September 14, 2006

Ms. Debbie Baldwin
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203

RE: August 28, 2006 Methane Seep Survey
Bondad, Colorado

Dear Ms. Baldwin:

LT Environmental, Inc. (LTE) is pleased to provide the Colorado Oil and Gas Conservation Commission (COGCC) with this letter summarizing the results of the ninth methane seep survey conducted at the Bondad Gas Seep Site (Site) located in Bondad, Colorado on August 28, 2006. This is the first survey conducted since drilling and re-completion activities were conducted at the Bryce 1-X well between late July 2006 and early August 2006.

BACKGROUND

At the request of the COGCC, LTE conducted an initial methane gas seep survey on the Site in February 2005. The initial methane seep survey was performed in response to an explosion of a residence located at 4034 US Highway 550 (the former Yoakum Residence). During the period from February 21 through February 24, 2005, LTE conducted soil gas survey activities in the project area extending approximately 3,000 feet in all directions from the Bryce 1-X production well (Figure 1). The results of the initial soil gas survey are presented in the *Methane Seep Survey Report* (March 2005). Additional soil gas surveys were performed on April 19, 2005, June 10, 2005, November 1, 2005, December 2, 2005, January 30, 2006, April 6, 2006, and June 28, 2006. All project reports are available on the COGCC website at www.oil-gas.state.co.us.

LTE conducted a geophysical survey of the seep area in April 2005 which identified several areas suspected of containing buried structures (such as abandoned wells or pipelines) with the potential to act as conduits for methane gas. Exploratory excavation activities were conducted in these suspect areas in August 2005 and the abandoned Bryce 1-X well was uncovered in the main gas seep area. In November, 2005, LTE provided oversight during the excavation, inspection, and initial remediation of the Bryce 1-X well and sandstone bedrock surface. Reports summarizing the geophysical survey, exploratory excavation activities, and the Bryce 1-X well remediation activities are also available on the COGCC website.

Recent activity at the site has included continued operation and maintenance (O&M) of the methane detection systems located at the fire station, Weston well house, Weston residence, Wilson residence, Buddhue residence, Bandy (former Grant) residence, health and safety monitoring during well pad construction activities at the Bryce 1-X well, and health and safety monitoring during drilling and completion of the Bryce 1-X well.

SITE DESCRIPTION

The Site is located in Bondad, Colorado, approximately 20 miles south of Durango, Colorado (Figure 1). The Site is located approximately 0.25 miles north of the confluence of the Animas River to the west and the Florida River to the east. The Site consists of several tracts of land covering more than 100 acres. The surrounding land use consists of several residential properties, agricultural properties, a fire station, US Highway 550, the Animas River, and the Florida River. The majority of land in the area is privately owned.

METHANE GAS SEEP SURVEY

Methodology

On August 28, 2006, LTE was on site to conduct the ninth methane gas seep survey of the Site. The scope of the survey was similar to the previous surveys conducted at the Site. During the soil gas survey, tubing was lowered into each borehole and gas measurements were collected directly from the shallow surface soil approximately three feet below ground surface (bgs). LTE measured the concentration of methane and oxygen in parts per million (ppm) and percent (%), respectively, at each sampling location.

LTE created a sampling grid to cover the mapping area systematically and to provide a means to delineate the extent of the gas seepage. The grid consisted of approximately 140 squares, each measuring approximately 10,000 square feet in area. LTE collected a soil gas measurement at the corners of each square in the grid. Each sample location was recorded using a Trimble GeoXT® global positioning system (GPS). When methane was detected along the edges of the grid, additional measurements were collected outside of the grid to define the extent of the seep area more completely.

LTE measured the methane concentration in the soil around the exterior of all five houses in the mapping area, near the water wells associated with each of the structures, and along the valley floor of both the Animas and Florida Rivers. Interior and exterior measurements were collected at the fire station.

Soil Gas Survey Results

LTE personnel advanced a total of 189 subsurface probes across the project area. Results of this survey indicate that elevated methane gas was detected in an elliptically-shaped area around the Bryce 1-X well covering approximately 2.7 acres. The distribution of the methane gas in this area extended approximately 360 feet north of, 40 feet south of, 220 feet west of, and 90 feet east of the Bryce 1-X well. Detected methane concentrations in the elliptically-shaped seep area ranged from 1,000 ppm (0.10%) to 10%.

Methane was detected near the Buddhue water well at a concentration of 66%. Methane was not detected around the Weston, Bandy, Wilson, or Williams residences nor near the water wells associated with these structures. Methane was not detected in the interior portions of the fire station.

Methane was detected at a concentration of 500 ppm (0.05%) at one location approximately 100 feet southeast of the Cain 31-2 coal bed methane (CBM) production well. The majority of the area surrounding the Cain 31-2 CBM production well was inaccessible during the August 2006 survey due to the installation of a steel security fence surrounding the well.

