

<b>United States Nuclear Regulatory Commission Official Hearing Exhibit</b> <b>In the Matter of:</b> CROW BUTTE RESOURCES, INC. (License Renewal for the In Situ Leach Facility, Crawford, Nebraska)	
<b>ASLBP #:</b> 08-867-02-OLA-BD01 <b>Docket #:</b> 04008943 <b>Exhibit #:</b> NRC-054N-00-BD01 <b>Admitted:</b> 8/18/2015 <b>Rejected:</b> <b>Other:</b>	<b>Identified:</b> 8/18/2015 <b>Withdrawn:</b> <b>Stricken:</b>



Figure 160. 2368-I007, metal canister. Photograph taken by Adam Graves on 11/21/10.

#### 2368-I011

Isolated resource 2368-I011 consists of one International Harvester disc harrow located in Section 2 T29N R51W, on a level bench below a large northwest-southeast trending ridge. Vegetation consists of moderate to dense grass cover affording 50 to 75 percent bare ground visibility. Sediments consist of medium-brown clay loam intermixed with sandstone gravels of an unknown depth. The International Harvester disc harrow has metal discs, a metal hitch, and joined wooden parts (**Figure 161**). International Harvester manufactured this model, which was originally horse-drawn, from circa 1900 to 1945 (William Lee, South Dakota State Agricultural Heritage Museum Exhibits/Restoration, personal communication 2011). Impacts to the isolate include historic ranching and farming activities throughout the area, grazing, and wind and water erosion.



Figure 161. 2368-I011, International Harvester disc harrow, facing east. Photograph taken by Ashley Howder on 12/2/10.

#### 2368-I013

Isolated resource 2368-I013 is one historic International Harvester Canada rod weeder located in Section 1 T29N R51W, on the western edge of a large ridge above a broad drainage and west of a currently cultivated field. Vegetation consists of tall, dense grass affording 40 percent bare ground visibility. Sediments consist of sandy clay loam of unknown depth. The rod weeder is an all metal construction with a hitch (**Figure 162**) that retains an "IHC" manufacturer's mark (**Figure 163**). International Harvester Canada (IHC) was established in the early 1900s as the seat of Canadian operations for J.P. Morgan's International Harvester corporation established in 1902. IHC became a leading manufacturer of agricultural implements from the early- to mid-19<sup>th</sup> century and then of industrial construction equipment and vehicles into the mid-1980s. This model was originally horse-drawn and was most likely manufactured during the 1940s (William Lee, South Dakota State Agricultural Heritage Museum Exhibits/Restoration, personal communication 2011). Impacts to the isolate include historic ranching and farming activities throughout the area, grazing, and wind and water erosion.





Figure 162. 2368-I013, IHC rod weeder, facing south. Photograph taken by Ashley Howder on 12/4/10.

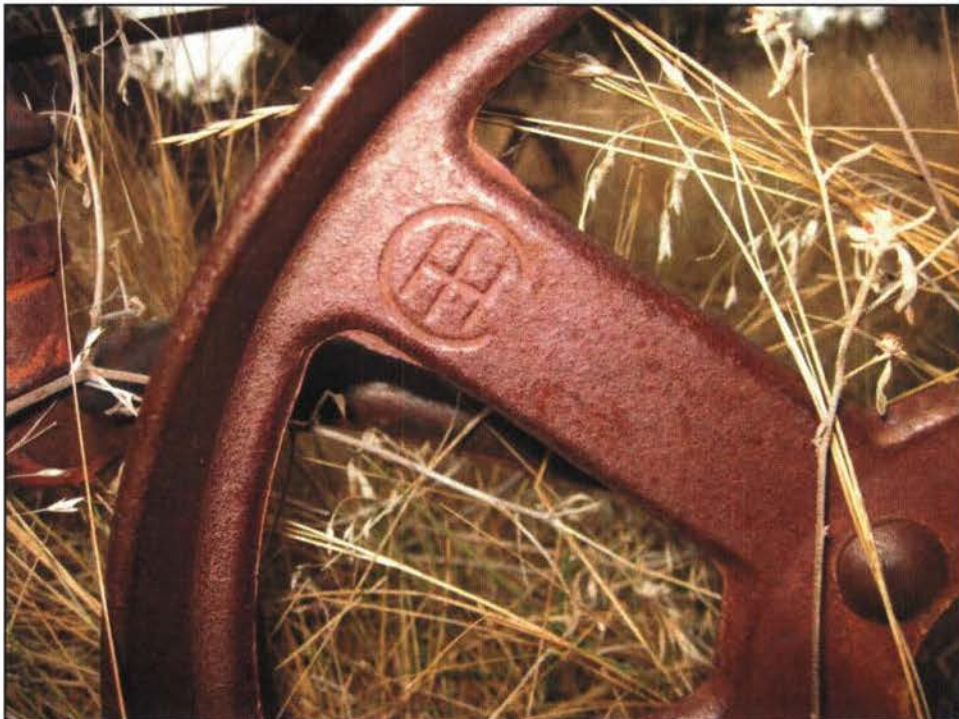


Figure 163. 2368-I013, "IHC" manufacturer's mark. Photograph taken by Ashley Howder on 12/4/10.

