

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
UTAH STATE OFFICE



U.S. Dept. of the Interior
Bureau of Land Management
Utah State Office

Summary Report of Cultural Resources Inspection

Report Title: Cultural Resources Review for the March 2018 Canyon Country District Oil and Gas Lease Sale

Report Date: January 5, 2018

Date(s) of Survey: N/A; records review and analysis only.

Development Company: N/A; BLM Oil and Gas Lease Sale.

Responsible Institutions: BLM Monticello Field Office and Utah State Office

Responsible Individuals:

Principal Investigator/Field Supervisor: John Chmelir
Report Authors: John Chmelir, Ashley Losey, and Don Montoya

BLM Field Offices: Monticello, Moab

Counties: San Juan, Grand

Lease Parcel Locations:

Multiple: See attached maps

Record Search:

Location of Records Searched: Monticello and Moab Field Offices, Utah Division of State History Preservation Pro Database

Date of Record Search: June, 2017

Project Description - *The magnitude and nature of the undertaking and the degree of federal involvement (36 CFR § 800.4(b) (1))*

The Utah Bureau of Land Management (BLM) proposes to offer forty-three (43) parcels in Grand and San Juan Counties, totaling 40,885.87 acres within the Canyon Country District (CCD) administrative area for competitive oil and gas lease sale in March 2018. The Canyon Country District area includes both the Monticello and the Moab Field Office administrative areas. The authorization for the lease of these parcels is found in the *Monticello Field Office Record of Decision and Approved Resource Management Plan* (Monticello Field Office RMP) (2008: MLE-23 to MIN-30 and Map 18), the *Moab Field Office Record of Decision and Approved Resource Management Plan* (Moab Field Office RMP) (2008: MIN-19 and Map 12), and the *Moab Master Leasing Plan/Approved Resource Management Plan Amendments for the Moab and Monticello Field Offices* (Moab MLP) (2016). This lease sale is an undertaking in that it is an activity that is funded in whole by a federal agency and that it requires federal approval (36CFR800.16(y)).

The sale of a lease parcel does not authorize any ground disturbing activities, including the development of specific well pads or other oil and gas facilities. All future undertakings associated with oil and gas development

on any sold leases will be handled through separate, future National Environmental Policy Act actions and National Historic Preservation Act – Section 106 processes.

Reasonable and Good Faith Identification Effort

The BLM has prepared this cultural resources report to document its reasonable and good faith effort to identify effects this undertaking may have on historic properties, as required by Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C 306108).

In the Advisory Council for Historic Preservation’s (ACHP) document titled *Meeting the “Reasonable and Good Faith” Identification Standards in Section 106 Review*

(http://www.achp.gov/docs/reasonable_good_faith_identification.pdf), the ACHP outlines the steps to determine when a reasonable and good faith identification effort has been met. The ACHP states:

“Prior to beginning the identification stage in the Section 106 process, the regulations (at 36 CFR § 800.4) require the federal agency to do the following:

- *Determine and document the APE [Area of Potential Effect] in order to define where the agency will look for historic properties that may be directly or indirectly affected by the undertaking;*
- *Review existing information on known and potential historic properties within the APE, so the agency will have current data on what can be expected, or may be encountered, within the APE;*
- *Seek information from others who may have knowledge of historic properties in the area. This includes the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO) and, as appropriate, Indian tribes or Native Hawaiian organizations who may have concerns about historic properties of religious and cultural significance to them within the APE.”*

Following these initial steps, the regulations (36 CFR § 800.4(b) (1)) set out several factors the agency must consider in determining what is a “reasonable and good faith effort” to identify historic properties. “Take into account past planning, research and studies; the magnitude and nature of the undertaking and the degree of federal involvement; the nature and extent of potential effects on historic properties; and the likely nature and location of historic properties within the APE. The Secretary of the Interior’s standards and guidelines for identification provide guidance on this subject. The agency official should also consider other applicable professional, state, tribal, and local laws, standards, and guidelines. The regulations note that a reasonable and good faith effort may consist of or include “background research, consultation, oral history interviews, sample field investigation, and field survey.”

For lease sales, BLM’s identification efforts include: (1) completing a comprehensive "records review," which is an intensive review and analysis of available pertinent cultural resource records and information for each parcel and the surrounding areas that are included in the undertaking's APE; and (2) proactively seeking information from others who may have knowledge of historic properties in the area. The BLM's identification efforts that are described in this report for the March 2018 lease sale undertaking are consistent with the direction provided in multiple Interior Board of Land Appeals (IBLA) decisions/orders, including *Mandan, Hidatsa, and Arikara Nation*, 164 IBLA 343 (2005), and *Southern Utah Wilderness Alliance*, IBLA 2008-264 (2009). Both documents can be found in Appendix I.

The remaining sections of this cultural resource report – records review illustrate the steps by BLM has taken to meet the reasonable and good faith identification standard.

Current Status of Oil and Gas Leasing and Development of the Area –*The magnitude and nature of the undertaking (36 CFR § 800.4(b) (1)).*

To understand the magnitude and nature of the undertaking, it is important to look at the current status of oil and gas development within this area. BLM maintains data regarding oil and gas leasing and well development, the Utah Division of Oil, Gas and Mining and the Utah School and Institutional Trust Lands Administration provide also provide BLM with data regarding leasing and well development and status. Where such data is available, information regarding previous leasing and previous well development and status is presented below as part of the parcel-by parcel analysis and in maps in Appendix B.

Sixty-four wells have been previously developed within 27 of the 43 parcels included in this undertaking, all without adverse effects. The 64 wells includes 11 wells in six of the eight Moab Field Office parcels, seven wells within three of the 14 Moab MLP parcels, and 46 wells within 18 of the 21 Monticello Field Office parcels.

The magnitude and nature of this oil and gas lease are limited in two ways. First, this lease sale is administrative in nature and does not authorize any ground disturbance, including development of specific well pads, access roads or other oil and gas facilities. Second, leasing has resulted in a limited amount of development in these areas. While the lands within and surrounding this lease sale have been or already are leased, many leased parcels were never developed. Those parcels that are developed frequently see few wells and/or wells are developed then plugged and abandoned. If purchased, BLM’s leases are let for 10 years. Unless a well is producing paying quantities of oil or gas, the well is plugged, the pad and associated features are reclaimed, and the land reverts to BLM.

Reasonably Foreseeable Development –*The magnitude and nature of the undertaking (36 CFR § 800.4(b) (1)) cont.*

Because leasing is an administrative action with no directly associated ground disturbance, these identification efforts focus on potential effects to historic properties that are reasonably foreseeable as a result of this lease sale. This document relies on BLM’s defined reasonably foreseeable development as its metric for a rational scenario from which to project potential effects to historic properties as a result of this lease sale. While the leasing of a parcel does not authorize development of a parcel, it does create an expectation that the lessee may explore the lease’s potential to produce oil or gas. As none of the proposed parcels are within areas of full field development, the expectation here is for the potential development of a single exploratory well somewhere within a parcel.

Thus, reasonably foreseeable development (RFD) for a given parcel is defined herein as the expected area of disturbance for a single well pad and encompasses the total expected surface disturbance from access, pad and well construction and use, and associated infrastructure (e.g., pipelines). RFD is calculated based on current and past development within the Monticello and Moab Field Offices and varies between these administrative areas. The RFD for each of these areas was determined in analyses contained in the following documents: *Reasonably Foreseeable Development Scenario (RFD) for Oil and Gas, RFD for the Monticello Planning Area (2005), Reasonably Foreseeable Development Scenario (RFD) for Oil and Gas, RFD for the Moab Planning Area (2005), and 2012 Reasonably Foreseeable Development (RFD) Scenario for Oil and Gas in the Moab Master Leasing Plan (MMLP) Area, Canyon Country District.*

Table 1 RFDs for the March 2018 Lease Sale

Area	RFD	Parcels within Area
Moab FO/Planning Area	15 acres	001, 002, 003, 004, 005, 006A, 007, 008,
Moab MLP	8.2 acres	006B, 009, 010, 012, 014, 016, 018, 019, 021, 023, 024, 025, 026, 027

Monticello FO/Planning Area	9.6 acres	028, 029, 030, 031, 032, 033, 034, 036, 037, 038, 039, 040, 041, 042, 043, 044, 047, 048, 049, 050, 051
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The magnitude and nature of this undertaking are further limited by the temporary nature of drilling activities and the camouflaging of the more permanent structures. Drilling is the most potentially visually intrusive action that can result from leasing; drill rig height depends on the nature of the well being drilled but may stand as much as 150 feet tall. While tall, drill rigs are typically at a drilling location for no more than 60 days. Once drilling is done, the well and associated surface structures are constructed on the pad. Oil wells will have artificial lift devices (i.e., pumpjack) that are typically 30-40 feet tall with storage tanks 20-25 feet tall. Gas wells typically have a pumping unit and a water tank, both which may be 20 feet tall. Per BLM policy, permanent surface structures will be painted a flat, non-reflective color to blend structures into the surrounding natural environment. Color and other paint requirements are specified by the BLM at the time of development.

Area of Potential Effect - *Determine and document the APE in order to define where the agency will look for historic properties that may be directly or indirectly affected by the undertaking (AHP: Meeting the “Reasonable and Good Faith” Identification Standard in Section 106 Review)*

The APE is the area bounded by each parcel combined with an additional one-half mile buffer of each parcel. When defining the APE, BLM took into consideration the potential effects of the undertaking and the environment in which those effects would occur. This APE is commensurate to the potential effects of this undertaking and covers the geographic area associated with lease parcels in which the construction and use of a well pad may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (see 36CFR800.16 (d)). The attached maps (Appendix A) illustrate the parcel boundaries, the APE, previously conducted cultural resource surveys, and previously recorded cultural resource sites (Appendix E).

When considering the undertaking’s potential effects, it is illustrative to consider the area with the most potentially sensitive sites, the Monticello Field Office and particularly the area east of the town of Blanding which includes Recapture Canyon, Jennys Canyon, Mustang Mesa, Alkali Ridge, and Montezuma Canyon. It is important to understand that this area is not pristine; rather, it has been subject to modern human use and development and the effects are plainly evident. Looking to the west, the town of Blanding is readily visible from the parcels encompassing Recapture and Jennys Canyons and is a generally visible component of the landscape for the parcels in the areas of Mustang Mesa, Alkali Ridge, and Montezuma Canyon. The wind farm at the edge of Monticello, composed of twenty-seven 308-foot wind turbines, is also visible from many of these parcels. Alkali Ridge is crossed by two major transmission lines, visible throughout the area. There is prior oil and gas development in the area, including active wells. Many of the private lands across the area, including within Montezuma Canyon itself, are actively under modern agriculture, including fields and pasture. The area is crisscrossed with roads, fences, and private residences and other outbuildings. Further, most of the natural parts of the landscape are covered in moderately dense pinyon-juniper woodland with low distance visibility or are previously chained (i.e., disturbed). Topographic complexity further adds to the limited visual range of many parts of these parcels. When vegetation, topography, and this human landscape are taken into account, camouflaged well facilities will not indirectly effect a sensitive site outside of a ½ mile radius from a site in such a way that it alters the character of that site. Outside a half a mile, potential indirect effects become a part of the modern human landscape of this part of San Juan County and the ½ mile buffer of a parcel is here determined to be an appropriate APE for this undertaking.

Description of Identification Efforts:

Procedures for Literature Review - *Take into account past planning, research and studies . . . (36 CFR § 800.4(b) (1))*

Monticello FO archaeologist John Chmelir completed a records review and analysis for the Monticello FO parcels, and Moab FO archaeologist Don Montoya and State Office archaeologist Ashley Losey completed the records review and analysis for the Moab parcels. The Monticello FO compiled both field offices' data in to this report.

Both field office archaeologists compiled cultural resources data from their respective cultural resource libraries, GIS data (CURES), and the Preservation Pro database. CURES and Preservation Pro contain information of all of the recorded cultural resource sites and cultural resource survey data for the area made available to BLM and the Utah Division of State History. Both offices' analyses also include their respective Cultural Resources Planning models to help provide cultural resources information for areas not previously surveyed, the models and associated Class I Inventories are described at length below.

This records review also included Old Spanish National Historic Trail (OSNHT) data (Appendix F) from the National Historic Trails Inventory Project, which took place in Utah and several other states to research and survey historic trails. The project, which finished in 2012, was funded by the American Recovery and Reinvestment Act of 2009 and is often referred to as the "ARRA Project". The project sought to identify likely locations of the historic trail as well as any archaeological sites associated with the historic use of the trail. Trail alignments, including physical trail trace and inferred segments, were given site numbers and documented as linear archaeological sites with IMACS site forms.

To determine previous survey coverage, BLM relied on project lines and project polygons available as part of Preservation Pro/CURES (CURES) data. While polygons readily convey a survey area with a definable acreage, many of the previous survey projects in the CURES geodatabase are digitized as lines without a defined survey width. The BLM decided that 30-meters is an appropriate average width for those lines, which span many projects and vary widely in APE and transect widths. The BLM converted project lines to polygons with width to aid in determining previous survey coverage within parcels. The BLM then combined all previous survey areas within each parcel to determine the total inventoried area of each parcel in terms of acreage and percentage of each parcel (see Appendix A).

Class I Inventories and Cultural Resource Planning Models

SWCA Environmental Consultants produced a Class I Existing Information Inventory for the Moab FO area in 2016 and for the Monticello FO area in 2017. As defined by BLM Manual 8110 – *Identifying and Evaluating Cultural Resources*, a Class I inventory "... is a professionally prepared study that includes a compilation and analysis of all reasonably available cultural resource data and literature, and a management focused, interpretive, narrative overview, and synthesis of the data." The document also provides a synthesis of cultural resources data for the planning area through the development of an archaeological site predictive model, or planning model, and a synthesis of current and future research directions.

Encompassing millions of acres and thousands of archaeological sites, the models were developed using known cultural resource sites from previously surveyed areas because they provide the best available information about potential locations of undiscovered sites. Provided that known sites exhibit patterned relationships with respect to environmental variables, those relationships can be used to predict with better than random chances where sites are likely to occur in areas that have not been inventoried. To be clear, the models make no attempt to reconstruct or interpret the behaviors that led to the archaeological material being present. Rather, the models are built upon the known presence and absence of previously identified archaeological material, whose patterns are used to project the likelihood of encountering this material elsewhere across the landscape.

While referred to as "a model", the models are in fact six site type specific models and a composite model for each field office. Because the distribution of different types of cultural resource sites is likely to be influenced by different environmental factors, this effort individually categorized and modeled general site types, four

prehistoric site types and two historic site types. Each of the site type models describes the probability that site type is located in specific areas and the resulting map shows the planning area as areas of high, medium, or low probability. The composite maps are GIS-derived syntheses of the six site type models intended to provide a landscape level representation of cultural resources probability and sensitivity across the field office areas, again represented as high, medium, or low probability. In all models, the model output (a GIS raster file) is set to a scale of 0-100 (low to high sensitivity), which is divided into three discrete zones of high, medium, and low probability as follows: High = 50 to 100, Medium = 25 to 49, and Low = 0 to 24. The composite models were then further modified in an “intuitive” fashion to better account for significant linear sites, which this type of environmental model does not predict well. Eligible historic and prehistoric roads and other linear features were added as high potential linear areas and the Old Spanish Trail was added as a 200 m wide swath of high potential along its congressionally designated alignment. Because BLM manages for all site types and there are multiple historic and prehistoric site types present across the parcels, the composite models are used here as they offer the best overall site probability within the parcels and the best available information (see Appendix C).

Additional Research Data

BLM incorporated research data generated by Dr. Ray Matheny, Professor Emeritus at Brigham Young University, and Dr. Fumiyasu Arakawa of New Mexico State University for the Montezuma Canyon area from their publication *A Summary of the Archaeological Resources of Montezuma Canyon, San Juan County, Utah* in 2013.