Methane was not detected along the floodplain of the Animas River nor the Florida River during the August 2006 methane seep survey.

Figure 1 shows all methane concentrations recorded during the August 2006 methane seep survey.

Methane Seep Survey Comparison

With the exception of the February 2005 survey event, which included the collection of 372 subsurface gas measurements, the number of subsurface measurements collected during the other seven surveys remained relatively consistent, ranging from 134 to 201 points. The grid created for the April 2005 methane seep survey and used during the past eight survey events allowed LTE to conduct field activities efficiently and systematically.

LTE prepared a map illustrating the historical areal extent of methane seepage identified during the previous gas survey events (Figure 2). Comparison of the August 2006 data indicates that the areal extent of the primary seep area (around the abandoned Bryce 1-X well) decreased since the June 2006 survey. During the June 2006 survey, the primary seep area extended over an area of approximately 5.7 acres. During the August 2006 survey, the primary seep area extended over an area of approximately 2.7 acres. This is the smallest areal extent of methane seepage observed at the site since mapping began in February 2005.

The average methane concentration detected within the primary seep area during August 2006 has also decreased from the previous survey. Data indicate that the concentrations within the primary seep area are the lowest concentrations detected since mapping began in February 2005. The table below presents the number of points reporting detectable concentrations of methane and the average methane concentrations within the primary seep area during each of the soil gas survey events.

The methane concentration detected near the Buddhue water well was 90% during the April 2006 and June 2006 surveys. During the August 2006 survey, the methane concentration near the Buddhue water well was 66%.

Table 1. Average Methane Concentrations

Survey Date	Number of Survey Points	Average Subsurface Methane (%)
Feb-05	112	23
Apr-05	45	33
Jun-05	37	21
Nov-05	45	32
Dec-05	25	21
Jan-06	31	10
Apr-06	32	29
Jun-06	23	25
Aug-06	13	2

CONCLUSIONS AND RECOMMENDATIONS

The results of the August 28, 2006 survey indicate that the areal extent and concentrations of methane seepage in the primary seep continue to decrease. These significant decreases are most likely the result of reentering, plugging, and abandoning the Bryce 1-X well in July - August 2006. This work was conducted by A-Plus Well Service, Inc. of Farmington, New Mexico, on behalf of the COGCC. Seep activity continues around the fire station and the Buddhue water well, but not in the vicinity of the other residences within the mapping area. Methane was not detected within the interior portions of the fire station. Methane was not detected along the floodplain of the Animas River or the Florida River, nor along the base of the cliffs adjacent to these floodplains.

The primary methane seep appears to have been caused by gas migrating from the Fruitland Formation up the well bore of the Bryce 1-X well. The gas moved vertically upward along the well bore and then migrated laterally into permeable layers and aquifers of the Nacimiento Formation where well casing was absent and/or structurally compromised. It appears that the plugging of the Bryce 1-X has reduced the gas seepage at the ground surface. LTE recommends continued monitoring of the methane seep at the Site as a safety precaution for the residents in the area and to monitor the effectiveness of the plugging activities.

According to analytical results of groundwater samples recently obtained from nearby water wells by Four Corners Geoscience, dissolved methane concentrations remain high. If dissolved methane concentrations remain elevated in the near future, additional remedial action may be necessary.

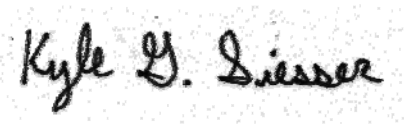
The grid mapping system will continue to be used during future seep surveys in an effort to remain consistent with the previous monitoring events. The next soil gas survey event is scheduled for September 25, 2006. Prior to the next survey event, LTE will attempt to gain access to the area around the Cain 31-2 well that is currently behind a steel security fence. LTE also recommends continued O&M of the existing methane detection systems in the four houses and the fire station located within the project area. The monthly O&M will continue to be conducted by Standby Safety of Cortez, Colorado.

LTE will also use a metal detector to attempt to locate the former N. Spatter #1 (API No. 05-067-05217), which was plugged and abandoned in 1998. This well is located somewhere in the vicinity of the existing Cain 31-2 well, but the dry hole marker is no longer visible. If the well located, GPS coordinates will be obtained and the location of the former N. Spatter #1 well will be staked.

LTE appreciates the opportunity to provide environmental services to the COGCC. If you have any questions regarding this report or would like additional information, please contact us at (303) 433-9788.

Sincerely,

LT ENVIRONMENTAL, INC.

