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FAX (318) 798-0478

March 11, 2014

SENT VIA EMAIL

U.S. Environmental Protection Agency, Region 6
Air Permits Section (6PD-R)
ATTN: Cynthia Fanning
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Cultural Resources Survey in Support of Prevention of Significant Deterioration for Greenhouse Gas Emissions, Delaware Basin JV Gathering LLC, Avalon Mega CGF, Loving County, Texas
Customer Number (CN): 603815879

Dear Ms. Fanning:

On behalf of Delaware Basin JV Gathering, LLC (DBJVG), C-K Associates (C-K) respectfully submits the Cultural Resources Survey for the Avalon Mega Central Gathering Facility (CGF). DBJVG proposes to construct the Avalon Mega CGF near the town of Mentone in Loving County, Texas (Figure 1).

The proposed Avalon Mega CGF is subject to Federal Prevention of Significant Deterioration (PSD) requirements for Greenhouse Gas (GHG) emissions. In Texas, the Environmental Protection Agency (EPA) is responsible for issuing PSD permits for major sources of GHGs. Nitrogen oxides (NO_X) and carbon monoxide (CO) will be the new major source emissions for the proposed Avalon Mega CGF as described in the GHG PSD permit application received by the EPA on January, 22, 2013. The proposed project will also trigger PSD review for volatile organic compounds (VOC), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), and particulate matter with an aerodynamic of 2.5 microns or less ($PM_{2.5}$).

Prior to issuing the federal PSD permit, EPA must comply with the Section 7 of the Endangered Species Act (ESA) (pursuant to 50 CFR Part 402) to prepare a Biological Assessment (BA), and Section 106 of the National Historic Preservation act (NHPA) (pursuant to 36 CFR Part 300) for cultural review and clearance. The BA will be submitted under separate cover. The Cultural Resource Survey was conducted by Cultural Resource Analysts, Inc (CRA) and is provided as Attachment A. The resume for the Cultural Resource Survey Principal Investigator is included as Attachment B.

Additionally, the National Register of Historic Places and Native American Lands were mapped (Figure 2). The distance to nearest Native American Lands (Tribal Resource) is located approximately 121 miles to the northwest of the proposed facility. The closest site on the

National Registry of Historical Places is the Loving County Courthouse, located approximately 15 miles to the south or the proposed facility.

If you have any questions or comment about the information presented in this letter, please do not hesitate to call me at (225) 755-1000, ext. 1416 or Mr. JD Holt, DBJVG, (832) 636-2721.