2368-I019

Isolated resource 2368-I019 consists of one McCormick-Deering No. 7 mower located in Section 12 T29N R51W, along a two-track road in a natural depression at the bottom of a south trending slope in rolling uplands. Vegetation consists of moderate to dense grass cover affording percent 20 to 60 percent bare ground visibility. Sediments consist of sandy loam intermixed with a few small gravels of unknown depth. This horse-drawn mower is of mixed wood and metal construction and retains the "McCormick-Deering No.7" manufacturer's mark (**Figures 164 and 165**). The McCormick-Deering No. 7 model was manufactured from 1929-1939 (William Lee, South Dakota State Agricultural Heritage Museum Exhibits/Restoration, personal communication 2011). Impacts to the isolate include historic ranching and farming activities throughout the area, grazing, and wind and water erosion.



Figure 164. 2368-I019, mower, facing west. Photograph taken by Ashley Howder on 12/6/10.





Figure 165. 2368-I019, "McCormick-Deering No. 7" manufacturer's mark. Photograph taken by Ashley Howder on 12/6/10.

#### 2368-I023

Isolated resource 2368-I023 is a large farm implement located in Section 7 T29N R50W, at the base of a north to south trending creek drainage. Vegetation consists of a moderate to dense grass cover affording 60 percent bare ground visibility. Sediments consist of sandy loam of unknown depth. Isolated resource 2368-I023 consists of a metal axle, two 10-spoke metal wheels, and attached wood remnants (**Figure 166**). Impacts to the isolate include historic ranching and farming activities throughout the area, grazing, and wind and water erosion.



Figure 166. 2368-I023 Farm implement, facing northeast. Photograph taken by Ashley Howder on 2/17/11.

## IX. Conclusions/Summary

### A. Evaluations and Recommendations

#### 1. Comparison of Expected and Actual Results

Historic occupation throughout the MEAUP is not well documented. Based on the background research, ARCADIS anticipated discovering modern and historic trash debris or dumps, historic foundations and structures, and prehistoric lithic scatters or isolated finds situated sporadically across the MEAUP. ARCADIS recorded 15 newly discovered historic sites and five historic isolated finds within the project area. ARCADIS updated two previously recorded historic sites within the project area. No prehistoric cultural resources were observed in the MEAUP. The 17 historic sites assessed during this undertaking includes eight home/farmsteads (25DW00-242, 25DW00-243, 25DW359, 25DW360, 25DW361, 25DW365, 25DW366, 25DW370) three debris scatters (25DW357, 25DW363, 25DW369), two cisterns (25DW358, 25DW364), one corral (25DW367), one bridge (25DW362), one dugout (25DW368), and one quarry (25DW371).

Historic homestead site's 25DW00-242, 25DW00-243, 25DW360, 25DW361, 25DW365, and 25DW366, each contained multiple features and debris associated with a pattern of events representing early land utilization, farming, and ranching strategies spanning the Expansion period (1890-1919) through the World War II-era (1940-1946). Historic homestead site's 25DW359 and 25DW370, each contained at least one feature and debris associated with early land utilization, farming, and ranching strategies from the Expansion period (1890-1919) through the World War II-era (1940-1946), but appear to represent short-



term occupations. Dugout site 25DW368 did not have associated diagnostic artifacts, but also appears to represent a short-term occupation that probably occurred between 1890 and the early 1900s. Historic cistern site's 25DW358 and 25DW364, and corral site 25DW367, contain features associated with ranching activities probably constructed by the inhabitants of the numerous homesteads recorded in the project area representing early land utilization and ranching strategies spanning the Expansion period (1890-1919) through the World War II-era (1940-1946). The remaining sites include one bridge and one quarry that could not temporally defined but also represents common historic land utilization strategies in the area.

