methane measurement location adjacent to the Piedra River, view south.

3.8 STOLLSTEIMER CREEK

LTE identified several small suspect areas during the aerial reconnaissance over the Stollsteimer Creek area. In particular, two small areas in the valley southwest of the reclaimed strip mine and one suspect area in the uplands north of the creek.

Upon investigation on the ground, LTE did not identify any methane in the subsurface at any of the suspect areas. The suspect area identified during the aerial reconnaissance in the lowlands east of the Martinez residence appeared to be a result of damage from stock animals (SC-1, Figure 11).

LTE collected 36 subsurface methane measurements along the valley floor of Stollsteimer Creek. No methane was detected at any of the locations. LTE also inspected the surface water within Stollsteimer Creek, which was flowing at the time of the field work, to determine if any methane seep activity was present. LTE identified one small seep within the creek that appeared to be gas (SC-2, Figure 11). The seep would consistently appear on an interval of approximately one to three minutes. After further investigation of the area, LTE noted that a natural gas pipeline crosses the creek at the precise location where the seep bubbles were observed. Based on the absence of any other naturally occurring seep activity and the presence of the buried natural gas pipeline, LTE believes that the seep is a result of a leaking pipeline rather than natural seepage of coal bed methane.

Seep in Stollsteimer Creek above natural gas pipeline, view west.

LTE investigated an upland area north of Stollsteimer Creek and south of Chimney Rock. A large suspect area was observed during the aerial reconnaissance. Upon inspection, it is obvious that the area has been impacted by beetle infestation (SC-3, Figure 12). No methane was detected at any of the 10 subsurface measurement locations in the upland area.

Beetle infestation,
pine tree.

The area on the old Chimney Rock Mine was not investigated since all of the coal in this area has been mined. According to Mr. Martinez, the coal mine experienced gas seeps during operation.

3.9 CABEZON CANYON

The aerial reconnaissance in the Cabezon Canyon area identified many large areas of dead vegetation. In addition, LTE noted a large area of forest damaged by recent fires along the southern boundary of the study area (Figure 13). Based on the observations, LTE believes the large areas of dead vegetation in the uplands east of Cabezon Canyon are a result of beetle infestation and not methane seepage. (CC-1, Figure 13).

Much of the lowland areas in the canyon are private property. LTE was only granted access to the Muhlig Property in this valley (CC-2, Figure 13). The Muhlig Property is located on the basal portion of the Kf in the valley. During the aerial reconnaissance, LTE noted a relatively small area of stressed/dead vegetation and non-vegetation areas west of the residence. It is likely that the area does not readily grow vegetation due to the steep slope and the exposed shale and coal outcrops.

LTE investigated the suspect area on foot on September 24, 2004. No methane was detected in any of the four subsurface methane measurement locations in the area investigated.

SECTION 4.0

CONCLUSIONS AND RECOMMENDATIONS

4.1 AERIAL RECONNAISSANCE

The aerial reconnaissance of the outcrop area is an efficient means by which to view the entire outcrop, especially since the area had not been investigated to date. LTE was able to identify 16 suspect areas along remote portions of the outcrop and along areas where property access was not granted in a short time frame. The accessible suspect areas could then be inspected on foot to verify the presence or absence of methane in a more efficient manner.

LTE does not anticipate additional reconnaissance by helicopter at the present time but the technique may prove to be useful again in the future as more information about the project area and potential seep activity is acquired.

However, LTE has already proposed to conduct infrared (IR) aerial imagery acquisition in May 2005. The IR imagery will be used to further identify suspect areas, which can then be investigated on the ground. LTE recommends that IR imagery reconnaissance be performed every two to three years. One of the most useful aspects of the IR imagery program is that the IR imagery establishes a photo-record documenting the condition of the vegetation over a large area with relative ease. The imagery can then be compared to future IR imagery acquisition events to quantify the magnitude and extent of change over time.

4.2 FIELD VERIFICATION ACTIVITIES

LTE conducted field verification activities to determine the presence or absence of methane in suspect areas identified during the aerial reconnaissance and in areas determined to be more likely to experience seep activity. Based on the data gathered in La Plata County, seep activity is predominantly located in lowland areas, especially along surface water drainage features that transect the outcrop. During LTE's reconnaissance activities across the project area, LTE did not identify the presence of methane seeps from coal bed methane at any of the more than 160 subsurface methane measurements collected.

Based on the results of this initial survey, LTE does not believe it is necessary to establish a permanent monitoring network through gas flux chambers or permanent monitoring probes at this time. In addition, conducting detailed mapping of features such as dead vegetation and visible seeps in surface water in specific areas across the outcrop would also be an inefficient means to monitor the outcrop at this time, especially since no methane has been detected to date. If seep activity begins to appear, more detailed monitoring and mapping efforts will be warranted.

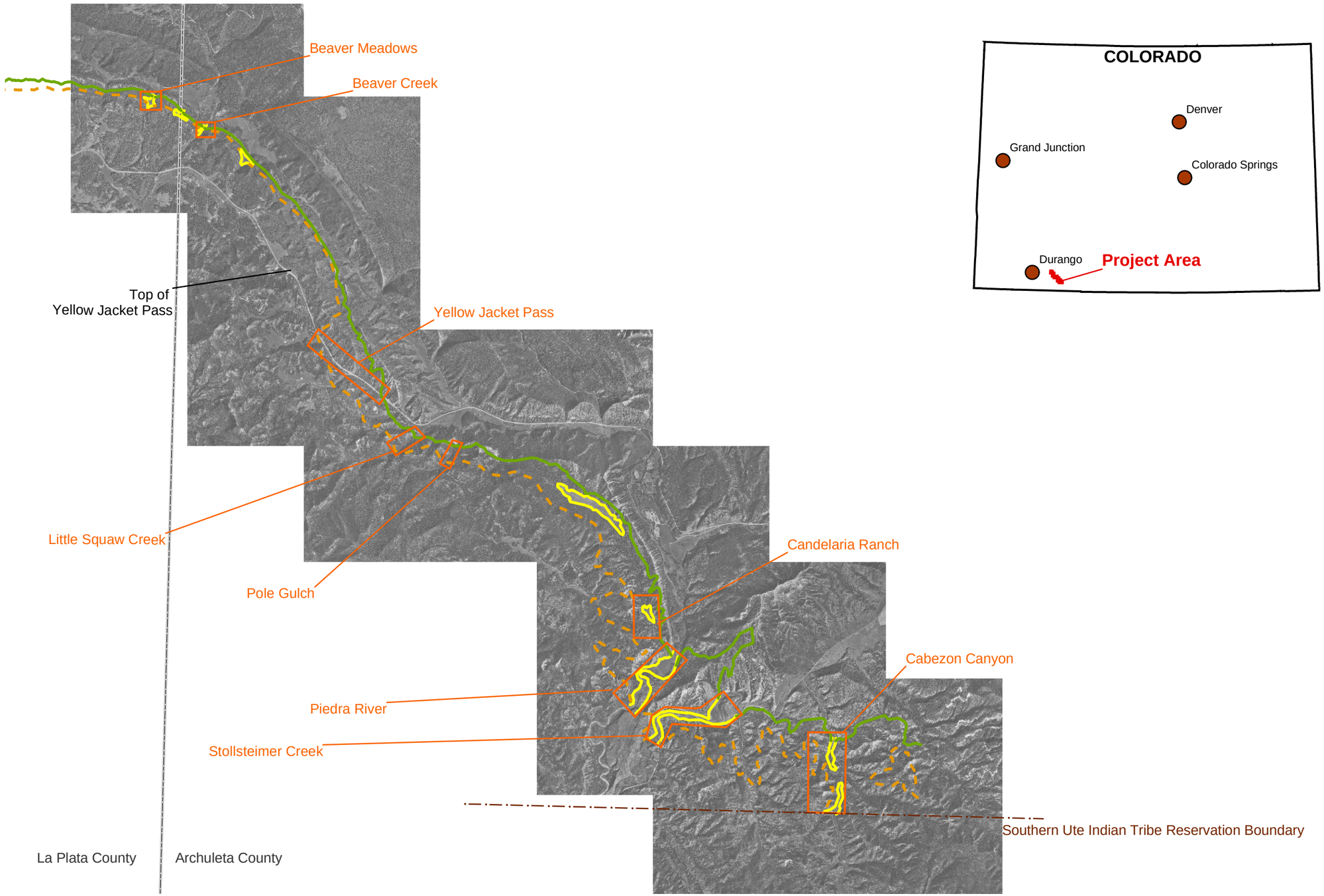
As stated, LTE recommends IR aerial imagery acquisition and field verification of suspect areas during the proposed 2005 regional monitoring program scheduled for July 2005. The field verification activities would be performed in a manner similar to this survey as a means to monitor the outcrop over time. This program would be completed at the same time as the western portion (La Plata County) program.

4.3 NATURAL SPRING SURVEY

Recently, the COGCC and other oil and gas companies have received complaints from landowners regarding natural seeps that have recently dried up. Often, the complainant blames CBM production as the cause of the dried up springs. LTE recommends the implementation of a reconnaissance effort to identify and survey natural springs along the outcrop in July 2005. This task could easily be added to the regional reconnaissance tasks to monitor methane seepage along the outcrop. The purpose of this survey would be to identify potential discharge points for use in reservoir modeling but also to establish and maintain a record of active springs and historic dry springs such that future complaints of depleted springs.

The survey will be performed through consultation with all land owners; review of available USGS maps, and interviews with the land managers from the BLM and USFS. The survey will also include the identification of historic springs that are now dry to the extent practical.

FIGURES



LEGEND

- Area of Interest

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)

N

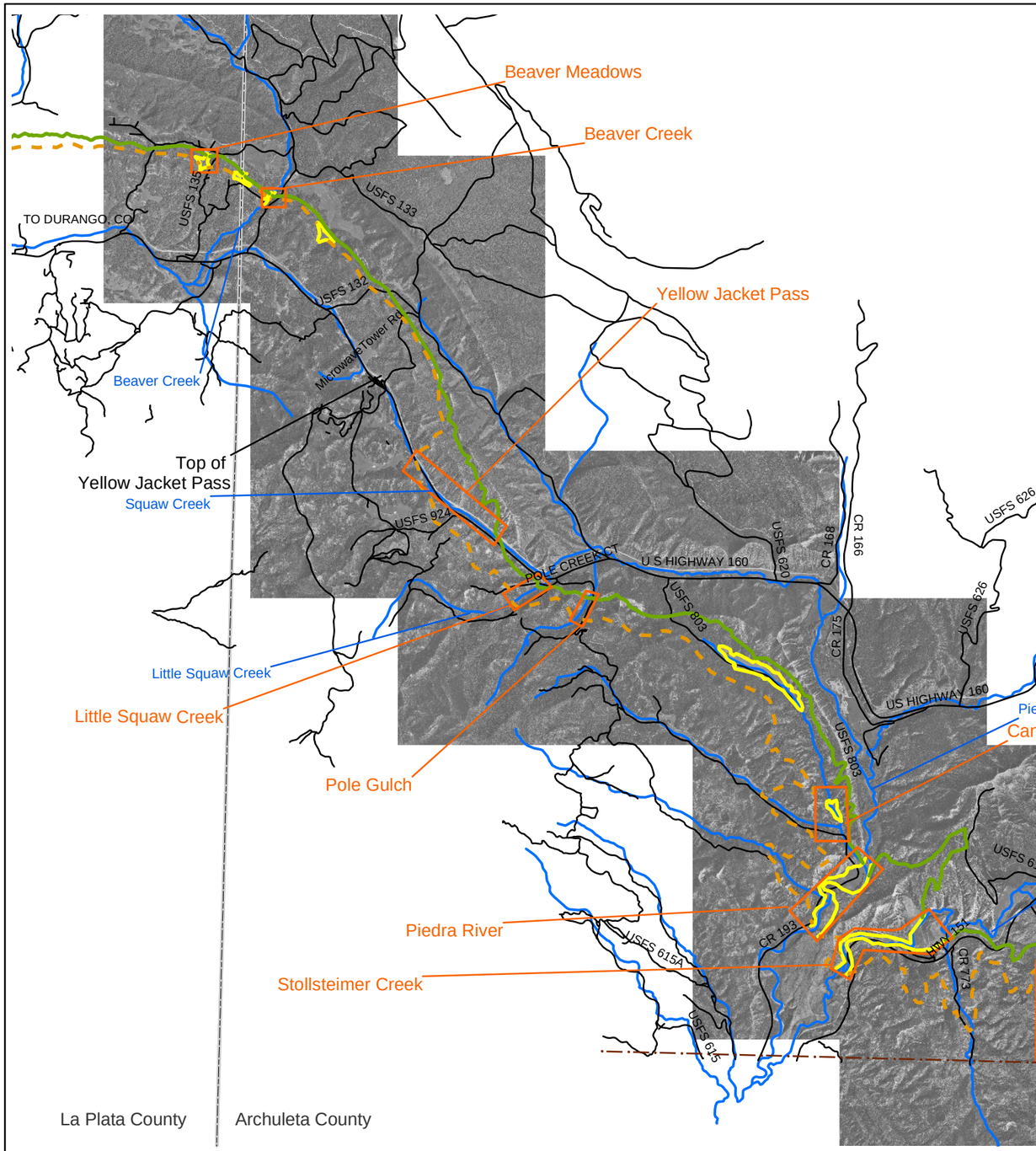
0 20,000

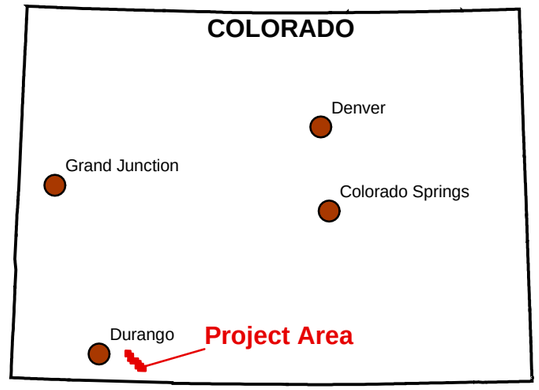
Feet

FIGURE 1A
PROJECT AREA MAP
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04011A 11/04





