4 June 2012

Jeffrey Robinson
US EPA Region 6
Air Permits Section (6PD-R)
1445 Ross Avenue
Dallas, TX 75202

RE: Request for Concurrence – Finding of No Effect to Archaeological and Historic Resources Associated with Houston Central Gas Plant Expansion Project
Colorado County, Texas
WGI Project No. 1213

Mr. Robinson:

On behalf of Copano Processing L.P. (Copano), Whitenton Group, Inc. (WGI) is submitting the enclosed information and request for review for the construction of a central gas plant expansion project in Colorado County, Texas (Figure 1). The purpose of the project is to construct and operate a new 400 million standard cubic feet per day cryogenic processing train at the existing Houston Central Gas Plant. Many producers, large and small, in the Eagle Ford Shale play are depending on Copano and their expansion project to bring rich gas to market. The expansion will allow these producers to bring new production online and extract the maximum value for their production. Additionally, Copano supplies natural gas liquids to the petrochemical and refining industries, which rely on Copano’s supply of natural gas liquids as feedstock and blending components for their facilities.

The total time estimated to complete the construction of the expansion project is approximately 48 weeks. The proposed project is located approximately 3.0 miles southeast of the intersection of Farm to Market Road 2437 and US Highway 90.

Project location information:

<table>
<thead>
<tr>
<th>USGS Quad</th>
<th>Latitude/Longitude</th>
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</thead>
<tbody>
<tr>
<td>Sheridan</td>
<td>29.468795</td>
</tr>
<tr>
<td>Sheridan NE</td>
<td>-96.625591</td>
</tr>
</tbody>
</table>
Construction for the proposed project will take place within the existing Copano property. Construction activities will include site work, installation of drilled shaft foundations and spread footings, installation of pipe rack and supports, installation of major equipment, and installation of a new Motor Control Center building. The construction area is shown on Figures 2 and 3.

Total earth disturbance is approximately 5.9 acres. The earth disturbance will take place within a disturbed industrial site. A portion of the site is currently an active flare pit that would be relocated. No vegetation was observed within the proposed construction area.

The results of the cultural resources archival review and pedestrian survey, conducted by Horizon Environmental Services, Inc., were negative. No previously documented resources were identified during the archival review and no cultural/historical artifacts were observed during field surveys and shovel testing. A pedestrian survey was completed in May 2012. The survey area was approximately 8 acres. The larger survey area than the estimated earth disturbance was chosen to ensure adequate coverage of the project area.

The proposed gas plant expansion project will require a Prevention of Significant Deterioration Greenhouse Gas permit from the Environmental Protection Agency. WGI is seeking concurrence from the Texas Historical Commission/State Historic Preservation Officer that the proposed gas plant expansion construction activities will have no effect on archaeological and/or historical resources. I have attached three figures (location maps), photographs of the project area, and the cultural resource survey report of findings. Please call me at 512.353.3344 if you have any questions or need additional information.

Sincerely,

Jayme A. Shiner
Enclosures:
Figure 1 Project Location
Figure 2 Aerial Photograph
Figure 3 Topographic Map
Photographic Log
An Intensive Cultural Resources Survey of the Proposed Copano-Houston Central Gas Plant Cryo Expansion Project in Colorado County, Texas
Figure 1
Project Location
Houston Central Gas Plant Expansion Project
Colorado County, Texas
Construction Area
(5.9 Acres)

Background Resources:
USGS 1 Meter DOQQ (2010)
Sheridan NE (NW), Sheridan (NE)
ESRI Streetmap Basemap

GPS and Coordinate Type:
Trimble Geo XH 6000 Series
UTM NAD 1983
Zone 14 North

Surveyor(s):
Jayme Shiner PWS
Bryan Whisenant

Project Number and Information:
1213
Houston Central Gas Plant Expansion
Biological Assessment

Map Created:
6/03/2012 by Jayme Shiner

Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Earthstar, MapmyIndia,
GDE, IEI, and the GIS User Community. Copyright © 2012 Esri, DeLorme,
NAVTEQ, and TomTom.
Houston Central Gas Plant Expansion Project

06/07/2012

Colorado County, Texas

View: East view of the proposed project area.

Houston Central Gas Plant Expansion Project

06/07/2012

Colorado County, Texas

View: North view of the proposed project area.

Houston Central Gas Plant Expansion Project

06/07/2012

Colorado County, Texas

View: West view of the proposed project area.
An Intensive Cultural Resources Survey of the Proposed Copano-Houston Central Gas Plant Expansion Project in Colorado County, Texas

By:

Russell K. Brownlow

Prepared for:
Whitenton Group, Inc.
San Marcos, Texas

Prepared by:
Horizon Environmental Services, Inc.
Austin, Texas

HJN 110012 AR2 07

DRAFT
Revised November 2012
An Intensive Cultural Resources Survey of the Proposed Copano-Houston Central Gas Plant Cryo Expansion Project in Colorado County, Texas

By:

Russell K. Brownlow

Prepared for:

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Whitenton Group, Inc.
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Lead Federal Agency:

US Environmental Protection Agency

Prepared by:

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Russell K. Brownlow, Principal Investigator
HJN 110012 AR2 07

DRAFT
Revised November 2012
ABSTRACT

On 1 May 2012, Horizon Environmental Services, Inc. (Horizon) conducted an intensive cultural resources survey of Copano Processing, L.P.’s (Copano) proposed Houston Central Gas Plant Cryo Expansion Project in southwestern Colorado County, Texas (Project Area). Overall, the Project Area totals approximately 8.0 acres. Although the Project Area is located entirely on private property and its development will utilize private funding, the undertaking will require a Greenhouse Gas (GHG) permit issued by the US Environmental Protection Agency (EPA). As a result, the undertaking also falls under the regulations of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. At the request of Whitenton Group, Inc. (Whitenton), Horizon conducted the cultural resources survey of the Project Area on behalf of Copano in compliance with Section 106 of the NHPA. The purpose of the survey was to determine if the development of the Project Area had the potential to have an adverse effect on any significant cultural resources listed on or considered eligible for listing on the National Register of Historic Places (NRHP).

The cultural resources survey of the Project Area resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 8 excavated shovel tests. The negative results were anticipated due to the fact that the Project Area is located within the boundaries of an existing industrial facility where significant ground-disturbing activities have occurred in the past.