Very truly yours,
C-K Associates

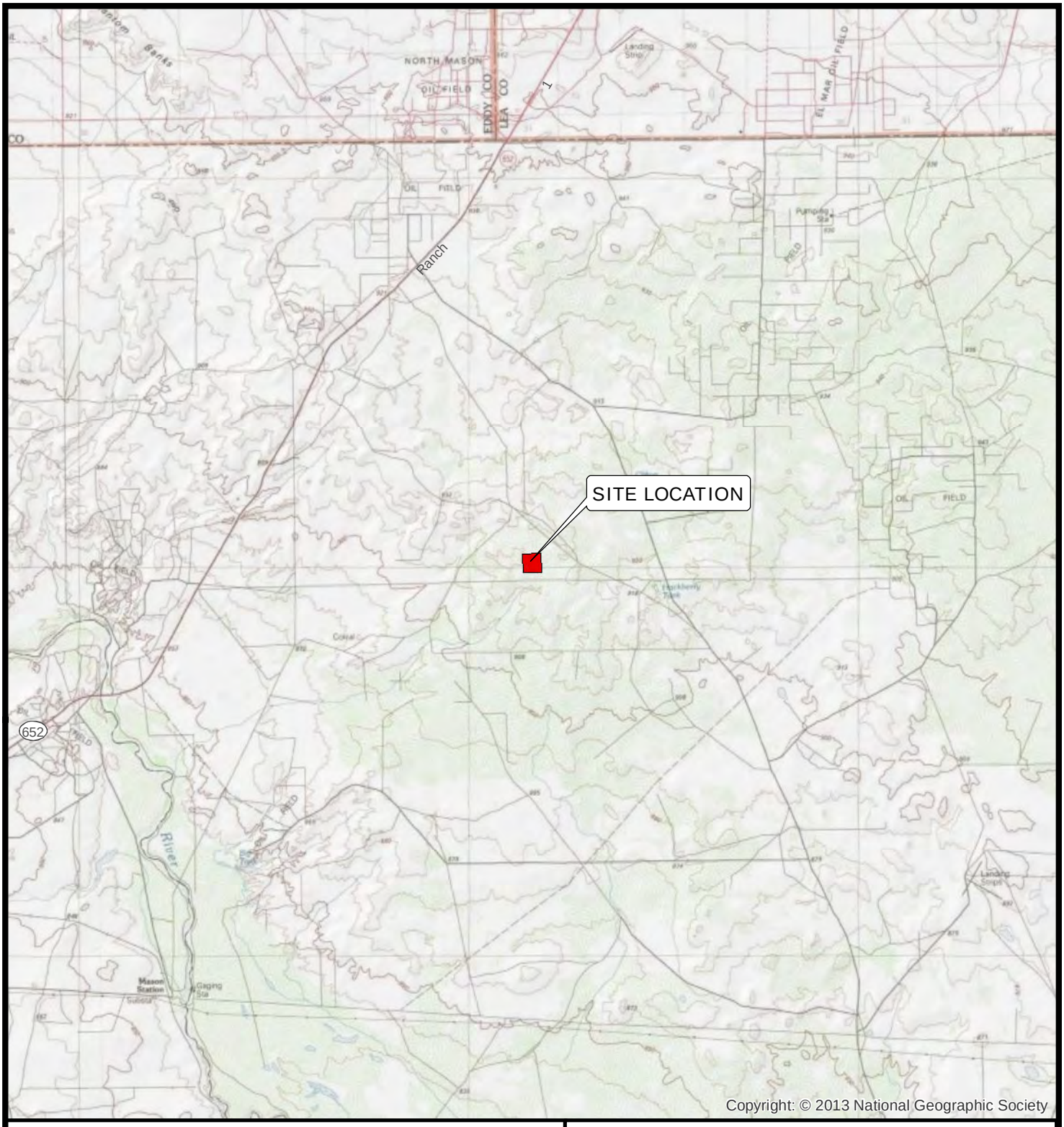
Brad Marler

Brad Marler
Sr. Environmental Scientist

Cc: Mr. JD Holt, Delaware Basin JV Gathering LLC

Enclosures: Figure 1 - Site Location Map
Figure 2 - Tribal and National registry of Historic Places
Attachment A - Cultural Resource Survey
Attachment B - Principal Investigator Resume