LEGEND

- Area of Interest

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)

N

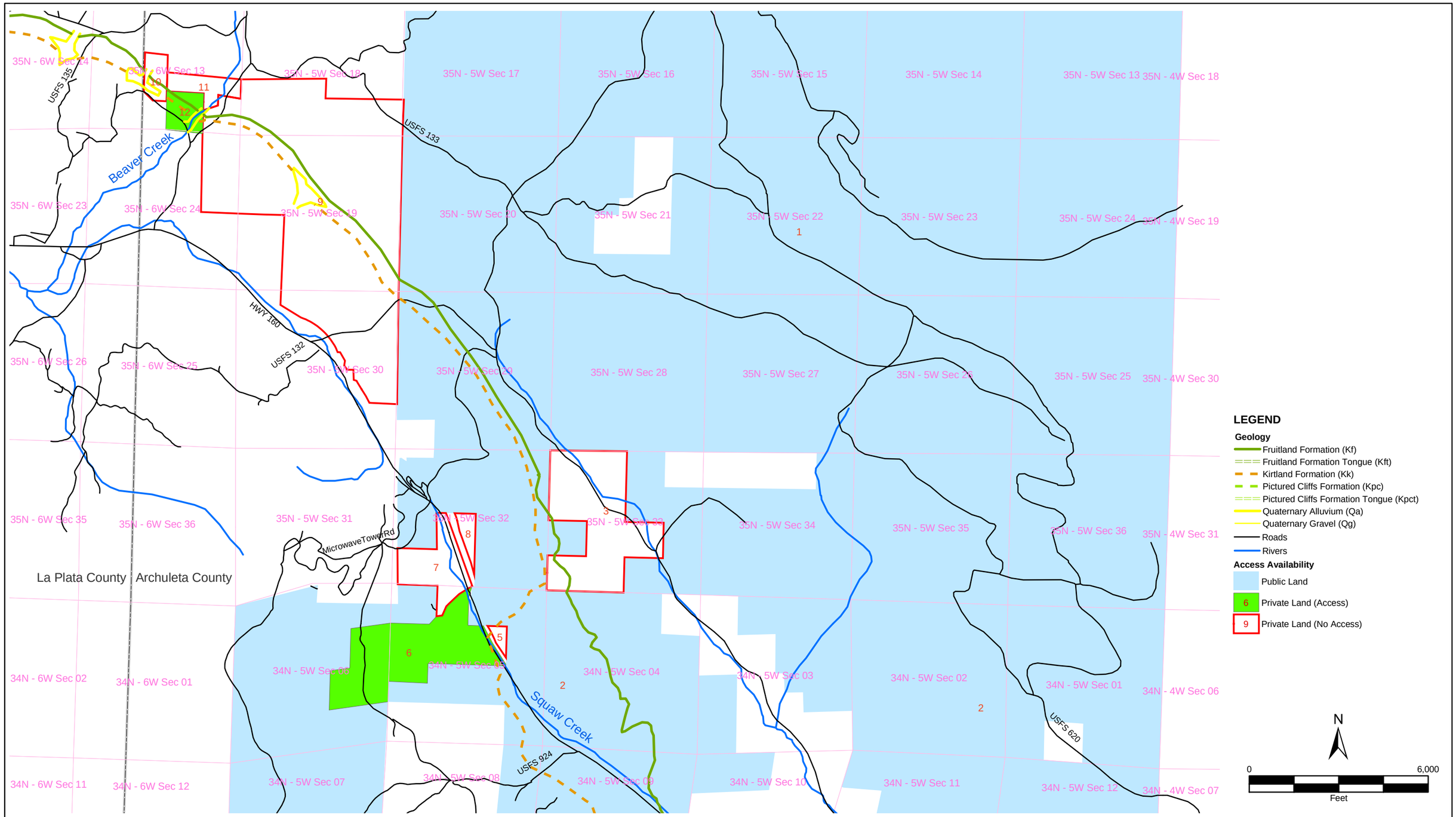
0 20,000

Feet

FIGURE 1B
PROJECT AREA MAP (detail)
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04011B 11/04

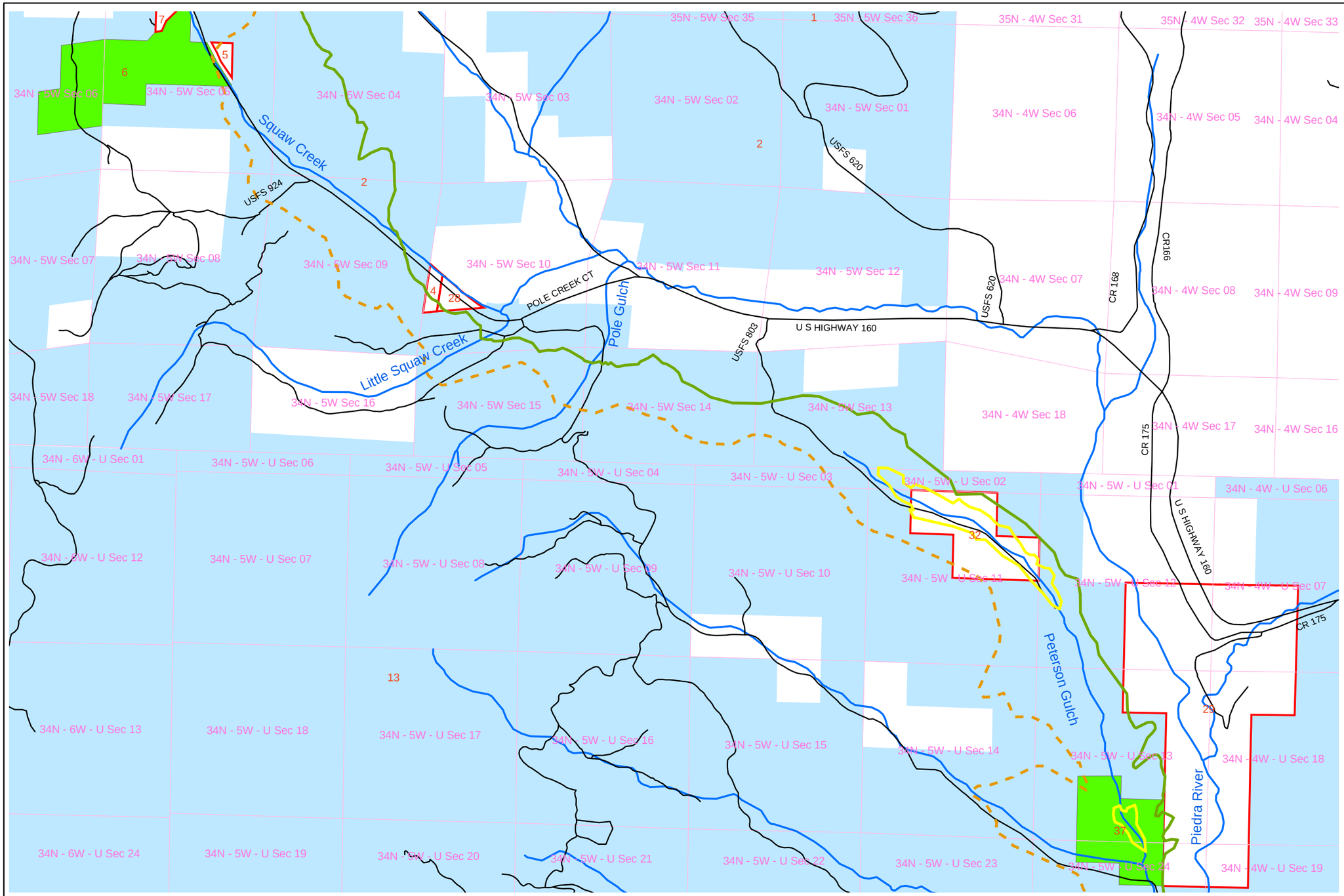


See Table 1 for Parcel Owner Information

FIGURE 2A
LAND OWNERSHIP MAP - WEST
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04012A 11/04

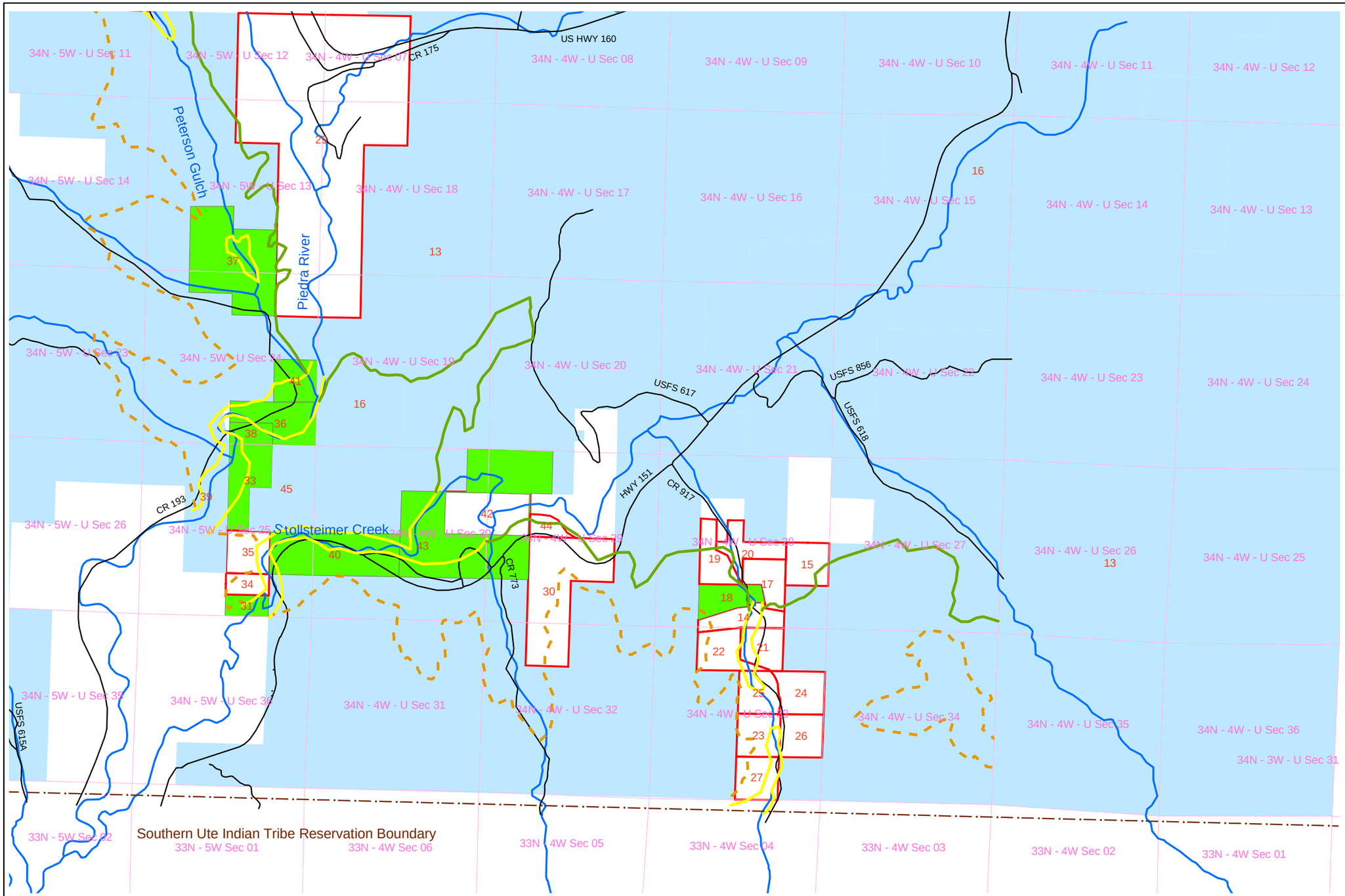


See Table 1 for Parcel Owner Information

FIGURE 2B
LAND OWNERSHIP MAP - CENTRAL
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04012B 11/04

