



August 24, 2006

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

RE: June 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 eighth methane seep survey conducted at the Bondad Gas Seep Site (Site) located in Bondad, Colorado on June 28, 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, and April 6, 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, and health and safety monitoring during well pad construction activities at the Bryce 1-X well.

LT Environmental, Inc.

Compliance • Engineering • Remediation

4400 W. 46th Avenue Denver Colorado 80212 T 303.433.9788 F 303.433.1432 E info@LTEnv.com



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 project area land use consists of residential properties, agricultural properties, a fire station, US Highway 550, the Animas River, and the Florida River. The majority of land is privately owned. Figure 1 displays the Site layout.

METHANE GAS SEEP SURVEY

Methodology

On June 28, 2006, LTE was on site to conduct the eighth methane gas seep survey of the Site. This survey is the fourth survey since venting work on the Bryce 1-X well began. 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, oxygen, hydrogen sulfide, and carbon monoxide 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 also measured the methane concentration in the soil around the exterior of the Fire Station and 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.

Soil Gas Survey Results

LTE personnel advanced a total of 196 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 5.7 acres. The distribution of the methane gas in this area extended approximately 560 feet north of, 140 feet south of, 315 feet west of, and 110 feet east of the Bryce 1-X well. Detected methane concentrations in the elliptically-shaped seep area ranged from 500 parts per million (ppm) (0.05%) to 85%.

Methane was detected at two locations in the vicinity of the Wilson and Buddhue residences. Methane was detected near the Buddhue water well at a concentration of 90%. Methane was detected along the cliffs east of the Wilson residence at a concentration of 2,500 ppm (0.25%). Methane was not detected around the Weston, Bandy, or Williams residences nor near the water wells associated with these structures.



Methane was detected at two locations approximately 100 feet southwest of the Cain 31-2 production well. Detectable methane concentrations in this seep area were 500 ppm (0.05%) and 26,500 ppm (2.65%). The majority of the area surrounding the Cain 31-2 production well was inaccessible during the June 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 June 2006 methane seep survey.

Figure 1 shows all methane concentrations recorded during the June 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 seven 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 June 2006 data indicates that the areal extent of the primary seep area (area around the abandoned Bryce 1-X well) decreased slightly from the April 2006 survey and remains smaller than the areal extent of the seep area mapped prior to the venting of the Bryce 1-X well in November 2005.

The average methane concentration detected within the primary seep area during June 2006 has also decreased from the previous survey. Data indicate that the concentrations within the primary seep area are lower than the concentrations detected prior to venting the Bryce 1-X well in November 2005.

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



The areal extent of the gas seep around the Wilson and Buddhue residences appears to have decreased since the April 2006 survey event. However, the magnitude of the methane concentrations at this location has remained consistent with previous survey events with the highest concentration recorded near the Buddhue water well. The methane concentration detected near the Buddhue water well was 90% during the April 2006 and June 2006 surveys. The Buddhue water well is the likely conduit for the methane seepage detected.

CONCLUSIONS AND RECOMMENDATIONS

The results of the June 28, 2006 survey indicate that the areal extent of activity in the primary seep area has decreased since November 2005 when the Bryce 1-X well was allowed to vent to the atmosphere. The average methane concentration in the primary seep area decreased since the previous survey and continues to remain below the average methane concentration reported prior to the venting of the Bryce 1-X well in November 2005. Seep activity continues around the Fire Station and the Buddhue and Wilson residences, but not in the vicinity of the other residences within the mapping area. The areal extent of seep activity around the Buddhue and Wilson residences appears to have decreased since the previous survey. Methane seepage continues to be detected along the cliffs west of the Florida River, but was not detected at any location along the floodplain of the Animas River during the June 2006 survey.

The primary seep activity appears to be associated with the Bryce 1-X abandoned well. Since the work performed on the Bryce 1-X during December 2 through December 4, 2005, the Bryce 1-X is venting gas to the atmosphere. The well appears to be acting as the preferential pathway for methane gas migration. The preferential flow through the Bryce 1-X well may be reducing the lateral migration of methane gas beneath the sandstone layer, thereby reducing the areal extent of the surface gas seep. LTE recommends continued monitoring of the methane seep at the Site as a safety precaution for the people living in the area.

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 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.

The Bryce 1-X well is currently being drilled in an attempt to properly plug and abandon the well. LTE is conducting health and safety monitoring during the well drilling operations.



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.

A handwritten signature in black ink that reads "Kyle G. Siesser". The signature is written in a cursive, flowing style.