By 1878, most of the Native American tribes who once inhabited the Nebraskan panhandle had been moved to reservations. Sustained settlement in the region began in the 1880s after the passing of Pre-emption, the Homestead Act of 1862, and the arrival of the Chicago and Northwestern Railroad and Fremont, Elkhorn & Missouri Valley (FE&MV) Railroad to Chadron in 1885. These early settlers who came to northwestern Nebraska typically selected home sites where they could build their dwellings from wood and stone, but often constructed temporary dugouts as a way to quick shelter. The ranchers that settled the area found thousands of acres of unsettled open range and good sources of water in local rivers such as the Niobrara and White River inhabiting open range ranches that were little more than outposts with simply constructed shelters for man and beast alike. By 1910, Nebraskan ranchers switched from open range ranching to "ranch farming," which was a more labor intensive operation that centered on the ranch itself and the much increased use of mechanization. Dry conditions and increased competition for land made homesteading and ranching difficult in northwestern Nebraska, resulting in numerous short-lived occupations throughout the area. Nonetheless, farming and ranching remains an important element of the regional economy today. The 17 historic sites assessed by ARCADIS during this undertaking all represent a pattern of events representing early land utilization and farming and ranching strategies spanning the Expansion period (1890-1919) through the World War II-era (1940-1946).

## 2. Confidence

ARCADIS archaeologists are very confident that the objectives of the inventory were met and have established where in the project area there is potential for subsurface cultural deposits as well as established archaeological potential, chronological range, integrity, and complexity at all sites assessed by ARCADIS during this undertaking. This conclusion is based on excellent field conditions, knowledgeable crew, agency consultations, background research, and current inventory results.

The greatest potential for stable intact sediment deposits occurs in the southern portion of the project area (Sections 18 S½, 19, 20, 29, and 30 T29N R50W). Across this lowland agricultural area, ARCADIS observed no exposed sandstone bedrock, and the sporadic occurrence of weathered sandstone gravels intermixed with loam and sand. ARCADIS examined cultivated fields (providing excellent visibility), drainage and road cuts, animal mounds (which were numerous), and disturbance from erosion, agriculture, livestock, and historic occupation, that did not reveal buried cultural materials. The project area included a major ridge system and the surrounding, foothills, uplands, lowlands, and drainages as well as transitions between these settings, providing many opportunities to observe sediments and rule out the occurrence of subsurface archaeological deposits.

## 3. Further Work

ARCADIS recommends all sites in the MEAUP not eligible for listing on the NRHP, thus no further work such as monitoring construction activities is recommended. ARCADIS does recommend avoiding historic

homestead site's 25DW00-242 and 25DW00-243. Due to the unknown occupancy status of homestead site 25DW00-242 and good condition of features recorded at this site, ARCADIS recommends Cameco Resources avoid all construction activities within 200 feet of the 25DW00-242 site boundary. Historic homestead site 25DW00-243 had numerous features and associated artifacts that, with further research beyond the scope of this undertaking, would reveal more complex and in-depth temporal contexts and spatial extents to provide meaningful data that would address more important research questions. ARCADIS recommends Cameco Resources avoid all construction activities within 200 feet of the 25DW00-243 site boundary.

#### 4. Data Recovery

ARCADIS recommends all sites in the MEAUP not eligible for listing on the NRHP, thus additional data recovery through excavation is not recommended. ARCADIS believes historic homestead site 25DW242 has features and artifacts that if fully examined would provide meaningful data that would address more important research questions.

Given these results and management practices, ARCADIS recommends a finding of **no adverse affect to historic properties** for construction of the proposed Cameco Resources Marsland Expansion Area Uranium Project. In the event that cultural resources are encountered during construction activities, work should be halted immediately. Archaeologists at the Nebraska State Historical Society and Nebraska State Historic Preservation Office must be notified and consulted before construction continues.



**X. References Cited**

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1999 Sand Hills Archeology. State Historic Preservation Office and the Archeology Division of the Nebraska State Historical Society, Explore Nebraska Archeology Series No. 3.

2000 High Plains Archaeology. State Historic Preservation Office and the Archeology Division of the Nebraska State Historical Society, Explore Nebraska Archeology Series No. 5.

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1995 Keyhole Reservoir Archaeology: Glimpses of the Past from Northeastern Wyoming. *Occasional Papers on Wyoming Archaeology*, No. 5.

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Steinacher, Terry L. and Gayle F. Carlson

1999 *The Cheyenne Outbreak Barracks*. State Historic Preservation Office and the Archeology Division of the Nebraska State Historical Society, Explore Nebraska Archeology Series No. 4.

2002 *1887 Adobe Barracks, Fort Robinson, Nebraska*. State Historic Preservation Office and the Archeology Division of the Nebraska State Historical Society, Explore Nebraska Archeology Series No. 6.

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1998 *Archaeology of the Great Plains*. University Press, Kansas.