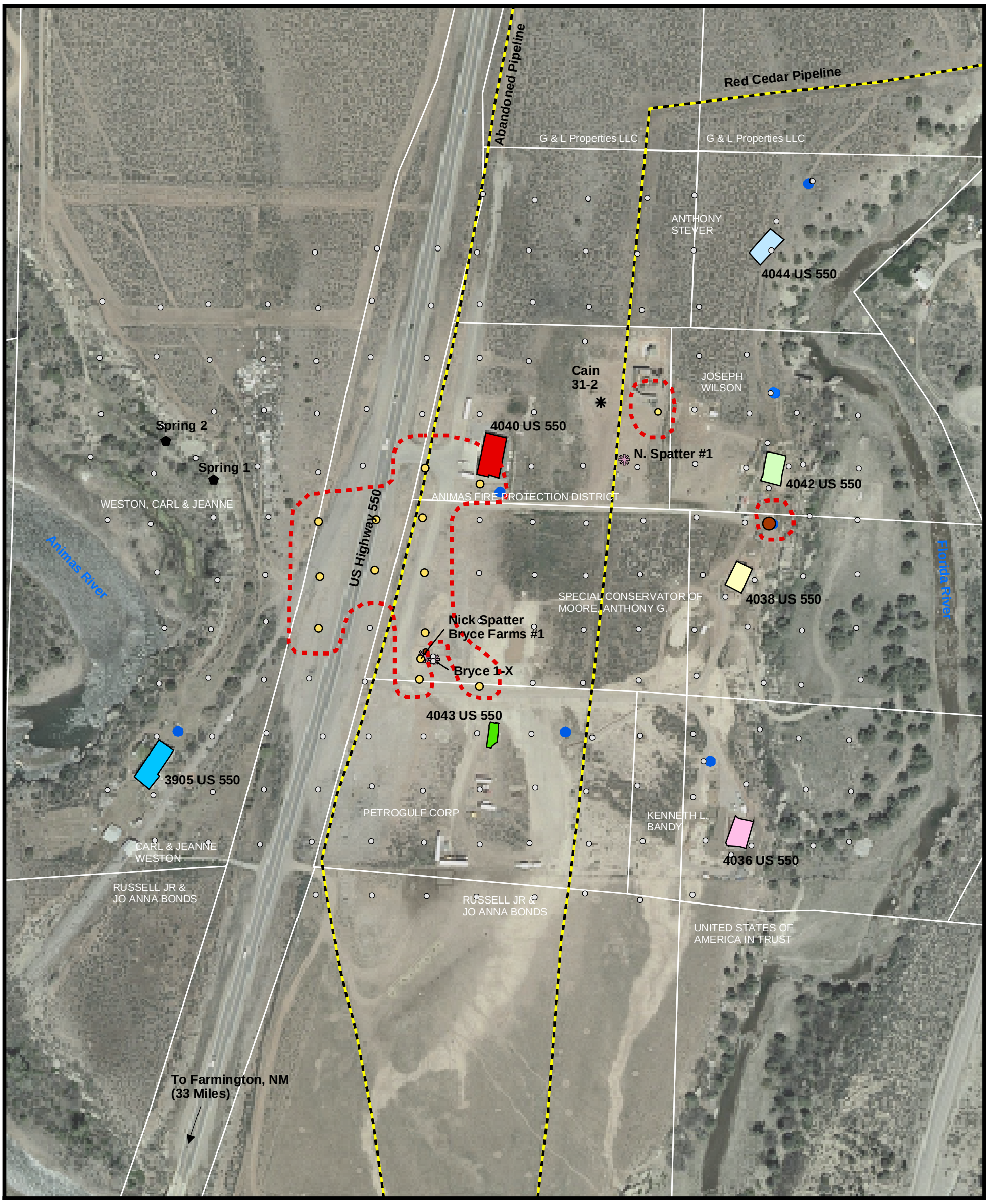


Kyle G. Siesser
Staff Geologist

John D. Peterson, P.G.
Project Manager

Attachments

FIGURES



LEGEND

- Water Supply Well
- Springs
- Gas Well
- Former Oil and Gas Well

Extent of Methane Seepage

- August 2006

Utilities

- Buried Gas Pipeline

Structures

- Williams Residence
- Fire Station
- Wilson Residence
- Buddhue Residence
- Bandy (former Grant) Residence
- Former Yoakum Residence
- Weston Residence