Based on the negative survey results, it is Horizon’s opinion that the development of the Project Area will have no adverse effect on significant cultural resources. Horizon therefore recommends that Copano be allowed to proceed with the proposed Houston Central Gas Plant Cryo Expansion Project, relative to the jurisdiction of the EPA and Section 106 of the NHPA. However, in the unlikely event that any cultural materials (including human remains or burial features) are inadvertently discovered at any point during construction, use, or ongoing maintenance of the Project Area, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the Texas Historical Commission (THC) and the EPA should be notified of the discovery.
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ACKNOWLEDGEMENTS

Horizon Environmental Services, Inc. (Horizon) conducted the intensive cultural resources survey of Copano Processing, L.P.’s (Copano) proposed Houston Central Gas Plant Cryo Expansion Project reported herein in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. Russ Brownlow served as the principal investigator for the project, while Michael Mudd and Jared Wiersema conducted the field investigations. Russ Brownlow served as the lead author on this report. Michael Mudd was responsible for the drafting of the figures.
1.0 INTRODUCTION

This document reports the results of an intensive cultural resources survey of Copano Processing, L.P.’s (Copano) proposed Houston Central Gas Plant Cryo Expansion Project in southwestern Colorado County, Texas (Project Area; Figures 1-1 and 1-2). Overall, the Project Area totals approximately 8.0 acres. Although the Project Area is located entirely on private property and its development will utilize private funding, the undertaking will require a Greenhouse Gas (GHG) permit issued by the US Environmental Protection Agency (EPA). As a result, the undertaking also falls under the regulations of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. At the request of Whitenton Group, Inc. (Whitenton), Horizon Environmental Services, Inc. (Horizon) conducted the cultural resources survey of the Project Area on behalf of Copano in compliance with Section 106 of the NHPA. The purpose of the survey was to determine if the development of the Project Area had the potential to have an adverse effect on any significant cultural resources listed on or considered eligible for listing on the National Register of Historic Places (NRHP).

The cultural resources investigations consisted of an archival review, an intensive cultural resources survey of the Project Area, and the production of a report suitable for review by the State Historic Preservation Officer (SHPO) in accordance with the Texas Historical Commission’s (THC) Rules of Practice and Procedure, Chapter 26, Section 27, and the Council of Texas Archeologists (CTA) Guidelines for Cultural Resources Management Reports. Russell Brownlow (Horizon’s cultural resources director) served as the project’s principal investigator, while Michael Mudd and Jared Wiersema (Horizon staff archeologists) conducted the field investigations.

Horizon conducted the survey of the Project Area on 1 May 2012. This entailed intensive surface inspection and subsurface shovel testing efforts within the Project Area. The Texas State Minimum Archeological Survey Standards (TSMASS) require a minimum of 2 shovel tests per acre for projects between 3.0 and 10.0 acres in size. As such, a total of 16 shovel tests were necessary within the 8.0-acre Project Area in order to comply with the TSMASS. Horizon excavated a total of 8 shovel tests within the Project Area, falling short of the minimum survey standards due to the fact that: 1) an existing, heavily disturbed flare pit covers roughly 3.0 of the 8.0 acres within the Project Area; and 2) the remaining 5.0 acres in the Project Area consist of heavily disturbed soil deposits within an existing industrial facility that precluded the potential for any intact cultural deposits (see Figure 1-2).
Chapter 1.0: Introduction

Figure 1-1. Topographic map with the location of the Project Area
Figure 1-2. Aerial photograph with the location of the Project Area
The cultural resources survey of the Project Area resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 8 excavated shovel tests. The negative results were anticipated due to the fact that the Project Area is located within the boundaries of an existing industrial facility where significant ground-disturbing activities have occurred in the past.

Based on the negative survey results, it is Horizon’s opinion that the development of the Project Area will have no adverse effect on significant cultural resources. Horizon therefore recommends that Copano be allowed to proceed with the proposed Houston Central Gas Plant Cryo Expansion Project, relative to the jurisdiction of the EPA and Section 106 of the NHPA. However, in the unlikely event that any cultural materials (including human remains or burial features) are inadvertently discovered at any point during construction, use, or ongoing maintenance of the Project Area, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC and the EPA should be notified of the discovery.
2.0 ENVIRONMENTAL SETTING

2.1 GENERAL PROJECT AREA DESCRIPTION

Copano operates an existing gas processing plant and associated support facilities collectively referred to as Houston Central Gas Plant. This facility is located in Colorado County, approximately 3.3 miles (5.4 kilometers [km]) southeast of Sheridan, Texas. The Houston Central Plant has a gas processing capacity of 1,100 million standard cubic feet per day per day (MMSCFD) and is a major source of nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC) emissions. Copano holds New Source Review (NSR) Permits Nos. 56613, 17117, 17554, 96187, and various other permits by rule (PBRs) to authorize construction of existing emission sources. Federal Operating Permit (FOP) No. O-807 authorizes ongoing operations. Copano has decided to expand the Houston Central Gas Plant operations by installing a new 400-MMSCFD cryogenic process train within the approximately 8.0 acres of the existing facility that comprise the current Project Area. This train will consist of inlet gas mole sieve dehydrators with 2 supplemental heaters (HTR-3/HTR-4), a 400-MSCFD cryogenic process, a liquid amine treating unit controlled by a new Regenerative Thermal Oxidizer (RTO-3), 2 residue turbines (TURB-5 and TURB-6), an amine storage tank (TANK-3), and associated fugitive components (CRYO3 FUG). Representative images of the Project Area at the time of the cultural resource survey are presented in Figures 2-1 through 2-4.

2.2 PHYSIOGRAPHY AND HYDROLOGY

The Project Area is located in southwestern Colorado County in Southeast Texas. It is situated on the northern end of an upland landform that slopes gently toward Middle Sandy Creek, which is located approximately 0.3 miles (0.5 km) north of the Project Area. Elevations within the Project Area range between approximately 220.0 and 230.0 feet (67.1 and 70.1 meters) above mean sea level. Hydrologically, the proposed Project Area is situated within the Navidad River basin. The Project Area is generally drained to the north via overland sheet flow into Middle Sandy Creek and 1 of its tributaries. Middle Sandy Creek joins Sandy Creek approximately 1.6 miles (2.6 km) east of the Project Area. Sandy Creek joins the Navidad River approximately 30.0 miles (48.3 km) south of the Project Area.