ARCADIS

**XII. Attachment A**

Nebraska Archeological Site Survey Form



ARCADIS

**XII. Attachment B**

Personnel Vitas

## CURRICULUM VITAE

### Natalie J. Graves

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## I. EDUCATION

### Degrees

- |      |      |   |              |
|------|------|---|--------------|
| 2006 | M.A. | University of Oklahoma, Norman  | Anthropology |
|      |      | Thesis title, <i>Specialized Subsistence Economy at the Crandall Site (14RC420), A Little River Focus Site in Rice County, Kansas</i> |              |
| 1999 | B.A. | Boise State University, Boise, Idaho  | Anthropology |

### Grants

- 2004 Graduate Student Senate Conference Grant
- 2002 Graduate Student Senate Conference Grant
- 2000 Graduate Student Senate Conference Grant
- 2000 Graduate Student Senate Conference Grant
- 2000 Oklahoma Archeological Survey Conference Grant

## II. CURRENT EMPLOYMENT

- |                     |  |
|---------------------|--|
| 09/09/06 to present | ARCADIS U.S., Inc.<br>Serving as U.S. Cultural Resources Department Task Manager and Principal Investigator for an international company with more than 18,000 employees and more than \$3 billion in gross revenue. |
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## III. PROFESSIONAL EXPERIENCE

- |                    |  |
|--------------------|--|
| 01/2007 to Present | Register of Professional Archaeologist - # 16255 |
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### Permits Held (current)

- Field Supervisor- BLM Lands Idaho-Upper Snake Field Office, Idaho Falls District, CRUP-ID # 36897
- Field Supervisor- BLM Lands Idaho-Cottonwood Field Office, Coeur D'Alene District, CRUP-ID # 36830
- Field Director Idaho National Laboratory Cultural Resource Investigations Permit
- Principal Investigator - BLM Lands Wyoming
- Principal Investigator - State Lands Wyoming



Principal Investigator - BLM Lands Colorado  
Principal Investigator - State Lands Colorado  
Project Director - USFS Region 2  
Principal Investigator - State Lands Oklahoma  
Field Supervisor - BLM North Dakota  
Principal Investigator - State North Dakota  
Field Supervisor - BLM Montana  
Field Supervisor - BLM South Dakota

## Technical Experience

### Colorado

08/09 to present	ARCADIS U.S., Inc. Doe Canyon East Federal Wells (Bill Barrett). Field Technician, coordinating crews (3 people) for approximately 47 acres of well and access construction. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: unknown prehistoric. San Miguel County, Paradox Basin, Colorado.
08/09 to present	ARCADIS U.S., Inc. Medinah Federal Wells (Bill Barrett). Field Technician, coordinating crews (3 people) for approximately 24 acres of well and access construction. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: unknown prehistoric. San Miguel County, Paradox Basin, Colorado.
08/09 to present	ARCADIS U.S., Inc. Torrey Pines Federal Wells (Bill Barrett). Field Technician, coordinating crews (3 people) for approximately 23.5 acres of well and access construction. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: unknown prehistoric. San Miguel County, Paradox Basin, Colorado.
08/09 to 09/09	ARCADIS U.S., Inc. Grand Junction Airport Loop Pipeline (Public Service Co.). Field Technician, coordinating crews (2 people) for approximately 15 miles of well and access construction. Tasks included pre-field coordination, records check, survey, report preparation, management recommendations, follow-up, and quality assurance. Cultural resources encountered: historic. Mesa County, Colorado.
11/08 to 02/09	ARCADIS U.S., Inc. Doe Canyon 3D Seismic (Bill Barrett). Field Technician, coordinating crews for approximately 2,730 acres of seismic exploration. Tasks included pre-field coordination, records check, survey, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Early Archaic San Pedro Middle Archaic, San Jose Middle Archaic, Late Archaic, Late Prehistoric, Basketmaker III, Pueblo II and III. Dolores County, Paradox Basin, Colorado.

## Idaho

10/2010 to present

ARCADIS U.S. Inc., Antelope to Goshen Transmission Line Maintenance Project Class III Cultural Resource Inventory in Shoshone County, Idaho (Rocky Mountain Power).

Field Director. Tasks included pre-field coordination, records check, survey, report preparation (Principal Author), management recommendations, follow-up, and quality assurance. Bingham and Butte Counties, Idaho.

5/2010 to present

ARCADIS U.S. Inc., Wallace Yard Site, Class III Cultural Resource Inventory in Shoshone County, Idaho (Union Pacific Railroad Company).

Field Supervisor. Tasks included pre-field coordination, records check, survey, report preparation (Principal Author), management recommendations, follow-up, and quality assurance. Consultation with Coeur D'Alene Tribe. Cultural resources encountered: historic period. Shoshone County, Idaho

5/2010 to present

ARCADIS U.S. Inc., Spur Lines Project, Class III Cultural Resource Inventory in Shoshone County, Idaho (Union Pacific Railroad Company).