FIGURES



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Miles

Reference

USGS 100K QUADRANGLE MAP, KERMIT, TX

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ANADARKO PETROLEUM CORPORATION
THE WOODLANDS, TEXAS

AVALON MEGA CGF CULTURAL ASSESSMENT

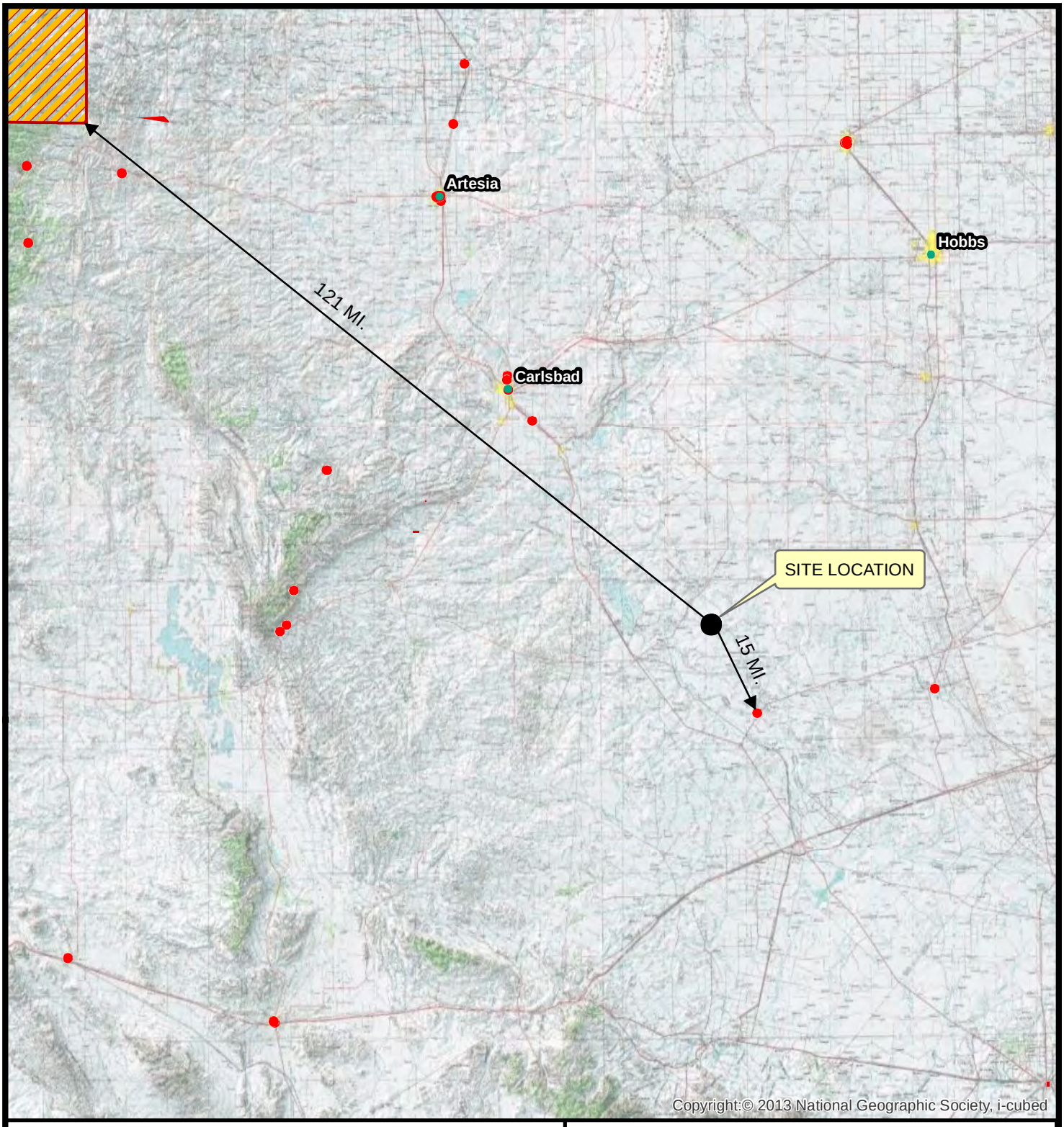
SITE LOCATION MAP

LOVING COUNTY

C-K ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Drawn:	CAL/AM10.1
Checked:	BM
Approved:	TW
Date:	3/11/14
Dwg. No.:	A8509-01

FIGURE 1



Cultural Resource Site (NRIS)

Cultural Resource District (NRIS)

Native American Lands

N

S

0 5 10 20

Miles

- National Park Service Cultural Resources GIS program, National Register of Historic Places database (NRIS) inventory
- Native American Lands, USA May 2010

esri Partner Network Silver

ANADARKO PETROLEUM CORPORATION
THE WOODLANDS, TEXAS

AVALON MEGA CGF CULTURAL ASSESSMENT

TRIBAL AND NATIONAL REGISTRY OF HISTORIC PLACES

LOVING COUNTY

C-K ASSOCIATES
ENVIRONMENTAL CONSULTANTS

Drawn:	CAL/AM10.1
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Date:	3/11/14
Dwg. No.:	A8509-09

FIGURE 2

ATTACHMENT A

CULTURAL RESOURCES SURVEY

C-K Associates

Contract Publication Series LA12-419

A CULTURAL RESOURCE SURVEY OF THE PROPOSED AVALON MEGA CENTRAL GATHERING FACILITY DEVELOPMENT SITE IN LOVING COUNTY, TEXAS

by
Jay W. Gray, RPA,
and Benjamin J. Bilgri

Prepared for

C-K ASSOCIATES • LLC

and

Anadarko Petroleum Corporation

Prepared by

cra
cultural resource analysts, inc

Kentucky | West Virginia | Ohio
Wyoming | Illinois | Indiana | Louisiana | Tennessee
New Mexico | Virginia | Colorado

Contract Publication Series LA12-419

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By
Jay W. Gray, RPA
and Benjamin J. Bilgri

Prepared for

C-K Associates, LLC
17170 Perkins Road
Baton Rouge, Louisiana 70810
Phone: (225) 755-1000

Prepared by

Cultural Resource Analysts, Inc.
7330 Fern Avenue, Suite 1104
Shreveport, Louisiana 71105
Phone: (318) 213-1385
Email: jwgray@crai-ky.com
CRA Project No.: L12C019

Jay W. Gray, RPA
Principal Investigator

January 9, 2013

Lead Agency: Environmental Protection Agency

ABSTRACT

Cultural Resource Analysts, Inc., personnel completed a records review and cultural resource survey for a proposed 20.2 ha (50.0-acre) development in Loving County, Texas. Anadarko Petroleum Corporation proposes to develop a parcel of land for development of the Avalon Mega Central Gathering Facility for natural gas processing. The fieldwork for this project was conducted on December 17 and 18, 2012. The project area consists of a single tract located 24.14 km (15.00 mi) northwest of the town of Mentone in Loving County, which is situated within the northeastern extent of the Chihuahuan Desert in west Texas.