2.3 SOILS

A total of 2 soil types are mapped within the boundaries of the Project Area. These soils are presented in Table 2-1 (NRCS 2012a) and in Figure 2-5.
Figure 2-1. View from northeast corner of Project Area looking southwest

Figure 2-2. View of northern half of Project Area looking west
Figure 2-3. View of existing flare pit in Project Area facing south

Figure 2-4. View along eastern half of Project Area facing south
Table 2-1. Soils mapped within the Project Area

<table>
<thead>
<tr>
<th>SOIL NAME</th>
<th>SOIL TYPE</th>
<th>SOIL DEPTH (INCHES)</th>
<th>SETTING</th>
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<tbody>
<tr>
<td>Katy fine sandy loam, 0 to 1% slopes (KaA)</td>
<td>Fine sandy loam</td>
<td>0 to 24: Fine sandy loam 24 to 42: Sandy clay loam 42 to 80: Sandy clay</td>
<td>Loamy fluviomarine deposits of early Pleistocene age on flats</td>
</tr>
<tr>
<td>Milby sand, 1 to 3% slopes (MfB)</td>
<td>Sand</td>
<td>0 to 24: Sand 24 to 80: Sandy clay loam</td>
<td>Loamy and sandy alluvium of Pleistocene age on terraces</td>
</tr>
</tbody>
</table>
Figure 2-5. Soils mapped within Project Area
3.0 CULTURAL BACKGROUND

To break down the period of prehistory spanning from roughly 12,000 years ago to the present, a tri-partite system is utilized, based on changes in subsistence that are manifested in settlement patterns and technology. This 3-phased chronological sequence consists of Paleo-Indian, Archaic, and Late Prehistoric components.

3.1 PALEO-INDIAN PERIOD (10,000 BC TO 6000 BC)

Information pertaining to the Paleo-Indian life-ways is considerably rare, but it is generally agreed that people during this time period formed highly mobile bands that relied on hunting now-extinct Pleistocene megafauna (e.g., mammoth and bison) and foraging. Large lanceolate projectile points that are often fluted typically identify Paleo-Indian culture. These fluted styles consist of both the Clovis and Folsom types. Certain projectile points reflective of the latter end of the Paleo-Indian period include Angostura, Plainview, Scottbluff, Dalton, and San Patrice.

3.2 ARCHAIC PERIOD (6000 BC TO 650 AD)

The Archaic Period is the time when subsistence strategies became more diverse. The distribution, size, and artifacts associated with Archaic sites suggest that site occupation corresponded to seasonal rounds reliant on certain natural resources such as nuts, fruits, fish, and game. In Hall’s 1981 research report, 3 principal divisions of the Archaic Period are included in the discussion of findings at the Allens Creek sites. Those divisions are the Edwards Plateau and La Harpe aspects, and the Aransas focus.

The Edwards Plateau aspect is characterized by chipped stone tools and dart points of the Pedernales, Nolan, Montell, Frio, Fairland, Castroville, Bulverde, Lange, Marcos, Marshall, Martindale, Travis, and Uvalde styles. In the margin between central and coastal Texas regions, the Edwards Plateau aspect is not clearly temporally defined. However, in the central Texas region, the aspect is more accurately broken down into phases relating to point classifications.

The La Harpe aspect is characterized by a change of principal point types from expanding-base to contracting-base styles. The change corresponded with a reliance on medium-sized game rather than buffalo or small mammals. Sites attributed to the La Harpe aspect often include boatstones or atlatl weights in their artifact assemblages (Hall 1981).
The Aransas focus is characterized by a variety of artifacts produced from marine shell material. Dart point types indicative of the focus are Ensor, Marcos, Lange, Kent, and Travis, as well as many other styles occurring less commonly. Also, the use of marine shellfish supersedes the use of mammals and fish as a subsistence base.

3.3 **EARLY ARCHAIC (6000 BC TO 2500 BC)**

Like the Paleo-Indian period, evidence of Early Archaic cultures is equally scarce. However, it would appear that a wider array of resources was exploited in comparison to the megafauna hunters of the Paleo-Indian period. Early Archaic people hunted smaller animals such as white-tailed deer, bear, raccoon, beaver, wild turkey, duck, and other aquatic and semiaquatic species (Neuman 1984). It is also thought that population densities were lower during this period (Aten 1983). Diagnostic projectile points of this period include Tortugas and Abasolo for the upper Texas coast (Aten 1983: 154).

3.4 **MIDDLE ARCHAIC (2500 BC TO 1000 BC)**

The Middle Archaic period is generally believed to be a period when the climate changed from cold and moist to warmer and drier, reaching current climatic and environmental conditions around 3000 BC. During this period, an emphasis on aquatic and riparian resources (shellfish and fish) is evidenced by the increased frequency of coastal shell midden sites (Aten 1983). Population levels are believed to have increased during this period (Muller 1983). Middle Archaic projectile points include Yarbrough, Palmillas, Kent, Elam, and Carrollton styles. Bone fishhooks, plummets, and net sinkers reflect the increased reliance on aquatic resources, while nutting stones, gouges, axes, and grinding tools suggest that Middle Archaic peoples were also well adapted to take advantage of hardwood forest resources.

3.5 **LATE ARCHAIC (1000 BC TO AD 600)**

The Late Archaic period is believed to be a period of increased population density, which resulted in the intensification of contact and exchange between regions. This exchange is evidenced by the presence of ground stone artifacts from the Lower Mississippi Valley at sites on the upper Texas Coast (Hall 1981). Subsistence practices were scheduled around the seasonal availability of select resources such as deer, nuts, and shellfish. During the winter months, groups tended to split into small bands, while in the summer, macrobands aggregated around plentiful resources (Muller 1983). Diagnostic projectile points of the Late Archaic period include Gary, Shumla, Morhiss, Kent, Marcos, Wells, Ellis, and Hale styles.

3.6 **LATE PREHISTORIC (AD 600 TO 1600)**

The Late Prehistoric period is separated from the preceding Archaic by the introduction of the bow and arrow and ceramics. The Project Area is located near the dividing line between the Central Texas and Coastal Cultural Aspects. Hall (1981) mentions 2 sets of phases that are recognized within each of these aspects: the Central Texas Austin and Toyah phases, and the Coastal Galveston Bay and Rockport phases.
The Austin phase is characterized by the transition from the use of the atlatl and dart to that of the bow and arrow and arrow points, particularly the expanding, stemmed Scallorn type. This phase is also distinguished by a decline in population and changes in settlement practices in which there was a shift from open to protected (rockshelter) sites (Black 1989:32; Collins 1995:385). In spite of these changes, most archeologists agree that Late Archaic subsistence practices and settlement patterns appear to have continued during the Austin phase (Prewitt 1974; Black 1989; Collins 1995).