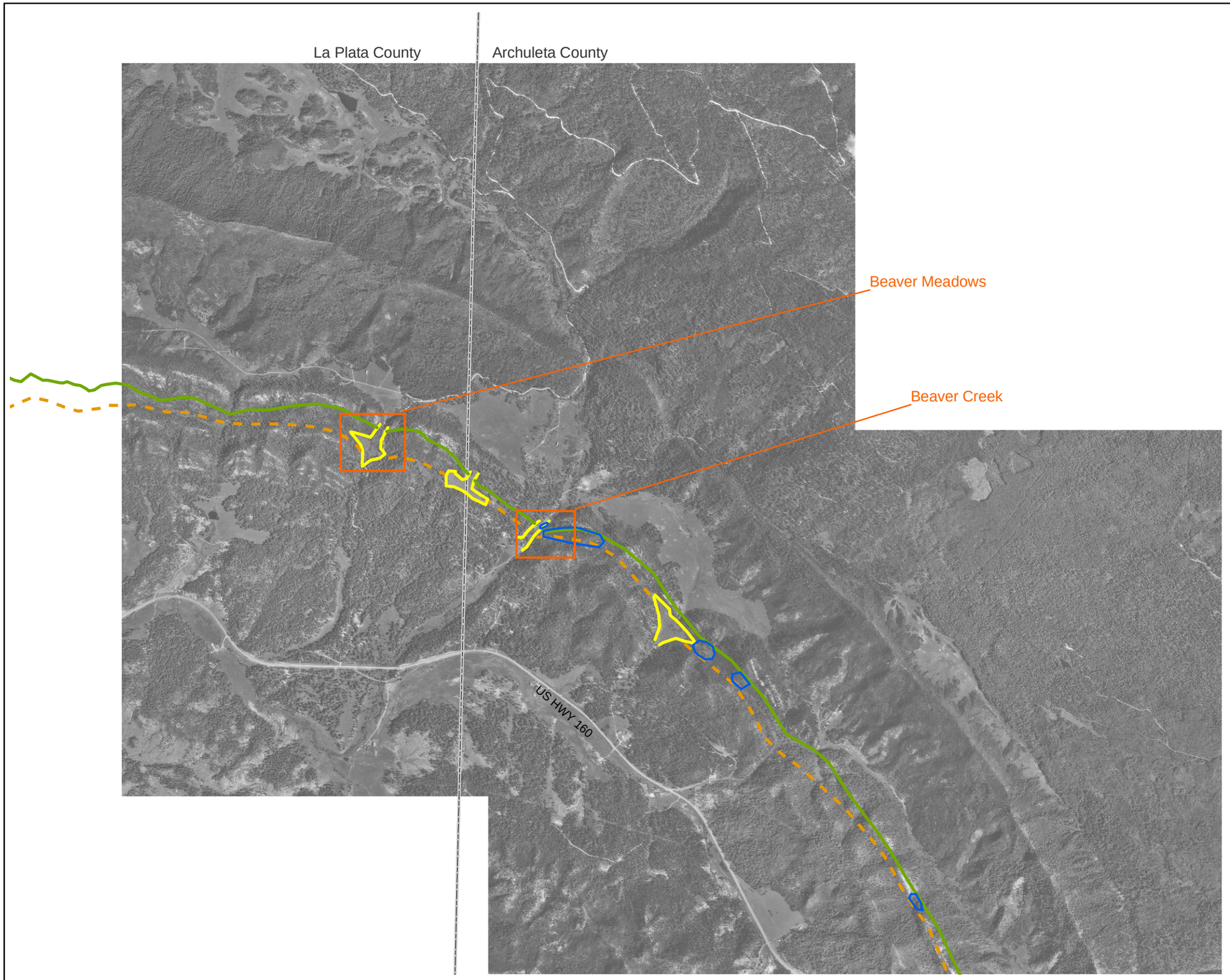


See Table 1 for Parcel Owner Information

FIGURE 2C
LAND OWNERSHIP MAP - EAST
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04012C 11/04



LEGEND

- Area of Interest
- Suspect Areas

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)

N

0 6,000

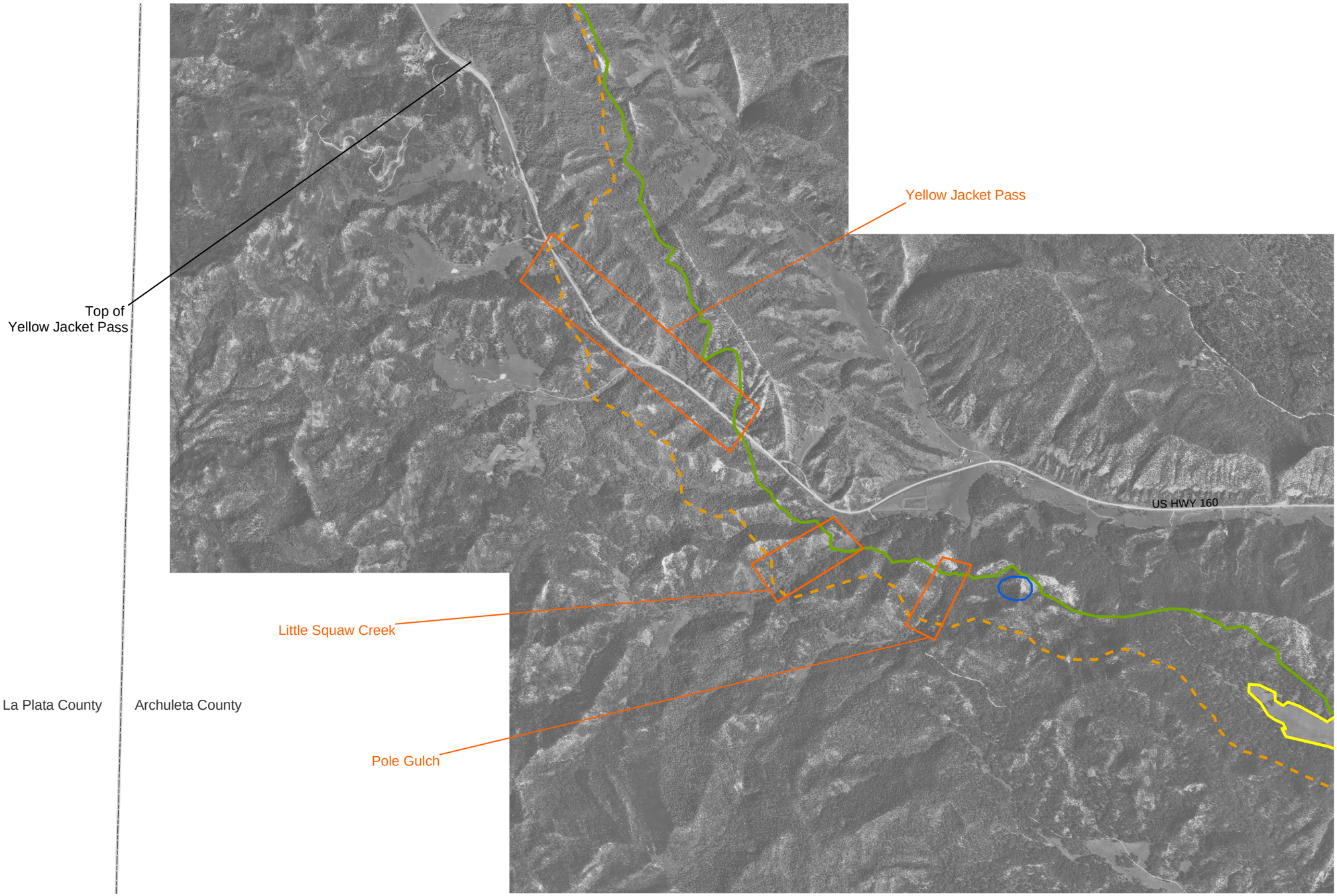
Feet

Aerial photos on subsequent maps have been faded to highlight detail.

FIGURE 3A
SUSPECT AREAS MAP - WEST
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND PETROX RESOURCES

MS04013A 11/04



LEGEND

- Area of Interest
- Suspect Areas

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)

N

0 6,000

Feet

Aerial photos on subsequent maps have been faded to highlight detail.

FIGURE 3B
SUSPECT AREAS MAP - CENTRAL ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND PETROX RESOURCES

MS04013B 11/04

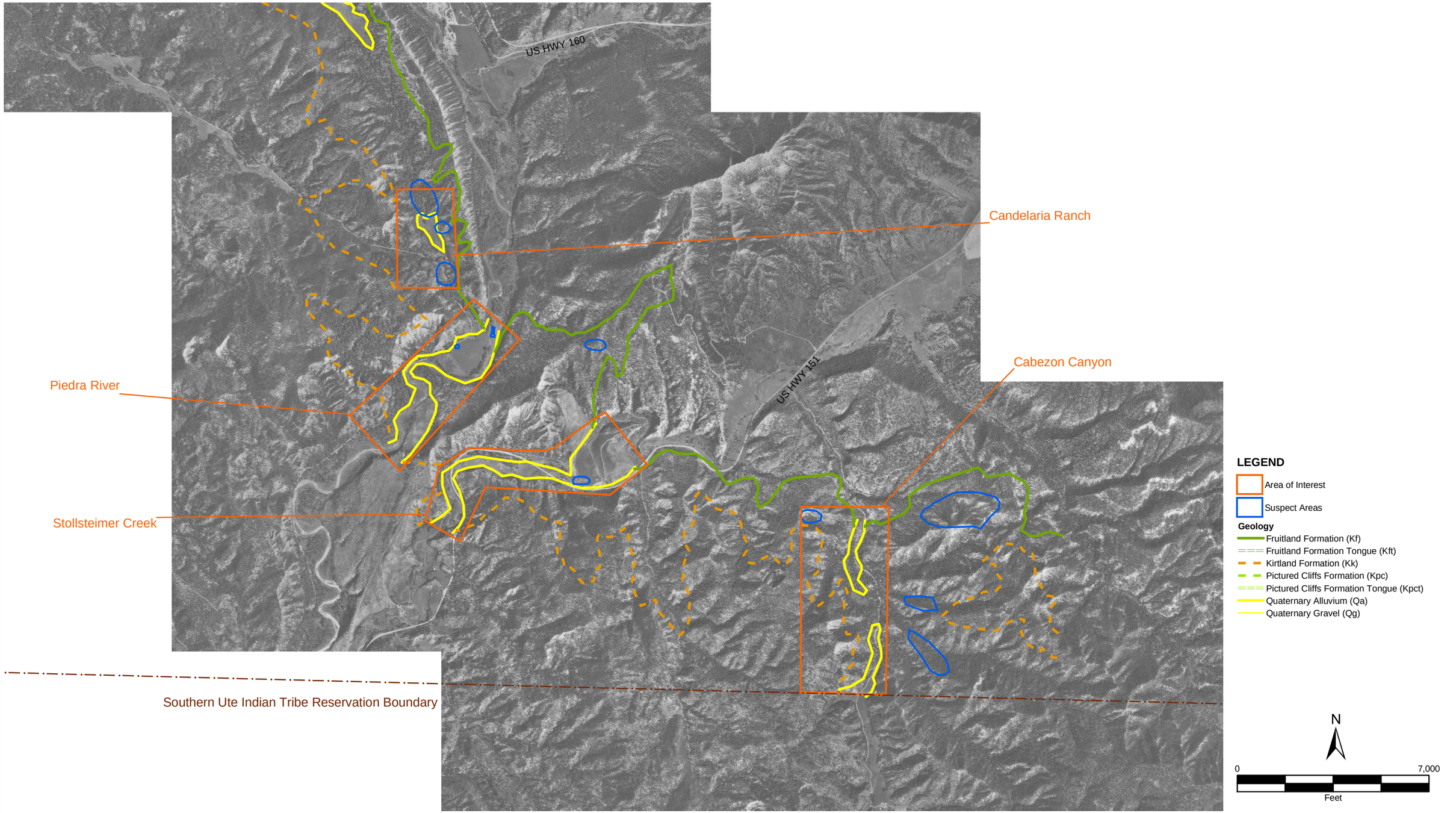
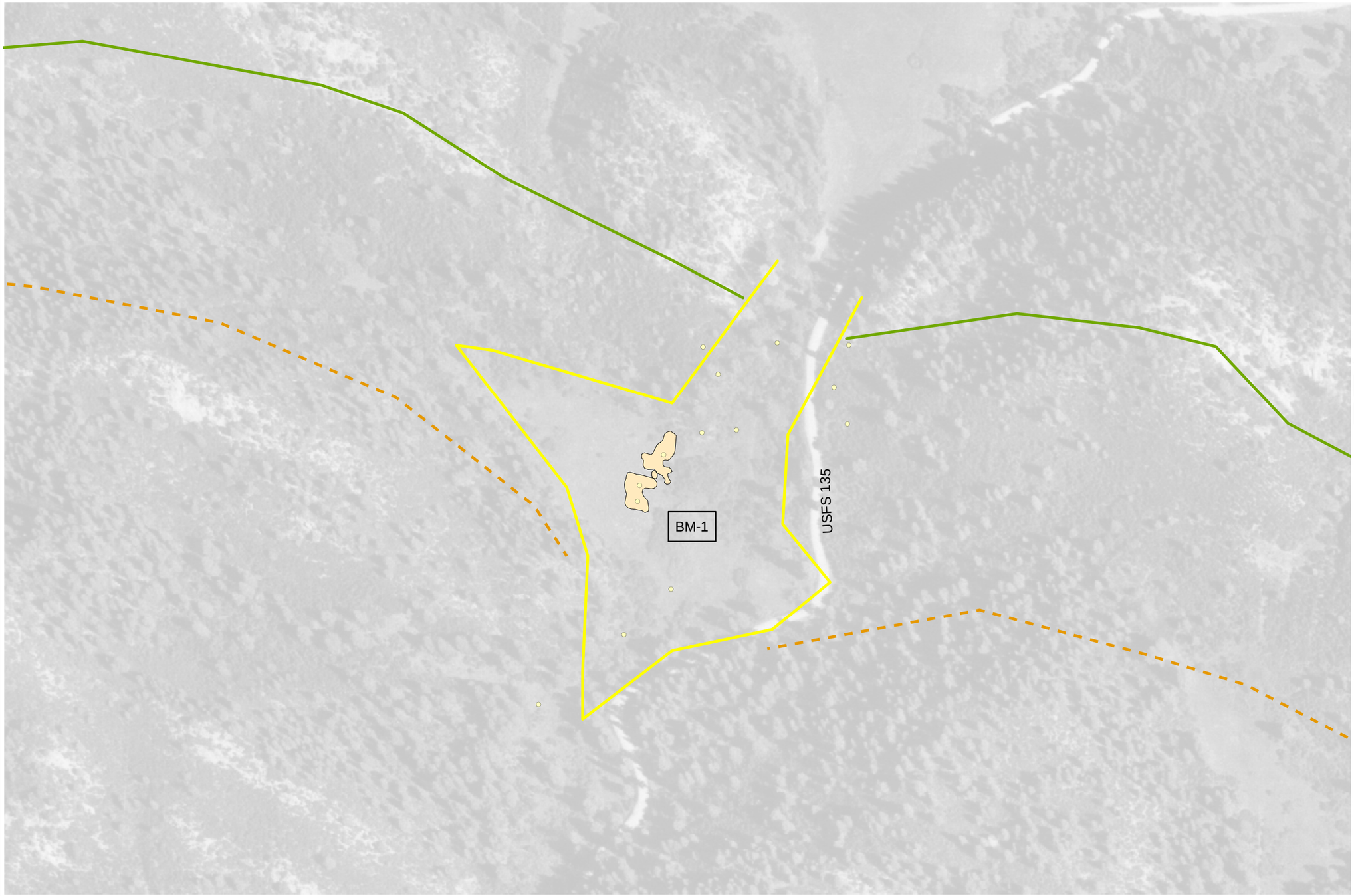


