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# PERMIAN QUARTERLY

Permian Basin Programmatic Agreement Quarterly Newsletter

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Mark Willis, of Mark Willis Archaeological Consulting, is launching an unmanned aerial vehicle (UAV) in order to photograph the Merchant Site from the air as part of a Permian Basin Programmatic Agreement (PA) project. Read more about PA projects and the 10<sup>th</sup> Anniversary of the Permian Basin PA inside this newsletter.

## Introduction to the Permian Basin Programmatic Agreement (PA)

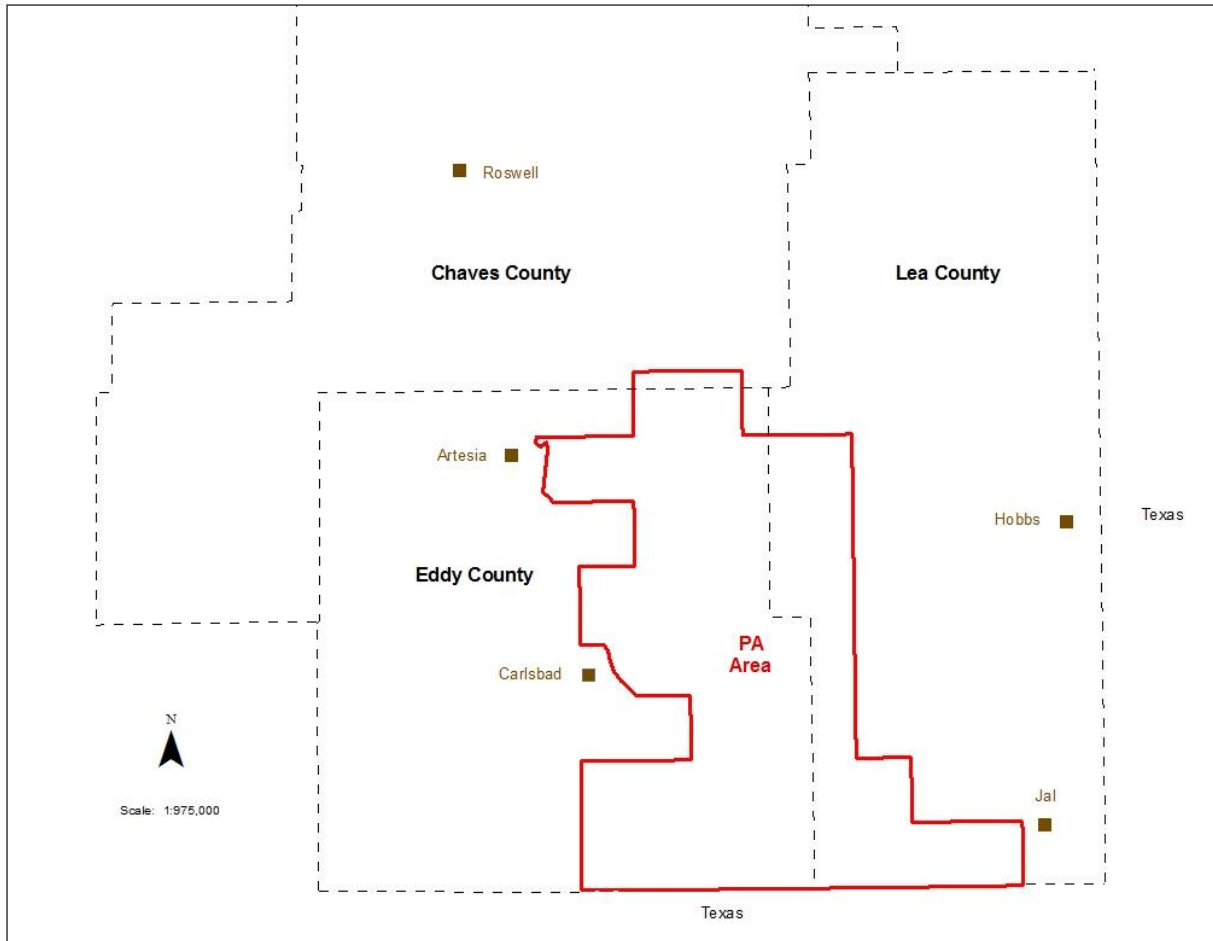


Figure 1. Map showing the Permian Basin PA Area.