The Toyah phase is characterized by relatively rapid changes in technology, notably pottery (both local and imported from the Caddo area); large, thin bifaces; Perdiz (contracting stem) arrow points; and prismatic blades (Black 1989; Collins 1995). Limited agriculture may also have begun during this time. The Toyah tool kit was associated with the hunting of bison, deer, and antelope, and, although nearly all sites dating to this phase have yielded bison bones, deer was the most significant faunal resource during this time (Black 1989:32).

The Galveston Bay phase is characterized by the use of bows, arrows, and arrow projectile type points, including Scallorn, Perdiz, Alba, Cliffton, and Fresno styles, as well as parabolic, alternately beveled knives (Hall 1981). The production of sandy paste pottery of various temper are also indicative of the phase.

The Rockport phase is characterized by asphaltum-coated pottery. Point types are the same in the Rockport phase as in the Galveston Bay phase, with the addition of Matamoros and Catan dart points (Hall 1981).

### 3.7 Historic Period (Post AD 1600)

According to the Handbook of Texas Online (Odintz 2012), the principal inhabitants of the area during the Historic Period were the Coco branch of the Karankawa tribe. The Coco were nomadic hunters and gatherers who lived in widely scattered bands. The Bidais and other distant groups often migrated periodically through this area, and the Wacos, a southern Wichita people, also launched raids into the area down the Brazos River from their villages near the site of present-day Waco.

It is believed that the first European to set foot in what is now Colorado County was René Robert Cavelier, Sieur de La Salle, who traversed the area in 1686 and 1687. When La Salle’s party camped on Skull Creek in January of 1687, they encountered a village of people that they called the Hebemes (Odintz 2012). The first Spaniard to reach the area was likely Alonzo De León, the governor of Coahuila, who may have ventured through in the spring of 1689 while searching for traces of La Salle’s expedition. American settlement in the area began in the early 1820s with the founding of Stephen F. Austin’s first colony (Odintz 2012).
4.0 ARCHIVAL RESEARCH

Archival research conducted via the Internet at the THC’s Texas Archeological Sites Atlas (Atlas) website indicated the presence of no previously recorded archeological sites or cemeteries within a 1.0-mile (1.6-km) perimeter of the Project Area (THC 2012). Similarly, a review of the National Park Service’s (NPS) NRHP Google Earth map layer indicated the presence of no historic properties listed on the NRHP within the review perimeter (NPS 2012). No documented cultural resources, including any listed on the NRHP, are located within or immediately adjacent to the boundaries of the Project Area.

Based on the Atlas data, no previous cultural resources investigations have been conducted within the boundaries of the Project Area. However, 2 previous linear cultural resources surveys have been conducted in the general vicinity. The first consists of a pipeline right-of-way (ROW) survey conducted in 2011 by Pritchett Engineering and Planning, LLC for a project permitted by the Federal Energy Regulatory Commission (FERC). This survey initiated approximately 400.0 feet (121.9 m) west of the Project Area within the boundaries of the active gas processing plant and then extended to the south and southeast. The second consists of an electrical transmission line ROW surveyed by the Lower Colorado River Authority (LCRA) in 2012. This survey initiated approximately 900.0 feet (274.3 m) south of the Project Area at an existing substation and extended to the southeast. Both of these previous cultural resources surveys produced negative results in the vicinity of the current Project Area.

Prehistoric archeological sites are commonly found in upland areas and alluvial terraces near stream/river channels or drainages. Based on the fact that the Project Area is an existing industrial plant and the proposed expansion project will only consist of adding additional facilities within the boundaries of the plant, it was Horizon’s original opinion that there existed a low potential for any intact prehistoric cultural deposits within the Project Area.

In regard to historic-era resources, the fact that the Project Area is an existing industrial plant also suggested a low potential for any intact historic-era cultural deposits within the Project Area.
5.0 SURVEY METHODOLOGY

A 2-person Horizon archeological field crew completed the intensive pedestrian survey of the Project Area on 1 May 2012. This entailed intensive surface inspection and subsurface shovel testing efforts within the Project Area. The TSMASS require a minimum of 2 shovel tests per acre for projects between 3.0 and 10.0 acres in size. As such, a total of 16 shovel tests were necessary within the 8.0-acre Project Area in order to comply with the TSMASS. Horizon excavated a total of 8 shovel tests within the Project Area, falling short of the minimum survey standards due to the fact that: 1) an existing, heavily disturbed flare pit covers roughly 3.0 of the 8.0 acres within the Project Area; and 2) the remaining 5.0 acres in the Project Area consist of heavily disturbed soil deposits within an existing industrial facility that precluded the potential for any intact cultural deposits (see Figure 1-2). Additionally, due to safety reasons, the field crew was instructed to conduct the field investigations at least 100.0 feet (30.5 meters) north of the existing flare pit. All excavated matrices were screened through 0.25-inch (6.0-millimeter [mm]) hardware mesh or were trowel-sorted if the dense clay soils prohibited successful screening.

Field notes were maintained on terrain, vegetation, soils, land forms, shovel tests, cultural material observed (if any), etc. Standardized shovel test forms were completed for every shovel test. These forms included location data, depth, soil type, and notations on any artifacts encountered. If any new archeological sites were recorded, standard site forms were to be completed and filed at the Texas Archeological Research Laboratory (TARL) for permanent housing. Similarly, if any previously recorded archeological sites were assessed, updated site forms were to be completed and filed at TARL.

A selective collection strategy was utilized during the survey efforts wherein only diagnostic cultural materials were to be collected for eventual curation at an approved facility or for return to the appropriate landowner. Non-diagnostic artifacts were to be tabulated and assessed in the field and placed back where they were found. Digital photographs with a photo log were completed as appropriate. The locations of all shovel tests were recorded via handheld GPS units utilizing the UTM coordinate system and the NAD 83 map datum. Shovel test locations are presented in Figure 4-1. Shovel test data are presented in Appendix A.
Figure 4-1. Shovel test locations within Project Area
6.0 RESULTS AND RECOMMENDATIONS

6.1 RESULTS

The cultural resources survey of the Project Area resulted in entirely negative findings. No cultural materials were observed on the surface of the Project Area or within any of the 8 excavated shovel tests. The negative results were anticipated due to the fact that the Project Area is located within the boundaries of an existing industrial facility where significant ground-disturbing activities have occurred in the past.