Field Supervisor. Tasks included pre-field coordination, records check, survey, report preparation (Principal Author), management recommendations, follow-up, and quality assurance. Consultation with Coeur D'Alene Tribe. Cultural resources encountered: historic period. Shoshone County, Idaho

2/2009 to present

ARCADIS U.S., Inc. St. Maries Creosote Site Remediation, St. Maries, Idaho Historic Property Treatment Plan and Class I Report.

Co-Principal Investigator. Tasks included records check, historic research, report preparation, management recommendations, and quality assurance. Consultation with Coeur D'Alene Tribe. Cultural resources encountered: prehistoric village period and historic period. Benewah County, Idaho.

10/09 to  
1/10

ARCADIS U.S., Inc. Agrium Drilling (Agrium Conda Phosphate Ops.).

Co-Crew Chief, coordinating crews (5 people), supervising crews for approximately 3,800 acres of drilling development. Tasks included pre-field coordination, records check, survey, and quality assurance. Cultural resources encountered: two new historic sites and two isolated finds. Caribou County, Idaho.

10/09

ARCADIS U.S., Inc. P4 Production LLC (Monsanto Blackfoot Bridge Mine)

Field Crew for approximately 218 acres of block inventory. Tasks included pre-field coordination, survey, and quality assurance. Cultural resources encountered: 3 updated prehistoric and historic sites, including limited testing (1- 1m x1m test unit). Site types encountered include lithic scatters of unknown temporal association and one historic building foundation. Caribou County, Idaho.

8/98

Boise National Forest, Passport in Time, Heritage Program. Trinity Lakes Survey.



Volunteer Field Archaeologist. Pedestrian survey for seven days around the Trinity Lakes. Boise National Forest, Idaho.

- 6/98 Boise National Forest, Passport in Time, Heritage Program. Excavation at the Moores Spring site.  
Volunteer Field Archaeologist-seven days. Excavated a prehistoric camp site to learn excavation techniques and recording methods, identified cultural remains, and catalogued and analyzed artifacts in the field. Boise National Forest, Idaho.
- 8/97 to 5/99 Boise State University. McGraw Creek Site Analyses.  
Research Assistant. Analyzed and catalogued artifacts recovered by Idaho State University's Archaeological Field School conducted at the McGraw Creek site. McGraw Creek, Idaho.
- 1/97 to 5/97 Idaho State Historic Preservation Office. Records Maintenance.  
Internship, data entry cataloging and recording artifact descriptions into the Idaho State Historic Preservation Office database. Boise, Idaho.

## Montana

- 05/09 to 05/09 ARCADIS U.S., Inc. Cottonwood 3D Seismic (NFR Energy).  
Field Supervisor, for approximately 10 miles of linear seismic exploration. Tasks included pre-field coordination, records check, report preparation, follow-up, and quality assurance. Cultural resources encountered unknown prehistoric stone circles. Hill County, Montana.
- 01/08 to 12/09 ARCADIS U.S., Inc. East Helena Smelter Demolition (ASARCO).  
Field Supervisor, for historic photo-documentation. Tasks included records check, historic research, report preparation, management recommendations, and quality assurance. Cultural resources encountered: historic period. Lewis and Clark County, Montana.

## Nebraska

- 10/10 to present ARCADIS U.S., Inc. Marsland Uranium Mine (Cameco Resources).  
Principal Investigator and Field Director for 4,500 acre cultural resource inventory. Tasks included pre-field coordination, records check, survey, report preparation (Principal Author), management recommendations, follow-up, and quality assurance. Dawes County, Nebraska.

## Oklahoma (selected projects)

- 03/10 to present ARCADIS U.S., Inc. Goodwell Wind Farm (Duke Energy).  
Principal Investigator, Due Diligence Phase I, development of transmission line and wind turbines project. Tasks included records check, report preparation (Co-Author), management recommendations, follow-up, and quality assurance. Texas County, Oklahoma and Hansford and Sherman Counties, Texas.