FIGURE 3C
SUSPECT AREAS MAP - EAST
ARCHULETA COUNTY, CO

ELM RIDGE RESOURCES AND
PETROX RESOURCES

Aerial photos on subsequent maps have been faded to highlight detail.

MS04013C 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)

BM-1 Text Reference

N

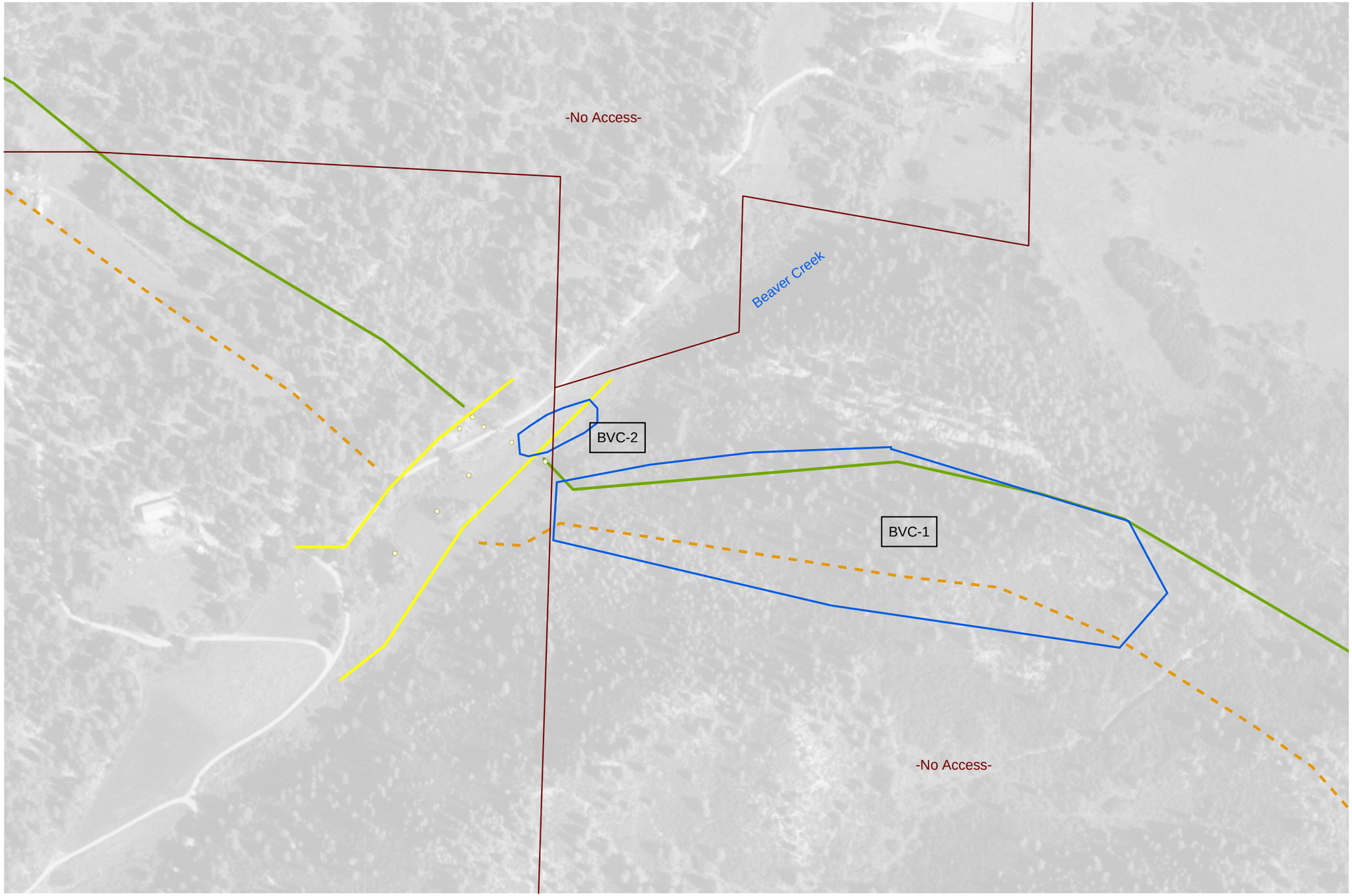
0 500

Feet

FIGURE 4
2004 INITIAL RECONNAISSANCE MAP
BEAVER MEADOWS

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04014 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)
- BVC-1 Text Reference
- Property Boundary

N

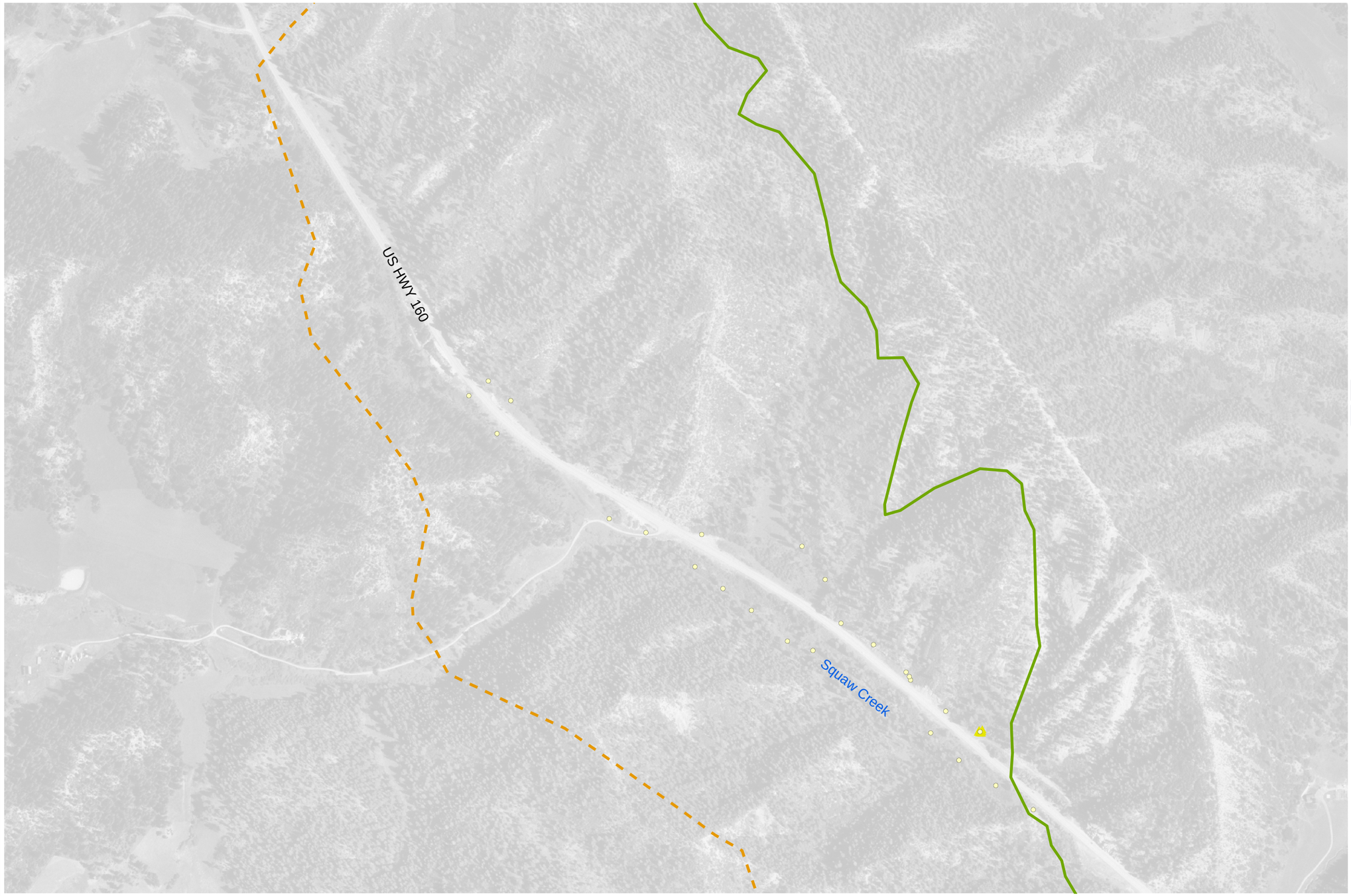
0 500

Feet

FIGURE 5
2004 INITIAL RECONNAISSANCE MAP
BEAVER CREEK

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04015 11/04



LEGEND

Suspect Areas

Methane Seeps

Trees

Dead Aspen

Dead Pine

Dead Willow

Stressed Scrub Oak

Vegetation

Dead or Stressed Vegetation

No Vegetation

Methane Measurements

0 - 25 ppm CH4

25 ppm - 1% CH4

1% CH4 - 10% CH4

10% CH4 - 50% CH4

50% CH4 - 100% CH4

Geology

Fruitland Formation (Kf)

Fruitland Formation Tongue (Kft)

Kirtland Formation (Kk)

Pictured Cliffs Formation (Kpc)

Pictured Cliffs Formation Tongue (Kpct)

Quaternary Alluvium (Qa)

Quaternary Gravel (Qg)