6.2 RECOMMENDATIONS

Based on the negative survey results, it is Horizon’s opinion that the development of the Project Area will have no adverse effect on significant cultural resources. Horizon therefore recommends that Copano be allowed to proceed with the proposed Houston Central Gas Plant Cryo Expansion Project, relative to the jurisdiction of the EPA and Section 106 of the NHPA. However, in the unlikely event that any cultural materials (including human remains or burial features) are inadvertently discovered at any point during construction, use, or ongoing maintenance of the Project Area, even in previously surveyed areas, all work at the location of the discovery should cease immediately, and the THC and the EPA should be notified of the discovery.
7.0 REFERENCES CITED

Aten, L.E.

Black, S.L.

Collins, M.B.


Google Earth

Hall, G.D.

Muller, J.
Neuman, R.W.
1984 An Introduction to Louisiana Archaeology. Louisiana State University Press, Baton Rouge.

(NPS) National Park Service

(NRCS) US Department of Agriculture, Natural Resources Conservation Service
2012 Soil Survey Geographic (SSURGO) Database for Colorado County, Texas.

Odintz, M.

Prewitt, Elton R.

(THC) Texas Historical Commission

Turner, E.S., and T.R. Hester

(USGS) US Geological Survey
1981 7.5-minute series topographic maps, Sheridan, Texas, quadrangle.
1981 7.5-minute series topographic maps, Sheridan NE, Texas, quadrangle.
APPENDIX A

SHOVEL TEST DATA
<table>
<thead>
<tr>
<th>WP #</th>
<th>ST #</th>
<th>Easting</th>
<th>Northing</th>
<th>Depth (cmbs)</th>
<th>Soil</th>
<th>Artifacts</th>
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<td>JW-1</td>
<td>JW-7</td>
<td>730669</td>
<td>3262459</td>
<td>0-30</td>
<td>Reddish brown mixed clay</td>
<td>None (disturbed soils)</td>
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<td>JW-2</td>
<td>JW-8</td>
<td>730564</td>
<td>3262459</td>
<td>0-10</td>
<td>Light brown sand</td>
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<td></td>
<td></td>
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<td>JW-3</td>
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<td>730582</td>
<td>3262467</td>
<td>0-20</td>
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<td>JW-11</td>
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<td>JW-7</td>
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<td>3262440</td>
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<td>5+</td>
<td>Dark gray brown clay</td>
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WP = waypoint  
ST = shovel test  
cmbs = centimeters below surface
APPENDIX B

CURRICULUM VITAE FOR PRINCIPAL INVESTIGATOR
TECHNICAL SPECIALTIES

- Cultural resource management (CRM);
- Prehistoric archeology of Texas, Oklahoma, and Louisiana;
- Compliance with the Antiquities Code of Texas (ACT), Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the Native American Graves Protection and Repatriation Act (NAGPRA);
- Prehistoric lithic technology (flint knapping);
- Ethnohistory;
- Project management;
- Archeological survey, testing, and data recovery;
- Technical report writing

EDUCATION

- B.A., Anthropology / Archeology, The University of Texas at Austin, 1992
- M.A., Anthropology, The University of Houston, 1998

PROFESSIONAL REGISTRATIONS AND TRAINING

- Registered Professional Archeologist since 2001 (RPA ID# 11924)
- TxDOT pre-certified for Service 2.10.1 (Archeological Surveys, Documentation, Excavations, Testing, Reports, and Data Recovery Plans)
- Mine Safety and Health Administration (MSHA) certified through 11/23/12

PROFESSIONAL / TECHNICAL SOCIETIES

- Texas Archeological Society (TAS)
- Council of Texas Archeologists (CTA)
- Register of Professional Archeologists (RPA)
- Texas Association of Environmental Professionals (TAEP)

AWARDS

- Texas Historical Commission Award of Merit (2004) for exceptional field research, laboratory analysis, and report production associated with 41WM815 in Williamson County, Texas
PROFESSIONAL EXPERIENCE

- Horizon Environmental Services, Inc., Austin, Texas
  - 2000 to present
    - Horizon Principal / Cultural Resources Director / Principal Investigator / Project Manager
- Texas Archeological Research Laboratory, University of Texas at Austin
  - 1998 to 2000
    - Research Associate
- Archeological and Environmental Consultants, Inc., Austin, Texas
  - 1999
    - Project Archeologist
- Houston Museum of Natural Science, Houston, Texas
  - 1998
    - Consultant
- University of Houston, Department of Anthropology, Houston, Texas
  - 1997 to 1998
    - Teaching Assistant
  - 1994 to 1998
    - Field Technician, Laboratory Technician, Crew Chief, Field Director
- Prewitt and Associates, Inc., Austin, Texas
  - 1993
    - Field Technician
- Texas Archeological Research Laboratory, University of Texas at Austin
  - 1992
    - Laboratory Technician

FIELDS OF EXPERIENCE

Mr. Brownlow has over 19 years of experience conducting archeological research for both public institutions and private consulting firms. Examples of his archeological project experience include the following:

- In excess of 200 cultural resources surveys completed for a wide array of projects within Texas, Oklahoma, and Louisiana;
- National Register of Historic Places and/or State Archeological Landmark eligibility testing on a minimum of 36 archeological sites;
- Data recovery/mitigation efforts on a minimum of 11 archeological sites;
• Excavation of human burials from at least 7 different archeological sites including a historic cemetery containing in excess of 431 human interments, a Caddoan cemetery containing 16 human interments, and a burned rock midden site containing at least 4 human interments;

• Archeo-Geophysical (remote sensing) sampling on 3 archeological sites;

• Authoring or co-authoring over 250 technical reports of archeological investigations;

• Preparation of several archeological avoidance plans for seismic projects;

• Countless desktop archival reviews to determine the potential for cultural resources on various properties for inclusion in non-archeological documents (i.e. Phase I Environmental Site Assessments, Categorical Exclusions, etc.);

• Section 106 and/or Antiquities Code of Texas consultation for hundreds of projects with various permitting agencies including the Texas Historical Commission, Texas Water Development Board, Texas Parks and Wildlife Department, US Army Corps of Engineers, US Fish and Wildlife Service, Oklahoma State Historic Preservation Office, the Louisiana Department of Culture, Recreation, and Tourism, as well as a vast array of Tribal Historic Preservation Officers;

• In addition to his cultural resources experiences, Mr. Brownlow has also prepared a variety of non-archeological documents includes numerous Categorical Exclusions (CEs), Phase I Environmental Site Assessments (Phase I ESAs), Environmental Reports (ERs), and Environmental Assessments (EAs). He has also contributed to the production of several Environmental Impacts Statements (EISs).