Subsurface Methane Measurements

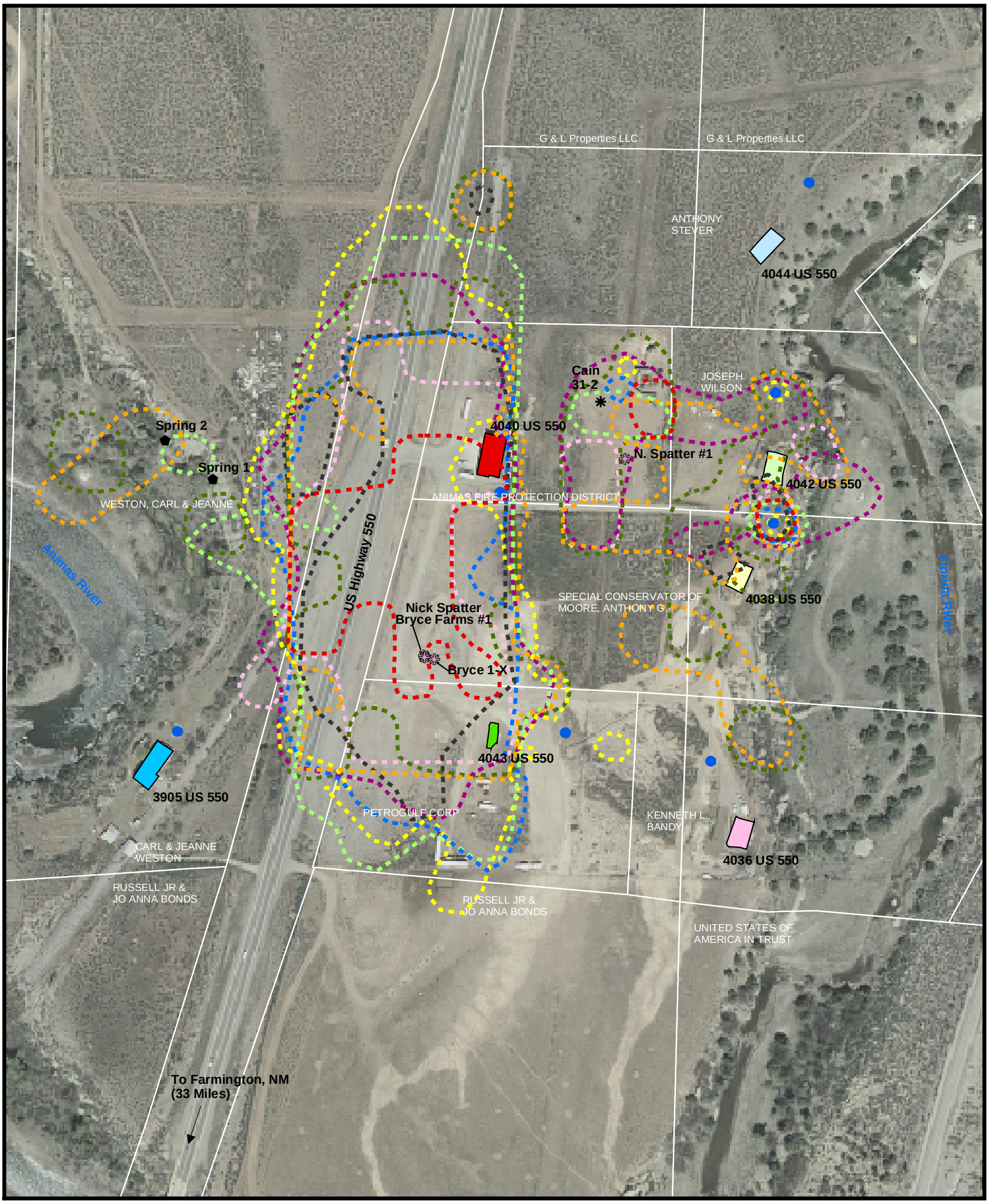
- 0 ppm
- 500 ppm - 5%
- 6% - 15%
- 16% - 25%
- 26% - 50%
- 51% - 75%
- 75% - 100%

0 360 Feet

N

Landowner and Property Boundaries Labeled in White

FIGURE 1
SUBSURFACE METHANE MEASUREMENTS
AUGUST 2006
BONDAD GAS SEEP
BONDAD, CO
COLORADO OIL AND GAS CONSERVATION COMMISSION



Legend

Extent of Methane Seepage	Structures	
August 2006	Williams Residence	Water Supply Wells
June 2006	Fire Station	Springs
April 2006	Wilson Residence	Gas Well
January 2006	Buddhue Residence	Former Oil and Gas Well
December 2005	Bandy (former Grant) Residence	
November 2005	Former Yoakum Residence	
June 2005	Weston Residence	
April 2005		
February 2005		

Landowner and Property Boundaries Labeled in White

0 360
Feet

N

FIGURE 2
HISTORICAL SUBSURFACE METHANE MEASUREMENTS
FEBRUARY 2005 - AUGUST 2006
BONDAD GAS SEEP
BONDAD, CO
COLORADO OIL AND GAS CONSERVATION COMMISSION