N

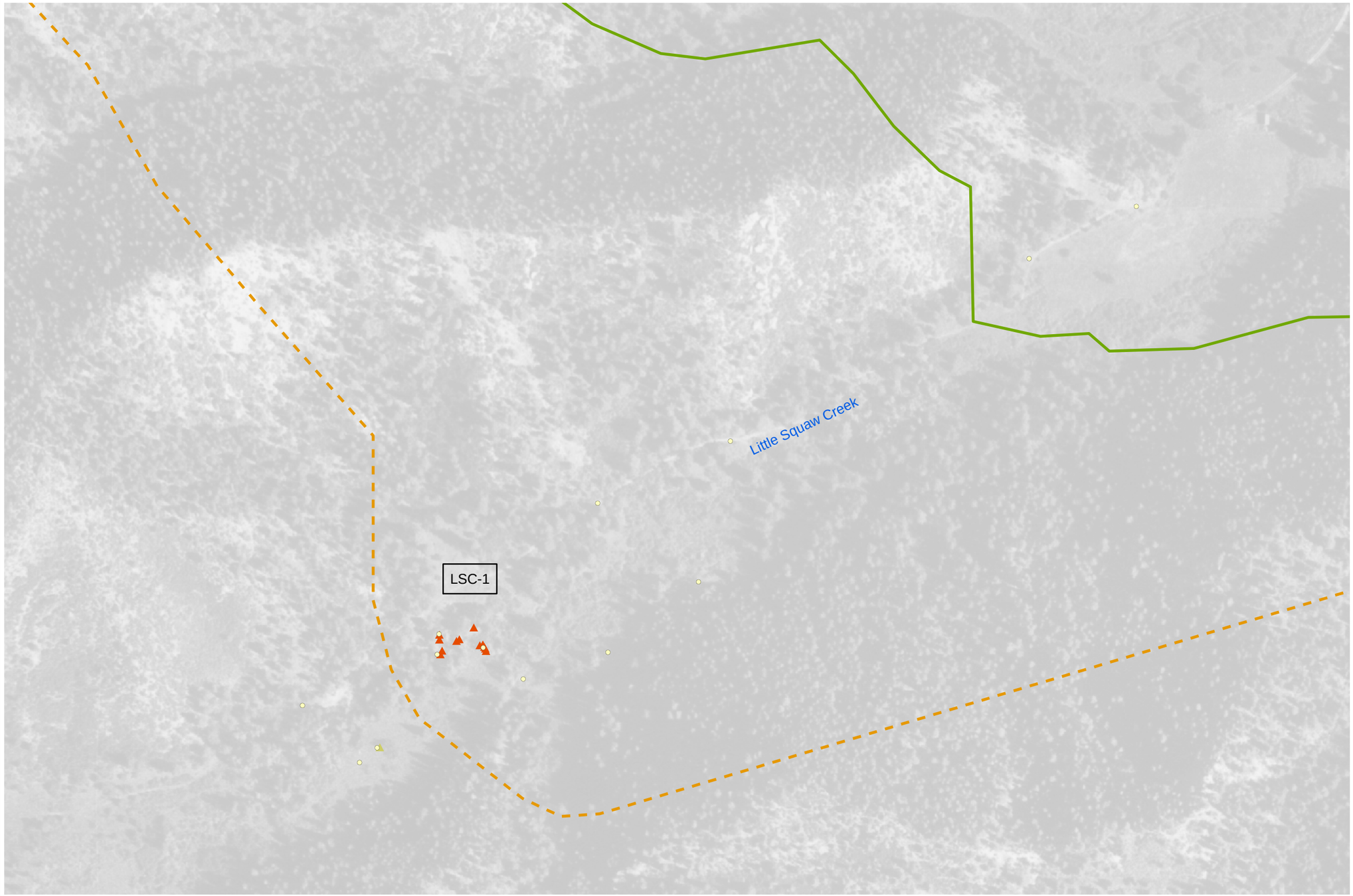
0 1,500

Feet

FIGURE 6
2004 INITIAL RECONNAISSANCE MAP
YELLOW JACKET PASS

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04016 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)
- LSC-1 Text Reference

N

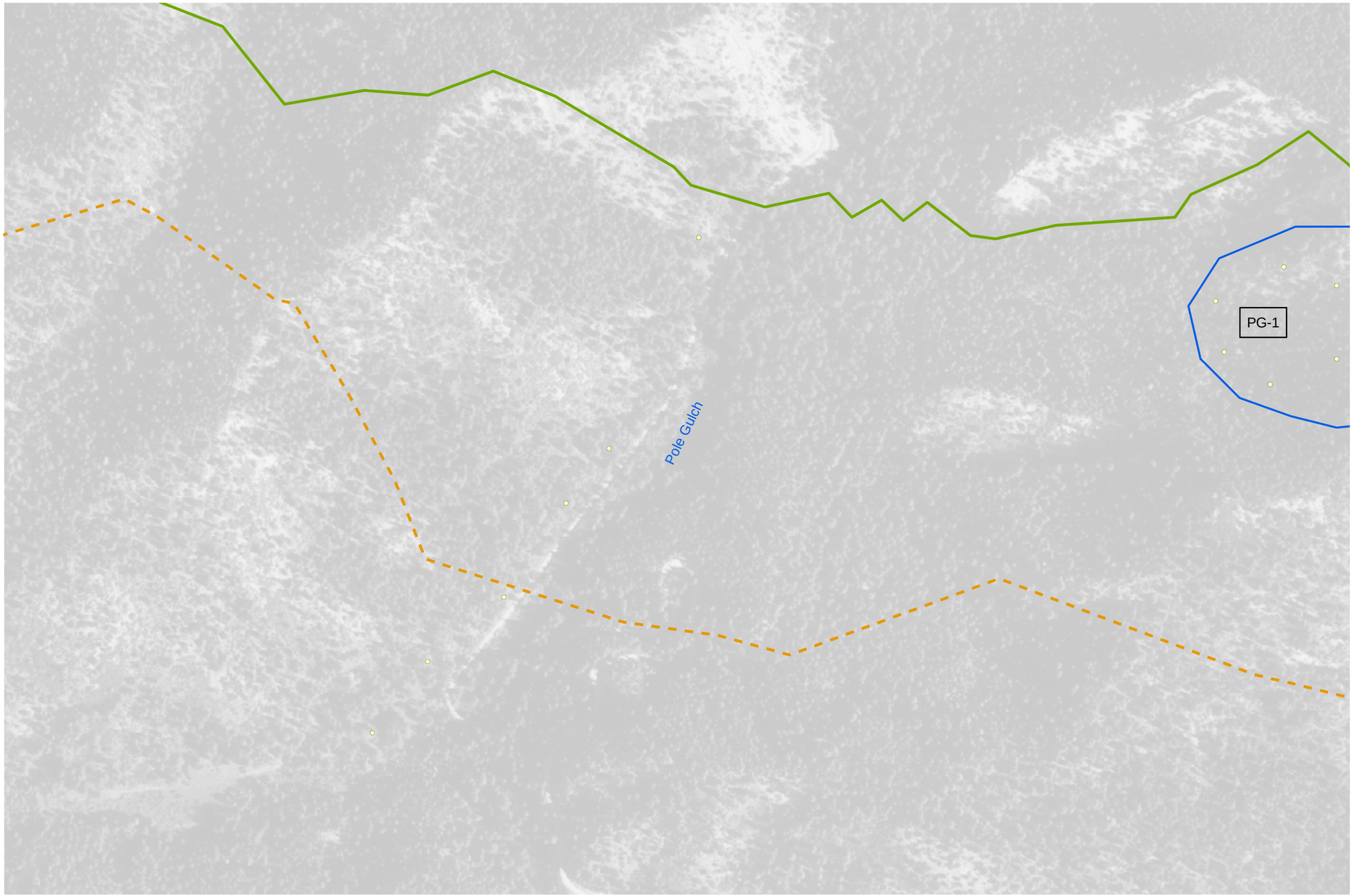
0 600

Feet

FIGURE 7
2004 INITIAL RECONNAISSANCE MAP
LITTLE SQUAW CREEK

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04017 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)

PG-1 Text Reference

N

0 700

Feet

FIGURE 8
2004 INITIAL RECONNAISSANCE MAP
POLE GULCH

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04018 11/04

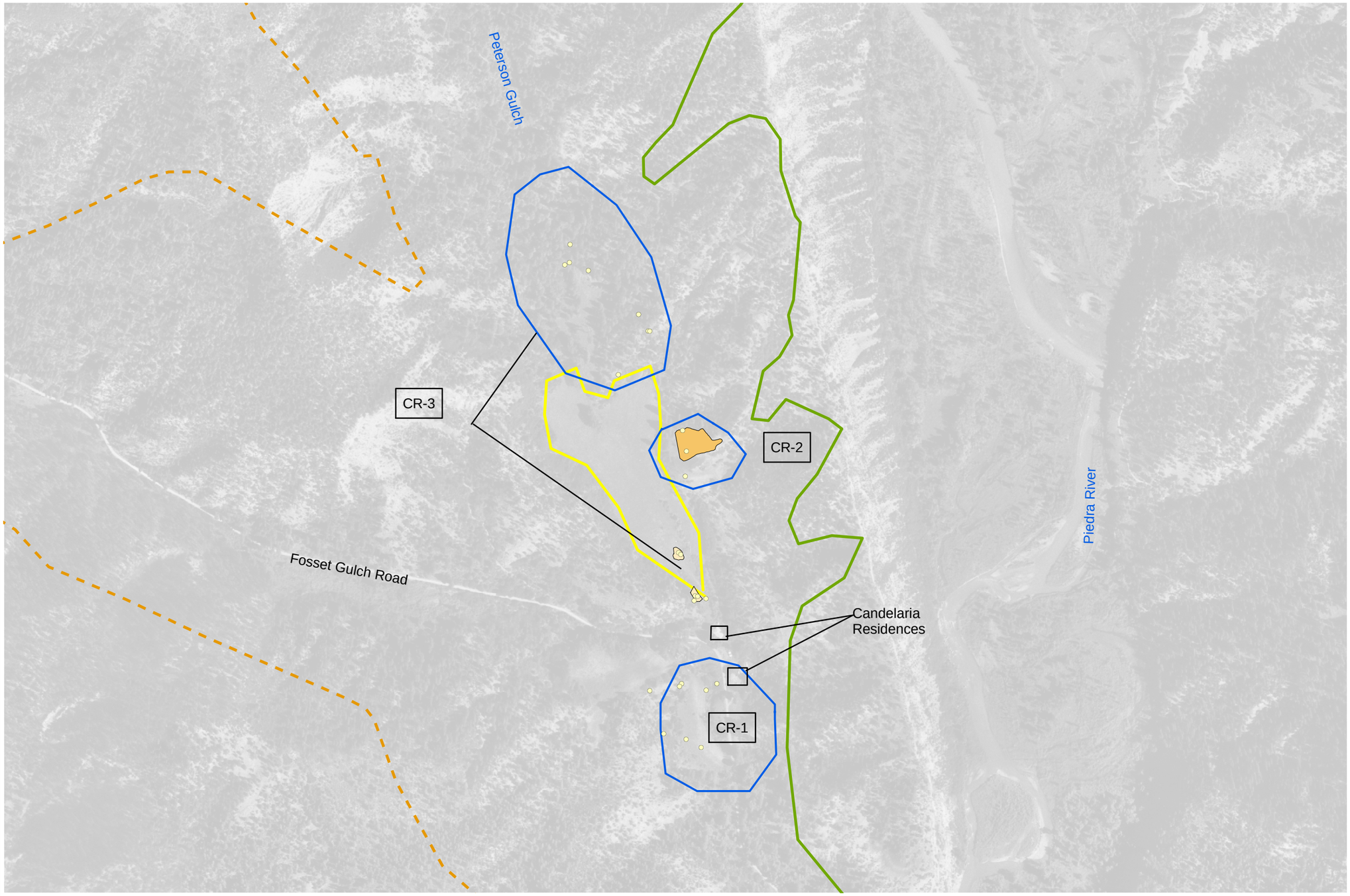
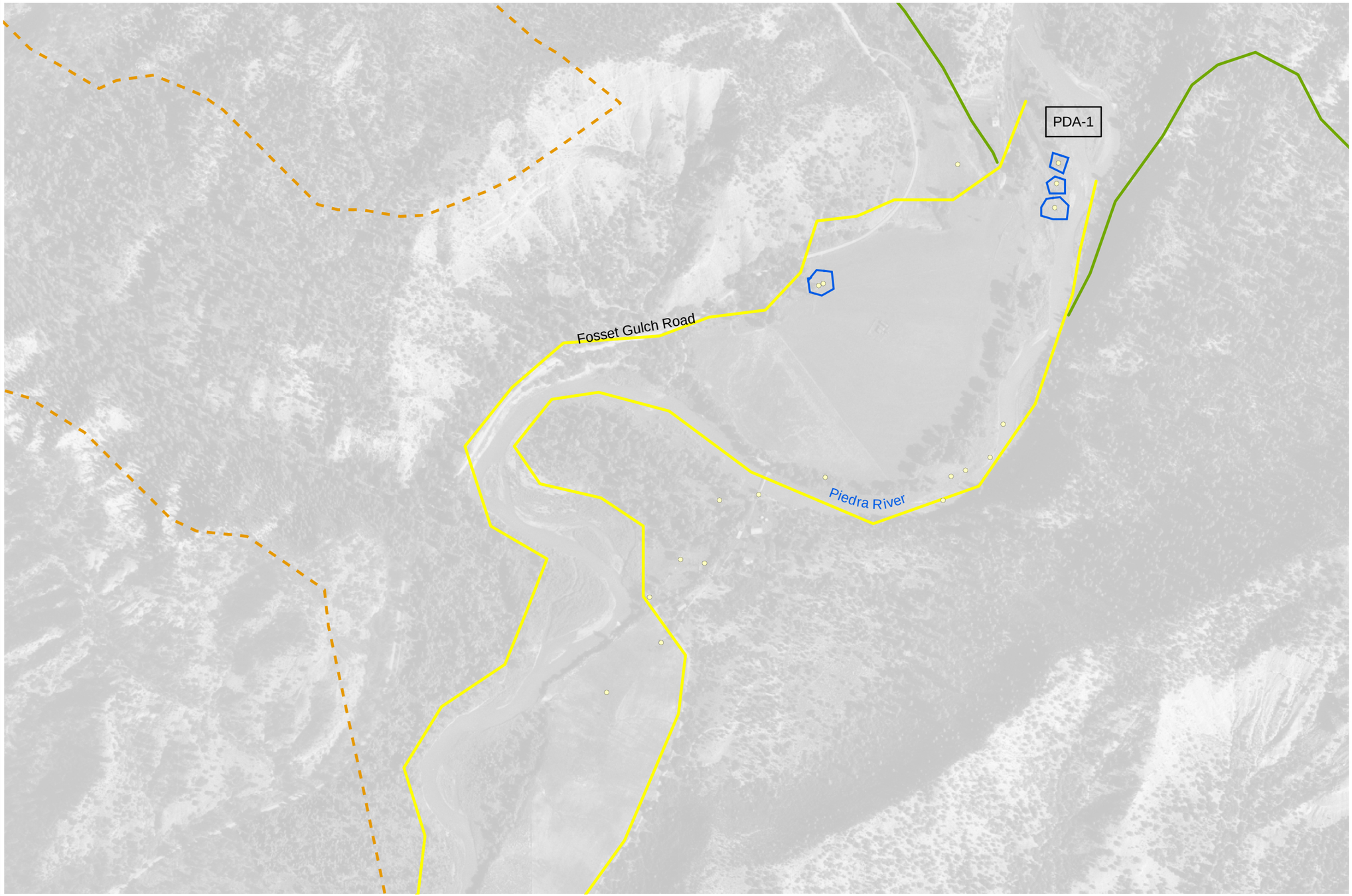