- 11/07 ARCADIS U.S., Inc. Foss Reservoir 3-D Seismic (Global Geophysical Services).  
Principal Investigator, coordinating crews (10 people) for survey of approximately 7,000 acres of linear seismic exploration. Tasks included pre-field coordination, records check, report preparation (Senior Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered unknown prehistoric, historic dugouts. Custer County, Oklahoma.
- 09/07 to 12/09 ARCADIS U.S., Inc. Taloga Wind Farm (Edison Mission).  
Principal Investigator, coordinating crews (10 people) for survey of approximately 766 acres of transmission line and wind farm development. Tasks included pre-field coordination, records check, report preparation (Senior Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered unknown prehistoric, historic farmsteads. Dewey County, Oklahoma.
- 7/06 Cojeen Archaeological Services. Terracon, Inc.  
Field Director, for pedestrian survey in Beaver and Cimarron Counties. Tasks included pre-field coordination, records check, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: none. Beaver and Cimarron Counties, Oklahoma.
- 6/06 Cojeen Archaeological Services. Chesapeake Operating, Inc.  
Field Director for small-scale cultural resources monitoring of one federal well and access road. Tasks included planning logistics for 100% survey and heavy equipment soil removal, fieldwork, and report preparation (Contributing Author). Cultural resources encountered: none. Woods and Major County, Oklahoma.
- 2/06 to 6/06 Cojeen Archaeological Services. Samson 3-D seismic survey.  
Crew Chief supervising 14 other archaeologists for 25 square mile project on USFS land. Planned logistics for 100% survey and shovel testing with 15 meter spaced transects, supervised fieldwork, analyzed results, and made recommendations for NRHP inclusion in final report. Cultural resources encountered: Middle and Late Archaic, Woodland, and Late Prehistoric Complexes; Historic homesteads/farmsteads. Roger Mills County, Oklahoma.
- 1/06 Cojeen Archaeological Services. Delaware Casino.  
Served as Field Director for pedestrian survey in Lincoln County. Tasks included planning logistics for 100% survey and shovel testing, supervising fieldwork, and report preparation (Contributing Author). Cultural resources encountered: none. Lincoln County, Oklahoma.
- 1/06 Cojeen Archaeological Services. Chickasaw Hospital.  
Served as Field Director for pedestrian survey in Pontotoc County. Tasks included planning logistics for 100% survey and shovel testing, supervising fieldwork, and report preparation (Contributing Author). Cultural resources encountered: Unknown prehistoric lithic scatters. Pontotoc County, Oklahoma.



- 10/05 Cojeen Archaeological Services. Frontline GeoServices Proposed Woods Creek 2D Seismic Line.  
Field Technician for 10 miles of linear survey and shovel testing on USFS land. Tasks included survey and testing. Cultural resources encountered: Unknown Prehistoric lithic scatters and burned rock features. LeFlore County, Oklahoma.
- 9/05 Benham Companies Incorporated. City of Ardmore Water System Improvements. Crew Chief for survey and shovel testing one square mile project. Tasks included budget estimates, planning logistics, making NRHP recommendations, and report preparation (Contributing Author). Cultural resources encountered: None. Carter County, Oklahoma.
- 6/05 to 7/05 University of Oklahoma. Excavation at Certain Site.  
Crew Chief supervising eight crewmembers. Excavated features, collected samples, prepared site map, and supervised fieldwork. Cultural resources encountered: Middle and Late Archaic Complexes. Beckham County, Oklahoma.
- 3/05 to 4/05 Gonzalez, Tate, and Iruegas, Inc., Testing of Five Archaeological Sites at Camp Gruber, Oklahoma.  
Served as Crew Chief supervising three crewmembers for Phase II testing of multiple prehistoric and historic sites to assess their significance for National Register status. Cultural resources encountered: Woodland and Late Prehistoric Complexes and Historic homesteads/farmsteads. Muskogee County, Oklahoma.
- 11/04 Lopez Garcia Group. Camp Gruber, Oklahoma.  
Field Technician for pedestrian survey and shovel testing at Camp Gruber. Cultural resources encountered: Unknown prehistoric lithic scatters and historic homesteads/farmsteads. Muskogee County, Oklahoma.
- 9/04 University of Oklahoma. Excavation at Rattlesnake Slough site.  
Graduate Assistant. Excavated features, collected samples, and prepared a site map. Cultural resources encountered: Late Paleo-Indian Complex. Greer County, Oklahoma.
- 8/04 Cojeen Archaeological Services. Archeological Testing at Archeological Site 34GR197.  
Field Technician for site testing. Tasks included excavating features, collecting samples, and analyzing results. Cultural resources encountered: Unknown Prehistoric lithic scatters. Greer County, Oklahoma.
- 6/04 to 7/04 University of Oklahoma. Excavation of Jake Bluff site.  
Crew Chief supervising 12 crewmembers. Excavated features, collected samples, prepared site map, supervised fieldwork, and analyzed results. Cultural resources encountered: Folsom and Clovis Complexes. Harper County, Oklahoma.
- 11/02 to 8/03 Archeological and Environmental Consultants, L.L.C..