The Permian Basin Programmatic Agreement (PA) is an alternate form of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, that is offered to the oil and gas industry, potash mining companies, and for other industrial projects located in southeastern New Mexico. The PA can be used for federal projects located on Bureau of Land Management (BLM) land or BLM sponsored projects located on private property. Originally begun as a Memorandum of Agreement (MOA), it was extended for a period of three years in April 2013 as a Programmatic Agreement (PA) and the PA was further extended for a period of 10 years beginning in May 2016. The PA area is located partially in Chaves, Eddy, and Lea counties. Proponents of projects within the PA area may contribute to a dedicated archeological research fund in lieu of contracting for project specific archeological surveys, provided their proposed projects avoid recorded archeological sites. This dedicated fund is used to study the archeology and history of southeastern New Mexico.

## Current PA News

### The Permian Basin Programmatic Agreement (PA) Celebrates its 10<sup>th</sup> Year Anniversary

The United States government is directed by a collection of laws and regulations that put into effect ideas and desired outcomes. One such idea is that the federal government should not promote damage or destruction of historical or archeological sites that are significant in understanding the past.

This idea is translated into Section 106 of the National Historic Preservation Act of 1966 (NHPA) that requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. How to go about the process of determining what is an “undertaking,” what constitutes an “historic property,” and defining an “effect,” is found in regulations contained in 36 Code of Federal Regulations (CFR) , Part 800. The application of the tenets of Section 106 to the oil fields of the Carlsbad Field Office (CFO) is straight forward since the CFO approves oil and gas projects that are located on federal land or those that propose to drill into oil and gas deposits with federal mineral rights and thus are federal projects. The overwhelming majority of oil and gas projects include earth-disturbing activities: well pad construction, digging trenches for pipelines, blading rights-of-way for new roads, etc. that will clearly impact historic or archeological sites if they are present within an individual project area. If a project area has not been surveyed for archeological or historical sites then the easiest way to comply with Section 106 is to complete an archeological survey and if sites are found, to modify the project to avoid the sites. This is the procedure, often termed “flag and avoid,” that was developed in the CFO beginning after passage of the NHPA and it is still being followed today.

### Background to the PA

Although it is easy, the flag and avoid procedure, has not been without problems as it is applied in the CFO oil fields. The volume of wells being permitted though time has effectively closed off some localities to additional wells, especially in the Loco Hills vicinity, because the only undeveloped spots are those that are the locations of archeological sites. Extensive drilling has changed the countryside into an industrial landscape and there is continuous activity as new roads are built, new wells are drilled, and new pipelines, electrical lines, tank batteries, and other infrastructure is put into place. All of these people and machines in action daily means that inevitably mistakes will be made and sites are inadvertently damaged or destroyed. Sites are also degraded by unauthorized collecting of artifacts by oil field workers and others who are afforded access to sites by the network of lease roads. Compounding the human factor is the nature of the fragile sandy soils of the Mescalero Plain, where much of the drilling takes place. These soils are highly susceptible to erosion and shallowly buried sites that are “preserved” by moving projects away from them are still subject to damage or destruction by erosion.

The majority of the archeological sites in the CFO are small in size, with limited numbers of artifacts, and a limited range of permanent features, primarily the remains of roasting pits and hearths. They were created by small groups of people moving across the prehistoric landscape while hunting and gathering in different ecological zones. This was a successful adaptation to the Chihuahuan Desert that was followed for several millennia and resulted in the creation of thousands of sites. While denoting success for the prehistoric people, these numerous sites pose problems for modern-day archeologists. There is no one site or small group of sites that can be investigated to provide complete information about these past

people. Avoiding sites means putting off learning about them to some indefinite future date and while preservation is preferable to destruction, it was frustrating to have our archeological knowledge of the past reach a plateau and go no farther. Avoiding sites, while a quick fix, was not satisfying to representatives of the oil and gas industry either, because it was not apparent why time and money was being spent to identify and preserve sites that are so numerous and apparently all the same.