This study was conducted in pursuit of a Prevention of Significant Deterioration permit with the Environmental Protection Agency, which requires compliance with Section 106 of the National Historic Preservation Act, among other laws. The purpose of this study was to locate, describe, evaluate, and make recommendations for the future treatment of any historic or prehistoric archeological properties that may be affected by proposed development activities. The records review was conducted on November 20, 2012. The review indicated that no documented archeological sites or surveys were situated within, or within a 1.61 km (1.00 mi) radius of, the current project area.

Field investigation consisted of a pedestrian survey with supplemental shovel testing. Transects spaced at intervals of 30 m were traversed, utilizing surface visibility for site detection, and shovel tests were excavated in intervals not exceeding 100 m throughout the project area. Two isolated finds were recorded as a result of the survey, each consisting of a single prehistoric lithic artifact. Both of these archeological occurrences are unlikely to yield any additional information and are therefore recommended as not eligible for listing in the National Register of Historic Places.

Based on the findings of the records review and cultural resource survey, no archeological sites or historic properties listed in, or eligible for, the National Register of Historic Places will be affected by the proposed construction activities, and cultural resource clearance is recommended.

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LIST OF FIGURES

I. INTRODUCTION

At the request of C-K Associates, LLC, Cultural Resource Analysts, Inc., completed a records review and cultural resource survey for a proposed 20.2 ha (50.0-acre) development in Loving County, Texas (Figure 1). This study was conducted in pursuit of a Prevention of Significant Deterioration (PSD) permit with the Environmental Protection Agency (EPA), which requires compliance with Section 106 of the National Historic Preservation Act (NHPA), among other laws. The purpose of this study was to locate, describe, evaluate, and make recommendations for the future treatment of any historic or prehistoric archeological properties that may be affected by proposed development activities. The fieldwork for this project was conducted on December 17 and 18, 2012. The project area consists of a single tract 24.14 km (15.00 mi) north of the town of Mentone in Loving County, Texas. Loving County is situated within the northeastern extent of the Chihuahuan Desert in west Texas.

The records review indicated that no previously recorded sites were located within the project area and that no previous archeological work corresponds with the project area location. There have also not been any previously recorded sites or previous archeological surveys within a 1.61 km (1.00 mi) radius of the project area.

Field investigation consisted of a pedestrian survey with supplemental shovel testing. Transects spaced at intervals of 30 m (98 ft) were traversed, utilizing surface visibility for site detection, and shovel tests were excavated in intervals not exceeding 100 m (328 ft) throughout the project area. Two isolated artifacts were recovered as a result of the survey, each consisting of a single prehistoric lithic artifact. Both of these archeological occurrences are unlikely to yield any additional information and are therefore recommended as not eligible for listing in the National Register of Historic Places (NRHP).

The records review for this project was conducted by Benjamin J. Bilgri utilizing online files maintained by the Texas Historical Commission (THC) and accessed on November 20, 2012. The fieldwork was completed on December 17 and 18, 2012, during which a total of 37 person hours were expended. Jay W. Gray and Benjamin J. Bilgri constituted the field crew. Based on the findings of the records review and cultural resource survey, no archeological sites or historic properties listed in, or eligible for, the NRHP will be affected by the proposed construction activities, and cultural resource clearance is recommended.

This report is intended to follow the suggested format for a Short Report, as presented in the *Council of Texas Archeologists Guidelines for Cultural Resource Management Reports*. This is a small cultural resources survey project that conforms to the descriptions of the type of project for which a Short Report format is suitable, according to the guidelines. The report provides a description of the study area, management summary, project methods, results, recommendations, and references cited.

Figure 1. Map of Texas showing the location of Loving County.

II. DEFINITION OF STUDY AREA

This archeological survey was requested by C-K Associates, LLC, on behalf of Anadarko Petroleum Corporation, which proposes to develop a parcel of land for development of the Avalon Mega Central Gathering Facility (CGF) for natural gas processing. The project area consists of a single tract measuring 20.2 ha (50.0 acres) in size. The parcel is located approximately 24 km (15 mi) northwest of the town of Mentone and 2.9 km (1.8 mi) west of County Road 300. The boundaries of the project area are arbitrary and are not defined by any existing roads or other man-made or natural features of the landscape (Figure 2).