FIGURE 9
2004 INITIAL RECONNAISSANCE MAP
CANDELARIA RANCH

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS04019 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)
- PDA-1 Text Reference

N

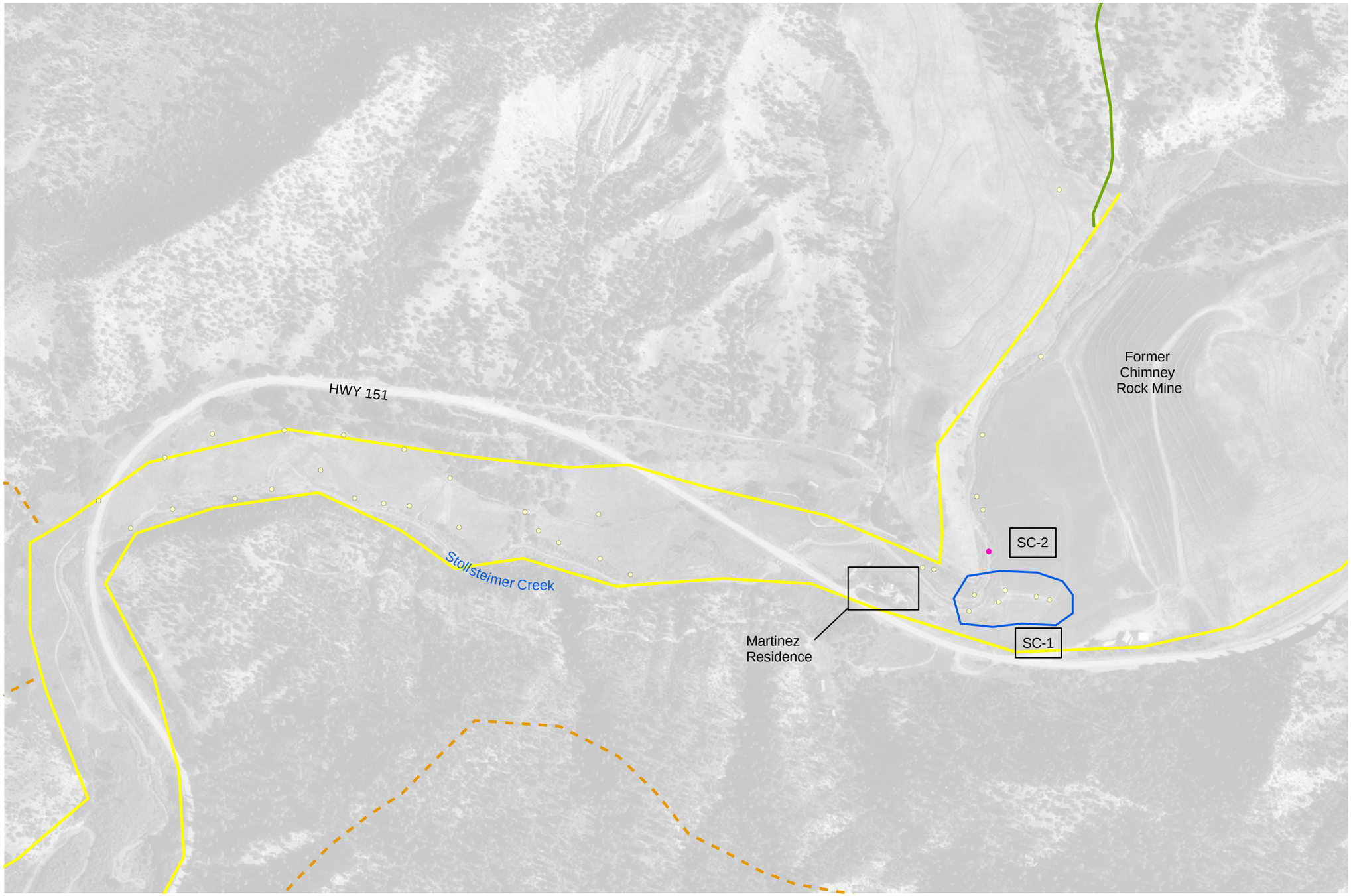
0 1,200

Feet

FIGURE 10
2004 INITIAL RECONNAISSANCE MAP
PIEDRA RIVER

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS040110 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)
- SC-1 Text Reference

N

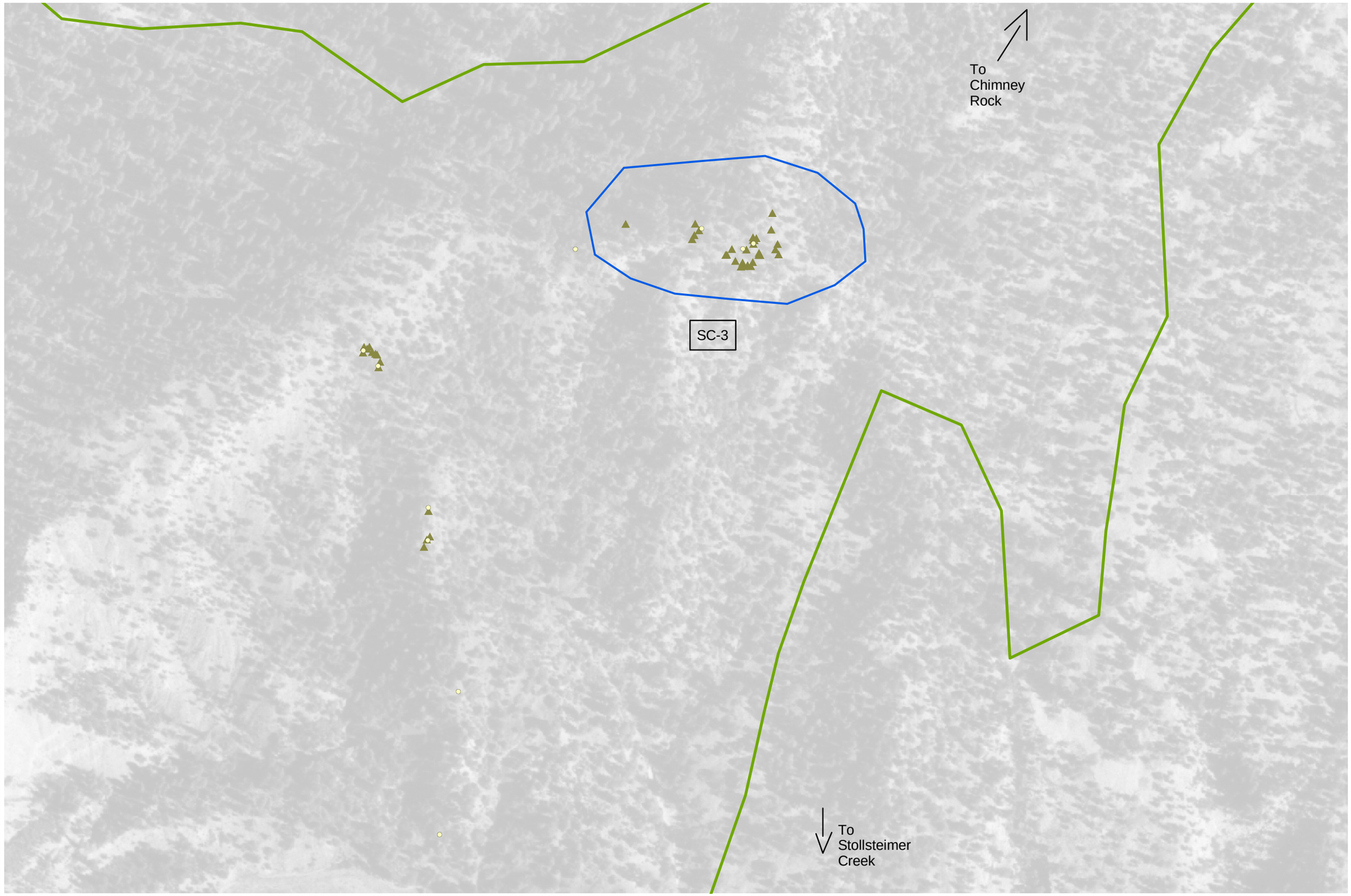
0 1,000

Feet

FIGURE 11
2004 INITIAL RECONNAISSANCE MAP
STOLLSTEIMER CREEK

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS040111 11/04



LEGEND

- Suspect Areas
- Methane Seeps

Trees

- Dead Aspen
- Dead Pine
- Dead Willow
- Stressed Scrub Oak

Vegetation

- Dead or Stressed Vegetation
- No Vegetation

Methane Measurements

- 0 - 25 ppm CH4
- 25 ppm - 1% CH4
- 1% CH4 - 10% CH4
- 10% CH4 - 50% CH4
- 50% CH4 - 100% CH4

Geology

- Fruitland Formation (Kf)
- Fruitland Formation Tongue (Kft)
- Kirtland Formation (Kk)
- Pictured Cliffs Formation (Kpc)
- Pictured Cliffs Formation Tongue (Kpct)
- Quaternary Alluvium (Qa)
- Quaternary Gravel (Qg)
- SC-3 Text Reference