#### The Idea for the PA

While it was apparent that Section 106 was working in its application to the oilfields of the CFO, it was also apparent that there were limitations. The question then was how to overcome those limitations, but stay within the letter and spirit of Section 106. An answer was found in the nature of oil and gas operations. In modern times oil and gas explorations begin with a geological seismic survey where shock waves are sent into the ground to be recorded by instruments and interpreted to locate oil and gas deposits. These seismic surveys include a grid that can be miles wide that is placed over the landscape. This grid is surveyed for archeological sites prior to the seismic activity and thus provides a systematic sample of the near surface sites within the grid locality. Wells are sited, based upon the results of the



Figure 2. The dry vegetation during a drought year shows seismic survey vehicle tracks in the distance and spaced at regular intervals. This photograph was taken in the vicinity of Hope, New Mexico.

seismic survey and this provides additional survey information. At the time vertically drilled wells were the norm and each well required its own pad and supporting infrastructure, in the form of roads, electrical lines, tanks, flowlines, etc. that were tailored to each well. Each new well was another small addition to

the web of wells, roads, and lines that spread across the landscape, but not every new well posed a threat to an archeological site. In fact one study found that approximately 80% of new oil and gas projects were located in areas that had no sites. The idea for the PA was born. What if, in areas that had sufficient previous archeological survey, new wells were approved if they avoided recorded sites and the money that would have been spent on redundant surveys was spent on archeological research instead?

### Proving the Concept

Marshalling evidence and support for the PA concept (then called a Memorandum of Agreement or MOA) was a challenging undertaking. Archeological sites are unique places, with components of non-renewable artifacts and permanent features. Unlike a wetland that might be affected by a construction project, but then be recreated elsewhere as mitigation, a site can't be recreated. Once it is disturbed the pieces can't be put back together again, so damage or destruction of a site is a significant event. Archeologists were unsure that a program that allowed earth-disturbing activities to be approved without determining if sites were affected was a good idea and it was not acceptable to some of them. Industry representatives were concerned that they would be forced to participate in a program and they were not sure of the benefits. State regulatory archeologists were unsure if they were fulfilling their mandate by not providing direct oversight of a set of projects. Above all people wondered if it would work and what the result might be.

The first attempt to answer these questions came from a review of site and survey reports and a critique of the archeological review process through a BLM sponsored "Preferred Upstream Management Practices" (PUMP III) report in 2005 that examined oil fields in Wyoming and New Mexico and the effectiveness of the cultural resource management programs in identifying and managing archeological sites. There are many interesting parts of the report, but one of the surprising results in the New Mexico portion was finding that after survey coverage reached 6 to 10 percent in the study area (in the Loco Hills vicinity) knowledge of site locations and what kinds of sites are there was adequately determined. Adding additional survey coverage or additional site reports didn't change the understanding of where sites might be located or what they consist of. Another key study was completed in 2007 by surveying the Pierce Canyon Quadrangle map and comparing the results of this comprehensive large-scale archeological survey with the results of smaller project specific surveys for oil and gas projects in the same quadrangle map that were accumulated in piecemeal fashion. The results of this comparison fit the expected outcome predicted by the PUMP III study, in that 85 percent of the sites found in the comprehensive survey (and 100 percent of large sites) had been previously recorded, even though the small project specific surveys that recorded these sites had covered only 28 percent of the ground surface. One explanation for the success of the accumulated survey information in the Pierce Canyon study is that it included a seismic survey that systematically examined a large portion of the area included in the map.

### Implementing the PA

The PA (then an MOA) was signed in May 2008 by the BLM, the New Mexico State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) as Consulting Parties. The Mescalero Apache Tribe, the New Mexico Oil and Gas Association, the Independent Petroleum Association of New Mexico, and the New Mexico Archaeological Council signed as Concurring Parties. The first contribution for a well pad was received on the 21<sup>st</sup> of May in 2008 and the CFO Archeology staff began to put into place the administrative structure for the program.

One of the first items of business was to scan the paper site forms for those sites located within the PA area in order to integrate them into the Geographic Information System (GIS) that had been recently installed in the CFO. The PA area is defined by contiguous USGS 7.5 Minute Quadrangle Maps. It is difficult to overstate the importance of the GIS in the operation of the PA and in Section 106 reviews of projects outside the PA area. Prior to getting the GIS operational in the CFO, paper and mylar Quadrangle Maps were marked with site locations and surveyed space. The Loco Hills vicinity has been the center of oil and gas explorations since the 1930s and as many as eight separate paper and mylar versions of the Loco Hills quadrangle maps had to be consulted when reviewing a new project in that locality. Although Section, Township, and Range information is routinely supplied with project review information one still had to find landmarks on the Quadrangle map to determine the location of a well pad or to trace the route of a pipeline on multiple maps in order to complete the review. With GIS, layers of information can instantly be turned on and off and a reviewer can zoom in and out as desired to pinpoint a location. USGS Quadrangle Maps can form the background or aerial photographs can be substituted in the GIS system to better see the landscape.