Ethnographic Overviews

In addition to the aforementioned archaeological data sources, this records review included the following ethnographic data sources:

- Stoffle, Richard, Evelyn Pickering, Katherine Brooks, Christopher Sittler, and Kathleen Van Vlack, 2016. *Ethnographic Overview and Assessment for Arches National Park*. Bureau of Applied Research in Anthropology, School of Anthropology, University of Arizona.
- Stoffle, Richard, Evelyn Pickering, Christopher Sittler, Heather Hyealim Lim, Katherine Brooks, Kathleen Van Vlack, Chelsea Forer, and Mariah Albertie, 2017. *Ethnographic Overview and Assessment for Canyonlands National Park*. Bureau of Applied Research in Anthropology, School of Anthropology, University of Arizona

While neither overview includes areas within the APE of this undertaking, both include resources and values that can be extrapolated to this undertaking’s APE. This report only includes information considered acceptable for the public by the parties involved in generating the above ethnographies. These resources of interest and concern were identified by Hopi, Navajo, Southern Ute, Ute, and Pueblo of Zuni participants and include:

- The Green River
- Archaeological Ruins
- Barrier Canyon style paintings, particularly those near springs
- Water sources and riparian plants, particularly willow
- Traditional use plants and medicines

Consulting Parties Data

In addition to the above professional data, BLM also incorporated cultural resources GIS point location data provided by two consulting parties, Friends of Cedar Mesa and the Utah Rock Art Research Association.

All data and research requested by or provided to BLM by consulting parties are described at length in the Additional Data/Analysis Requested by Consulting Parties and BLM Response and Additional Data Brought Forward by Consulting Parties sections below and in the Comment Response Table in Appendix H.

Parcel by Parcel Analysis

For each parcel, the CURES geodatabase was used to identify all previously recorded sites within the APE. Preservation Pro and field office records were used to determine site type, National Register of Historic Places (NRHP) eligibility status, and whether there were any particularly sensitive sites or site components (e.g. rock art). In the appropriate areas, the additional data sources discussed above were also considered.

Using these data, the areas within each parcel and within a half mile buffer the parcel were analyzed for whether reasonably foreseeable development could occur somewhere within the parcel without adverse effects to historic properties. Historic properties within the APE were analyzed for potential direct, indirect, and cumulative effects caused by a single well pad within parcel boundaries; the analysis uses the appropriate expected surface disturbance for a single well pad as defined above.

Criteria of Adverse Effect

An adverse effect occurs when an undertaking “may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion on the National Register in a manner that would diminish the integrity of the property’s location, design, setting, feeling, or association ((36 CFR 800.5(a)(1)).” Although the ACHP or BLM do not have specific guidance for determining adverse effects from oil and gas leasing, the ACHP does provide an example of determining adverse effects from new construction in a historic district on their website (<http://www.achp.gov/106q&a.html#800.5>). This information states:

The effect of the new construction on the district would have to be evaluated using the adverse effect criteria relating to "physical destruction of or damage to all or part of the property," "change of the character of the property's use or of physical features within the property's setting that contribute to its historical significance," and "introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features." If none of these criteria are met, it is possible that new construction that conforms to the applicable Secretary's Standards could be treated as a no adverse effect situation.

Although, the leasing of these parcels does not guarantee “new construction,” the reasonably foreseeable development for each parcel was considered in the effect analysis for each parcel. This effect analysis considered all known historic properties within the APE. Unevaluated sites were treated as though they were historic properties.

In the lease areas, historic properties have been recommended or determined eligible for inclusion on the National Register of Historic Places (NRHP) under Criteria A, C and/or D of 36 CFR 60.4. Criterion D sites make up the vast majority of historic properties in the proposed lease parcels, particularly for prehistoric sites. Most prehistoric sites in this area are recommended and determined eligible under Criterion D of 36 CFR 60.4 by professional archaeologists currently working in the Monticello Field Office area. The table below provides project data from six recent projects that cross several of the Monticello parcels; the bolded project is outside but in the immediate vicinity of the APE and was chosen because it represents recent work at a large number and wide variety of sites.

Table 2: Site eligibility determinations within and near APE.

Project	Year Completed	Contractor	Total Acres	Total Sites	Total Historic Properties	Eligibility Criteria
U10ES0913	2011	Envirosystem	160	39	37	33 D; 4 C, D (all prehistoric)
U10WN0422	2010	Woods Canyon	27	5	4	All D
U13ST0450	2013	SWCA	12	5	5	All D
U13LI0456	2014	Logan Simpson	440	20	4	All D
U14ER0258	2014	ERO	101	18	13	All D
U13TP0810	2014	Sundance	4246	406	300	All prehistoric are D, 9 historic sites were A, C plus D

Historic properties eligible under Criterion D are eligible because they have yielded or are likely to yield data important in history or prehistory, meaning the site’s significant qualities are the data the site holds or has held. For these sites, the property’s setting has not been identified as contributing to their historic significance by archaeologists.

Historic properties eligible under Criterion C are significant because they, “...embody the distinctive characteristics of a type, period, of a method of construction, or represent the work of a master or possess high artistic values...” In this lease sale, these sites are primarily rock art sites. Historic period sites eligible under Criterion A are significant because they are “associated with events that have made a significant contribution to the broad patterns of our history.” Within this lease sale, sites eligible under Criteria A and C are potentially sensitive to indirect effects, including visual effects impacting their settings.

For purposes of this analysis, if 9.6 acres (Monticello FO parcels), 15 acres (Moab FO parcels) or 8.2 acres (Moab MLP parcels) of disturbance can be accommodated within a lease parcel without adverse effects, then BLM determines that that parcel can be leased without adverse effect to historic properties.

Consultation and Public Participation - “Seek information from others who may have knowledge of historic properties in the area. This includes the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO) and, as appropriate, Indian tribes or Native Hawaiian organizations who may have concerns about historic properties of religious and cultural significance to them within the APE.”

The following is an overview of BLM’s consultation for this undertaking. A full record of consultation will be available in Appendices H and J.

Between July 7 and July 27, 2017: BLM received requests from Friends of Cedar Mesa (FCM), the National Trust for Historic Preservation (NTHP), the Southern Utah Wilderness Alliance (SUWA), and the Hopi Tribe to be consulting parties for this undertaking. These requests were encouraged by lease sale National Environmental Policy Act (NEPA) public scoping notice posted on ePlanning (eplanning.blm.gov) on June 28. The notice encouraged public involvement in both the NEPA process as well as in the 106 process, including information of how to get involved in both processes. In their correspondence dated July 7 and July 26, 2017, Friends of Cedar Mesa expressed concerns particularly with impacts to sites in Montezuma Canyon, Alkali Ridge and Canyon, Mustang Mesa, Recapture Canyon, and Jenny’s Canyon. NTHP primarily expressed specific concerns regarding cultural resources within the Montezuma Creek and Alkali Ridge areas. SUWA primarily expressed specific concerns regarding cultural resources that included the Alkali Ridge ACEC, the Old Spanish Trail, the San Juan River ACEC, and the Squaw and Papoose Canyons WSA. In addition, BLM received scoping comments from the Hopi expressed concerns specifically with the Monticello Field Office parcels, particularly those encompassing portions of Recapture Canyon.

August 10, 2017: BLM sent out invitations to 13 Indian tribes, including the Ute Mountain Ute, White Mesa Ute, Uintah and Ouray Ute, Pueblo of Zia, Pueblo of Zuni, Pueblo of Santa Clara, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Acoma, the Hopi Tribe, Navajo Nation, Paiute Tribe, and the Southern Ute Tribe. As a part of invitation, BLM made an initial request for information for this undertaking, cultural resources, and potential effects to historic properties as a result of this lease sale. BLM also confirmed Friends of Cedar Mesa's, SUWA's, and the NTHP's requests for consulting party status.

August 11, 2017: BLM sent out invitations to eight potential consulting parties, these parties included Grand County, Grand County Historical Society, Old Spanish Trail Association (OSTA), San Juan County, SUWA, the Utah Professional Archaeological Council (UPAC), Utah Rock Art Research Association (URARA), and Utah Statewide Archaeological Society (USAS). BLM also confirmed Friends of Cedar Mesa's, SUWA's, and the NTHP's requests for consulting party status. As a part of invitation/confirmation letters, BLM made an initial request to all tribes and parties for information for this undertaking, cultural resources, and potential effects to historic properties as a result of this lease sale.

Between August 21 and October 10, 2017: BLM received letters confirming the Hopi Tribe's, San Juan County's, OSTA's, UPAC's and URARA's participation as consulting parties for this undertaking.

September 25, 2017: BLM promulgated this draft cultural resources report for consulting parties' review and comments. The report was sent to all tribes listed above, all confirmed consulting parties, and the Utah SHPO.

October 13, 2017: BLM hosts consulting parties meeting for all confirmed consulting parties at the Monticello Field Office. Hosted at the Monticello Office, the meeting ran from 9-4:30. The meeting was attended by representatives of FCM, NTHP, San Juan County, SUWA, UPAC, URARA, and the Utah SHPO as well as BLM cultural and oil and gas leasing specialists and the Monticello Field Manager, Moab Field Manager, and Canyon Country District Manager. The first three hours of the meeting were devoted to an overview of BLM's lease sale process and lease sale Section 106 process and identification efforts. Following a lunch break, the remainder of the day was an opportunity for consulting parties to express concerns regarding each parcel.

October 25, 2017: 30 day comment period for consulting parties draft cultural resources report closed. BLM received comments from FCM, the Hopi Tribe, NTHP, San Juan County, SUWA, UPAC, and URARA. In addition to comments, FCM and URARA provided BLM cultural resources GIS data.

November 27, 2017: The BLM received notice from the Navajo Nation that they wished to be involved as a consulting party, BLM promptly confirmed their request. The Navajo Nation Heritage and Historic Preservation Department will provide BLM comments on the report.

December 13, 2017: BLM invited the ACHP to be a consulting party for this undertaking. ACHP confirmed its involvement on January 4, 2018.

January 9, 2018: BLM sends final cultural resources report to SHPO for concurrence as well as to consulting parties; the report was sent to all tribes listed above and all confirmed consulting parties. This begins SHPO's 30-day review period; consulting parties' 30-day period to formally disagree with BLM's determination of No Adverse Effect begins upon receipt of the report.

January 24, 2018: BLM will host a phone meeting with all consulting parties. This call will be purely informational, intended as an update to consulting parties regarding BLM's responses to their comments on the first draft of this report.

Additional opportunities for public involvement also occurred during the public outreach and comment period for the lease sale National Environmental Policy Act (NEPA) Environmental Assessment (EA). The public scoping notice on ePlanning (eplanning.blm.gov) encouraged public involvement in both the NEPA process as well as in the 106 process, including information of how to get involved in both processes. The *March 2018 Competitive Oil and Gas Lease Sale EA* (DOI-BLM-UT-Y010-2017-0240-EA) was available for public comment through ePlanning from September 22 to October 23, 2017. Substantive EA comments not otherwise encompassed by consulting party comments were incorporated here, as appropriate.

The fourteen parcels encompassed within the Moab MLP are not included in the above EA. Instead, BLM documented a Determination of NEPA Adequacy (DNA) for these parcels, referencing analyses, public participation, and decisions completed in December 2016 for the Moab MLP. The *March 2018 Competitive Oil and Gas Lease Sale EA* (DOI-BLM-UT-Y010-2017-0285-DNA) was available for public comment through ePlanning from September 22 to October 23, 2017. Substantive DNA comments not otherwise encompassed by consulting party comments were incorporated here, as appropriate.

Additional Data/Analysis Requested by Consulting Parties and BLM Response

Friends of Cedar Mesa, the NTHP, San Juan County, SUWA, and URARA: These parties requested that the Monticello Field Office cultural resources potential model be included as part of the analysis. The model was not included in the initial draft of this analysis as the model was in draft form while BLM prepared its analysis for this report. Given that the model had been through substantial and fundamental changes in the first nine months of this year, largely in response to consulting parties input, the draft form of the model would not have captured the final product as understood by BLM and its consulting parties. Further, it would have been outside the scope of the contract to ask the contractor to provide the model (the GIS data) before the end of the contract. Because of this, BLM made the choice to not use the draft model in the first draft of this report. BLM received the final Class I document and model on September 19, 2017 and has incorporated the final planning Monticello model into its analyses.

Friends of Cedar Mesa, SUWA, and URARA: These parties requested that BLM use the site type models, rather than the composite planning models in this analysis. As discussed in the Class I Inventories and Cultural Resource Planning Models section above, the composite maps are GIS-derived compilations of all of the site type models intended to provide a landscape level representation of cultural resources probability and sensitivity across a field Office. BLM manages for all site types and there are multiple historic and prehistoric site types present across the APE. The composite models are used here as they offer the best overall site probability within the parcels.

Friends of Cedar Mesa: FCM requested that BLM incorporate site data from New Mexico State University researcher Dr. Fumiyasu Arakawa into its analysis of the Montezuma Canyon area and provided BLM with *A Summary of the Archaeological Resources of Montezuma Canyon, San Juan County, Utah* produced by Dr. Ray Matheny and Dr. Arakawa in 2013. BLM requested the GIS data related to this project, Dr. Arakawa was only able to provide updated GIS for several sites within the Alkali Ridge National Historic Monument. He reached out to his colleagues regarding the Montezuma Canyon data but did not provide it.

BLM was able to incorporate the Matheny and Arakawa's Montezuma site data in an abbreviated fashion, using maps available in the aforementioned report. The Matheny and Arakawa report encompasses an area that includes portions of parcels 037, 039, 040, 041, 043, and 044. Their data demonstrates that there is a moderate to high density of sites within Montezuma Canyon, they report a total of 237 BMII through PIII sites along an approximately 20 mile stretch of Montezuma Canyon. The Matheny and Arakawa data do not substantially change the BLM's understanding of the types, density, or distribution of cultural resources within Montezuma Canyon. BLM's extant data demonstrate a similar pattern of cultural resources and is accounted for in the

appropriate parcel analyses below.

FCM also requested that BLM consider site count data for the San Juan County parcels from Dr. James Krehbiel and Ms. Natalie Cunningham, archaeoastronomy researchers working in the area. Krehbiel and Cunningham have taken it upon themselves to “clean up” San Juan County cultural resources data, using both BLM and SHPO’s CURES/Preservation Pro data and data from the Edge of the Cedars Museum (a federal repository in San Juan County). FCM expressed concern that site counts within parcels vary between BLM’s CURES data and Krehbiel and Cunningham’s cleaned up data. In some cases their site count is higher than BLM’s, in other cases BLM’s site count is higher. While site counts vary, Krehbiel and Cunningham’s data do not substantially change BLM’s understanding of cultural resources within the APE, including cases where their site count is higher. Further, Krehbiel and Cunningham’s data has not been reviewed by BLM archaeologists nor by SHPO, and this project has not been completed with direction from either agency, to whom this data belongs.

National Trust for Historic Preservation: NTHP expressed concerned with the lack of analysis for the Alkali Ridge National Historic Landmark (NHL) in the prior draft of this report. While the NHL is outside the APE for this undertaking, BLM has included a better description of its efforts to protect the NHL, which meet statutory requirements, in the Description of Findings: Parcel Specific Analyses section below.

Utah Professional Archaeological Council: UPAC requested that BLM’s analysis include the following documents: Ethnographic Overview and Assessment for Arches National Park, Ethnographic Overview and Assessment for Canyonlands National Park, Ethnographic Overview and Assessment for Hovenweep National Monument, and a master’s thesis entitled “An Experimental Archaeological Study of the Effects of Off-Road Vehicles on Lithic Scatters.” As mentioned above, the Arches National Park and Canyonlands National Park ethnographies were considered in this analysis. The Hovenweep study is as of yet incomplete and was not included here. A similar effort is underway in Canyons of the Ancients National Monument, which is also as of yet incomplete and not included here. As this undertaking does not authorize existing or new areas of off-road vehicle use, the master’s thesis was not considered as part of this analysis. If parcels are sold, and if they are developed, and if there are artifact scatters in access roads, this will be an appropriate resource to consider.