Lab Director responsible for cataloging hundreds of prehistoric and historic artifacts excavated from multiple sites located in southwestern Arkansas and southeastern Oklahoma. Archeological and Environmental Consultants, L.L.C., Austin, Texas.

- 9/03 to 10/03 University of Oklahoma. Phase II Testing at Four Sites in Harper County. Graduate Assistant. Excavated features, collected samples, prepared site maps, and analyzed results. Cultural resources encountered: Two Archaic camp sites, One Woodland camp site, and One Plains Village Complex site. Harper County, Oklahoma.
- 6/03 to 7/03 University of Oklahoma. Excavation of Jake Bluff and Certain Sites. Field Technician. Excavated features, collected samples, prepared site map, and analyzed results. Cultural resources encountered: Archaic, Folsom and Clovis Complexes. Harper and Beckham Counties, Oklahoma.
- 3/03 to 5/03 University of Oklahoma. Hale Site Analysis. Graduate Assistant. Analyzed the faunal materials from the Hale Historic Bison Kill site. Texas County, Oklahoma.
- 10/02 to 1/06 Oklahoma Department of Transportation (ODOT). Served as Archaeologist I for hundreds of pedestrian surveys and archaeological excavations across Oklahoma. Section 106 and NEPA training seminars. Assisted in planning logistics for 100% survey and shovel testing, supervised fieldwork, and conducted Phase II testing. Cultural resources encountered: Middle and Late Archaic, Woodland, Late Prehistoric, and Plains Village Complexes; and Historic homesteads/farmsteads. Oklahoma Department of Transportation, Oklahoma Archeological Survey; Norman, Oklahoma.
- 7/02 University of Oklahoma. Excavation at Jake Bluff site and Certain site. Graduate Assistant. Excavated features, collected samples, prepared site map, and supervised fieldwork. Cultural resources encountered: Archaic, Folsom, and Clovis Complexes. Harper and Beckham Counties, Oklahoma.
- 1/02 University of Oklahoma. Cache Creek Burial. Graduate Assistant. Helped locate and excavate a human and dog burial found eroding from a cut-bank along Cache Creek. Cultural resources encountered: Late Archaic complex. Cotton County, Oklahoma.
- 6/00 to 8/02 University of Oklahoma. Community Assistant Program Graduate Assistant. Tasks included determining cultural resource potential for projects submitted to the State Archaeologist for Section 106 review, pedestrian survey and shovel testing small city and state projects across Oklahoma. Cultural resources encountered: Archaic, Woodland, Late Prehistoric, and Plains Village Complexes; and Historic homestead/ farmsteads. Oklahoma Archeological Survey, Norman, Oklahoma.
- 6/01 to 7/01 University of Oklahoma. Excavation of Jake Bluff site.



Graduate Assistant. Excavated features, collected samples, prepared site map, and analyzed results. Cultural resources encountered: Folsom Complex. Harper County, Oklahoma.

5/01 University of Oklahoma. Excavation at Hale Site.  
Graduate Assistant. Excavated features, collected samples, and prepared site map. Cultural resources encountered: Historic buffalo traders camp. Harper County, Oklahoma.

8/00 University of Oklahoma. Excavation at Odessa Yates site.  
Crew Chief supervising 20-25 crew members for excavation. Excavated features, collected samples, prepared site map, and submitted descriptions of materials collected. Cultural resources encountered: Plains Village Complex. Beaver County, Oklahoma.

6/00 to 7/00 University of Oklahoma. Excavation of Certain Site.  
Field Technician. Excavated features, collected samples, prepared site map, and analyzed results. Cultural resources encountered: Middle and Late Archaic Complexes. Beckham County, Oklahoma.

10/99 to 7/00 University of Oklahoma. Oklahoma Archeological Survey Laboratory.  
Laboratory Assistant. Identified and catalogued archaeological materials from archaeological sites representing all time periods from sites found across Oklahoma. Norman, Oklahoma.

8/99 to 2/00 Cojeen Archaeological Services. Mitigation at the Duke Site.  
Field Technician for Phase II site testing at the Duke Site. Cultural resources encountered: pit houses, hearths, human remains, lithics, animal bone, and pottery at a Wichita Village. McClain County, Oklahoma.

8/99 to 12/99 University of Oklahoma. Chisholm Trail Museum.  
Graduate Assistant. Along with two other graduate students, we analyzed over three thousand prehistoric cultural artifacts to be displayed in a museum exhibit that we designed and built for the City of Kingfisher. Kingfisher, Oklahoma.

## Texas

03/10 to present ARCADIS U.S., Inc. Goodwell Wind Farm (Duke Energy).  
Principal Investigator, Due Diligence Cultural and Historical Review for development of transmission line and wind turbines project. Tasks included records check, report preparation (Co-Author), management recommendations, follow-up, and quality assurance. Texas County, Oklahoma and Hansford and Sherman Counties, Texas.