Figure 3. Mescalero Apache Tribe members view a landmark that was significant in their tribal history.

Many of the procedures for operating the PA were established in the first year and a meeting of the Permian Basin PA Workgroup was held. The Workgroup is composed of BLM CFO and State Office archeologists, the New Mexico SHPO, a member of the ACHP, the Mescalero Apache Tribal Historic Preservation Officer, a member from the oil and gas industry, and academic archeologists with an interest

in southeastern New Mexico. The Workgroup provides advice and guidance to the program and monitors progress in meeting the goals set forth in the research designs.

### Operating the PA

The original MOA was in effect for a period of five years. Because it was an experiment, and because participation by industry was voluntary, it was uncertain how well it would operate and how much money for research would be generated. Fortunately, enough oil and gas companies chose to participate and there were sufficient funds contributed to establish a program of archeological research. There were some preliminary housekeeping steps that had to be taken. A synthesis of the reports of scattered excavation and large scale testing projects that had been undertaken since 1970 was compiled for ready access by researchers and data comparability standards for recording artifacts in PA projects were established. One of the first projects was an ethnographic survey with the Mescalero Apache Tribe to record Traditional Cultural Properties within the CFO. Surveys were also completed in two localities that had a high research potential, but that had not seen many previous surveys. One was along the Pecos River and one along the base of the Caprock, an abrupt exposure of bedrock that marks the western edge of the Llano Estacado. Significant sites located on BLM lands that had been excavated by amateurs affiliated with the Lea County Archeological Society were reexamined to determine their current research potential, including Laguna Plata, Boot Hill, and the Burro Tanks sites. Altogether 12 research projects were undertaken in that five year period and many of these have been featured in the *Permian Quarterly*.

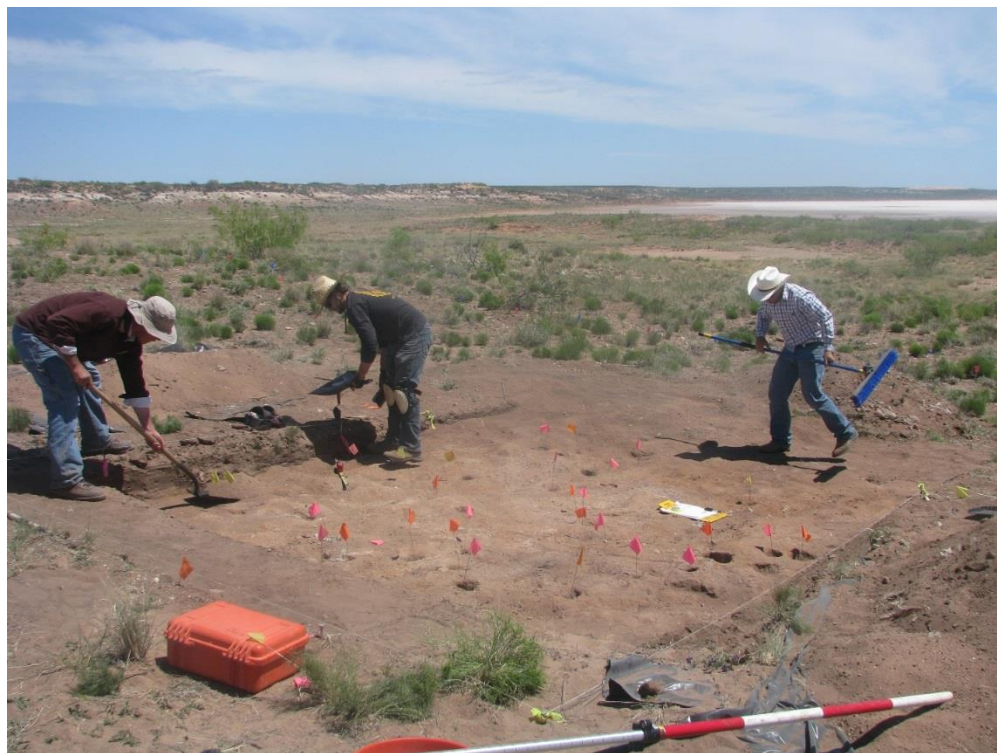


Figure 4. Excavations are underway at a site in the vicinity of Laguna Plata.