There are considerably more concerns brought forward by consulting parties than is captured by this section. All substantive written comments and BLM’s responses are included in Appendix H.

Additional Data Brought Forward by Consulting Parties and BLM Response

Friends of Cedar Mesa: Friends of Cedar Mesa (FCM) provided BLM, as part of their comments on the draft of this report, three shapefiles containing a number of GIS points representing several classes of site they wished to be considered as part of the analysis in the Monticello Field Office area. The three shapefiles were labeled as: 1. Community Sites; 2. More Sites; 3. Small Sites and Rock Art. FCM also provided shapefiles of viewshed analyses from eight sites presented as potential Criteria A, B or C sites. FCM expressed concern regarding visual impacts to these sites’ settings. FCM did not provide parameters for how their viewshed studies were conducted.

BLM reviewed FCM’s data and considered effects to setting for each site and produced viewsheds for those of concern. Potential visual effects sites eligible under Criterion D are not here considered potential adverse effects as a result of this undertaking because their significance lies in their data potential; changes to the integrity of setting or feeling of the historic property, and other similar indirect effects, do not “alter... any of the characteristics of a historic property that qualify the property for inclusion in the National Register” (36CFR800.5(a)(1)).

Potential adverse effects as a result of degraded setting were considered for FCM’s ‘Community Sites’ sites, as the points were taken to be likely to represent previously recorded historic properties potentially eligible under

Criteria A, B or C. The other shapefiles represented disparate site types such that correlation of the points to previously recorded historic properties was viewed as problematic; the description provided indicated that many of them were likely to be Criterion D sites. Viewsheds were produced for 'Community Sites' eligible under A, B, or C, as well as sites that were either unrecorded or unevaluated (and thus potentially eligible under A, B, or C); viewsheds were produced for a total of [REDACTED] sites.

The methodology employed in analyzing the 'Community Sites' data was first to attempt to correlate the points provided with previously recorded historic properties using the CURES database. Points provided which did not readily appear to correspond to previously recorded historic properties were analyzed as if they were eligible for nomination to the NRHP under Criteria A, B or C. Site documentation for previously recorded historic properties corresponding with provided points was reviewed, when available, for eligibility criteria. Most of the documentation was of 1980s vintage and on most, significance was noted but eligibility criteria was not. In these cases, the historic properties were analyzed as if they were eligible under Criteria A, B or C. In several cases more recent documentation was available and eligibility criteria were recommended. In such cases, if a historic property was recommended eligible under Criteria A, B or C, they were analyzed for setting by conducting a viewshed analysis. [REDACTED] of the Community Sites points were determined to correspond to previously recorded historic properties that were recommended eligible under Criterion D and no other; these [REDACTED] were not further analyzed.

Viewsheds within the parcels from each of the [REDACTED] historic properties were generated using, ArcGIS 10, from the point of view of a six-foot tall observer standing on each 'Community Site' point. The viewshed were generated using a digital elevation model (DEM) as the surface over which the viewer would be looking; a DEM is a digital representation of a terrain's surface created from elevation data. DEMs do not account for vegetation or other visual obstructions (e.g., buildings, transmission lines, etc.), they are smooth surfaces.

The viewshed acreages were calculated within the parcel containing each point, or in the case of points outside the parcels, were calculated in the nearest parcel to the point. Next, the acreages of the historic property viewsheds were expressed as a percentage of the total acreage of the corresponding parcel. Of this percentage, a determination was made of how much of the viewshed was further than ½ mile away from the historic property. As such, the viewshed of the [REDACTED] was analyzed thusly:

Analysis of the viewshed indicates that 81% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (319 acres), 87% (280 acres) is further than ½ mile away.

In parcels containing multiple 'Community Site' points, the ½ mile viewshed was merged and expressed as a combined percentage, in addition to the individual analysis of each point provided. Thus, the viewsheds of [REDACTED] and [REDACTED] are analyzed as such:

...Additionally, the combined ½ mile viewshed of the [REDACTED] sites in Parcel 38 potentially eligible for nomination to the NRHP under Criteria A, B or C (36CFR60.4), totals 102 acres, approximately 4% of the parcel.

The ½ mile viewshed was used because it is the APE used in this report when considering nearby cultural resources. Given the vegetation, topography, and the modern human landscape, the ½ mile viewshed was determined to be sufficient to mask future oil and gas development. The results of the analyses are included as part of the individual parcel analysis for parcels 29, 32, 36, 37, 38, 39 and 50; and included as maps in Appendix D.

While BLM did not conduct viewshed analyses for all points provided, the individual parcel analyses demonstrate that while there are potentially sensitive sites identified in the area, the sensitive parts of their viewsheds are

limited and these effects can be avoided through judicious well pad placement on these large, topographically complex parcels.

Utah Rock Art Research Association: The Utah Rock Art Research Association (URARA) submitted 250 GPS points of rock art sites within Montezuma Canyon (Monticello Field Office); though no parameters for what the points might represent (sites, features, panels or individual designs) were given. Analysis of the GIS data indicates that 182 of the points are within the APE; 71 of which fall within the boundary of a proposed lease parcel. Many of URARA’s site points are within or proximate to the boundaries of previously recorded sites and had already been taken into account.

Viewsheds were not conducted for the URARA rock art points within the canyon. However, BLM considered each rock art location within the parcels and determined that many of the points correlate with previously recorded sites known to BLM, of which historic properties are already conserved as a part of this analysis. BLM further determined that the points are located, by and large, within the confines of Montezuma Canyon, and most are plotted on or just above the canyon floor. The mesa tops east and west of the canyon comprise the bulk of the parcels in the area and are not visible from the canyon bottoms. As with the above discussion, the sensitive parts of their viewsheds are limited and these effects can be avoided through judicious well pad placement on these large, topographically complex parcels.

While appreciated, the above consulting party requested and provided data do not substantially change the BLM’s overall understanding of the types, density, or distribution of cultural resources within the APE. While some data indicate that site density may be higher in some discrete areas, than indicated by BLM’s data, these areas of potentially higher densities are within large parcels with observed areas of lesser densities.

Description of Findings: Parcel Specific Analyses - Review existing information on known and potential historic properties within the APE, so the agency will have current data on what can be expected, or may be encountered, within the APE (ACHP: Meeting the “Reasonable and Good Faith” Identification Standard in Section 106 Review)

All parcels are analyzed individually for whether reasonably foreseeable development could occur within the parcel with no adverse effects to historic properties; for purposes of this analysis, if 9.6 acres (Monticello FO) or 15 acres (Moab FO) or 8.2 acres (Moab MLP) of development or ground disturbance associated with “one well pad”. Maps for all parcels are in Appendix A, including project overview maps depicting parcels, previous surveys, and lands stipulated as NSO, as well as maps depicting previously conducted inventories and recorded sites.

The March 2018 parcels are located in Grand and San Juan Counties. There are [REDACTED] documented sites located within the parcels (Appendix E), [REDACTED] of which are eligible. Within these parcels, 473 cultural resource surveys have been completed. Previous cultural resource inventory intensity varies widely across the parcels, ranging from 2% to 55%. For the purposes of this analysis, previous survey coverage is classified as follows:

Table 3 Classification of Survey Coverage in the Parcels

Survey Coverage	Coverage Classification
< 10%	Low
11 – 25%	Moderate
> 25%	High

Known and expected site types run the gamut of the human activity. The southeast Utah at large has been continuously occupied since the Early Paleoindian period; specifically since the Clovis occupation (13,000 BP). In that depth of time, human beings have lived out the full range of behavior on this landscape: fully nomadic and

semi-nomadic hunting and gathering, foraging, semi-sedentary to sedentary agriculture, pastoralism and light industry; and all the attendant behavior of each of these major lifeways.

The high bias toward preservation of human material cultural remains inherent in the environment of the central-eastern Colorado Plateau and the parcels amplifies this. With only 13 inches average annual precipitation, low humidity and the resultant slow deposition and erosion and low flora density, southeast Utah is an ideal environment for the preservation and observation of the remains of human material culture.

Human beings have been hunting, gathering, gardening, farming, worshiping, trading, migrating, waring, making art, ranching, mining, living and dying on this landscape for almost the entirety of the human occupation of North America; and the physical remains of their presence are noticeably present on this landscape. Site types represent the gamut of human activity: standing architecture of habitations and industrial resource extraction, shrines, agricultural utility and food storage structures; rock art and rock modification; shelters of mobile hunters and gatherers. These component types represent the breadth of human activity over the depth of the prehistoric and historic human occupation of the parcels.

Several consulting parties had concerns regarding the Alkali Ridge National Historic Landmark (NHL). The NHL is not within the APE for this undertaking, it is three quarters of a mile from Parcels 28 and 38 and approximately 2 miles from Parcels 30 and 33. However, given consulting party concerns, BLM is including it here, as well as in the appropriate parcel analyses below. Per 36CFR800.10 (a), BLM is required “to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to any National Historic Landmark that may be directly and adversely affected by an undertaking.” To this end, the Monticello Field Office Resource Management Plan (2008) designated the NHL area as No Surface Occupancy, thus protecting the landmark from direct surface disturbance. In addition, BLM identified the Alkali Ridge Area of Critical Environmental Concern (ACEC) encompassing the greater landscape around the NHL. The ACEC is approximately 15 miles by 6 miles in size. The ACEC is designated Controlled Surface Use, giving the BLM the authority to require future oil and gas development plans be modified to avoid direct and indirect effects to historic properties. These land use stipulations protect the Alkali Ridge NHL, and the sites encompassed therein, as required by the regulations. The Controlled Surface Use stipulation is discussed at greater length below, at the Monticello Field Office parcels.

Cultural Resource Protection Stipulation

Per BLM Handbook H-3120-1 – Competitive Leases, all parcels included in this lease sale will have the protection offered by the BLM Cultural Resource Protection Stipulation. Lease stipulations are legal requirements that go above and beyond standard lease requirements. Meeting lease stipulation requirements is a critical component of having any future proposed development approved by the BLM. The stipulation reads as follows:

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

This stipulation gives BLM legal authority to require modification to or disapprove any future activities related to development of these lease parcels if conflicts with cultural resources cannot be resolved. In other words, BLM retains control over future development and has the discretion and authority to prevent adverse effects. There

are no exceptions, modifications, or waivers for this stipulation.

Additional applicable lease stipulations to protect cultural resources and historic properties are discussed by area and by parcel below.

Moab Field Office Parcels

The following eight parcels are analyzed using the Moab FO RFD of 15 acres of expected disturbance for the development of a single well pad.

For these eight parcels, resources identified as of concern to Hopi, Navajo, Southern Ute, Ute, and Zuni participants in the Arches and Canyonlands ethnographic overviews are protected by lease stipulations. Archaeological ruins and Barrier Canyon style paintings are protected in the event of future development by the Cultural Resource Protection Stipulation. Water resources, and the plants therein, are protected by two stipulations: UT-S-112: NSO - River Corridors, Including Suitable Wild and Scenic River Segments and UT-S-122: NSO - Floodplains, Riparian Areas, Springs and Public Water Resources. The stipulations prohibit surface occupancy within the Three Rivers and Westwater mineral withdrawals (which includes the Green River bordering Parcels 001 and 003), within 100 year floodplains, within 100 meters of riparian areas, public water reserves, and springs. These stipulations are attached to all parcels which contain these water resources (Appendix G).

Parcel 001 is 884.05 acres and located approximately four miles southeast of the town of Green River, Utah and two miles south of the I-70 corridor in Grand County. The parcels Western boundary is along the Green River. Portions of the parcel as well as the surrounding BLM and SITLA administered lands are or have been previously leased and four wells have been developed, plugged, and abandoned within the parcel without adverse effects.

Nine previous surveys overlap with the parcel for a total of 190 acres (Appendix A), approximately 21.5% of the parcel area (Table #3). ■ sites have been identified within the parcel and ■ additional sites are within a half mile buffer (Appendix E). Survey coverage in the parcel is moderate and overall, sites within the parcel and in the surrounding landscape indicate a low site density with sites possibly being likely along the river. Similarly, the Moab Planning Model predicts primarily low site probability within the parcel with areas of medium potential in small discrete areas spread across the rest of the parcel.

Table 4 Cultural Resource Projects in Parcel 001

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
884.05	U84AS0116 U03BL0483 U06MQ0288 U07MQ0015 U08GB0061 U08LW0768 U10BL0537 U10NY0797 U13ZM0130	190	21.5	5	2	15

Five sites have been identified within the lease parcel, three not eligible. The two historic properties in the parcel are part of the Pershing Missile Launch Area of the White Sands Missile Complex; the sites are multicomponent and also encompass prehistoric lithic scatters. While the historic sites are potentially sensitive to indirect effects, it is unlikely that oil and gas development would be considered such an effect to an element of a military

installation. If it is the case, the parcel is sufficiently large and topographically complex that such effects could be avoided through judicious placement of the well pad.

Table 5 Historic Properties in Parcel 001

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

Given observed low site density, predicted low and medium site probability through the parcel (Appendix C), the size of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 001 without adverse effects to historic properties.

Parcel 002 is 669.04 acres and located approximately 4 miles southeast of the town of Green River and 2.5 miles South of Interstate Highway 70. The surrounding BLM and SITLA administered lands are or have been previously leased and no wells have been developed within the parcel, though survey was completed for several well pads and associated access.

Six previous surveys overlap with the parcel for a total of 96.5 acres (Appendix A), approximately 14.4% of the parcel area. [REDACTED] sites were identified within the parcel (Appendix E). Survey coverage in the parcel is moderate and suggests low site density. A several large surveys to the east and south of the parcel also show low site density with some areas of moderate site density across this landscape. Similarly, the Moab Planning Model predicts low and medium site probability throughout the parcel.

Table 6 Cultural Resource Projects in Parcel 002

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
669.04 acres	U94AS0443 U01MQ0249 U08LW0078 U08FE0069 U08UY0882 U99GB0187	96.5	14.4%	4	2	4

[REDACTED] have been identified within the lease parcel, [REDACTED] are eligible and [REDACTED] are unevaluated. There are no sites identified in the area that are sensitive to indirect effects.

Table 7 Historic Properties in Parcel 002

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size of the parcel, the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 002 without adverse effects to historic properties.

Parcel 003 is 1520 acres and located approximately 5 miles south of the town of Green River and 5 miles South of Interstate Highway 70. The parcel shares its southern and south eastern boundary with parcel 004. Portions

of the parcel as well as the surrounding BLM and SITLA administered lands are or have been previously leased; portions of the parcel itself have been previously leased and one well has been developed, plugged, and abandoned within the parcel without adverse effects to historic properties.

Two previous surveys overlap with the parcel for a total of 40 acres (Appendix A), approximately 2.6% of the Parcel area. [REDACTED] sites have been identified within the parcel and [REDACTED] site has been identified within the 0.5 mile buffer (Appendix E). While parcel survey coverage is low, projects and sites identified in the surrounding landscape indicate a low site density. In particular, several large surveys to the east of the parcel show low site density with some areas of moderate site density across this landscape. Similarly, the Moab Planning Model predicts primarily low site probability within the parcel with areas of medium potential in the northwest towards the river and in small discrete areas spread across the rest of the parcel.

Table 8 Cultural Resource Projects in Parcel 003

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1520	U08LW0078 U08LW1322	40	2.6%	5	2	1

[REDACTED] sites have been identified within the lease parcel, [REDACTED] are eligible and the remaining [REDACTED] are either unevaluated or not eligible. There are no sites identified in the area that are sensitive to indirect effects.