Kyle G. Siesser
Staff Geologist

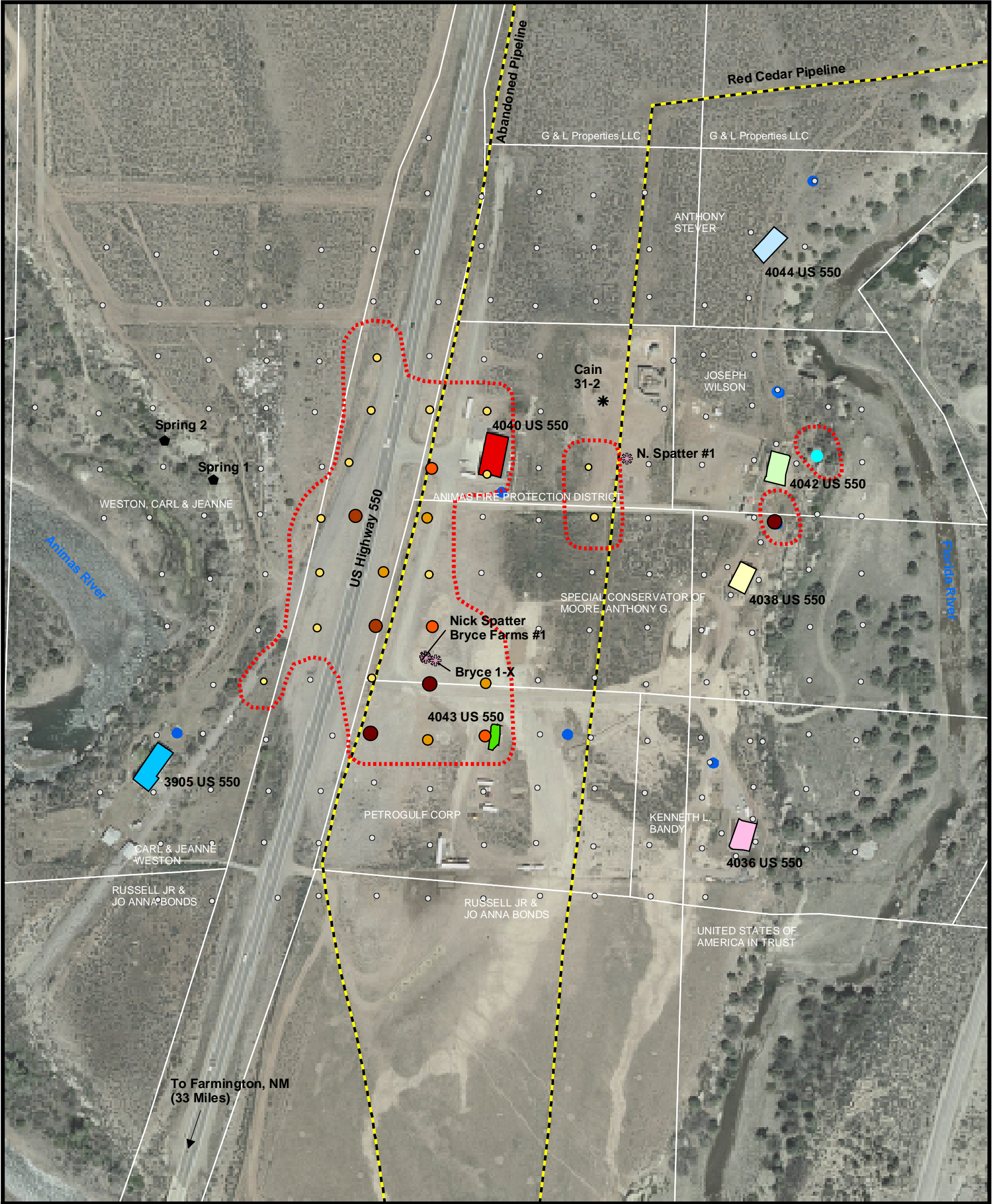
A handwritten signature in black ink that reads "John D. Peterson". The signature is written in a cursive, flowing style.