This period also saw the development of office routines for processing PA projects. The review of PA projects was integrated into the existing Section 106 review procedures, so there were few major problems. Those that cropped up centered around applicants submitting oil and gas projects that were not eligible for processing under the PA, such as wells located on New Mexico State Land Office property, or for projects, such as flow lines from wells near the state line that crossed into Texas and were thus interstate projects. The availability of GIS and computerized database programs have been invaluable in the administration of the program.

### Extending the PA

The combined Permian Basin MOA/PA has been extended twice. Once as a PA for a three year period and then again as a PA for a ten year period that will end in 2026. These extensions are proof that the program is operating as hoped for and that its operation is acceptable to the state and federal regulatory agencies. An additional eight research projects have been completed or are underway and an additional two will be advertised shortly. These projects cover a variety of topics: some, such as a study of methods to record and test sites or geomorphological studies have a narrow focus primarily of interest to archeologists. Others have broad appeal to both archeological researchers and the general public. Among the latter is an illustrated study of plants identified in archeological sites that includes their uses for food, fiber, and medicine, as well as for crafts and as building materials. A comprehensive study of rock art sites, that is currently underway, is also expected to have popular interest. Almost all PA projects include a public report that explains the project using plain English and with a minimum amount of archeological jargon. This is in keeping with a PA objective to make the results of these studies available to the public.

The rock art study has also provided an opportunity for the CFO to interact with Indian tribes that have ancestral ties to southeastern New Mexico through the addition of Indian crewmembers on the recording crew. CFO archeology staff and Field Office managers are consulting with the tribes to determine which images should be kept private and which can be widely shared. This cooperative approach and increased communication benefits everyone. The PA was cited as a “Section 106 Success Story” by the ACHP in 2016 and the authors of a PA report entitled, *A Late Prehistoric Ochoa Phase Settlement in Southeastern New Mexico*, were presented a 2018 Heritage Preservation Award (see story below). We can hope that the PA will continue to maintain its award winning ways into the future and we will continue to work toward that goal.

*Editor’s Note: Readers wanting more detailed information about the PA and its history may consult the following sources:*

Larralde, Signa, Martin Stein and Sarah H. Schlanger

2016 The Permian Basin Programmatic Agreement after Seven Years of Implementation. *Advances in Archaeological Practice* (4):1-12.

Schlanger, Sarah, George MacDonell, Signa Larralde, and Martin Stein

2013 Going Big: The Permian Basin Memorandum of Agreement as a Fundamental Shift in Section 106 Compliance. *Advances in Archaeological Practice* (1):13-23.



## PA Workgroup Holds Annual Meeting

The Mescalero Apache Tribal Preservation Office hosted the Permian Basin PA Workgroup annual meeting June 3 and 4 in Mescalero, New Mexico. A highlight of this year's meeting was for Workgroup members to witness a portion of a Puberty Rite ceremony. This four-day event is intended to guide young women on the correct path to becoming adult members of the tribe and it is a significant occasion in their lives. The girl's family sponsors the event, which includes putting up the Big Tee Pee in which much of the ceremony takes place. This structure is created with 12 long poles, arranged in a conical fashion, which is then covered partly with brush on its lower portion and canvass above. Two brush covered wings extend on either side of an opening. A fire in the center is maintained throughout the ceremony and another fire is located at some distance in front of the teepee around which dances take place. The girl is guided by a Medicine Woman and is dressed in buckskin and painted to resemble White Painted Woman. Among other things, White Painted Woman raised two sons who slew Giant Monsters and made the earth inhabitable for people. In Apache Tribal lore White Painted Woman is the model for heroic and virtuous womanhood.

Food is prepared in large quantities for those attending. Large shallow pans heated over wood fires are used to prepare fry bread, which is doubly-delicious fresh and warm from the pan. Other food including meat, beans, and vegetables feed a crowd that can easily range up to 200 people in size. Although the Puberty Ceremony has a serious purpose, the event is also festive. During intermission periods in the ceremony, people visit to catch up on news and children play among the adults, as children do everywhere. The end of the ceremony is marked by distributing gifts, primarily trinkets and toys for children, Mardi Gras style, throwing them to the assembled crowd.