The project area is characterized by rolling topography in an upland setting with a sparse ground cover of flora typical of arid desert environments. Small mesquite and creosote bushes constituted the most common vegetation observed within the project area, although small cacti and yucca were also present. Surface visibility within the majority of the project area exceeded 90 percent, while denser vegetation along the northeastern boundary reduced visibility to approximately 50 percent. Eolian erosion and deposition are the dominant geological processes affecting the visibility of archeological materials within the survey area. At the time of the survey, winds were from the southwest and were gusting to speeds in excess of 48 km/h (30 mph), and these eolian processes could be observed first-hand. The numerous exposures of the underlying caliche and the buildup of sand surrounding and on the leeward side of vegetation also attested to each of these processes, respectively.

III. MANAGEMENT SUMMARY

This section provides the following context for the study: the project sponsor, purpose, project personnel, person hours, and dates specific tasks were completed. This cultural resource survey was conducted at the request of C-K Associates, LLC. This study was conducted in pursuit of a PSD permit with the EPA requiring compliance with Section 106 of the NHPA. The purpose of this assessment was to 1) locate, describe, evaluate, and to make appropriate recommendations for the future treatment of any historic or prehistoric archeological properties that may have been threatened by proposed activities, and 2) to assess the potential for archeological sites requiring preservation in place.

CRA completed all tasks associated with the cultural resource survey of the proposed project area. Prior to initiating fieldwork, a search of records maintained by the Texas Archeological Sites Atlas (available online at: http://nueces.thc.state.tx.us/) was conducted to: 1) determine if the project area had been previously surveyed for archeological resources; 2) identify any previously recorded archeological sites that were situated within the project area; 3) provide information concerning what archeological resources could be expected within the project area; and 4) provide a contextual basis for interpreting any archeological resources encountered within the project area. This file search was conducted on November 20, 2010, by Benjamin J. Bilgri.

Fieldwork for the project was completed on December 17 and 18, 2012, by Benjamin J. Bilgri and Jay W. Gray and required approximately 37 person hours. The survey methods utilized for this project consisted of pedestrian survey along parallel transects spaced at 30 m intervals, with supplemental shovel testing in intervals of 100 m.