Table 9 Historic Properties in Parcel 003

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 003 without adverse effects to historic properties.

Parcel 004 is 1920 acres and located approximately 6 miles south of the town of Green River and 6 miles South of Interstate Highway 70. The parcel shares its northwestern boundary with parcel 003. Portions of the parcel as well as the surrounding BLM administered lands are or have been previously leased and three wells have been developed, plugged and abandoned within the parcel without adverse effects to historic properties.

Eleven previous surveys overlap with the parcel for a total of 136.8 acres (Appendix A), approximately 7.12% of the parcel area. [REDACTED] sites have been identified within the parcel, and [REDACTED] sites have been identified within the half mile buffer (Appendix E). While parcel survey coverage is low, previous projects and sites identified in the surrounding landscape indicate a low site density. In particular, several large surveys to the east of the parcel show low site density with some areas of moderate site density across this landscape. Similarly, the Moab Planning Model predicts primarily low site probability within the parcel with areas of medium potential in the south and in small discrete areas spread across the rest of the parcel.

Table 10 Cultural Resource Projects in Parcel 004

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
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1920	U81GA0418 U83NJ0232 U84AS0116 U84AF0296 U07LW1321 U07LW1322 U80GA0292 U08LW0078 U08LW0106 U09BL0588 U10NY0797	136.8	7.1	10	2	2
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█ sites have been identified within the lease parcel, █ of which are not eligible lithic scatters. The █ eligible sites are █ sites. There are no sites identified in the area that are sensitive to indirect effects.

Table 11 Historic Properties in Parcel 004

Smithsonian Trinomial	Description
█	█

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 004 without adverse effects to historic properties.

Parcel 005 is 337.68 acres and located approximately 4 miles southeast of the town of Green River and 1.6 miles South of Interstate Highway 70. There is no previous oil and gas development within the parcel; surrounding BLM and SITLA administered lands are or have been previously leased and development has occurred within one SITLA parcel.

Four previous surveys overlap with the parcel for a total of 14.4 acres (Appendix A), approximately 4.26% of the parcel area. █ sites have been identified within the parcel (Appendix E). While parcel survey coverage is overall low, projects and sites identified in the surrounding landscape indicate a low site density. In particular, several very large surveys to the southeast of the parcel shows low site density with some areas of moderate site density across this landscape. The Moab Planning Model predicts primarily medium potential with interspersed areas of low potential within the parcel.

Table 12 Cultural Resource Projects in Parcel 005

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
337.68	U06MQ1843 U08LW0078 U08LW0107 U10NY0797	14.4	4.3	4	1	15

█ sites have been identified within the lease parcel, █ of which are not NRHP eligible █. The eligible site is █ that is part of the █. While sites potentially sensitive to indirect and/or cumulative effects are present, it is uncertain that oil and gas development would be considered such an effect to an element of a █. If it is the case, the

parcel is sufficiently large and topographically complex that such effects could be avoided through judicious placement of the well pad.

Table 13 Historic Properties in Parcel 005

Smithsonian Trinomial	Description

Given the observed low site density, predicted medium and low site probability throughout the parcel (Appendix C), the size and topographic complexity of the parcel, the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 005 without adverse effects to historic properties.

Parcel 006A is 1874.04 acres and located approximately 7 miles southeast of the town of Green River and 5 miles south of Interstate Highway 70. The surrounding BLM and SITLA administered lands are or have been previously leased and one well has been developed, plugged, and abandoned within the parcel.

Four previous surveys overlap with the parcel for a total of 450 acres (Appendix A), approximately 24% of the parcel area. ■■■ site has been previously recorded within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offer a good overall sampling of most of the parcel area. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. Similarly, the Moab Planning Model predicts primarily low site probability within the parcel with scattered, discrete areas of medium probability scattered across the parcel.

Table 14 Cultural Resource Projects in Parcel 006A

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1874.04	U07LW1124 U08LW0069 U08FE0078 U14RL1172	450	24	5	0	9

■■■ sites have been identified within the lease parcel, ■■■ of which are eligible. ■■■ sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Table 15 Historic Properties in Parcel 006A

Smithsonian Trinomial	Description

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), and size of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 006A without adverse effects to historic properties.

Parcel 007 is 1,920 acres and located approximately 8.4 miles southeast of the town of Green River and 3.5 miles south of Interstate Highway 70. The parcel shares its southern boundary with parcel 008. Portions of the parcel

as well as the surrounding BLM administered lands are or have been previously leased and one well has been developed, plugged, and abandoned within the parcel without adverse effects to historic properties.

Five previous surveys overlap with the parcel for a total of 350 acres (Appendix A), approximately 18.2% of the parcel area. [REDACTED] sites have been previously recorded within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offer a good overall sampling across the parcel. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. Similarly, the Moab Planning Model predicts primarily low site probability within the parcel with moderate sized clusters of medium potential in the east and west ends of the parcel.

Table 16 Cultural Resource Projects in Parcel 007

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1920	U07LW1121 U08LW0078 U08UY0882 U10MQ1069 U14RL1172	350	18.2	11	0	12

[REDACTED] sites have been identified within the lease parcel (Table 14), [REDACTED] of the sites are eligible. [REDACTED] sites have been identified within the 0.5 mile buffer.

In addition, the Old Spanish Trail National Historic Trail crosses the northeast corner of the parcel (Appendix F). However, based on the ARRA data and the CURES data, there are no archaeological elements of the trail identified within the APE. The ARRA data does identify a potential portion of trail to the southeast of the APE, and while sites potentially sensitive to indirect and/or cumulative effects are present, they can be avoided through judicious placement of a well within this large, reasonably topographically complex parcel. There are no other sites identified in the area that are sensitive to indirect effects.

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size and topographic complexity of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 007 without adverse effects to historic properties.

Parcel 008 is 1,400 acres and located approximately 9.6 miles southeast of the town of Green River and 4.8 miles South of Interstate Highway 70. The parcel shares its northern boundary with parcel 007 and the southern boundary with parcel 009. Portions of the parcel as well as the surrounding BLM and SITLA administered lands are or have been previously leased and one well has been developed, plugged, and abandoned within the parcel without adverse effects to historic properties.

Four previous surveys overlap with the parcel for a total of 338 acres (Appendix A), approximately 24% of the parcel area. There are [REDACTED] sites identified within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offer a good overall sampling of most of the parcel area. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. Similarly, the Moab Planning Model predicts primarily

low site probability within the parcel with scattered, discrete areas of medium probability spread across the parcel.

Table 17 Cultural Resource Projects in Parcel 008

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1400	U07LW1121 U08LW0078 U08UY0882 U10MQ1069 U14RL1172	338	24	18	6	14

█ sites have been identified within the lease parcel (Table 16), █ of which are not eligible for NRHP consideration. The █ eligible sites are █. █ sites have been identified within the 0.5 mile buffer, including a segment of the Old Spanish National Historic Trail.

While the Old Spanish Trail National Historic Trail crosses the northeast corner of the APE (Appendix F), there are no archaeological elements of the trail identified in the ARRA or CURES data. The ARRA data does identify a potential portion of trail to the east/southeast of the APE, and while sites potentially sensitive to indirect and/or cumulative effects are present, they can be avoided through judicious placement of a well within this large, reasonably topographically complex parcel. There are no other sites identified in the area that are sensitive to indirect effects.

Table 18 Historic Properties in Parcel 008

Smithsonian Trinomial	Description
█	█

Given the observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size and topographic complexity of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 008 without adverse effects to historic properties.

Moab Master Leasing Plan Area Parcels

The following 14 parcels are analyzed using the Moab MLP RFD of 8.2 acres of expected disturbance for the development of a single well pad.

In addition to the Cultural Resources Stipulation, the Controlled Surface Use - Old Spanish Trail (High Potential Sites and Segments) (UT-S-395) stipulation applies to parcels 009, 021, 023, 024, and 025. The stipulation reads as follows:

A visual assessment of lands within 2-miles of three high potential sites along the OSNHT (Kane Springs, Looking Glass Rock, and Colorado River Crossing near Moab) is required. A proposed mineral operation must not attract the attention of the casual observer from the OSNHT.

A visual assessment of lands within 2-miles of two high potential segments along the OSNHT (Moab Trail and Mule Shoe) is required. A proposed mineral operation would not result in long-term impairment of the OSNHT viewed from the perspective of the casual observer from the OSNHT. A visual assessment of lands within 2-miles of the south side of the Blue Hills high potential segment along the OSNHT is required. A proposed mineral operation would not result in long-term impairment of the OSNHT viewed from the perspective of the casual observer from the OSNHT. The existing Class B roads that cross the stipulated area could be utilized as a corridor for the transportation of potash (either by pipeline or truck) from a PLA to a PPFA and are not subject to this stipulation.

In the case of this lease sale, this stipulation protects the trail and Looking Glass Rock from potential indirect effects associated with reasonably foreseeable development within the appropriate lease parcels.

For these 14 parcels, resources identified as of concern to the Hopi, the Navajo, the Southern Ute, the Ute, and the Zuni in the Arches and Canyonlands ethnographic overviews are protected by lease stipulations. Archaeological ruins and Barrier Canyon style paintings are protected in the event of future development by the Cultural Resource Protection Stipulation. Water resources, and the plants therein, are protected by two stipulations: UT-S-386 – NSO – Water Resources and UT-S-387 – NSO – Ephemeral Streams. The stipulations prohibit surface occupancy within public water reserves; 100-year floodplains; within 500 feet of intermittent and perennial streams, rivers, riparian areas, wetlands, water wells, and springs; and within 100 feet of ephemeral streams. These stipulations are attached to all parcels which contain these water resources (Appendix G).

Parcel 006B is 624.24 acres and located approximately 8 miles southeast of the town of Green River and 6 miles South of Interstate Highway 70. The surrounding BLM and SITLA administered lands are or have been previously leased and development has occurred within two adjacent SITLA parcels; there is no previous well development within the parcel.

Five previous surveys overlap with the parcel for a total of 233 acres (Appendix A), approximately 37% of the parcel area. ■■■ sites are previously recorded within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offer a good overall sampling of most of the parcel area. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. The Moab Planning Model predicts a mix of low and medium site probability within the parcel with areas of medium potential more prevalent to the east and low potential more prevalent to the west.

Table 19 Cultural Resource Projects in Parcel 006B

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
624.24	U07LW0112 U08FE0069 U08LW0078 U08GB0899 U14RL1172	233	37	3	2	5

■■■ sites have been identified within the lease parcel, ■■■ of which are eligible. The eligible sites are prehistoric lithic scatters. ■■■ sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Table 20 Historic Properties in Parcel 006B

Smithsonian Trinomial	Description

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size of the parcel, the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 006B without adverse effects to historic properties.

Parcel 009 is 1,920 acres and located approximately 10 miles southeast of the town of Green River and 5.25 miles South of Interstate Highway 70. The parcel shares its northern boundary with parcel 008. Portions of the parcel as well as the surrounding BLM administered lands are or have been previously leased and three wells have been developed, plugged, and abandoned within the parcel without adverse effects to historic properties.

Fourteen previous surveys overlap with the parcel for a total of 692 acres (Appendix A), approximately 36 % of the parcel area. There are [redacted] previously recorded sites within the parcel (Appendix E). Survey coverage in the parcel is high and the systematic distribution of the linear survey areas offers a good overall sampling of the parcel. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. Similarly, the Moab Planning Model predicts primarily low site probability within the parcel with scattered, discrete areas or medium probability spread across the parcel.

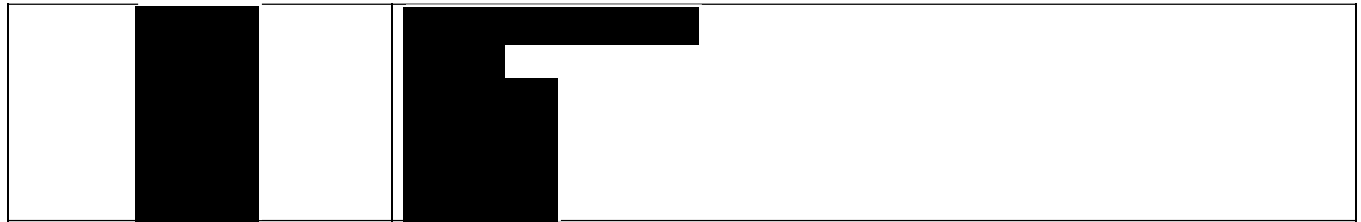
Table 21 Cultural Resource Projects in Parcel 009

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1920	U84AS0116 U84AF0295 U84AS0443 U91BL0820 U01MQ0249 U06MQ0288 U06MQ1843 U07LW0160 U07LW1123 U08LW0078 U10NY0797 U13SQ0564 U14RL1172 U16RL0394	692	36	16	7	16

[redacted] sites have been identified within the lease parcel, [redacted] of which are not eligible for NRHP consideration. Of the [redacted] eligible sites, one is [redacted] and [redacted] are [redacted]. While the [redacted] site is potentially sensitive to indirect effects, these effects can be avoided through judicious placement of a well within this large, reasonably topographically complex parcel. Sixteen sites have been identified within the 0.5 mile buffer.

Table 22 Historic Properties in Parcel 009

Smithsonian Trinomial	Description



In addition, the Old Spanish Trail National Historic Trail crosses just outside the northeast corner of the APE (Appendix F). The ARRA data further identifies a potential portion of trail. Like the [REDACTED] site, this potential trail segment is potentially sensitive to indirect effects, however, these effects can be avoided through judicious placement of a well within this parcel. Stipulation UT-S-395 ensures that a visual assessment for this resources is required and if visual effects are of concern, the development plan will have to be modified so that the operation does not result in the long-term impairment of the Old Spanish National Historic Trail to the casual observer from the trail.

Given observed low site density, predicted low and medium site probability throughout the parcel (Appendix C), the size and topographic complexity of the parcel, previous development without adverse effects (Appendix B), the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-395; Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 009 without adverse effects to historic properties.

Parcel 010 is 480 acres and located approximately 22.5 miles northwest of the town of Moab and 14.5 miles West of Highway 191. The surrounding BLM and SITLA administered lands are or have been previously leased and no wells have been developed within the parcel and three wells have been developed immediately adjacent to the parcel without adverse effects to historic properties.

Two previous surveys overlap with the parcel for a total of 50.28 acres (Appendix A), approximately 10.5% of the parcel area. [REDACTED] site has been previously identified within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offer a good overall sampling of most of the parcel area. Similar and considerable acreage of sampling across the landscape as well as a large block immediately to the south have identified few sites in the area and indicate a low site density across this landscape. Similarly, the Moab Planning Model predicts primarily medium site probability within the parcel with discrete areas of high potential in the center and north of the parcel and low probability in the southwest.

Table 23 Cultural Resource Projects in Parcel 010

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
480	U92CH0149 U11MQ0781	50.3	10.5	1	0	2

[REDACTED] site has been identified within the lease parcel, the not eligible [REDACTED]. [REDACTED] sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Given observed low site density, predicted medium and low site probability across substantial and more than sufficient portions of the parcel (Appendix C), and the size of the parcel, BLM determines that reasonably foreseeable development can occur within Parcel 010 without adverse effects to historic properties.

Parcel 012 is 715.76 acres and located approximately 8 miles west of the town of Moab and three miles east of Highway 313. Portions of the parcel as well as the surrounding BLM administered lands are or have been

previously leased and three wells have been developed, plugged, and abandoned within the parcel without adverse effects to historic properties.

Four previous surveys overlap with the parcel for a total of 14.5 acres (Appendix A), approximately 2.0 % of the parcel area. No sites have been identified within the parcel (Appendix E). Survey coverage in the parcel is low, and is relatively low in the surrounding landscape as well. Survey coverage within the parcel and in the surrounding landscape low to medium site density. The Moab Planning Model predicts medium and high site probability across most of the parcel with scattered, discrete areas of low potential. High potential areas generally follow canyons crossing the parcel from northeast to southwest.