John D. Peterson, P.G.
Project Manager

Attachments

FIGURES





Legend

- | | |
|----------------------------------|----------------------------------|
| ● Water Supply Wells | Structures |
| ◆ Springs | ■ Williams Residence |
| * Gas Well | ■ Fire Station |
| ✱ Former Oil and Gas Well | ■ Wilson Residence |
| Extent of Methane Seepage | ■ Buddhue Residence |
| June 2006 | ■ Bandy (former Grant) Residence |
| Utilities | ■ Former Yoakum Residence |
| --- Buried Gas Pipeline | ■ Weston Residence |

Landowner and Property Boundaries Labeled in White

Subsurface Methane Measurements

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

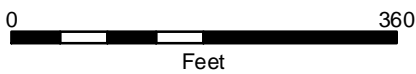
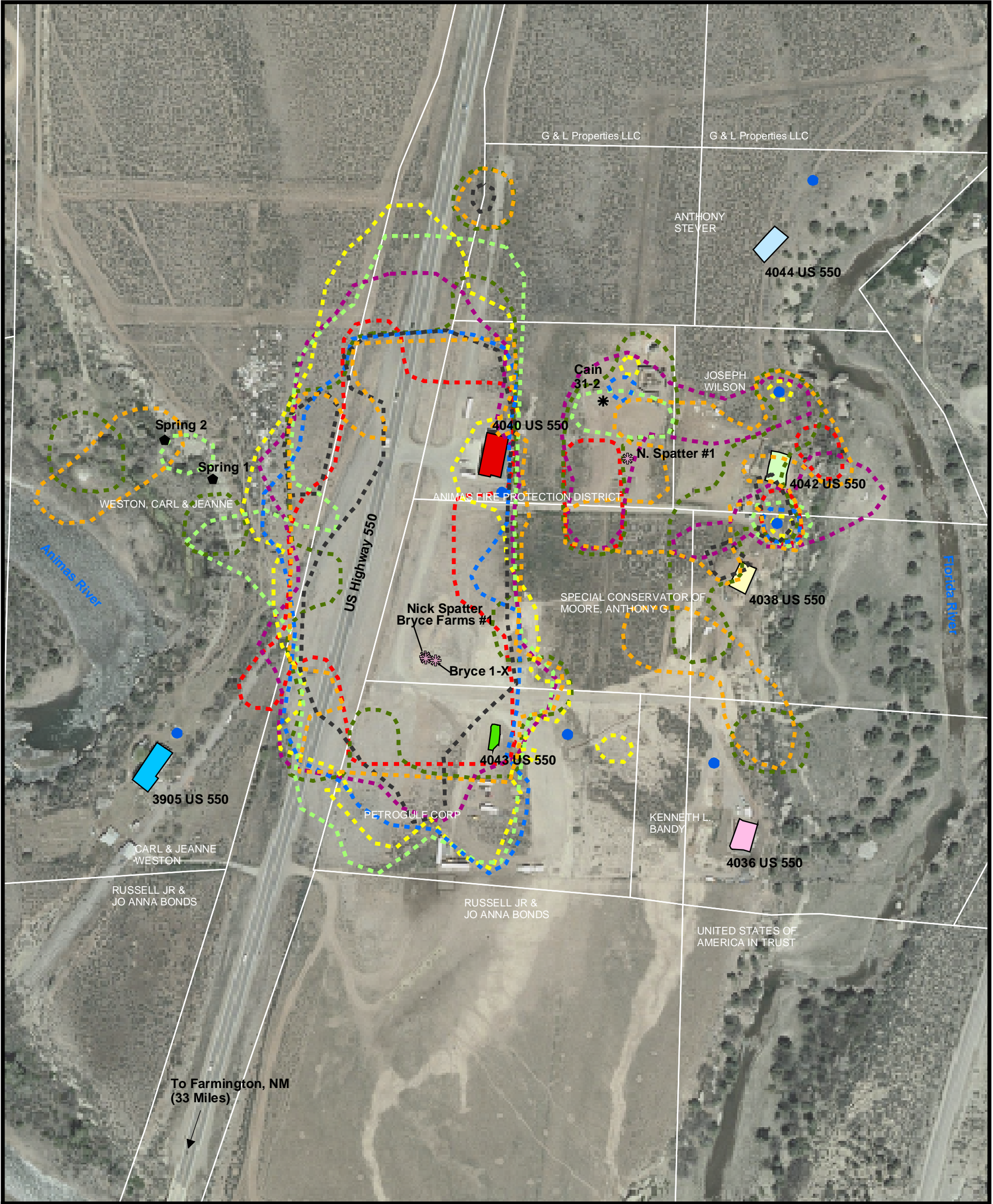


FIGURE 1
SUBSURFACE METHANE MEASUREMENTS
JUNE 2006
BONDAD GAS SEEP
BONDAD, CO
COLORADO OIL AND GAS CONSERVATION COMMISSION





Legend

Methane Seepage

- June 2006
- April 2006
- January 2006
- December 2005
- November 2005
- June 2005
- April 2005
- February 2005

Structures

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

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

Landowner and Property Boundaries Labeled in White

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