Of interest to the archeologists in attendance was noting that at the end of the ceremony the Big Tee Pee is dismantled and all of the poles and brush, as well as rocks that are associated with the fires, are hauled away back to their places of origin. In a few days time the only physical evidence of this important event will consist of patches of discolored soil on the ground surface where the fires were maintained. Considering that archeology is concerned with finding, recording, and interpreting artifacts, structures, and other physical evidence of people's existence, it is sobering to realize that such an important event in a society can leave such an apparently insignificant trace.

A Puberty Ceremony is held each 4<sup>th</sup> of July weekend at the Feast Grounds on the Mescalero Apache Reservation near Mescalero and the public is invited to attend. Readers who are interested can find more information at the Mescalero Apache Tribe website <https://mescaleroapachetribe.com/our-culture/>. Additional information about the ceremony can be found at the website Indian Country Today <https://newsmaven.io/indiancountrytoday/archive/behind-the-scenes-at-the-mescalero-apache-puberty-rites-d6bnxQ5hykuCYxG7FZw83Q/>. Indian Country Today is a website of the National Congress of American Indians.

The business portion of the annual meeting consisted of reviewing current and proposed research projects. Statements of Work (SOW) have been prepared for two projects: one a comprehensive survey of rock ring middens located primarily within the foothills of the Guadalupe Mountains and the other consisting of follow-up work at the Merchant Site and preliminary investigations at other contemporary Late Formative period sites in the Mescalero Plain. It is expected that these SOWs will be issued as contracts sometime this summer.

The Workgroup approved a proposal to cooperate with other federal land managing agencies in recording and analyzing rock art sites on their land in the Guadalupe Mountains, as an extension of the current comprehensive rock art survey on BLM land. At present this is only a concept, but it could result in a significant collection of information about rock art in a well-defined geographical context, consisting of the Guadalupe Mountains. Newsletter readers will be kept informed of the progress of this proposal in future issues of the *Permian Quarterly*.

A discussion about reviving the “small grants program” also took place. This program, formerly administered by the Historic Preservation Division (HPD) of the New Mexico Department of Cultural Affairs and funded by the PA, provided an opportunity for researchers to submit proposals for research related to the archeology and history of the Permian Basin PA area. These projects were envisioned as relatively short-term, small-scale studies that could be completed by one or a few researchers within a year’s time.

Examples of previous projects included a trace element analysis of an obsidian source. These studies, among other things, are useful for identifying and tracing the movement of obsidian artifacts through time and space and by inference identifying contacts between prehistoric populations.

Another project assessed the effectiveness of magnetic survey methods for detecting buried archeological features at five sites located in the sandy soils of the Mescalero Plain, as well as investigating the magnetic properties of the soils. This non-invasive approach, using hand held instruments, has been successfully used in other regions of the country to provide an initial identification of buried features, such as storage pits or hearths, and identifying their locations. Unfortunately, there was a limited magnetic contrast between features within the sites and the surrounding soils and features, such as hearths, were “invisible” to the magnetic instruments. The study did discover that some burned caliche has magnetic signatures of its use and that future research may enable one to determine its “use history,” for instance to determine the minimum number of times a stone has been heated or to determine the age of last heating using paleomagnetic field intensity methods.

Unfortunately, the grants program required a significant amount of staff time to administer and the HPD was unable to continue with it. The problems and possibilities of reviving the program were discussed in detail and the PA Coordinator is to investigate the possibilities of restarting the program.

#### Changes are Made to the PA Workgroup

The PA Workgroup is composed of state and federal regulatory archeologists, academic archeologists with research interests in Southeastern New Mexico, a representative from the Indian tribes and pueblos with ancestral ties to the region, and a representative from the oil and gas industry. The Workgroup provides guidance for the operation of the Permian Basin Programmatic Agreement as it is carried out by the Carlsbad Field Office archeologists.

Two members of the PA Workgroup have resigned. Dave Simons, Archeological Permit Administrator at The BLM State Office in Santa Fe and Chris Turnbow, Archeologist and Environmental Scientist, at the New Mexico Gas Company have each retired from their positions and resigned from the Workgroup.