N

0 600

Feet

FIGURE 12
2004 INITIAL RECONNAISSANCE MAP
SOUTH OF CHIMNEY ROCK

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS040112 11/04

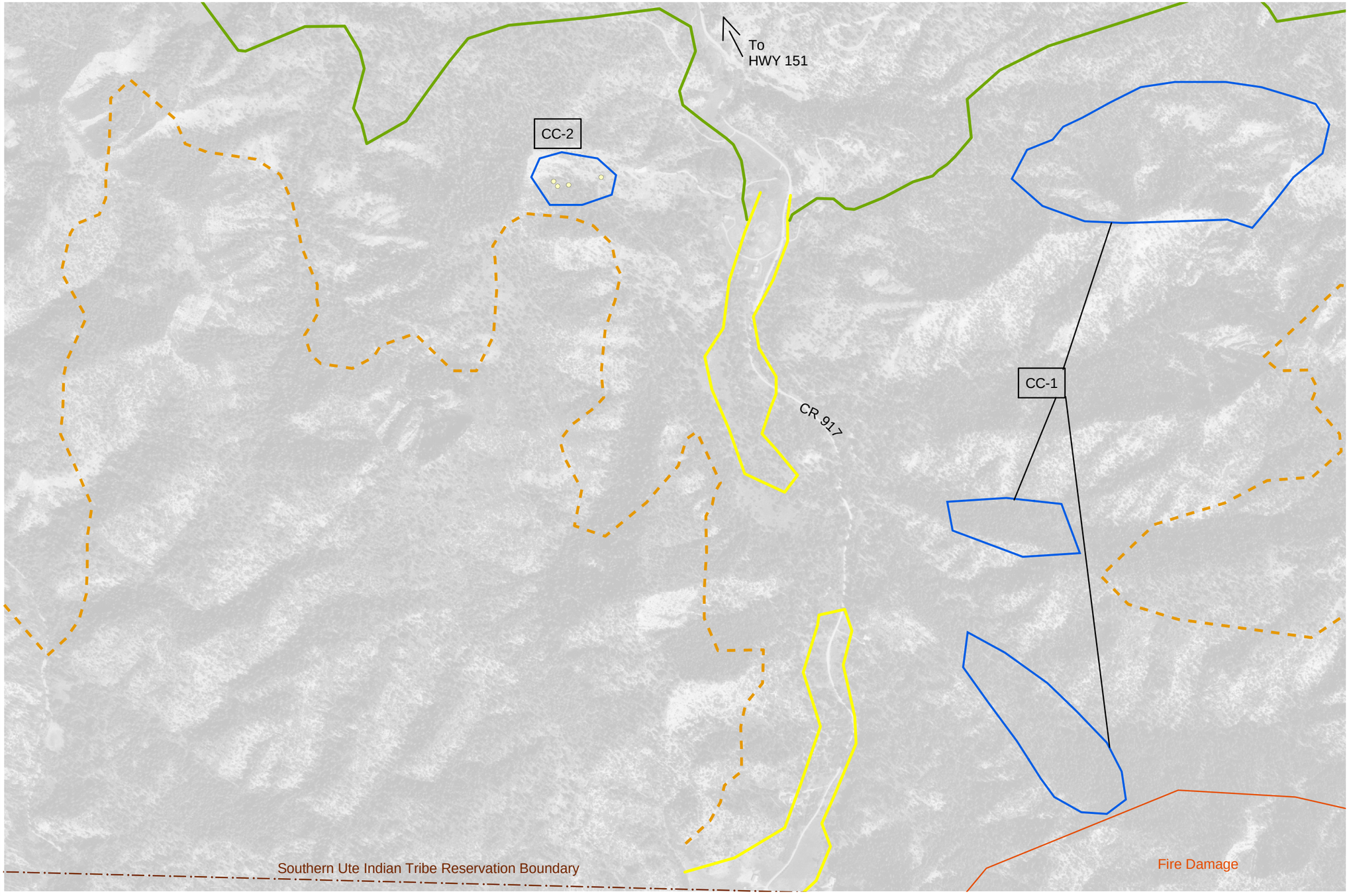


FIGURE 13
2004 INITIAL RECONNAISSANCE MAP
CABEZON CANYON

ELM RIDGE RESOURCES AND
PETROX RESOURCES

MS040113 11/04

TABLES

TABLE 1

PROPERTY OWNER INFORMATION
ARCHULETA COUNTY, COLORADO

ID Number	Parcel Number	Owner Name	Physical Address	Mailing Address	City	State
1	568301100001	UNITED STATES OF AMERICA				
2	568501100001	UNITED STATES OF AMERICA				
3	568333200010	HALVERSON HAROLD D ESTATE	W HIGHWAY 160 X ESMT	23541 COUNTY RD S	DOLORES	CO 81323-0000
4	568510300009	EDWARDS DURWOOD	W HIGHWAY 160 26410	710 E HOLLAND	ALPINE	TX 79830-0000
5	568505100016	KAHLER NOBLE GENE	W HIGHWAY 160 28061	PO BOX 405	BAYFIELD	CO 81122-0000
6	568505200020	INN ABOVE ONION CREEK INC	W HIGHWAY 160 28444	4444 HWY 150 WEST	KYLE	TX 78640-0000
7	568332300040	COLORADO YELLOW JACKET LTD PTNSHP	W HIGHWAY 160 28644	PO BOX 774525	STEAMBOAT SPRIN(	CO 80477-0000
8	568332300009	STRICKLAND SCOTT L & NIOBRA J	W HIGHWAY 160 28945	28945 E US HWY 160	BAYFIELD	CO 81122-0000
9	568319200034	WATSON DAVID LLOYD &	W HIGHWAY 160 30301A	30301 US HWY 160	BAYFIELD	CO 81122-0000
10	567913300015	LEONARD RAMONA	W HIGHWAY 160 31861M	PO BOX 207	MAYER	AZ 86333-0000
11	567913400016	PEINADO EMILIO JR & KAREN R	W HIGHWAY 160 31861B	PO BOX 706	BAYFIELD	CO 81122-0000
12	567913400017	WOOD LEE THOMAS & PEGGY DARLENE	W HIGHWAY 160 31861L	31861 L W HWY 160	BAYFIELD	CO 81122-0000
13	589701400003 SJNF	UNITED STATES OF AMERICA				
14	589528400043	EGAN JOHN T	COUNTY RD 917 1023	1023 COUNTY ROAD 917	PAGOSA SPRINGS	CO 81147-0000
15	589528400051	LEISER SANDRA J	COUNTY RD 917 1000A		MADISON	KS 66860-0000
16	589511200003	UNITED STATES OF AMERICA T/F	HIGHWAY 151 368	PO BOX 737	IGNACIO	CO 81137-0000
17	589528400042	HALLOCK JAMES & NORA	COUNTY RD 917 1000	1000 COUNTY RD 917	PAGOSA SPRINGS	CO 81147-0000
18	589528400049	MUHLIG BRITT & MAYUMI	COUNTY RD 917 1019	1019 COUNTY RD 917	PAGOSA SPRINGS	CO 81147-0000
19	589528300041	CHENAULT ROBERT G	COUNTY RD 917 1001	1001 COUNTY RD 917	PAGOSA SPRINGS	CO 81147-0000
20	589528400050	LEISER SANDRA J	COUNTY RD 917 1000		MADISON	KS 66860-0000
21	589528400053	WOZNY THEODORE G TRUST ACCOUNT	COUNTY RD 917	1601 COUNTY RD 917	PAGOSA SPRINGS	CO 81147-0000
22	589533200046	LEON EUGENIA &	COUNTY RD 917 1601	1601 A CR 917	PAGOSA SPRINGS	CO 81147-0000
23	589533400048	MODISETTE JERRY L & BEVERLY A	COUNTY RD 917 1859	17110 CYPRESS ROSE HILL DR	CYPRESS	TX 77429-0000
24	589533100045	MISER PATRICIA	COUNTY RD 917 1590	2341 JOY AVE	WHITE BEAR LAKE	MN 55110-0000
25	589533100047	SCHAEFER JAMES & NANCY	COUNTY RD 917 1589	2754 S LAS PALMAS	MESA	AZ 85202-0000
26	589533400033	MODISETTE JERRY L & BEVERLY A	COUNTY RD 917 1818	17110 CYPRESS ROSE HILL RD	CYPRESS	TX 77429-0000
27	589533400034	ADAM ROBERT J	COUNTY RD 917 2255	12611 JONES RD STE #200	HOUSTON	TX 77070-0000
28	568510300010	DREW DANNY S	W HIGHWAY 160 26260	PO BOX 13	CHIMNEY ROCK	CO 81127-0000
29	589712400002	COONEY PROPERTIES 21 LLC	COUNTY RD 175 2117 & 2119 & 2	33 INVERNESS PL	DURANGO	CO 81301-0000
30	589529300027	EF COAL RESOURCES LIMITED PRTN	HIGHWAY 151 X	PO BOX 773457	STEAMBOAT SPRIN(	CO 80477-0000
31	589725400016	MARTINEZ AMOS MEL	HIGHWAY 151 6971	2400 COUNTY RD 329	IGNACIO	CO 81137-0000
32	589711200001	COOPER CHARLIE B TEST TRUST &	W HIGHWAY 160 24160	2841 WANDER CIR	SALT LAKE CITY	UT 84117-0000
33	589725100011	CANDELARIA ROGER	COUNTY RD 193 5801	9105 SIXTH ST	LANHAM	MD 20706-0000
34	589725400015	VAUGHN LARRY C	HIGHWAY 151 6505A	6505A HWY 151	PAGOSA SPRINGS	CO 81147-0000
35	589725400013	MARTINEZ JOHN L &	HIGHWAY 151 X	5768 HANSEN CIR	MURRAY	UT 84107-0000
36	589724400008	CANDELARIA SY TRUSTEE & GILBERT	COUNTY RD 193 X	PO BOX 1771	ARBOLES	CO 81121-0000
37	589713300006	CANDELARIA SUSIE	COUNTY RD 193 6551	PO BOX 1764	ARBOLES	CO 81121-0000
38	589724400010	CANDELARIA ROGER	COUNTY RD 193 5801A	9105 SIXTH ST	LANHAM	MD 20706-0000
39	589726400024	UNITED STATES OF AMERICA				
40	589725400014	MARTINEZ MEL	HIGHWAY 151 X	5671 STATE HWY 151	PAGOSA SPRINGS	CO 81147-0000
41	589724400007	CANDELARIA LUCY S &	COUNTY RD 193 5879	PO BOX 1812	ARBOLES	CO 81121-0000
42	589530100037	CHIMNEY ROCK COAL CO C/O	HIGHWAY 151 5461	3633 INLAND EMPIRE BLVD STE	ONTAIRO	CA 91764-0000
43	589530100020	MARTINEZ MEL	HIGHWAY 151 5671	5671 STATE HWY 151	PAGOSA SPRINGS	CO 81147-0000
44	589529100026	CAZEDESSUS CAMILE E JR	HIGHWAY 151 X	PO BOX 2340	PAGOSA SPRINGS	CO 81147-2340
45	589725100012	UNITED STATES OF AMERICA				

Public Land
Private Land (Access)

APPENDIX A

EQUIPMENT SPECIFICATIONS

GeoXT

The total GPS platform for all your GIS field requirements

The GeoXT™ handheld, from the GeoExplorer® series, is an essential tool for maintaining your GIS. It's all you need to collect location data, keep existing GIS information up to date, and even mobilize your GIS.

The unique GeoExplorer series combines a Trimble® GPS receiver with a rugged field-ready handheld computer running the Microsoft® Windows Mobile™ 2003 software for Pocket PCs. Plus there's an internal battery that easily lasts for a whole day of GPS operation. The result is tightly integrated, tough, and incredibly powerful.

High-accuracy integrated GPS

The GeoXT is optimized to provide the reliable, high-accuracy location data you need. Advanced features like EVEREST™ multipath rejection technology let you work under canopy, in urban canyons, or anywhere where accuracy is crucial.

Need submeter accuracy in real-time? Use corrections from a satellite-based augmentation system (SBAS) like WAAS[1] or EGNOS[2]. Want to get that extra edge in precision? Collect data with Trimble's TerraSync™ or GPScorrect™ software, and then postprocess back in the office.

Because the GPS receiver and antenna are built into the handheld computer, it's never been easier to use GPS in your application. The system is more than just cable-free: it's a totally integrated solution.

Optimized productivity

Take advantage of the power and flexibility of Windows Mobile software for Pocket PCs by choosing from the most comprehensive range of field software available—whether off-the-shelf or purpose-built. Whatever your needs, Windows Mobile lets you choose a software solution to match your workflow.

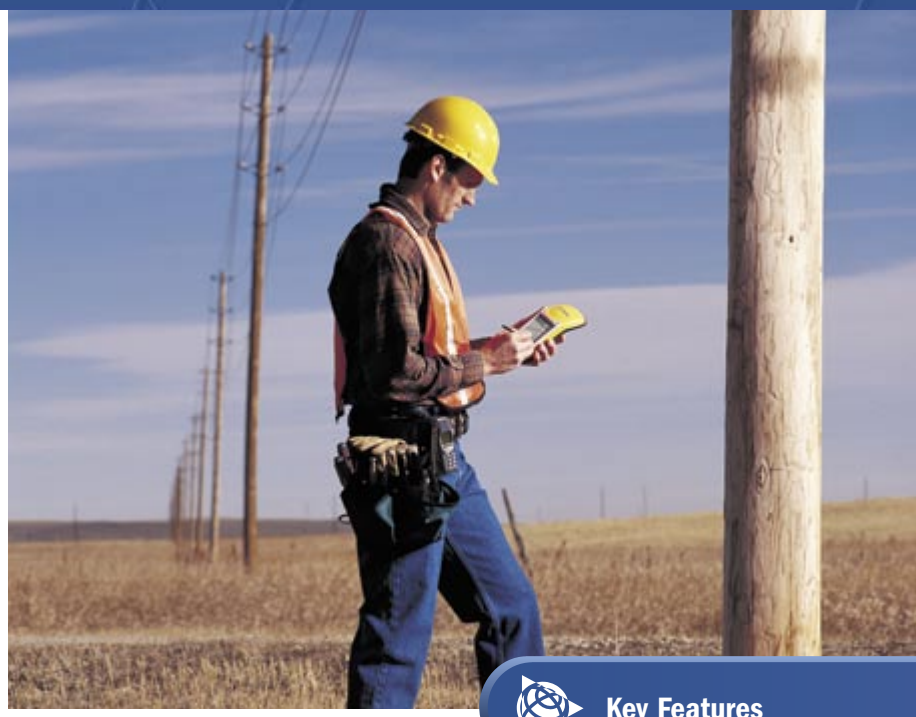
Windows Mobile includes familiar Microsoft productivity tools, including Pocket Word, Pocket Excel, and Pocket Outlook®. Pocket Outlook lets you synchronize e-mails, contacts, appointments, and data with your office computer, so whether you're in the office or in the field, you're always up to date.

Go wireless with integrated Bluetooth®* for connection to other Bluetooth-enabled devices, including cell phones and PCs. You also have the option to use the USB support module to connect to a desktop computer, or use the optional serial clip for cabled connections in the field.

Receive a free copy of Microsoft Streets & Trips** 2004 software with your GeoXT handheld, and take advantage of comprehensive map and travel information for easy navigation and route planning.

All the memory you need

There's plenty of storage space in the GeoXT for all your GIS data. The fast processor and large memory mean even big graphics files load quickly—and they're crisp and crystal-clear on the advanced TFT outdoor color screen.



Key Features

- High-performance submeter GPS with integrated WAAS/EGNOS
- Windows Mobile 2003 software for Pocket PCs, allowing maximum flexibility in software choice
- Rugged handheld with all-day battery
- Advanced color TFT display with backlight
- Integrated Bluetooth for wireless connectivity

From data collection to data maintenance, to mobile GIS and beyond ... the GeoXT is the handheld of choice.