Types of projects in which Mr. Brownlow has participated in or managed cultural resources services include:

• Oil and gas exploration, development, and transportation;

• Ethanol production;

• Coastal and inland residential, commercial, and industrial land development;

• Solid waste landfills;

• Dredging activities;

• Surface lignite mines;

• Municipal planning;

• Reservoir development;

• Coastal port and channel improvements;

• Transportation corridors;

• Water and wastewater transportation and treatment;

• Electricity generation and transportation;

• University research;

• Military installations.
PRESENTATIONS

- Flint knapping and stone tool technology lecture for the 1997 spring semester Introduction to Archeology class at the Department of Anthropology, University of Houston.
- Flint knapping and stone tool technology lecture for the 1997 spring semester Archeology of Texas class at the Department of Anthropology, University of Houston.
- Flint knapping and stone tool technology lecture for the 1997 fall semester Introduction to Archeology class at the Department of Anthropology, University of Houston.
- Flint knapping and stone tool technology lecture for the 1997 fall semester Introduction to Physical Anthropology class at the Department of Anthropology, University of Houston.
- Two flint knapping demonstrations for the Brazoria County summer archeology programs sponsored by BCI Long Distance.
- Perdiz Arrow Point Origins for the Travis County Archeological Society, 1998.
- Flint knapping demonstration for the Austin French Legation’s annual summer camp program, 1999.
- Yearly flint knapping demonstrations for Camp Mabry’s annual “Muster Day” Event.
- Routine visits to various elementary school classes to conduct flint knapping demonstrations and present archeological career details for “career days”.

ARTICLES

Brownlow, R.K.


TECHNICAL PUBLICATIONS

*Espy, Huston & Associates (EH&A now PBS&J):*

Brownlow, R.K.


Schmidt, J.S., M.E. Cruse, and R.K. Brownlow


**Masters Thesis:**

Brownlow, R.K.

1998 *Evaluating the Co-occurrence of Arrow Point Types in South Texas: Archaeological Excavations at the Batot-Hooker Site (41ME34), Medina County, Texas.* Masters Thesis presented to the Anthropology Department of the University of Houston. Houston, Texas.

**Texas Archeological Research Laboratory (TARL):**

Brownlow, R.K.


2000 Archeological Investigations at 41WM815, A Blackland Prairie Site, Williamson County, Texas. *Studies in Archeology 36.* Texas Archeological Research Laboratory, The University of Texas at Austin.

2001 National Register Eligibility of Four Sites at the Texas Army National Guard’s Fort Wolters Facility, Parker Co., Texas. *Studies in Archeology 37.* Texas Archeological Research Laboratory, The University of Texas at Austin.

Contributing author in:

Takac, P.R., J.G. Paine, and M.B. Collins

2000 *Reassessment of Ten Archeological Sites along the Houston Ship Channel – Morgan’s Point to Buffalo Bayou, Harris County, Texas.* *Studies in Archeology 38.* Texas Archeological Research Laboratory, The University of Texas at Austin.
Archeological and Environmental Consultants, Inc.:

Pertulla, T.K. and R.K. Brownlow


Horizon Environmental Services, Inc.:

Brownlow, R.K.


2001 *Backhoe Trench Investigations for a Proposed Wastewater Line Crossing Brushy Creek on the Ivie Tract, Williamson County, Texas.* HJN 010016 AR. Horizon Environmental Services, Inc. Austin, Texas.

2001 *Profile Documentation of Erosional Gullies in Borrow Pits Nos. 1 and 2 on Site 41WA255 for the Texas Department of Criminal Justice’s Estelle Unit, Huntsville, Walker County, Texas.* Texas Antiquities Committee Permit No. 2509. HJN 000425 AR. Horizon Environmental Services, Inc. Austin, Texas.


2001 *An Intensive Cultural Resources Survey and Subsequent Testing Along a Proposed Water/Wastewater Line within the Northern Right-of-Way of FM 1431 East, Williamson County, Texas.* Texas Antiquities Committee Permit Nos. 2385 and 2433. HJN 000053 AR. Horizon Environmental Services, Inc. Austin, Texas.


2001  An Intensive Cultural Resources Survey of the Proposed Legacy Ridge Estates Residential Subdivision and Golf Course, Bonham, Fannin County, Texas.  HJN 010348 AR.  Horizon Environmental Services, Inc.  Austin, Texas.


2002  An Intensive Cultural Resources Survey of the Proposed Widening of Ranch-to-Market Road 2243 (Alternates A and B), Leander, Williamson County, Texas.  Texas Antiquities Committee Permit No. 2722.  HJN 010185 AR.  Horizon Environmental Services, Inc.  Austin, Texas.


2002  An Intensive Cultural Resources Survey of a Proposed 12-acre Home Depot Site at the Rivery, Georgetown, Williamson County, Texas.  HJN 020027 AR.  Horizon Environmental Services, Inc.  Austin, Texas.

2002  An Intensive Cultural Resources Survey for a Proposed 29-mile Crude Oil Pipeline Right-of-Way, Port Neches Route of the Cameron Highway Pipeline Project, Jefferson County, Texas.  HJN 010344 AR.  Horizon Environmental Services, Inc.  Austin, Texas.

2002  An Intensive Cultural Resources Survey of the Proposed 27-acre Target in Bee Cave #2 Site, Bee Cave, Travis County, Texas.  HJN 020067 AR.  Horizon Environmental Services, Inc.  Austin, Texas.

2002 An Intensive Cultural Resources Survey of the Buttercup Creek Channelization and Wetland Mitigation Project (30 Acres), Cedar Park, Williamson County, Texas. HJN 010333 PA. Horizon Environmental Services, Inc. Austin, Texas.


2002 An Intensive Cultural Resources Survey of a Proposed 122-acre Target Store Site Located at Parmer Lane and Interstate Highway 35, Austin, Travis County, Texas. HJN 010354 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of a Proposed 17-acre Tract to be Annexed to Kit McConnico Park Located in Lufkin, Angelina County, Texas. Texas Antiquities Committee Permit No. 2876. HJN 020113 AR. Horizon Environmental Services, Inc. Austin, Texas.