Table 24 Cultural Resource Projects in Parcel 012

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
715.76	U80WE0224 U81FD0339 U81FD0343 U82AF0210	14.5	2	0	0	2

No sites have been identified within the lease parcel and [REDACTED] sites has been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Given areas of observed low site density, predicted medium and low site probability across substantial and more than sufficient portions of the parcel (Appendix C), the size of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 012 without adverse effects to historic properties.

Parcel 014 is 360 acres and located approximately 9 miles southwest of the town of Moab and 7.5 miles west of Highway 191. The parcel consists of three separate portions. Portions of the parcel as well as the surrounding BLM administered lands are or have been previously leased and one well has been developed, plugged, and abandoned within the parcel without adverse effects to historic properties.

Five previous surveys overlap with the parcel for a total of 50.5 acres (Appendix A), approximately 14% of the parcel area. There are no previously recorded sites within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the survey areas offers a good overall sampling of most of the parcel area. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density across this landscape. The Moab Planning Model predicts primarily medium site probability across the parcel with areas of high potential following canyons, particularly in the south of the parcel, and scattered areas of low potential in southeast corner and the north.

Table 25 Cultural Resource Projects in Parcel 014

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
360	U79AF0116 U80AF0212 U90PA0544 U09LJ0075 U13MQ0360	50.5	14	0	0	12

No sites have been identified within lease parcel 014. [REDACTED] sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Given observed low site density, predicted medium and low site probability throughout substantial and more than sufficient portions of the parcel (Appendix C), the size of the parcel, previous development without adverse effects (Appendix B), the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 014 without adverse effects to historic properties.

Parcel 016 is 878.04 acres and located approximately 9 miles southwest of the town of Moab and 5.5 miles west of Highway 191. The parcel consists of two separate portions. The surrounding BLM and SITLA administered lands are or have been previously leased and there have been very few wells developed in the area. No wells have been developed within the parcel.

Four previous surveys overlap with the parcel for a total of 111.6 acres (Appendix A), approximately 12.7% of the parcel area. [REDACTED] sites have been previously recorded within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offers a good overall sampling of most of the parcel area. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. The Moab Planning Model predicts primarily medium site probability across the parcel with areas of high potential following canyons and isolated areas of low potential.

Table 26 Cultural Resource Projects in Parcel 016

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
878.04	U80UB0250 U83NH0224 U84AS0090 U13MQ0360	111.6	12.7	5	3	19

[REDACTED] sites have been identified within the lease parcel, [REDACTED] of which are not eligible for NRHP consideration. The [REDACTED] eligible sites are [REDACTED] that have the potential to yield additional information. [REDACTED] sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Table 27 Historic Properties in Parcel 016

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

Given observed low to moderate site density, predicted medium and low site probability throughout substantial and more than sufficient portions of the parcel (Appendix C), the size of the parcel, the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 016 without adverse effects to historic properties.

Parcel 018 is 988.72 acres and located approximately 8 miles southwest of the town of Moab and 4 miles west of Highway 191. The parcel consists of four separate portions. The surrounding BLM and SITLA administered lands

are or have been previously leased and there have been very few wells developed in the area. No wells have been developed within the parcel.

Four previous surveys overlap with the parcel for a total of 35.31 acres (Appendix A), approximately 3.57% of the parcel area. There are [REDACTED] sites previously recorded within the parcel (Appendix E). Parcel survey coverage is low. Survey in the greater landscape indicate overall low site densities to the west and higher site densities to the east. The Moab Planning Model predicts primarily medium site probability across the parcel with interspersed areas of high and low potential and with large areas of low potential to the east.

Table 28 Cultural Resource Projects in Parcel 018

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
988.72	U82UB0205 U84AS0090 U84LA0724 U09BL0296 U13MQ0360	35.3	3.6	2	1	9

[REDACTED] sites have been identified within the lease parcel (Table 26), [REDACTED] is not eligible and [REDACTED] is an eligible [REDACTED]. [REDACTED] sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Table 29 Historic Properties in Parcel 018

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

Given observed low to moderate site density, predicted low and medium site probability throughout substantial and more than sufficient portions of the parcel (Appendix C), the size of the parcel, the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 018 without adverse effects to historic properties.

Parcel 019 is 1254.44 acres and is located approximately 12 miles southwest of the town of Moab and 3.2 miles west of Highway 191. The parcel consists of two separate portions. Some adjacent BLM and SITLA administered lands are or have been previously leased and there have been very few wells developed in the area. No wells have been developed within the parcel.

Five previous surveys overlap with the parcel for a total of 60.52 acres (Appendix A), approximately 4.8% of the parcel area. [REDACTED] site has been identified within the parcel (Appendix E). Parcel survey coverage is low. Survey in the greater landscape indicate overall low site densities to the west and higher site densities to the northeast. The Moab Planning Model predicts primarily medium site probability across the parcel with interspersed areas of high and low potential and with large areas of low potential to the northeast.

Table 30 Cultural Resource Projects in Parcel 019

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1254.44	U82UB0205 U84AS0090 U84LA0724 U09BL0296	60.5	4.8	1	0	5

	U13MQ0360					
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█ not eligible site has been identified within the lease parcel; █ sites have been identified within the 0.5 mile buffer. There are no sites identified in the area that are sensitive to indirect effects.

Given observed low to moderate site density, predicted low and medium site probability throughout substantial and more than sufficient portions of the parcel (Appendix C), the size of the parcel, the application of the Cultural Resources Protection Stipulation (Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 019 without adverse effects to historic properties.

Parcel 021 is 300 acres and is located approximately 21 miles south of the town of Moab and 4 miles West of Highway 191. Portions of the surrounding BLM and SITLA administered lands are or have been previously leased and there have been very few wells developed in the area. No wells have been developed within the parcel.

Three previous surveys overlap with the parcel for a total of 39.1 acres (Appendix A), approximately 13% of then parcel area. █ sites have been previously identified within the parcel (Appendix E). Survey coverage in the parcel is moderate and the systematic distribution of the linear survey areas offers a good overall sampling of portions of the parcel area. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. No such areas of moderate density were encountered within the parcel. The Moab Planning Model predicts medium and high site probability across most of the parcel, with areas of medium and low probability in the northeast.

Table 31 Cultural Resource Projects in Parcel 021

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
300	U80UB0250 U81UB0401 U10MQ0879	39	13	3	3	21

█ sites have been identified within the lease parcel, and all █ sites are █ that have been determined eligible. █ sites have been identified within the 0.5 mile buffer.

Table 32 Historic Properties in Parcel 021

Smithsonian Trinomial	Description
█	█

Lease Parcel 21 is within the viewshed of Looking Glass Rock, which is a historic landmark, eligible site, and a high potential site associated with the Old Spanish Trail. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, reasonably topographically complex parcel. Further, stipulation UT-S-395 ensures that a visual assessment for this resources is required and if visual effects are of concern, the development plan will have to be modified so that the operation does not attract the attention of the casual observer from the Old Spanish Trail.

Given observed low to moderate site density, predicted low and medium site probability in substantial and more than sufficient portions of the parcel (Appendix C), the size and topographic complexity of the parcel, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-395; Appendix G),

and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 021 without adverse effects to historic properties.

Parcel 023 is 1,160 acres and is located approximately 22 miles southeast of the town of Moab and 1 mile south of La Sal Junction West of Highway 191 on the Looking Glass Road. The parcel consists of two separate portions. Portions of the immediately surrounding BLM and SITLA administered lands are or have been previously leased and there have been very few wells developed within the area. No wells have been developed within the parcel.

Nine previous surveys overlap with the parcel for a total of 468.2 acres (Appendix A), approximately 40% of the parcel area. ■ sites have been previously recorded within the parcel (Appendix E). Parcel survey coverage is high and the systematic distribution of the mostly linear survey areas offers a good overall sampling of the parcel. Similar and considerable acreage of sampling across the landscape indicate areas of low or moderate site densities interspersed with areas of high site density or large site areas. The Moab Planning Model predicts low and medium site probability across most of the parcel, with discrete areas of high probability in various areas.

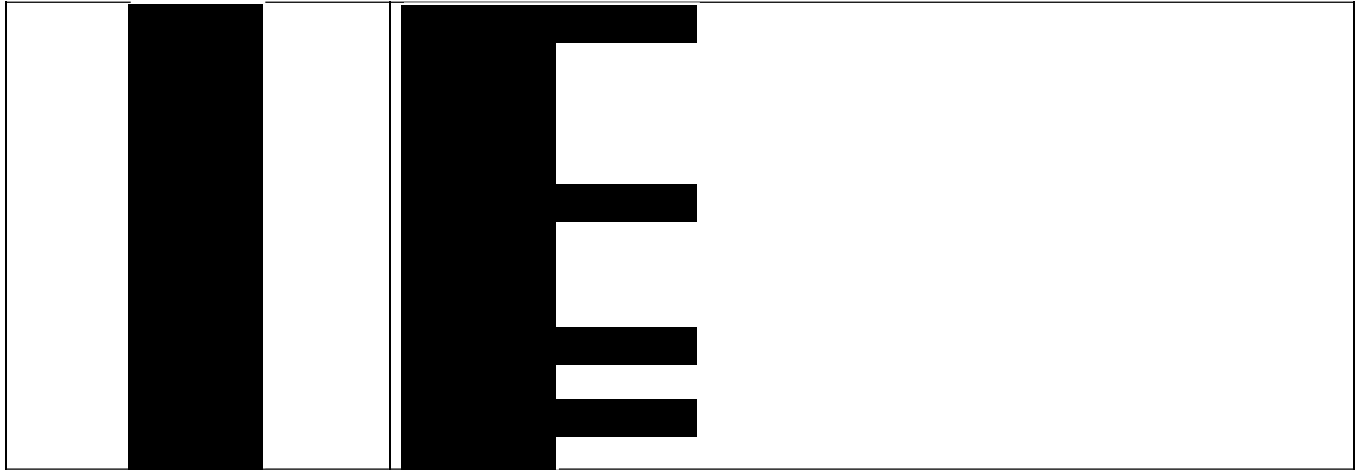
Table 33 Cultural Resource Projects in Parcel 023

Acreeage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1160	U79AF0103 U80UB0250 U80BC0253 U82BC0301 U83SJ0238 U84AS0314 U84AS0134 U10MQ0879 U14MQ0879	468.2	40	40	29	45

■ sites have been identified within the lease parcel, ■ sites are eligible. Eligible sites are ■ and ■, some with ■. ■ sites have been identified within the 0.5 mile buffer.

Table 34 Historic Properties in Parcel 023

Smithsonian Trinomial	Description
■	■



Lease Parcel 23 is within the viewshed of Looking Glass Rock, which is a historic landmark, eligible site, and a high potential site associated with the Old Spanish Trail. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, reasonably topographically complex parcel. Further, stipulation UT-S-395 ensures that a visual assessment for this resources is required and if visual effects are of concern, the development plan will have to be modified so that the operation does not attract the attention of the casual observer from the Old Spanish Trail.

Given observed low to moderate site density, predicted low and medium site probability throughout substantial and more than sufficient portions of the parcel (Appendix C), the size and topographic complexity of the parcel, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-395; Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 023 without adverse effects to historic properties.

Parcel 024 is 80 acres and is located approximately 26 miles south of the town of Moab and is intersected by Highway 191. The surrounding BLM and SITLA administered lands are or have been previously leased and there have been very few wells developed in the area. No wells have been developed within the parcel.

Six previous surveys overlap with the parcel for a total of 20.92 acres (Appendix A), approximately 26% of the parcel area. ■ sites have been previously recorded within the parcel (Appendix E). Parcel survey coverage is high and the systematic distribution of the mostly linear survey areas offers a good overall sampling of the parcel. Overall, site density within the parcel is low to moderate. Similar and considerable acreage of sampling across the landscape indicate areas of low or moderate site densities interspersed with areas of high site density or large site areas. The Moab Planning Model predicts medium site probability across most of the parcel, with a swath of high probability in the west for the Old Spanish Trail.

Table 35 Cultural Resource Projects in Parcel 024

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
80	U97BL0050 U09MQ0079 U10NY0797 U10MQ0879 U12RL0370 U14ZP0683	20.92	26	4	3	14

█ sites have been identified within the lease parcel, and █ sites have been determined eligible. █ of the eligible sites are █ and the other eligible site is a █. █ sites have been identified within the 0.5 mile buffer.

Parcel 024 is within the viewshed of Looking Glass Rock, which is a historic landmark, eligible site, and a high potential site associated with the Old Spanish Trail. Parcel 024 is also intersected by the Old Spanish National Historic Trail (Appendix F), both the congressionally designated route and a potential segment identified in the ARRA data. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, reasonably topographically complex parcel. Further, stipulation UT-S-395 ensures that a visual assessment for this resources is required and if visual effects are of concern, the development plan will have to be modified so that the operation does not attract the attention of the casual observer from the Old Spanish Trail.

Table 36 Historic Properties in Parcel 024

Smithsonian Trinomial	Description
█	█

Given observed low to moderate site density, predicted moderate site probability throughout substantial and more than sufficient portions of the parcel (Appendix C), the size and topographic complexity of the parcel, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-395; Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 023 without adverse effects to historic properties.

Parcel 025 is 40 acres and located on a bench above the confluence of Wind Whistle Draw and Joe Wilson Canyon, in Dry Valley, approximately 30 miles south of the town of Moab and 6.5 miles West of Highway 191. The parcel straddles the Moab and Monticello Field Office boundary, and shares its southern boundary with parcel 026. The surrounding BLM and SITLA administered lands are or have been previously leased and very few wells have been developed within the area. No wells have been developed within the parcel.

Previous survey in the parcel has inventoried 14 acres (Appendix A); 35% of the parcel. Survey coverage in the parcel is high and systematic distribution of the linear survey areas offers a good overall sampling of the parcel. Overall, site density within the parcel is low to moderate. Similar and considerable acreage of sampling across the landscape and overall few sites identified indicate a low site density with some areas of moderate site density across this landscape. The Moab Planning Model, which ends at the Moab FO boundary, covers a small area of the west and north edges of the parcel and predicts a mix of low, medium, and high potential.

Table 37 Cultural Resource Projects in Parcel 025

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
40	U09LI0075 U10MQ0879 U12MQ0039 U14MQ0879	14	35	3	3	16

The parcel contains all or portions of █ known sites (Appendix E). All █ sites are recommended eligible for inclusion on the NRHP and includes █ and a █. The █ has been interpreted as an █, possibly with █, that later became the █. The road is interpreted as the Hatch Wash Segment of the Old Spanish Trail by one recorder, though this is

called into question by the subsequent recorder. There are no features or artifacts associated with the trail/road. The congressionally designated Old Spanish National Historic Trail and potential trail segments identified in the ARRA data are over two miles east of the parcel. Twelve sites were identified within the 0.5 mile buffer.

Table 38 Historic Properties in Parcel 025

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

If determined to be an alternate segment of the Old Spanish Trail, the site is potentially sensitive to indirect effects and judicious placement of a well could be needed to avoid such effects. There are no other sites identified in the area that are sensitive to indirect effects.

Given observed low to moderate site density, predicted low and medium site probabilities in portions of the parcel (Appendix C), the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), and judicious well placement if necessary, BLM determines that reasonably foreseeable development can occur within Parcel 025 without adverse effects to historic properties.

Parcel 026 is 652.76 acres and lies across the northern portion of Wind Whistle Draw, in Dry Valley, approximately 21 miles south of the town of Moab and 4 miles West of Highway 191. The parcel straddles the Moab and Monticello Field Office boundary. The surrounding BLM and SITLA administered lands are or have been previously leased and very few wells have been developed within the area. No wells have been developed within the parcel.