* *Bluetooth type approvals are country specific. GeoExplorer series handhelds are approved for use with Bluetooth in the USA. For a complete list of other countries with Bluetooth approval please refer to: www.trimble.com/geo_bluetooth.html.*

** *Microsoft Streets & Trips 2004 software available in US/Canada; Microsoft AutoRoute® 2004 in Europe.*

Trimble®

GeoXT

The total GPS platform for all your GIS field requirements

Standard features

System

- Microsoft Windows Mobile 2003 software for Pocket PCs
- 206 MHz Intel StrongARM processor
- 512 MB non-volatile Flash data storage
- Outdoor color display
- Ergonomic cable-free handheld
- Rugged and water-resistant design
- All-day internally rechargeable battery
- Bluetooth wireless

GPS

- Submeter accuracy
- Integrated WAAS[1]/EGNOS[2]
- RTCM real-time correction support
- NMEA and TSIP protocol support
- EVEREST multipath rejection technology

Software

- GPS Controller for control of integrated GPS and in-field mission planning
- GPS Connector for connecting integrated GPS to external ports
- File Explorer, Internet Explorer, Pocket Outlook (Inbox, Calendar, Contacts, Tasks, Notes), Sprite Pocket Backup, Transcriber, Pocket Word, Pocket Excel, Pictures, Windows® Media Player, Bluetooth File Transfer, Calculator, ActiveSync®
- Microsoft Streets & Trips/AutoRoute 2004 software

Accessories

- Support module with power supply and USB data cable
- Getting Started Guide
- Companion CD includes Outlook 2002 and ActiveSync 3.7.1
- Hand strap
- Pouch
- Stylus

Optional Features

Software

- TerraSync
- GPScorrect for ESRI® ArcPad®
- GPS Pathfinder® Tools Software Development Kit (SDK)
- GPS Pathfinder Office
- Trimble GPS Analyst extension for ArcGIS®

Accessories

- Serial clip for field data and power input
- Vehicle power adaptor[3]
- Portable power kit[3]
- Hurricane antenna
- External patch antenna
- Pole-mountable ground plane
- Baseball cap with antenna sleeve
- Beacon-on-a-Belt (BoB™) differential correction receiver[3]
- Hard carry case
- Null modem cable[3]
- Backpack kit

Specifications subject to change without notice.

Technical specifications

Physical

Size . . . . . 21.5 cm × 9.9 cm × 7.7 cm (8.5 in × 3.9 in × 3.0 in)
Weight. . . . . 0.72 kg (1.59 lb) with battery
Processor . . . . . 206 MHz Intel StrongARM SA-1110
Memory . . . . . 64 MB RAM and 512 MB internal Flash disk
Power
  Low (no GPS) . . . . . 0.6 Watts
  Normal (with GPS) . . . . . 1.4 Watts
  High (with GPS, backlight, and Bluetooth) . . . . . 2.5 Watts
Battery . . . . . Internal lithium-ion, rapidly rechargeable in unit, 21 Watt-hours

Environmental

Temperature
  Operating . . . . . –10 °C to +50 °C (14 °F to 122 °F)
  Storage . . . . . –20 °C to +70 °C (–4 °F to 158 °F)
Humidity . . . . . 99% non-condensing
Casing . . . . . Wind-driven rain and dust-resistant per IP 54 standard
Slip-resistant grip, shock- and vibration-resistant

Input/output

Communications . . . . . Bluetooth for wireless connectivity
USB via support module, serial via optional DE9 serial clip adaptor
Bluetooth
  Certification. . . . . Bluetooth type approvals are country specific.
GeoExplorer series handhelds are approved for use with Bluetooth in the USA.
For a complete list of other countries with Bluetooth approval
please refer to www.trimble.com/geoxt_ts.asp.
  Profiles
    Both client and host support . . . . . Serial Port, File Transfer (using OBEX)
    Client support only . . . . . Dial-Up Networking, Lan Access
    Host support only. . . . . Basic Imaging, Object Push
Display . . . . . Advanced outdoor TFT, 240 × 320 pixel, 65,536 colors, with backlight
Audio . . . . . Microphone and half duplex speaker, record and playback utilities
Interface . . . . . Anti-glare coated touch screen, Soft Input Panel (SIP) virtual keyboard
2 hardware control keys plus 4 programmable permanent touch buttons
Handwriting recognition software, Audio system events, warnings, and notifications

GPS

Channels. 12
Integrated real-time. . . . . WAAS[1] or EGNOS[2]
Update rate. . . . . 1 Hz
Time to first fix . . . . . 30 sec (typical)
Protocols. . . . . NMEA (GGA, VTG, GLL, GSA, ZDA, GSV, RMC),
TSIP (Trimble Standard Interface Protocol)

Accuracy (RMS)[4] after differential correction

Postprocessed[5] . . . . . Submeter
Carrier postprocessed[6]
  With 10 minutes tracking satellites . . . . . 30 cm
Real-time . . . . . Submeter

1 *WAAS (Wide Area Augmentation System). Available in North America only. For more information, see http://gps.faa.gov/programs/index.htm.*
2 *EGNOS (European Geostationary Navigation Overlay System). Available in Europe only. For more information, see http://www.esa.int/export/esaSA/navigation.html.*
3 *Serial clip also required.*
4 *Horizontal accuracy. Requires data to be collected with minimum of 4 satellites, maximum PDOP of 6, minimum SNR of 4, minimum elevation of 15 degrees, and reasonable multipath conditions. Ionospheric conditions, multipath signals or obstruction of the sky by buildings or heavy tree canopy may degrade precision by interfering with signal reception. Accuracy varies with proximity to base station by +1 ppm for postprocessing and real-time, and by +5 ppm for carrier postprocessing.*
5 *Postprocessing with GPS Pathfinder Office software or GPS Analyst extension for ArcGIS.*
6 *Requires collection of carrier data. (Only available with the GPS Pathfinder Office software).*

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Gasport® Gas Tester

The Gasport Gas Tester is designed for gas utility workers to detect methane and certain toxic gases. It is a reliable, simple, versatile tool to help your service technicians get the job done quickly! With multiple ranges and sensing capabilities built into one rugged housing, the Gasport Tester simplifies your work by reducing the number of meters you have to carry on the job.

Applications

The Gasport Tester's poison-tolerant methane sensor provides three measurement ranges for your daily service needs:

- Open air, safety sampling
- Small, in-home leak detection
- Street/outdoor service line leak detection

Features and Benefits

- **Proven in field use–rugged and reliable**
  Less costly to maintain, less time in repair
- **Multiple functions in one instrument**
  No need to buy, carry & maintain multiple instruments
- **New, poison-tolerant combustible gas sensor**
  Reduces meter ownership costs
- **User-selectable, "silent" operation mode**
  Reduces customer disturbances and worries
- **Fast warm up time**
  Fastest warm up time in industry saves time
- **Can monitor up to four gases at a time**
  Fewer instruments to carry
- **Show all gas concentrations simultaneously**
  Eliminates guesswork on what reading is displayed
- **Autoranging methane sensor**
  Automatically switches between 0-5% and 5-100% methane ranges
- **Gas readings recorded for later retrieval**
  Can double check readings after job is done
- **Simple manual or automated calibration options**
  Reduces training time and helps ensure accuracy
- **Intrinsically safe**
  Meets safety standards for work in hazardous areas
- **Lifetime warranty on case and electronics**
  Reduced maintenance and lifetime costs

Specifications

Gas	Range	Resolution
Methane	0–5000 ppm	50 ppm
Methane	0–100% LEL or 0–5% CH_4	1 % LEL or 0.1% CH_4
Methane	5–100% CH_4	1% CH_4
Oxygen	0–25%	0.1%
Carbon Monoxide	0–1000 ppm	1 ppm
Hydrogen Sulfide	0–100 ppm	1 ppm

Battery types: NiCd and Alkaline
Case material: Impact resistant, stainless-steel-fiber-filled polycarbonate
Operating temperature: normal -10 to 40°C; extended -20 to 50°C
Operating humidity: Continuous: 15-95% RH, non-condensing
Intermittent duty: 5-95% RH, non condensing
Warm up time: Less than 20 seconds to initial readings
Datalog capacity: 12 hours
Input: 3 clearly marked, metal domed keys
Warranty: Case and Electronics: Lifetime
Sensors and consumable parts: 1 year

The answer for gas utilities' gas detection needs

Gasport® Gas Tester

Ordering Information

Battery Chargers

Part No.	Description
494716	Omega 120 VAC 50/60Hz
495965	Omega 220 VAC 50/60Hz
801759	Omega 110/220 VAC, Five Unit, 50/60Hz
800525	Omega 8 - 24VDC for vehicle use

Battery Packs

Part No.	Description
496990	Standard NiCd Rechargeable
800526	Alkaline, Type C
711041	Alkaline, with Thumbscrews
800527	Heavy Duty NiCd Rechargeable

Sensors

Part No.	Description
813693	Combustible Gas
480566	O2
812389	CO
812390	H2S

Protective Boots

Part No.	Description
804955	Black, for NiCd Battery Packs
802806	Orange, for NiCd Battery Packs
806751	Black, for Alkaline Battery Packs
806750	Orange, for Alkaline Battery Packs
806749	Black, for HD NiCd Battery Packs
806748	Orange, for HD NiCd Battery Packs
812833	Yellow Soft Carrying Case with Harness
711022	Black padded Vinyl Carrying Case with Harness

Sampling Equipment

Part No.	Description
800332	Probe - 1 ft., plastic
800333	Probe - 3 ft., plastic
803561	Probe - 3 ft., plastic (holes 2" from end) (bar hole probe)
803962	Probe - 3 ft., plastic (holes 2" from handle) (solid probe)
803848	Probe - Hot Gas Sampler
710465	Sampling Line - 5 ft., coiled
497333	Sampling Line - 10 ft.
497334	Sampling Line - 15 ft.
497335	Sampling Line - 25 ft.

Sampling Accessories

Part No.	Description
801582	Replacement Filter, Probe, pkg. of 10
801291	External Filter Holder
014318	Charcoal Filter
711039	Line Scrubber Filter Holder
711059	Line Scrubber Replacement Cartridges, Box of 12
808935	Dust Filter, Pump Module
802897	Water Trap (Teflon) Filter, Pump Module

Calibration Check Equipment

Part No.	Description
477149	Calibration Kit Model RP with 0.25 lpm Regulator
491041	Calibration Gas - methane, 2.5%
473180	Calibration Gas - 300 ppm CO
813718	Calibration Gas - methane, 2.5% oxygen, 15%60 ppm CO
813720	Calibration Gas - methane, 2.5% oxygen, 15%300 ppm CO 10 ppm H2S
710288	Gasmiser™ Demand Regulator 0 - 3.0 lpm

Accessories

Part No.	Description
804679	Data Docking Module Kit. Includes the Data Docking Module, MSA Link Software and Instruction Manual

Approvals

The Gasport Gas Tester has been designed to meet intrinsic safety testing requirements in certain hazardous atmospheres.

The Gasport Gas Tester is approved by MET (an OSHA Nationally Recognized Testing Laboratory [NRTL]) for use in Class I, Division I, Groups A, B, C, D; Class II, Division I, Groups E, F, G; and Class III Hazardous locations. Gaspor tGas Testers sold in Canada are approved by CSA for use in Class I, Division I, Groups A, B, C, and D locations.

Contact MSA at 1-800-MSA-2222 for more information or with questions regarding the status of approvals.

Gasport Gas Tester Kits

	LEL Display	O_2	CO	H_2S	Alarms Always	Alarms Optional	Leak Detect Page	Peak	Alkaline Battery	NiCd Battery	5ft Coiled Line	1ft Probe	Part No.
4-Gas, Selectable, NiCd	•	•	•	•		•	•	•		•	•	•	711489
4-Gas, Selectable, Alkaline	•	•	•	•		•	•	•	•		•	•	711490
3-Gas, Selectable, NiCd	•	•	•			•	•	•		•	•	•	711493
3-Gas, Selectable, Alkaline	•	•	•			•	•	•	•		•	•	711494
2-Gas, Selectable, NiCd	•		•			•	•	•		•	•	•	711495
2-Gas, Selectable, Alkaline	•		•			•	•	•	•		•	•	711496
4-Gas, Alarms On, NiCd	•	•	•	•	•		•	•		•	•	•	711491
4-Gas, Alarms On, Alkaline	•	•	•	•	•		•	•	•		•	•	711492

Assemble-to-Order (ATO) System: You Make the Choices

The ATO System makes it easy to "custom order" the Gasport Gas Tester, configured exactly the way you want it. You can choose from an extensive line of base instrument components and accessories. To obtain a copy of the "ATO System and Price Information for the Gasport Gas Tester," call toll-free 1-800-MSA-2222, and request Bulletin 0804-28. **To obtain a copy of the ATO via FAX, call MSA QuickLit Information Service at 1-800-672-9010. At the prompt, request QuickLit Document #2345 (ATO for Gasport Gas Tester).**

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