7/05 to 9/05 Cojeen Archaeological Services. Archeological Survey of the Cholla Petroleum, Inc. Proposed PK Under The Hill # 2 and # 3 Wells and Access.

Crew Chief for survey and shovel testing well pads and access road (20 acres of block survey). Planned logistics, survey, testing, recommendations for NRHP inclusion, and report preparation (Contributing Author). Cultural resources encountered: None. Palo Pinto County, Texas.

7/05 Gonzalez, Tate, and Iruegas, Inc. Testing at Six Archaeological Sites in Maverick County, Texas.  
Field Technician for Phase II testing of multiple prehistoric sites to assess their significance for National Register status. Cultural Resources encountered: Paleo-Indian and Archaic camp and quarry sites. Maverick County, Texas

## Utah

09/07 to 01/09 ARCADIS U.S., Inc. Utah Transmission Lines (PacifiCorp).  
Crew Chief, coordinating crews (5 to 15 people for approximately 400 miles of transmission line for vegetation management. Tasks included pre-field coordination, records check, lab analysis, report preparation, management recommendations, follow-up, and quality assurance. Cultural resources encountered: historic irrigation ditches, historic roads and trails, historic debris, rock art, house pits, Emery Gray pottery (Fremont), thermal features, manos/metates, Early Archaic projectile points, Late Archaic projectile points, Anasazi. Juab, Carbon, Emery, Sevier, Piute, Garfield, Iron, Washington, and San Juan Counties, Utah.

## Wyoming

09/2010 to present ARCADIS U.S., Inc. True Oil Federal Wells  
Principal Investigator, coordinating crew (3 people), supervising crews for approximately 100 acres for one conventional wells. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Principal Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Late Archaic-Late Prehistoric Period, Expansion Period Historic-World War II Period. Natrona County, Powder River Basin, Wyoming

09/2010 to present ARCADIS U.S., Inc. Footer Replacement Project (PacifiCorp).  
Principal Investigator, coordinating crew (1 person), supervising crew for approximately 10 acres of anchor replacement construction. Tasks included pre-field coordination, records check, report preparation (Senior Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Historic-Expansion Period trails. Lincoln County, Overthrust Belt, Wyoming.

08/10 to present ARCADIS U.S., Inc. Thunder Basin Coal Company.  
Principal Investigator, coordinating crews (3 to 5 people), supervising crews for approximately 3,000 acres of scoria mine project. Tasks included pre-field coordination, records check, survey, report preparation (Senior Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Historic Period cairns, inscriptions, homestead and Late Archaic to Late Prehistoric stone circle sites, cairns, and lithic scatters. Campbell County, Powder River Basin, Wyoming.



05/2010 to present	<p>ARCADIS U.S., Inc. Trend Exploration I, LLC. Principal Investigator, coordinating crew (1 person), supervising crews for approximately 103 acres for seven coal bed methane wells. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Unknown Prehistoric Period. Campbell County, Powder River Basin, Wyoming</p>
05/2010 to present	<p>ARCADIS U.S., Inc. True Oil Federal Wells Principal Investigator, coordinating crew (1 person), supervising crews for approximately 100 acres for two conventional wells. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Expansion Period Historic-World War II Period. Crook and Campbell Counties, Powder River Basin, Wyoming</p>
04/2010 to present	<p>ARCADIS U.S., Inc. True Oil Federal Well Principal Investigator, coordinating crew (1 person), supervising crews for approximately 40 acres for one conventional well. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: Expansion Period Historic-World War II Period. Crook County, Powder River Basin, Wyoming.</p>
04/2010 to present	<p>ARCADIS U.S., Inc. True Oil Federal Well Principal Investigator, coordinating crew (1 person), supervising crews for approximately 60 acres for one conventional well. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: none. Campbell County, Powder River Basin, Wyoming.</p>
03/2010 to present	<p>ARCADIS U.S., Inc. True Oil Federal Well Principal Investigator, coordinating crew (1 person), supervising crews for approximately 57 acres for one conventional well. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Contributing Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: none. Crook County, Powder River Basin, Wyoming.</p>
03/2010 to present	<p>ARCADIS U.S., Inc. Trend Exploration I Well. Principal Investigator, coordinating crew (1 person), supervising crews for approximately 20 acres for one coal bed methane well. Tasks included pre-field coordination, records check, survey, testing, lab analysis, report preparation (Senior Author), management recommendations, follow-up, and quality assurance. Cultural resources encountered: none. Campbell County, Powder River Basin, Wyoming.</p>