Previous survey in the parcel has inventoried 26 acres (Appendix A); 4% of the parcel. Parcel survey coverage is low. Considerable acreage of sampling across the landscape, particularly to the east and north, indicates a low site density with discrete areas of moderate to high site density across this landscape. Similarly, the Moab Planning Model covers most of the western half of the parcel and predicts primarily medium probability with areas of high and low potential interspersed.

Table 39 Cultural Resource Projects in Parcel 026

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
648	U06MQ1476 U09LI0879 U11BC0159 U12MQ0039 U14MQ0879	26	4	8	3	24

The parcel contains all or portions of [REDACTED] known sites (Appendix E). [REDACTED] of the sites are eligible, [REDACTED] of which has been determined eligible, these include a [REDACTED], a [REDACTED] and [REDACTED] site, and a [REDACTED]. The [REDACTED] has been interpreted as an [REDACTED], possibly with prehistoric origins, that later became the [REDACTED]. The road is speculatively also interpreted as the Hatch Wash Segment of the Old Spanish Trail National Historic Trail; there are no features or artifacts associated with the trail/road. The congressionally designated Old Spanish National Historic Trail and potential trail segments identified in the ARRA data are three miles east of the parcel. There are [REDACTED] previously recorded sites within ½ mile of the parcel.

Table 40 Historic Properties in Parcel 026

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

If determined to be an alternate segment of the Old Spanish Trail, the site is potentially sensitive to indirect effects, and judicious placement of a well could be needed to avoid such effects. There are no other sites identified in the area that are sensitive to indirect effects.

Given observed low site density within and near the parcel, predicted moderate site probability across large areas within the parcel (Appendix C), the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; see discussion below and Appendix G), and judicious well placement if necessary, determines that reasonably foreseeable development can occur within Parcel 026 without adverse effects to historic properties.

Parcel 027 is located just northwest of Lightning Draw in Dry Valley. The parcel is partially within the boundary of the Moab MLP and comprises 1079 acres, divided into two 40 acre and one 999 acre segments. Previous survey in the parcel has inventoried 170 acres (Appendix A); 15% of the parcel.

Table 41 Cultural Resource Projects in Parcel 027

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1079	U78NI0175 U78NI0178 U79CD0137 U81BL0282 U81UA0287 U84AS0314 U84LA0721 U86BC0759 U87BC0168 U87LA0400 U88AF0532 U88AS0663 U88BC0258 U88LA0058 U88LA0077 U89AF0164 U08FE0744 U14ZP0683	170	15	7	5	2

The parcel contains all or portions of [REDACTED] known sites (Appendix E); [REDACTED] are recommended eligible for the NRHP, [REDACTED] of which is listed on the Register. These include a [REDACTED], the Hatch Wash Segment of the Old Spanish Trail National Historic Trail and a [REDACTED]. There are [REDACTED] previously recorded sites within ½ mile of the parcel.

Table 42 Historic Properties in Parcel 027

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]



No previous oil and gas development has taken place in the parcel (Appendix B). Survey coverage in the parcel is moderate and based on current known site densities, predicted medium site probability across large areas within the parcel (Appendix C), the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; see discussion below and Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Monticello Field Office Parcels

The following 24 parcels are analyzed using the Monticello FO RFD of 9.6 acres of expected disturbance for the development of a single well pad.

In addition to the Cultural Resources Stipulation, BLM's stipulation Controlled Surface Use – Cultural (UT-S-170) has been applied to all of the below parcels as well. The stipulation reads as follows:

Cultural properties eligible for or listed on the National Register of Historic Places shall be surrounded by an avoidance area sufficient to avoid impacts. (Although oil and gas activity must also meet this standard, a CSU lease stipulation is not necessary since this can be accomplished under the terms of the standard lease form.)

While the stipulation uses NEPA terminology (“impacts”), it should be read here as including avoiding adverse effects to historic properties.

Two additional stipulations apply to parcels that are within or partially within the Alkali Ridge and San Juan River Areas of Critical Environmental Concern (ACEC). The Controlled Surface Use – Alkali Ridge ACEC stipulation applies to the eight parcels that are within or partially within the ACEC and is discussed for each below. The stipulation reads as follows:

Cultural properties eligible for or listed on the National Register of Historic Places shall be surrounded by an avoidance area sufficient to avoid direct and indirect impacts. When siting oil and gas facilities, avoidance may require that a facility be moved farther than allowed under the standard lease terms and conditions.

Again, “impacts” should be read to include avoiding adverse effects to historic properties.

The No Surface Occupancy – San Juan River ACEC stipulation applies to those portions of Parcel 036 that are within the ACEC and is discussed in the parcel analysis below. The stipulation reads as follows:

No surface-disturbing activities allowed within the San Juan River ACEC to protect scenic, cultural and wildlife values.

The above three stipulations have exceptions, modifications, and waivers, which can be read in Appendix G. However, any such decision would require environmental analysis. That would include NEPA and Section 106, and outside input as required by both processes, including tribal, public, and consulting party input. As stated in the Monticello RMP, “The documented environmental analysis for site specific proposals would need to address proposals to exempt, modify, or waive a surface stipulation.” (Appendix B, p. 2).

For these 24 parcels, resources identified as of concern to Hopi, Navajo, Southern Ute, Ute, and Zuni participants in the Arches and Canyonlands ethnographic overviews are protected by lease stipulations. Archaeological ruins

and Barrier Canyon style paintings are protected in the event of future development by the Cultural Resource Protection Stipulation as well as by stipulations UT-S-17 and UT-S-170. Water resources, and the plants therein, are protected by stipulation UT-S-128: NSO – Floodplains, Riparian Areas, Springs, and Public Water Reserves. The stipulation prohibits surface occupancy within active floodplains, public water reserves, and within 100 meters of riparian areas along perennial streams and springs. This stipulation is attached to all parcels which contain these water resources (Appendix G).

Parcel 028 comprises 640 acres and spans Alkali Canyon with a corner on Mustang Mesa and most of the parcel on Alkali Point. Previous survey in the parcel has inventoried 115 acres (Appendix A); 18% of the parcel.

Table 43 Cultural Resource Projects in Parcel 028

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
640	U09ER0776 U76BL0104 U79AF0203 U79AF0209 U80AF0317 U80UB0253 U80UC0322 U82LA0323 U83EC0373 U84LA0812 U84LA0833 U86BL0289 U97JB0111	115	18	21	13	105

The parcel contains all or portions of [REDACTED] known sites (Appendix E). [REDACTED] of the sites are recommended eligible for inclusion on the NRHP, including [REDACTED] recorded as [REDACTED] sites. There are [REDACTED] previously recorded sites within ½ mile of the parcel. 610 acres (96%) of the parcel are within the boundary of the Alkali Ridge ACEC.

Table 44 Historic Properties in Parcel 028

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

No previous oil and gas development has taken place in the parcel (Appendix B). High site probability is predicted across large areas within the parcel, interspersed with large areas of medium site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 029 comprises 1663.20 acres and is located on Mustang Mesa and spans Jennys Canyon and Recapture Creek. Previous survey in the parcel has inventoried 352 acres (Appendix A), 21% of the parcel.

Table 45 Cultural Resource Projects in Parcel 029

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1663.2	<i>U80AF0318</i> <i>U80UB0253</i> <i>U82CD0356</i> <i>U82DB0306</i> <i>U84AS0293</i> <i>U84LA0238</i> <i>U84LA0811</i> <i>U84LA0824</i> <i>U84LA0834</i> <i>U87GB0509</i> <i>U87LA0713</i> <i>U88AS0025</i> <i>U88AS0396</i> <i>U88CH0070</i> <i>U88LA0118</i> <i>U06MX1592</i> <i>U06MX1593</i> <i>U06RM1652</i> <i>U07WN0746</i> <i>U10BL0479</i> <i>U11BL0199</i> <i>U11BL0200</i> <i>U12BL0558</i> <i>U12BL0559</i> <i>U13BL1056</i>	352	21	59	52	105

The parcel contains all or portions of [redacted] known sites (Appendix E), 52 of which are recommended eligible for inclusion on the NRHP. These include at least [redacted] and several [redacted]. There are [redacted] previously recorded sites within ½ mile of the parcel. Data submitted by Friends of Cedar Mesa for the consulting parties meeting indicates the presence of what they term a ‘community site’ within the parcel; for which they desire a viewshed analysis to be part of the calculus for determination of effect. Specifically, [redacted], named the [redacted]. The site is notably not present in the analysis table because, though well-known and the subject of multiple excavation and stabilization episodes, site documentation has never been submitted to the BLM or SHPO.

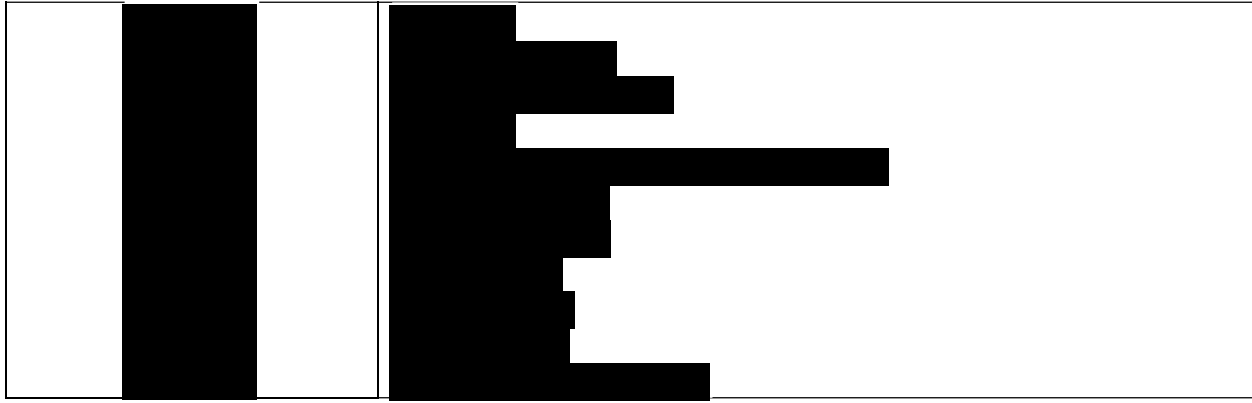
The site has recently been recorded to modern standard by Winston Hurst and James William between September, 2014 and May, 2015. The current recording agglomerates this and [redacted] other sites under the single Smithsonian Trinomial [redacted]. The site is described as [redacted]. Neither the site description, GIS imagery or site photographs indicate the presence of [redacted], but the presence of [redacted] is observed in the documentation. The recording proposes eligibility for

nomination to the NRHP under Criteria C & D of 36 CFR 60.4; though it is only yet in draft form and BLM has made no official eligibility determination and no SHPO concurrence of eligibility has been received.

Be that as it may, this report analyses the viewshed of the site because it has been preliminarily recommended under Criterion C and identified by a consulting party as a significant site not captured by the Section 106 process. Analysis of the viewshed indicates that 81% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (319 acres), 87% (280 acres) is further than ½ mile away (Appendix D).

Table 46 Historic Properties in Parcel 029

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]



There are two (2) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium and high site probability are predicted across large areas within the parcel, interspersed with discrete, small areas of low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of expected moderate probability, pervious development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 030 comprises 2544.68 acres and is centered on Mustang Mesa and spans Recapture Creek, Jennys Canyon and Mustang Canyon in the west and includes a 40 acre block in Alkali Canyon in the east. 214 acres (9%) of the parcel are within the boundary of the Alkali Ridge ACEC. Previous survey in the parcel has inventoried 534 acres, 21% of the parcel (Appendix A).

Table 47 Cultural Resource Projects in Parcel 030

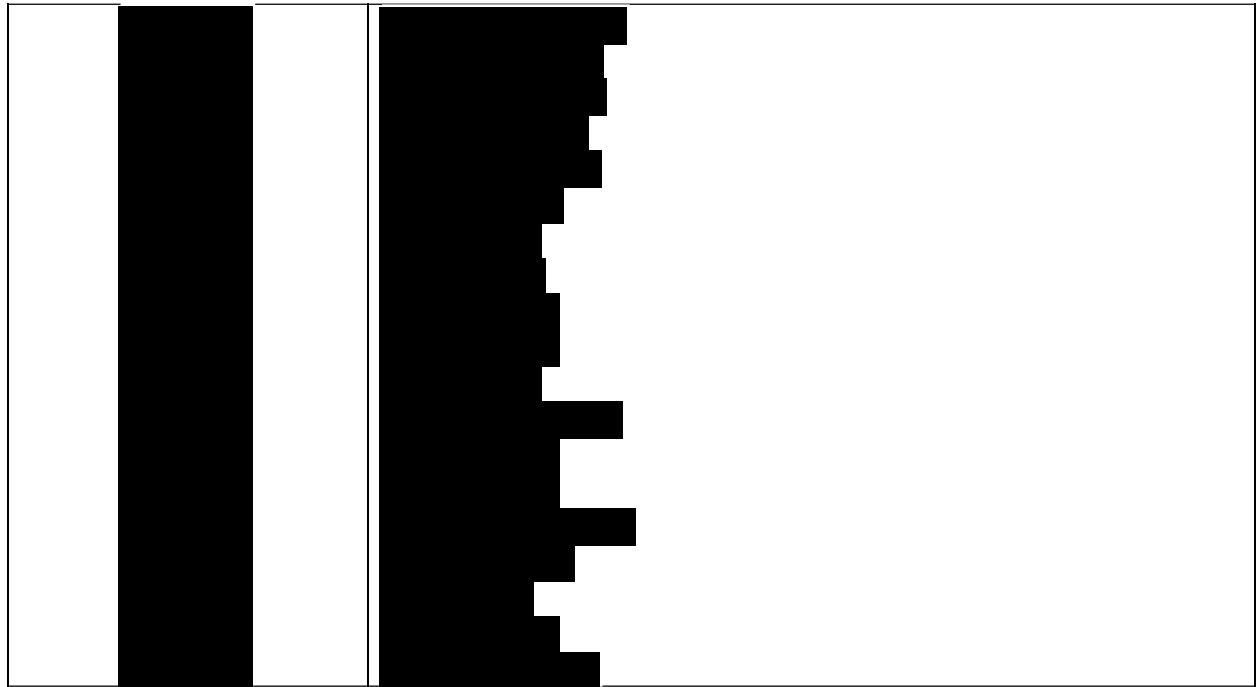
Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
2544.68	U76BC0106 U79AF0203 U80AF0318 U80CD0334 U80CD0351 U80UB0253 U82CD0356 U82DB0306 U83AS0251 U83DB0311 U83EC0373 U83LA0293 U84LA0238 U84LA0811 U84LA0821 U84LA0831 U84LA0832 U85LA0574 U86AF0482 U86LA0002 U86LA0010	534	21	107	99	202

U86LA0707 U86LA0718 U87GB0509 U87LA0311 U87LA0499 U87LA0589 U87LA0713 U88AS0025 U88LA0107 U88LA0118 U90LA0177 U91FE0389 U97JB0111 U99FE0084 U06RM1652 U07WN0486 U07WN0487 U07WN0488 U07WN0746 U10ES0913					
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The parcel contains all or portions of [REDACTED] known sites (Appendix B). Of these, [REDACTED] are recommended for inclusion on the NRHP. These include at least [REDACTED] recorded as [REDACTED] and [REDACTED]. There are [REDACTED] previously recorded sites within ½ mile of the parcel.