2002 An Intensive Cultural Resources Survey of the Proposed 75-acre Greenshores Subdivision Tract Located in Northwest Austin, Travis County, Texas. HJN 020145 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of the 100-acre Wolf Tract, A Proposed Development Site in Georgetown, Williamson County, Texas. HJN 020144 AR. Horizon Environmental Services, Inc. Austin, Texas.


2002 An Intensive Cultural Resources Survey of the Proposed UNOCAL Keystone Gas Storage Project and 3.8 Miles of Associated Pipeline ROW, Winkler County, Texas. HJN 000256 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey, Monitoring, and Geomorphological Investigations along the Proposed 2.5-Mile Northern Natural Interconnect, UNOCAL Keystone Gas Storage Project, Winkler County, Texas. HJN 000256 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 Archeological Monitoring Conducted during Texas Eastern Transmission’s Replacement of Approximately 1600 feet of Pipe via Horizontal Directional Drill under the San Antonio River, Goliad County, Texas. HJN 020169 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 Backhoe Trench Investigations Conducted on the 3.8-acre Hunt TDC No. 1 Well Site and Access Road, Anderson County, Texas. Texas Antiquities Committee Permit No. 2935. HJN 020181. Horizon Environmental Services, Inc. Austin, Texas.
2002 Backhoe Trench Investigations Conducted along the 8-mile Pinnacle Gregory A-1 Pipeline Right-of-Way, Anderson County, Texas. Texas Antiquities Committee Permit No. 2916. HJN 020149 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of a Proposed 8-mile EPGT Natural Gas Transmission Pipeline in Travis and Hays Counties, Texas. HJN 020128 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of a Proposed 6-acre Village 7 Sewer Treatment Plant #1 Located in The Woodlands, Harris County, Texas. HJN 020207 AR. Horizon Environmental Services, Inc. Austin, Texas.


2002 Cultural Resources Investigations Conducted along Sections of New Hope and Bagdad Roads for Proposed Widening Efforts, Cedar Park, Williamson County, Texas. Texas Antiquities Committee Permit No. 2967. HJN 020185 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Terrestrial Cultural Resources Survey of the Proposed Crude Oil Pipeline Right-of-Way for the Cameron Highway Pipeline Project’s Texas City Extension, Chambers County, Texas. HJN 020077 AR. Horizon Environmental Services, Inc. Austin, Texas.


2002 An Intensive Cultural Resources Survey of the Proposed 1600-acre Belterra Subdivision Tract Located in Hays County, Texas. HJN 020196 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of a Proposed Orange County WCID No. 1 2-acre Water Well Site; 2-acre Water Storage Tank Site; and 37,400 Linear Feet of Associated Waterline Routes in Vidor, Orange County, Texas. Texas Antiquities Committee Permit No. 2998. HJN 020233 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of Extra Work Spaces Associated with Centennial Pipeline LLC’s Proposed Horizontal Directional Drill of the Little River in Grant and La Salle Parishes, Louisiana. HJN 020258 AR. Horizon Environmental Services, Inc. Austin, Texas.

2002 An Intensive Cultural Resources Survey of 1 Proposed Well Site and 1 Proposed Flow Line on EOG Resources’ Tucker Lease, Texas County, Oklahoma. HJN 010239 AR. Horizon Environmental Services, Inc. Horizon Environmental Services, Inc. Austin, Texas.

2003 Addendum to An Intensive Cultural Resources Survey of the Proposed Widening of Ranch-to-Market Road 2243 (Alternates A and B), Leander, Williamson County, Texas. Texas Antiquities Committee Permit No. 2722. HJN 010185 AR. TXDOT CSJ No. 2103-01-021. Horizon Environmental Services, Inc. Austin, Texas.
<table>
<thead>
<tr>
<th>Year</th>
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<th>Permit No.</th>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of 6 Proposed Well Sites and Associated Flow Lines on the Freeman Ranch Lease, Texas County, Oklahoma</td>
<td>HJN 010239 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of 3 Proposed Well Sites and Associated Flow Lines on the Freeman Ranch Lease, Texas County, Oklahoma</td>
<td>HJN 010239 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of 1 Proposed Well Site and 1 Proposed Flow Line on EOG Resources, Inc.’s Tucker Lease, Texas County, Oklahoma</td>
<td>HJN 010239 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of the Jefferson County Drainage District No. 6’s Proposed Mayhaw Diversion, Needmore Diversion, and Green Pond Detention Area, Jefferson County, Texas</td>
<td>Texas Antiquities Committee Permit No. 3031. HJN 000418 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of a Proposed Elevated Water Storage Tank Site and 2 Associated Waterline Easements, Cedar Park, Williamson County, Texas</td>
<td>Texas Antiquities Committee Permit No. 3049. HJN 030012 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of a Proposed 110-acre Sand and Gravel Mine and Sorting Plant for Riverside Aggregates, Austin County, Texas</td>
<td>HJN 030023 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey and Subsequent Testing of the Proposed Woodlands Southwest Detention Pond, The Woodlands, Montgomery County, Texas</td>
<td>Texas Antiquities Committee Permit No. 3055. HJN 030019 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2003</td>
<td>An Intensive Cultural Resources Survey of a Proposed 6-mile Natural Gas Pipeline for the UNOCAL Keystone Gas Storage Project, Winkler County, Texas</td>
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<td>2004</td>
<td>An Intensive Cultural Resources Survey of Proposed Oil/Gas Well Development on the Attwater’s Prairie Chicken National Wildlife Refuge, Colorado County, Texas</td>
<td>USFWS Special Use Permit #ATW-04-008. HJN 040088 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2004</td>
<td>Data Recovery Investigations at the Holt Site (41HY341), San Marcos, Hays County, Texas</td>
<td>HJN 040032 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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<td>2004</td>
<td>An Intensive Cultural Resources Survey of a Proposed Water Transmission Line from High Island to Singing Sands, Galveston County, Texas</td>
<td>Texas Antiquities Committee Permit No. 3298. HJN 020189 AR. Horizon Environmental Services, Inc. Austin, Texas.</td>
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2004  An Intensive Cultural Resources Survey of 13 Proposed Well Sites and Associated Flow Lines on the Freeman Ranch Lease, Texas County, Oklahoma. HJN 010239 AR. Horizon Environmental Services, Inc. Austin, Texas.

2004  An Intensive Cultural Resources Survey of 7 Proposed Well Sites on EOG Resources, Inc.'s Freeman Ranch and Tucker Leases, Texas County, Oklahoma. HJN 010239 AR. Horizon Environmental Services, Inc. Austin, Texas.