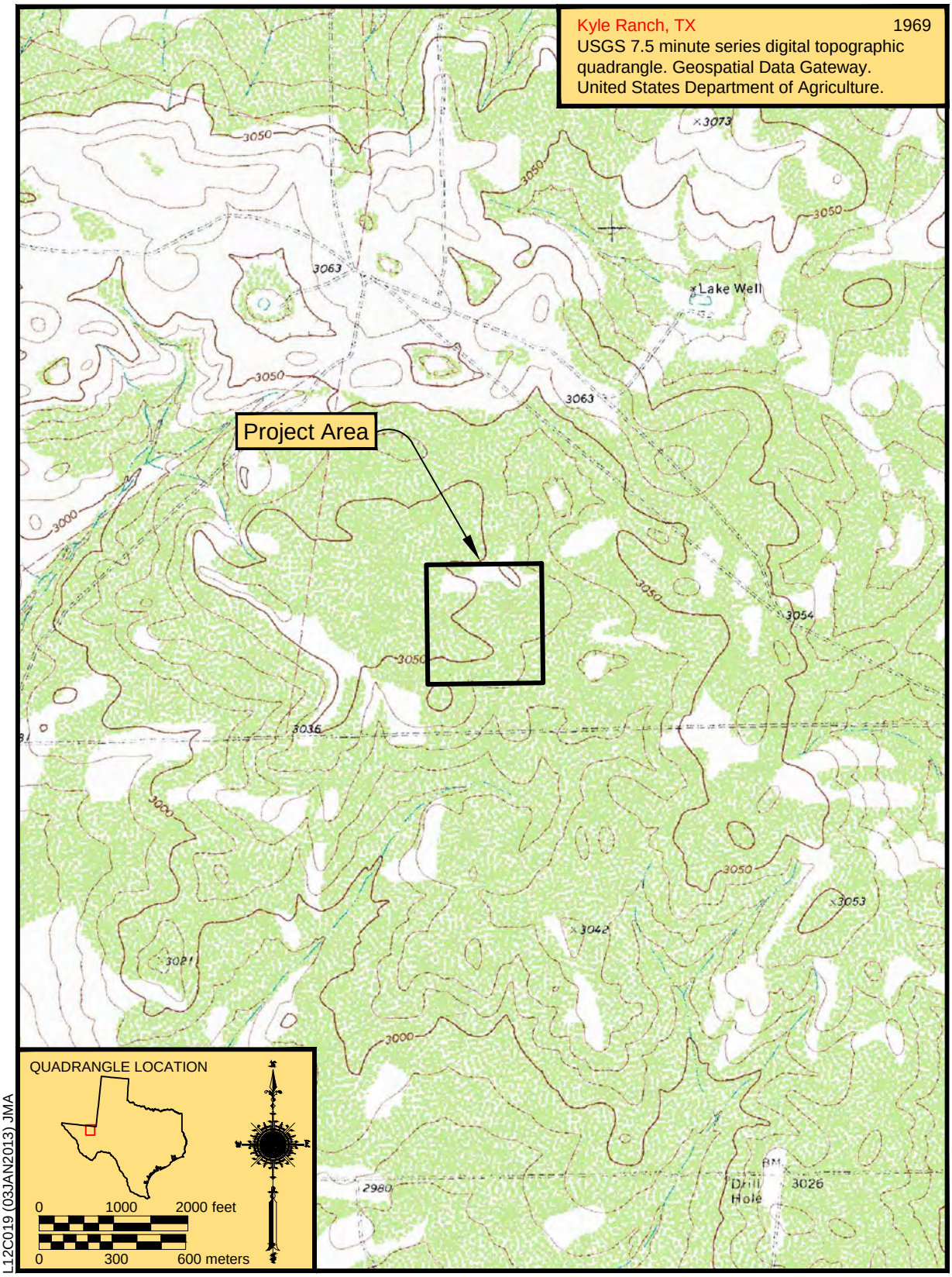

Figure 2. Location of project area on topographic quadrangle.

IV. RESEARCH DESIGN

This section describes the field research methods used during the survey. Field investigation consisted of an intensive survey of the proposed area following standard archeological methods (i.e., pedestrian and shovel test survey). The portions of the project area that crossed terrain with good surface visibility were subject to pedestrian survey. This consisted of visual inspection of the ground surface to identify historic and prehistoric artifacts. Supplemental shovel tests were excavated to test whether buried archeological remains exist. Since surface visibility was excellent throughout the project area, the minimum number of shovel tests per acre recommended by the Texas Historical Commission was excavated. While these recommendations do not indicate that shovel testing is necessary in areas with greater than 30 percent surface visibility, this extra measure was taken due to the presence of eolian deposited sand throughout much of the project area. This assessment method requires the excavation of screened shovel tests measuring 35 cm in diameter at intervals of 100 m. All shovel tests were excavated in 10 cm levels, and all fill was screened using .64 cm (.25 in) wire mesh.

During fieldwork, the project area location and boundaries were verified using a MobileMapper 6 global positioning system (GPS) unit manufactured by Magellan. All Universal Transverse Mercator (UTM) positions recorded by the GPS unit during the project were taken under sunny conditions, with typically three to five satellites being tracked. This unit is capable of accuracy to less than 3 m.

V. RESULTS

This cultural resource investigation consisted of a records review and field investigation. The records review using the Texas Archeological Sites Atlas indicated that no resources were documented in, or within 1 mi of, the current project area. Field investigation consisted of an intensive pedestrian survey supplemented with screened shovel tests. A total of 30 shovel tests were excavated along parallel transects (Figure 3).

Two prehistoric isolated finds were recorded as a result of the survey. Each of these consisted of a single artifact found in a surface context. Despite careful visual inspection of the ground surface surrounding each of these isolates and the excavation of a shovel test at the location of each, no additional cultural materials could be located.

Artifact analysis indicates that the isolated finds consist of a minimally utilized flake and a unifacially reworked flake. The utilized flake, which constitutes the artifact assemblage recovered from IF-1, is manufactured from a lithic material that has a coarse groundmass and resembles basalt. The unifacial flake tool is manufactured from a highly silicious lithic material that is white in color and resembles novaculite, although it could be a highly silicious chert. Both basalt and novaculite are volcanic in origin. According to the Texas State Historical Association's Texas Almanac, the nearest igneous formations are in the southern extent of Reeves County, approximately 100 km (62 mi) south of the project area.

Topographically, IF-2 was found within a mild depression, which was demonstrated through shovel testing to be considerably in-filled with sediment. This topographic feature likely holds water for a period subsequent to heavy rainfall and may be the variable responsible for prehistoric activity in the area. The location of IF-1 is well to the west of the depression within an area that does not exhibit any obvious topographic features that would relate to human activities.