Table 48 Historic Properties in Parcel 030

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]



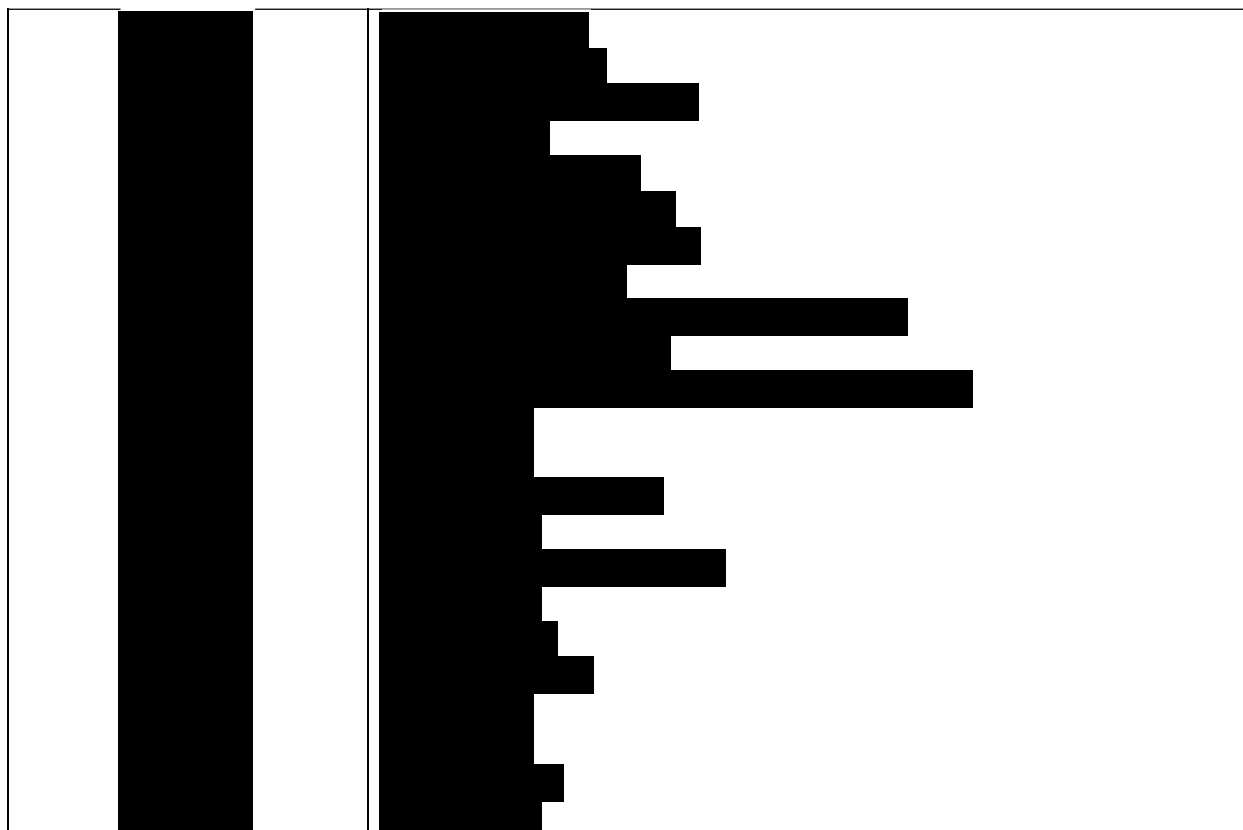
There are six (6) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium and high site probability is predicted across large areas within the parcel, interspersed with large areas of low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 031 comprises 1883.76 acres and spans the confluence of Recapture Creek, Mustang Canyon and Jennys Canyon, from Browns Point to Canyon Point. Three (3) acres (less than 1%) of the parcel are within the boundary of the Alkali Ridge ACEC. Previous survey in the parcel has inventoried 404 acres, 21% of the parcel (Appendix A).

Table 49 Cultural Resource Projects in Parcel 031

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1883.76	U76BC0089	404	21	59	47	77
	U78AF0268					
	U79AF0225					
	U80AF0318					
	U80DB0336					
	U80UB0253					
	U82CD0352					
	U82CD0356					
	U82DB0306					
	U83AS0251					
	U83DB0311					



There are three (3) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with areas of high and low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 032 comprises 1920 acres and is located on Mustang Mesa, encompassing the head of Road Canyon. Previous survey in the parcel has inventoried 450 acres, 23% of the parcel (Appendix A). 3.2 acres, 0.1% of the parcel is within the boundary of the Alkali Ridge ACEC.

Table 51 Cultural Resource Projects in Parcel 032

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1920	U75NI0027 U76BC0106 U78AF0268 U79AF0225 U80AF0318 U80CD0334 U80CD0351 U82CD0352 U82CD0356 U82DB0306	450	23	82	69	182

U82LA0400					
U83AS0246					
U83AS0251					
U83DB0311					
U83LA0293					
U83LA0337					
U84AS0057					
U84LA0158					
U84LA0384					
U84LA0801					
U84LA0824					
U84LA0831					
U84LA0834					
U86AF0482					
U86LA0010					
U87LA0311					
U87LA0570					
U89LA0206					
U90LA0177					
U91FE0389					
U91LA0599					
U93LA0051					
U97CH0123					
U97FE0077					
U99FE0084					
U06MX1595					
U07WN0486					
U07WN0488					
U10WN0422					

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of the sites are recommended eligible for the NRHP. These include [redacted] interpreted as [redacted] and several [redacted]. There are [redacted] previously recorded sites within ½ mile of the parcel. Data submitted by Friends of Cedar Mesa (FCM) for the consulting parties meeting indicates the presence of [redacted] sites they call ‘community sites’ within the parcel; for which they desire viewshed analysis to be part of the calculus for determination of effect.

The first of these is labeled [redacted], and is plotted approximately 60 meters from the Utah CURES site-point listed as [redacted]; recorded in 1982. The site forms indicate the site is significant, but do not make an eligibility determination based on the criteria set forth in 36 CFR 60.4. The site form and GIS imagery give no indication of the presence of [redacted] nor do they indicate the site is remarkable in some way as to infer eligibility under Criteria A, B or C. However, in the absence of an eligibility recommendation otherwise, this report analyses [redacted] (inferred to be synonymous with the point provided by FCM) as if it were.

Analysis of the viewshed indicates that 87% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (254 acres), 78% (199 acres) is further than ½ mile away (Appendix D).

The second point FCM provided is labeled [redacted]. The point provided by FCM is plotted approximately 35 meters from the Utah CURES site-polygon listed as [redacted]; recorded in 1982. Review of the site photographs indicates that [redacted] is present exposed in an illegal excavation on the site; or at least was in 1982. The site description makes no mention of [redacted] independent of the looter’s pit. Though the 1982 recording indicates the site is significant, no eligibility determination based on the criteria set forth in 36 CFR 60.4 is made. However, in the absence of an eligibility recommendation otherwise, this report

analyses 42SA11087 (inferred to correspond with the point provided by FCM) as if it were potentially eligible under Criteria A, B or C.

Analysis of the viewshed indicates that 92% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (164 acres), 46% (75 acres) is further than ½ mile away. Additionally, the combined ½ mile viewshed of the [redacted] sites in Parcel 38 potentially eligible for nomination to the NRHP under Criteria A, B or C of 36 CFR 60.4 totals 144 acres, approximately 8% of the parcel (Appendix D).

Table 52 Historic Properties in Parcel 032

Smithsonian Trinomial	Description
[redacted]	[redacted]



There are three (3) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with areas of high and low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 033 comprises 1080 acres in three blocks, one on Mustang Mesa and two on Alkali Point that extend into Alkali Canyon. Previous survey in the parcel has inventoried 576 acres, 53% of the parcel (Appendix A). 852 acres (78%) of the parcel are within the boundary of the Alkali Ridge ACEC.

Table 53 Cultural Resource Projects in Parcel 033

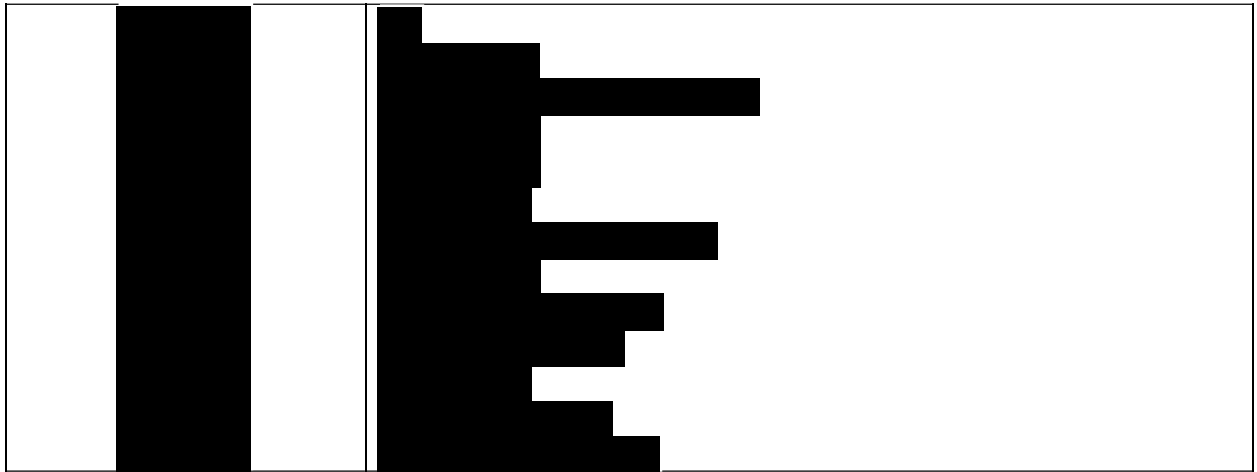
Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1080	U79AF0225 U80CD0334	576	53	33	27	173

U80CD0351					
U80UB0253					
U82BC0331					
U82CD0353					
U82CD0356					
U82DB0306					
U82FD0330					
U83AS0250					
U83AS0251					
U83DB0311					
U83LA0293					
U83LA0337					
U84AM0402					
U84AS0359					
U84LA0238					
U84LA0384					
U84LA0808					
U84LA0809					
U84LA0811					
U84LA0824					
U86BC0843					
U86LA0108					
U87BL0112					
U87LA0114					
U87LA0218					
U87LA0219					
U88LA0673					
U89LA0206					
U91LA0397					
U97JB0284					
U09ER0776					
U10ES0913					

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of the sites are recommended eligible for the NRHP. These include [redacted] sites interpreted as [redacted]. There are [redacted] previously recorded sites within ½ mile of the parcel.

Table 54 Historic Properties in Parcel 033

Smithsonian Trinomial	Description
[redacted]	[redacted]



There are two (2) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with large areas of high site probability and small, discrete areas of low probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), and judicious well placement if necessary, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 034 comprises 1280 acres and is located at the northern end of McCracken Mesa and spans a small tributary canyon of Alkali Canyon. Previous survey in the parcel has inventoried 476 acres (Appendix A), 37% of the parcel.

Table 55 Cultural Resource Projects in Parcel 034

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1280	U80AF0318 U80CD0334 U80UB0253 U82BC0331 U82CD0353 U82CD0356 U82DB0306 U83AS0250 U83DB0311 U84AS0057 U84DB0782 U84LA0825 U84LA0831 U86BC0711 U86LA0036 U86LA0108 U86LA0493 U86LA0709 U86LA0757 U87AS0476 U87AS0676	476	37	40	30	42

U87BC0384					
U87BL0112					
U87LA0425					
U88AS0517					
U88NP0395					
U90LA0076					
U90LA0106					
U91FE0467					
U97FE0077					
U98FE0145					

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of which are recommended eligible for the NRHP. These include [redacted] interpreted as [redacted]. There are [redacted] previously recorded sites within 1/2 mile of the parcel.

Table 56 Historic Properties in Parcel 034

Smithsonian Trinomial	Description
[redacted]	[redacted]

There are two (2) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with large areas of high site probability and small, discrete areas of low probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 036 comprises 1537.25 acres and is located on the flood plain and bench lands above the north bank of the San Juan River, east of McCracken Canyon. Previous survey in the parcel has inventoried 235 acres, 15% of the parcel (Appendix A). 172 acres (11%) of the parcel are within the boundaries of the San Juan River ACEC.

Table 57 Cultural Resource Projects in Parcel 036

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1537.25	U77AF0135 U81LA0747 U82BC0336 U82BC0338 U83BC0266 U83BL0271 U83BL0272 U87LA0177 U88CH0645 U90AS0136 U97CJ0853 U99FE0642 U00CH0741 U05LM1540 U08CH0085 U13LI0456	235	15	12	4	28

The parcel contains all or portions of [redacted] known sites in the parcel (Appendix E). [redacted] of the sites, including [redacted] are recommended eligible for the NRHP, [redacted] of which is listed on the Register. There are [redacted] previously recorded sites within ½ mile of the parcel. Data submitted by Friends of Cedar Mesa (FCM) for the consulting parties meeting indicates the presence of [redacted] site they call a ‘community site’ within the parcel and [redacted] immediately outside the parcel; for which they desire viewshed analysis to be part of the calculus for determination of effect.

The point is labeled [redacted], and corresponds spatially with the Utah CURES site [redacted], named the [redacted]. The site was recorded in 1997 and recommended eligible for nomination to the NRHP under Criterion D of 36 CFR 60.4. As such, this site is not considered herein for further analysis. The site is recommended eligible for nomination to the NRHP based on its demonstrated or potential scientific value only; setting, and thus viewshed, is not part of its eligibility.

Table 58 Historic Properties in Parcel 036

Smithsonian Trinomial	Description
[redacted]	[redacted]

There are two (2) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). High and medium site probability are predicted across large areas within the parcel, interspersed with areas of low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-16; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 037 comprises 1600 acres and is located at the southwest end of Tank Canyon and spans Montezuma Canyon. Previous survey in the parcel has inventoried 469 acres, 29% of the parcel (Appendix A). 208 acres (13%) of the parcel are within the boundary of the Alkali Ridge ACEC.

Table 59 Cultural Resource Projects in Parcel 037

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1600	U62BC0001	469	29	31	24	98
	U71BC0001					
	U79AF0203					
	U81AF0433					
	U82BC0331					
	U82CD0356					
	U82DB0306					
	U83AS0251					
	U83EC0373					
	U83LA0267					
	U83LA0333					
	U83LA0337					
	U84LA0238					
	U84LA0488					
	U84LA0831					
	U86LA0756					
	U87AF0564					
	U87LA0439					
	U90A10382					
	U90LA0556					
	U91FE0571					
	U92FE0293					
	U92LA0169					
	U93AS0081					
	U95JB0198					
	U96FE0263					
	U96FE0514					
	U97JB0111					
	U07PD0045					
	U09ER0776					
U13BL1088						
U14ER0258						

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of which are recommended eligible to the NRHP. These include at least [redacted] sites interpreted as [redacted]; [redacted] of which, [redacted] [redacted], is a stabilized ruin open to the public and is listed on the Register. There are [redacted] previously recorded

sites within ½ mile of the parcel. Data submitted by Friends of Cedar Mesa (FCM) for the consulting parties meeting indicates the presence of [REDACTED] site they call a ‘community site’ within the parcel and [REDACTED] immediately outside the parcel; for which they desire viewshed analysis to be part of the calculus for determination of effect.

The first point provided by FCM is [REDACTED], was originally recorded in 1960 and updated in 2010. Both recordings note the site’s significance, though neither make eligibility recommendations based on the criteria set forth in 36 CFR 60.4. The site form and GIS imagery both indicate the presence of [REDACTED], but do not indicate the site is remarkable in some way as to infer eligibility under Criteria A, B or C. However, in the absence of an eligibility recommendation otherwise, this report analyses 42SA863 as if it were.

Analysis of the viewshed indicates that 91% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (139 acres), 23% (32 acres) is further than ½ mile away (Appendix D).