2004  National Register of Historic Places Eligibility Testing of 2 Sites (41WM650 and 41WM651) Located within the Cedar Park Town Center Development, Cedar Park, Williamson County, Texas. HJN 040024 AR. Horizon Environmental Services, Inc. Austin, Texas.

2005  Intensive Cultural Resources Survey of the Proposed Sierra Vista Substation Site and 138 kV Transmission Line, Webb County, Texas. HJN 050144 AR. Horizon Environmental Services, Inc. Austin, Texas.

2005  An Intensive Cultural Resources Survey of the Proposed 452-acre Park Lakes East Development near Humble, Harris County, Texas. HJN 050131 AR. Horizon Environmental Services, Inc. Austin, Texas.

2005  Archeological Monitoring of Scraping Investigations within the Port Bolivar Community Cemetery, Galveston County, Texas. Texas Antiquities Committee Permit No. 3857. HJN 050057 AR. Horizon Environmental Services, Inc. Austin, Texas.

2005  An Intensive Cultural Resources Survey of EOG Resources, Inc.'s Proposed Carthage Gas Unit No. 112 Alt Natural Gas Well Pad and Access Road, Panola County, Texas. HJN 030169 AR. Horizon Environmental Services, Inc. Austin, Texas.


2005  An Intensive Cultural Resources Survey of the USACE Jurisdictional Areas within a Proposed Ethanol Plant Facility in Hereford, Deaf Smith County, Texas. HJN 050113 AR. Horizon Environmental Services, Inc. Austin, Texas.

2005  Backhoe Trenching at 2 Proposed Lift Stations Located in Richmond, Fort Bend County, Texas. Texas Antiquities Committee Permit No. 3712. HJN 050043 AR. Horizon Environmental Services, Inc. Austin, Texas.

2006  An Intensive Cultural Resources Survey of the USACE Jurisdictional Areas with the Proposed Realignment of Macho Creek, Duval County, Texas. HJN 060199 AR. Horizon Environmental Services, Inc. Austin, Texas.

2006  An Intensive Cultural Resources Survey of the USACE Jurisdictional Areas Associated with 3 Proposed Detention Ponds and 2 Proposed Road Crossings within the Proposed Headwaters of Barton Creek Development, Drippings Springs, Hays County, Texas. HJN 040116 AR. Horizon Environmental Services, Inc. Austin, Texas.

2006  An Intensive Cultural Resources Survey of the Area of Potential Effect within the 164-acre Webb Development, Austin, Travis County, Texas. HJN 050068 AR. Horizon Environmental Services, Inc. Austin, Texas.
2006 Cultural Resources Assessments of 4 Maintenance Locations along the Longhorn Partners Pipeline, L.P. in Schleicher County, Texas. HJN 050175 AR. Horizon Environmental Services, Inc. Austin, Texas.


2006 Cultural Resources Assessments of 21 Maintenance Locations along the Longhorn Partners Pipeline, L.P. in Travis, Bastrop, and Fayette Counties, Texas. HJN 050175 AR. Horizon Environmental Services, Inc. Austin, Texas.


2007 An Intensive Cultural Resources Survey of 4 Additional HDD Locations on the Proposed Pecan Pipeline Right-of-Way, Palo Pinto County, Texas. HJN 060191 AR. Horizon Environmental Services, Inc. Austin, Texas.

2007 Cultural Resources Assessments of 53 Maintenance Locations along the Longhorn Partners Pipeline, L.P. ROW in Gillespie, Kimble, Schleicher, Crockett, Reagan, Upton, and Crane Counties, Texas. HJN 050175 AR. Horizon Environmental Services, Inc. Austin, Texas.


2007 An Intensive Cultural Resources Survey of Lake Travis ISD’s 12.75-acre West Cypress Hills Elementary School Tract, Travis County, Texas. Texas Antiquities Committee Permit No. 4729. HJN 070187 AR. Horizon Environmental Services, Inc. Austin, Texas.


2007 Cultural Resources Assessments of 4 Maintenance Locations along the Longhorn Partners Pipeline, L.P. Pipeline Right-of-Way in Gillespie and Blanco Counties, Texas. HJN 050175 AR. Horizon Environmental Services, Inc. Austin, Texas.


2007 An Intensive Cultural Resources Survey of 12 Cathodic Protection Beds along the Longhorn Pipeline Right-of-Way in Travis, Blanco, Gillespie, Mason, Crockett, Reagan, and Culberson Counties, Texas. Texas Antiquities Committee Permit No. 4594. HJN 050175 AR. Horizon Environmental Services, Inc. Austin, Texas.

2007 An Intensive Cultural Resources Survey of a Proposed HDD beneath an Abandoned Tram Road Owned by the US Forest Service in Nacogdoches County, Texas. HJN 070193 AR. Horizon Environmental Services, Inc. Austin, Texas.

2007 Cultural Resources Investigations on the Proposed 1060-acre Vizcaya Development, Spicewood, Travis County, Texas (Volume 1: Survey Level Investigations). HJN 060231 AR. Horizon Environmental Services, Inc. Austin, Texas.


2008 An Intensive Cultural Resources Survey of the Keechi Creek and Brazos River HDD Bore Pits on the Proposed Pecan Pipeline Right-of-Way, Palo Pinto County, Texas. HJN 060191 AR. Horizon Environmental Services, Inc. Austin, Texas.

2008 An Intensive Cultural Resources Survey of Orange County WCID No. 1’s Oak Lane WWTP Improvements, Vidor, Orange County, Texas. Texas Antiquities Committee Permit No. 4748. HJN 080006 AR. Horizon Environmental Services, Inc. Austin, Texas.

2008 An Intensive Cultural Resources Survey of the Proposed 80-acre Arbol Grande on St. Charles Bay Subdivision Tract, Aransas County, Texas. HJN 080045 AR. Horizon Environmental Services, Inc. Austin, Texas.


2008 Cultural Resources Investigations Conducted for the City of Anahuac’s Proposed Water System Improvements, Anahuac, Chambers County, Texas. Texas Antiquities Committee Permit No. 3856. HJN 050139 AR. Horizon Environmental Services, Inc. Austin, Texas.

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The Register of Professional Archaeologists

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Russ Brownlow, RPA

Has met all professional qualifications and has been accredited as a

Registered Professional Archaeologist

July 16, 2001

Date

David L. Hadley
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