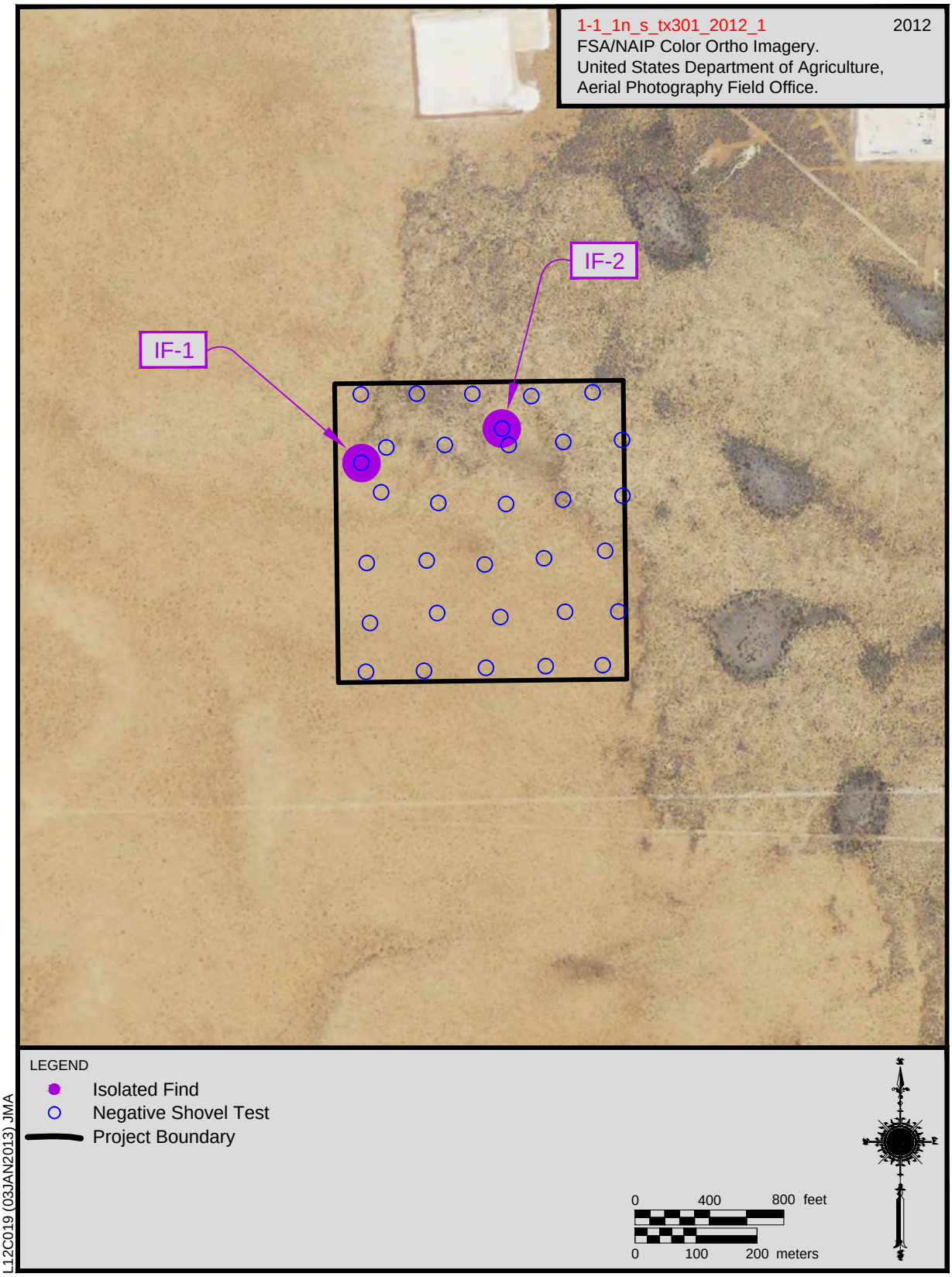

Figure 3. Location of project area on aerial photo, showing shovel tests and isolated finds.

VI. RECOMMENDATIONS

Two isolated artifacts were recovered as a result of the current investigations, and attempts to locate additional, related artifacts from surface or subsurface contexts were unsuccessful. The isolated finds do not meet the minimum requirements to be considered historic properties. The records review also indicated that no previously recorded archeological sites or mapped structures exist at the proposed project location. In summary, no cultural resources listed in, or eligible for listing in, the NRHP will be affected by the proposed project, and cultural resource clearance is recommended. Note that a principal investigator or field archeologist cannot grant clearance to a project. Although the decision to grant or withhold clearance is based, at least in part, on the recommendations made by the field investigator, clearance may be obtained only through an administrative decision made by the THC.