Dave Simons was present at the birth of the Permian Basin Programmatic Agreement concept (then an MOA), assisting then BLM State Archeologist, Steve Fosberg, who was the prime mover of the project. He critiqued early drafts of the agreement and provided ideas. His experience with the Fruitland Project

in the Farmington Field Office led him to advocate for a program of total excavation of sites and he was an enthusiastic supporter of the PA.

Laura Hronec, currently the Archeological Permit Administrator at the BLM State Office, will take Dave Simons place. Laura was formerly the Lead Archeologist in the Roswell Field Office and she administered that portion of the PA that extends into the Roswell Field Office and has assisted CFO archeologists in past Workgroup meetings.

Chris Turnbow was appointed to the Workgroup in 2014. He had broad professional experience in archaeology and anthropology that spanned 40 years in cultural resource management, museums, and historic preservation compliance. His research on Paleoindian, Archaic, Ancestral Puebloan, and Spanish Colonial period occupations gave him a thorough understanding of New Mexico's rich cultural heritage. Chris contributed new ideas and provided useful advice to the Workgroup.

We thank both of these members for their service and they will be missed in future meetings. We welcome Laura to the Workgroup and look forward to her participation.

#### Progress Report on BPA Number 7

In early April archeologists from Statistical Research, Inc. provided a progress report on BPA Number 7, "Evaluation of Prehistoric Sites within the SW Pecos Slopes Physiographic Region." This region of primarily gypsum soils and exposed bedrock is located southwest of the city of Carlsbad. It forms a rough triangle bounded on the north by the Black River, on the east by the Pecos River, and on the south by the Texas state line. The sites in this region are small in size and have limited artifact inventories and a limited number of permanent features, primarily roasting pits. Many sites have been severely affected by erosion and have areas of exposed bedrock within their boundaries. A sample of 42 sites was selected for further testing and an evaluation of their eligibility to be listed on the National Register of Historic Places.



Figure 5. A view of the landscape in the SW Slopes physiographic region.

A number of research goals outlined in the SOW for the project have been reached and progress is being made on the others. Completed goals include the following: the creation of a chronological framework for the region based upon radiocarbon dates; the definition of a site typology; the examination of patterns of lithic procurement, reduction, transport, use, and discard; and the identification of rock formations within or adjacent to the study area that could provide sandstone, limestone, or dolomite for ground stone tools. The completed report will provide a significant amount of new information on this previously unstudied region and provide useful comparative information on topics that pertain to other regions of the CFO.

## Other News from the Permian Basin

### PA Contractors Receive Awards

Four archeological contracting firms are currently listed on the Permian Basin PA Blanket Purchasing Authority (BPA) Contract. The firms bid on the different research projects that are developed through the PA and it is through their diligence that our knowledge of the prehistory of southeastern New Mexico has advanced. Archeologists from two of the firms have recently been recognized for their contributions: Jim Railey was cited by SWCA Environmental Consultants for an in-house honor, the Steven W. Carothers Award, “for his solid track record of completing large, complex, archeological excavation reports.”

Myles Miller of Versar, Inc. was given the “Award for Excellence in Cultural Resource Management” in the category of “Research” at the May 2018 Society for American Archeology meeting in Washington, D.C. This award is presented to individuals, or to a group, to recognize lifetime contributions and special achievements.

Myles Miller and Tim Graves of Versar, Inc. and the late Robert “Bus” Leslie were recognized by the Cultural Properties Review Committee of the Historic Preservation Division of the New Mexico Department of Cultural Affairs, by the presentation of a 2018 Heritage Preservation Award for their report on the Merchant Site, “for establishing scientific rigor at the site, excavating significant features, and record keeping.”

We are fortunate to have the services of these archeologists, and those of the other participating companies, to carry out the fieldwork and report writing that is central to fulfilling the goals and requirements of the PA.

### Newsletter Contact Information

Questions or comments about this newsletter or the Permian Basin PA may be directed to Martin Stein, Permian Basin PA Coordinator, BLM Las Cruces District Office, 1800 Marquess Street, Las Cruces, New Mexico 88001. Phone: (575) 525-4309; E-mail address: [cstein@blm.gov](mailto:cstein@blm.gov). Unless otherwise attributed all newsletter content was written by Martin Stein.