REFERENCES CITED

Council of Texas Archeologists
2010 Guidelines for Cultural Resource Management Reports. Council of Texas Archeologists (http://www.counciloftexasarcheologists.org/index.php?option=content&task=view&id=39&Itemid=55), accessed December 19, 2010.

Texas Historical Commission
2012 Texas Archeological Sites Atlas. Texas Historical Commission (http://nueces.thc.state.tx.us/), accessed December 26, 2012.

Texas State Historical Association
2012 Texas Almanac:Geology of Texas (Map). Texas State Historical Association (http://www.texasalmanac.com/topics/environment/geology-texas-0), accessed December 26, 2012.

ATTCHMENT B

PRINCIPAL INVESTIGATOR RESUME

Jay Gray
PRINCIPAL INVESTIGATOR - ARCHAEOLOGIST

cra
cultural resource analysts, inc

18 YEARS OF EXPERIENCE:
Cultural Resource Analysts, Inc. 2012 – present
TRC Environmental Corp. 2004 – 2012
Panamerican Consultants, Inc. 1997 – 2004
National Park Service 1996 – 1997

QUALIFICATIONS:
- Archaeologist meeting or exceeding Secretary of the Interior's Professional Qualifications Standards
- Specific work experience with
  - ☑ Phase I survey
  - ☑ Phase II testing
  - ☑ Phase III data recovery

- MA, Anthropology, University of Memphis, 2001
- BA, Anthropology, Northwestern State University of Louisiana, 1997

Registered Professional Archaeologist (ID# 989602)
Member of Society for American Archaeology
Member of Louisiana Archaeological Society
Member of North Carolina Archaeological Society
2012 Adult CPR, First Aid, and Bloodborne Pathogens

EXPERIENCE SUMMARY: Manages cultural resources projects. Cultural resources technical specialist in prehistoric and historic archaeology. Experience includes planning and supervising fieldwork, report preparation, and artifact analysis.

SELECTED PROJECTS:

- **Phase III Data Recovery, Blackjack (31CD1035) and McFadyen Pond (31CD1008) Sites, Cumberland County, Fort Bragg, North Carolina.** Paleoindian, Archaic and Woodland Period Prehistoric Sites. Client: U.S. Army. Completed for USACE Savannah District.
- **Phase II National Register Evaluation, 57 Sites, Cumberland, Harnett, Hoke, Moore, Richmond and Scotland Counties, Fort Bragg and Camp Mackall, North Carolina.** Paleoindian, Archaic, Woodland, Mississippian (Pee Dee) Period Prehistoric and 20th Century Historic Sites. Client: U.S. Army. Completed for the USACE Savannah District, CERL/ERDC, and National Park Service, Southeast District.
- **Phase I Survey, 20,875 Acres, Cumberland, Harnett, Hoke, Moore, Richmond, and Scotland Counties, Fort Bragg and Camp Mackall, North Carolina.** Client: U.S. Army. Completed for National Park Service, Southeast District and USACE, Wilmington and Savannah Districts.
- **Phase I Survey, 3,715 Acres, Fort Campbell, Tennessee and Kentucky.** Client: U.S. Army. Completed for National Park Service, Southeast District
- **Phase I Survey, 9.2 Miles, West Bank of the Mississippi River Levee, Madison Parish, Louisiana.** Client: USACE, Vicksburg District.
- **Phase I Survey, 25.5 Ha., 17 Km, and 84 Locations for Demonstration Erosion Control, Calhoun, Carroll, Chickasaw, Marshall, Montgomery, Tate, Webster, and Yalobusha Counties, Mississippi.** Client: USACE, Memphis District.

TECHNICAL DOCUMENTATION:
2011 Recent Archaeological Investigations in the Sandhills of North Carolina. Paper presented at the symposium *Across the Border: An Archaeological and Environmental Discussion of the Sandhills Physiographic Province: A View from North and South Carolina.* Hosted by the North Carolina Archaeological Society, Southern Pines, North Carolina.

2007 Possible Paleoindian Occupation at the Blackjack Site (31CD1035), Fort Bragg, North Carolina. Paper presented at the symposium *Paleoindian Socioeconomics*. 2007 Southeastern Archaeological Conference, Knoxville, Tennessee.

2000 The Renovations Project: Data Recovery at the Chucalissa Museum. Paper presented at the 2000 Midsouth Archaeological Conference (with Paul D. Bundy), Nashville, Tennessee.