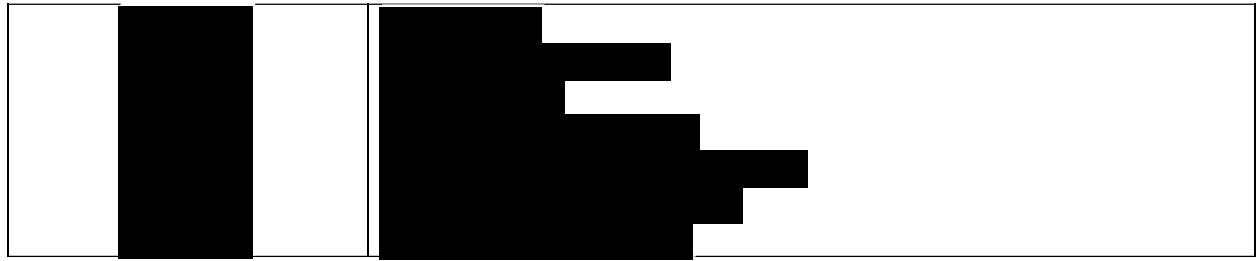
The second point provided by FCM is labeled [REDACTED], and likely represents [REDACTED] sites, [REDACTED], which plot as overlapping CURES site polygons. The sites were recorded in 1982 and 1983, respectively. Though both sites are noted as significant, no eligibility recommendations were made based on the criteria set forth in 36 CFR 60.4. The site forms and GIS imagery give no indication of the presence of [REDACTED] nor do they indicate the sites are remarkable in some way as to infer eligibility under Criteria A, B or C. However, in the absence of an eligibility recommendation otherwise, this report analyses 42SA11159 and 42SA14459 (inferred to be synonymous with the point provided by FCM) as if they were.

Analysis of the viewshed indicates that 90% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (156 acres), 57% (89 acres) is further than ½ mile away. The combined ½ mile viewshed of the [REDACTED] sites in Parcel 37 eligible for nomination to the NRHP under Criteria A, B or C of 36 CFR 60.4 totals 149 acres, approximately 9% of the parcel (Appendix D).

Additionally, the Utah Rock Art Research Association (URARA) submitted GPS points of [REDACTED] sites within Montezuma Canyon; [REDACTED] of which fall within the boundary of the parcel. The points are located, [REDACTED]. The mesa tops east of the canyon comprise the bulk of the parcel, and are not visible from the canyon bottom.

Table 60 Historic Properties in Parcel 037

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]



There is one (1) plugged and abandoned well in the parcel which was developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with large areas of high site probability and small, discrete areas of low probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 38 comprises 2304.58 acres is located on Alkali Point between the head of Cave Canyon and Bradford Canyon. Previous survey in the parcel has inventoried 1167 acres, 51% of the parcel (Appendix A). 100% of the parcel is within the boundary of the Alkali Ridge ACEC and the parcel is located less than one mile from the Alkali Ridge National Historic Landmark.

Table 61 Cultural Resource Projects in Parcel 038

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
2304.58	U76BL0104 U78AF0268 U79AF0203 U80AF0317 U80AF0318 U80AF0319 U80AH0324 U80AH0325 U80CD0334 U82BC0331 U82DB0306 U82FD0330 U82LA0323 U82LA0415 U83AS0250 U83AS0251 U83DB0295 U84AM0411 U84AS0317 U84AS0359 U84LA0384 U84LA0808 U84LA0811 U84LA0831 U85BL0014 U85LA0541	1167	51	206	145	228

U86AF0609					
U86AS0296					
U86BC0843					
U86LA0407					
U86LA0672					
U86LA0718					
U86LA0848					
U86LA0849					
U87AF0566					
U87LA0043					
U87LA0095					
U87LA0114					
U87LA0425					
U87LA0580					
U87LA0789					
U88AF0120					
U88LA0015					
U88LA0300					
U89LA0206					
U91LA0397					
U97JB0111					

The parcel and contains [REDACTED] known sites (Appendix E), [REDACTED] of which are recommended eligible to the NRHP; these include at least [REDACTED] interpreted as [REDACTED]. There are [REDACTED] previously recorded sites within ½ mile of the parcel. Data submitted by Friends of Cedar Mesa (FCM) for the consulting parties meeting indicates the presence of [REDACTED] sites they call ‘community sites’ within the parcel; for which they desire viewshed analysis to be part of the calculus for determination of effect.

The northernmost of these points is labeled, [REDACTED]. No known site corresponds with this name, nor does the Utah CURES database plot any sites close to the point provided. GIS imagery does not indicate the presence of [REDACTED]. Be that as it may, this report analyses the viewshed of the site because it has been identified by a consulting party as a significant site not captured by the Section 106 process.

Analysis of the viewshed indicates that 98% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (53 acres), 19% (10 acres) is further than ½ mile away (Appendix D).

The southern points coincide with [REDACTED] previously recorded sites, [REDACTED]; labeled [REDACTED], and recorded in 1982 and 1983, respectively. [REDACTED] sites were rerecorded in 2002, by archaeologists from Montgomery Archaeological Consultants during the Section 106 work for the UP&L PacifiCorp Williams Four Corners 345kV Powerline project.

The 2002 recording of [REDACTED] completely rerecorded the site and generated a full site form. The original site form indicates the site is significant, but does not make an eligibility determination based on the criteria set forth in 36 CFR 60.4. However, the 2002 recording recommends the site eligible for nomination to the NRHP under Criterion D. As such, this site is not considered herein for further analysis. The site is recommended eligible for nomination to the NRHP based on its demonstrated or potential scientific value only; setting, and thus viewshed, is not part of its eligibility.

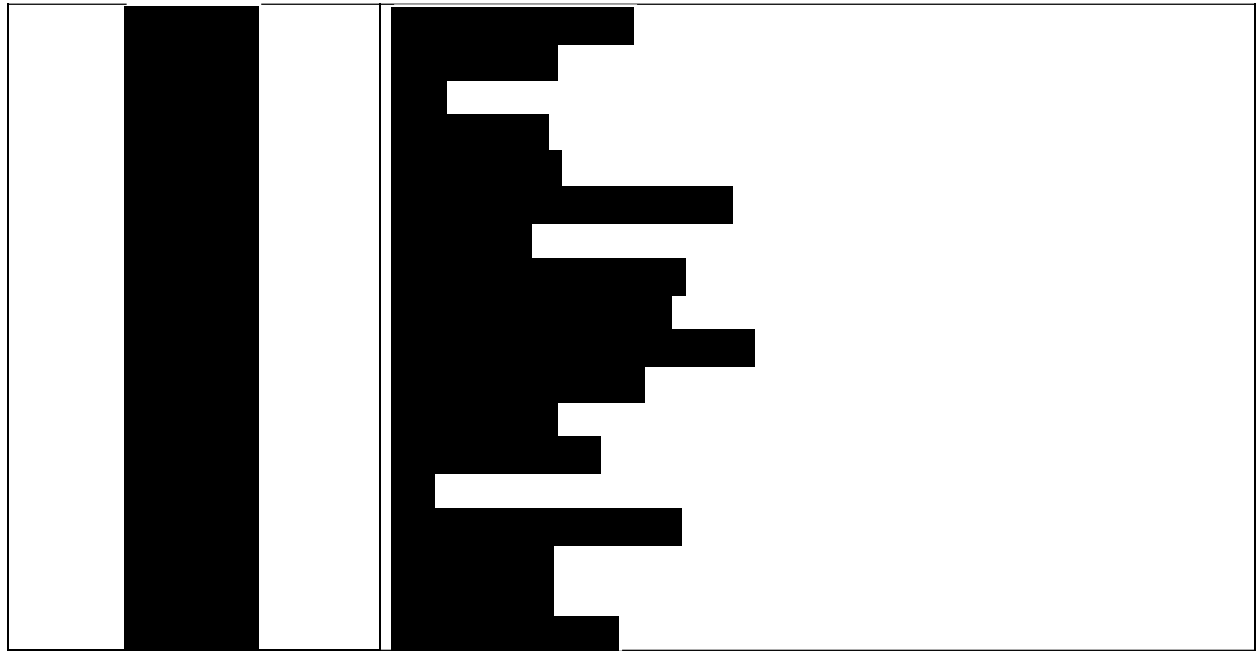
The 2002 recording of [REDACTED] only updated the site form and referenced the original for significance. The site form indicates the site is significant, but does not make an eligibility determination based on the criteria set forth in 36 CFR 60.4. The site form and GIS imagery give no indication of the presence of intact [REDACTED] nor do they indicate the site is remarkable in some way as to infer eligibility under Criteria

A, B or C. However, in the absence of an eligibility recommendation otherwise, this report analyses 42SA14631 as if it were.

Analysis of the viewshed indicates that 84% of the parcel is not visible from the site. Of the portion of the parcel that is visible from the site (369 acres), 83% (305 acres) is further than ½ mile away. Additionally, the combined ½ mile viewshed of the [redacted] sites in Parcel 38 eligible for nomination to the NRHP under Criteria A, B or C of 36 CFR 60.4 totals 102 acres, approximately 4% of the parcel (Appendix D).

Table 62 Historic Properties in Parcel 038

Smithsonian Trinomial	Description
[redacted]	[redacted]



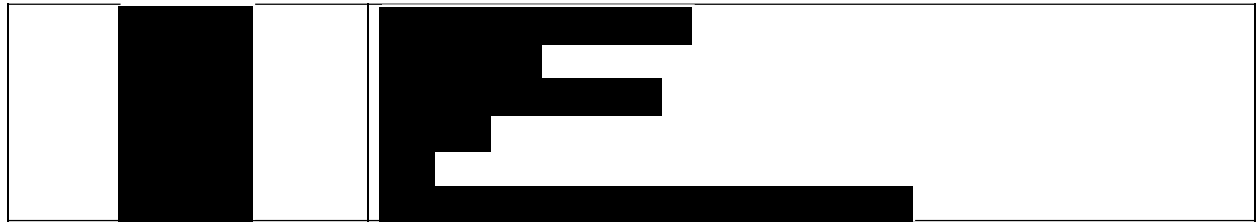
There are two (2) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with large areas of high site probability and discrete areas of low probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 39 comprises 1320 acres and is located on the east slopes of Alkali Point above the confluence of Montezuma and Monument Canyon. Previous survey in the parcel has inventoried 393 acres, 30% of the parcel (Appendix A). 100% of the parcel is within the boundary of the Alkali Ridge ACEC.

Table 63 Cultural Resource Projects in Parcel 039

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1320	U62BC0001 U79AF0203 U81AF0433 U82DB0306 U83AS0251 U83DB0295 U83DB0311 U83LA0333 U84LA0238 U84LA0488 U84LA0824 U84LA0833 U86LA0756 U87AF0564 U88AF0125	393	30	30	26	80



There is one (1) plugged and abandoned well in the parcel which was developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with areas of high and low site probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 40 comprises 645.52 acres and is located in Montezuma Canyon, at its confluence with Bug Canyon. Previous survey in the parcel has inventoried 336 acres, 52% of the parcel (Appendix A). 147 (29%) acres of the parcel are within the boundary of the Alkali Ridge ACEC.

Table 65 Cultural Resource Projects Parcel 040

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
645.52	U62BC0001	336	52	42	36	52
	U79AF0203					
	U82DB0306					
	U83DB0311					
	U83LA0267					
	U83LA0333					
	U84LA0488					
	U84LA0833					
	U85LA0621					
	U85LA0663					
	U86AF0388					
	U86AF0829					
	U86LA0010					
	U86LA0756					
	U87AF0671					
	U87LA0100					
	U87LA0115					
	U87LA0158					
	U87LA0580					
	U87LA0789					
	U88AS0245					
	U88LA0117					
	U89AS0093					
	U91FE0571					
	U93FE0298					
	U95JB0198					
U97FE0529						

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of which are recommended eligible for the NRHP. These include [redacted] interpreted as [redacted]. There are [redacted] previously recorded sites within ½ mile of the parcel. The Utah Rock Art Research Association (URARA) submitted GPS points of [redacted] sites within Montezuma Canyon; [redacted] of which fall within the boundary of the parcel. The points are located, [redacted].

The mesa tops east of the canyon comprise the bulk of the parcel, and are not visible from the canyon bottom.

Table 66 Historic Properties in Parcel 040

Smithsonian Trinomial	Description
[redacted]	[redacted]

There is one (1) plugged and abandoned well in the parcel which was developed without adverse effects to historic properties (Appendix B). Medium and High site probability is predicted across large areas within the parcel, interspersed with small, discrete areas of low site probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170, stipulation UT-S-17; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 41 comprises 1280 acres and is located on Alkali Point just east of Bullpen Swale. Previous survey in the parcel has inventoried 284 acres, 22% of the parcel (Appendix A).

Table 67 Cultural Resource Projects in Parcel 041

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1280	U80DB0368 U81AF0433 U81DB0475 U81UB0401 U82CD0353 U82DB0306 U83AS0250 U83AS0251 U84AS0314 U84LA0238 U84LA0812 U84LA0824 U84LA0834 U85LA0541 U85LA0663 U85LA0732 U86AF0388 U86AF0610 U86LA0036 U86LA0108 U86LA0493 U86LA0737 U87AF0671 U87AF0710 U87LA0193 U87LA0197 U88AF0125 U02MQ0648 U13ST0450	284	22	31	30	114

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of which are recommended eligible for the NRHP including [redacted] Ancestral Puebloan habitations. There are [redacted] previously recorded sites within ½ mile of the parcel. The Utah Rock Art Research Association (URARA) submitted GPS points of [redacted] sites within Montezuma Canyon; [redacted] of which fall within the boundary of the parcel. The point is located [redacted] of the parcel. The overwhelming majority of the parcel is not visible from the point.

Table 68 Historic Properties in Parcel 041

Smithsonian Trinomial	Description
[redacted]	[redacted]



There are six (6) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium and high site probability is predicted across large areas within the parcel, interspersed with small, discrete areas of low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 42 comprises 1092.84 acres and is located on Alkali Point and spans all but the upper reaches of Bullpen Swale. Previous survey in the parcel has inventoried 231 acres, 21% of the parcel (Appendix A).

Table 69 Cultural Resource Projects in Parcel 042

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1092.84	U82DB0377 U82FD0330 U83AS0250 U84LA0109	231	21	26	23	43

There are four (4) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium and high site probability are predicted across large areas within the parcel (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 43 comprises 1200 acres and is located in Montezuma Canyon, just south of Cave Canyon. Previous survey in the parcel has inventoried 320 acres, 27% of the parcel (Appendix A). Three (3) acres (less than 1%) of the parcel are within the boundary of the Alkali Ridge ACEC.

Table 71 Cultural Resource Projects in Parcel 043

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1200	U62BC0001	320	27	68	62	76
	U76BC0105					
	U77BC0152					
	U77BC0153					
	U78AF0277					
	U78BC0282					
	U79BC0230					
	U80AF0318					
	U80BC0327					
	U80DB0368					
	U81NH0543					
	U81UB0401					
	U82DB0306					
	U83AM0261					
	U83BL0560					
	U84AS0314					
	U84AS0329					
	U84LA0109					
	U84LA0238					
	U85LA0541					
	U85LA0549					
	U86AF0388					
	U86AF0829					
	U86AS0034					
	U86BC0489					
	U86LA0010					
	U86LA0564					
	U86LA0756					
	U87AS0623					
	U87LA0099					
U87LA0156						
U87LA0311						
U87LA0789						
U89AS0093						
U90CH0052						
U91FE0604						
U93FE0606						

	U97FE0529					
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The parcel contains all or portions of [redacted] known sites (Appendix E), [redacted] of which are recommended eligible for the NRHP; these include [redacted] Ancestral Puebloan habitations. There are [redacted] previously recorded sites within ½ mile of the parcel. The Utah Rock Art Research Association (URARA) submitted GPS points of [redacted] sites within Montezuma Canyon; [redacted] of which fall within the boundary of the parcel. The points are [redacted]. The mesa tops above the canyon comprise the bulk of the parcel, and are not visible from the canyon bottom.

Table 72 Historic Properties in Parcel 043

Smithsonian Trinomial	Description
[redacted]	[redacted]



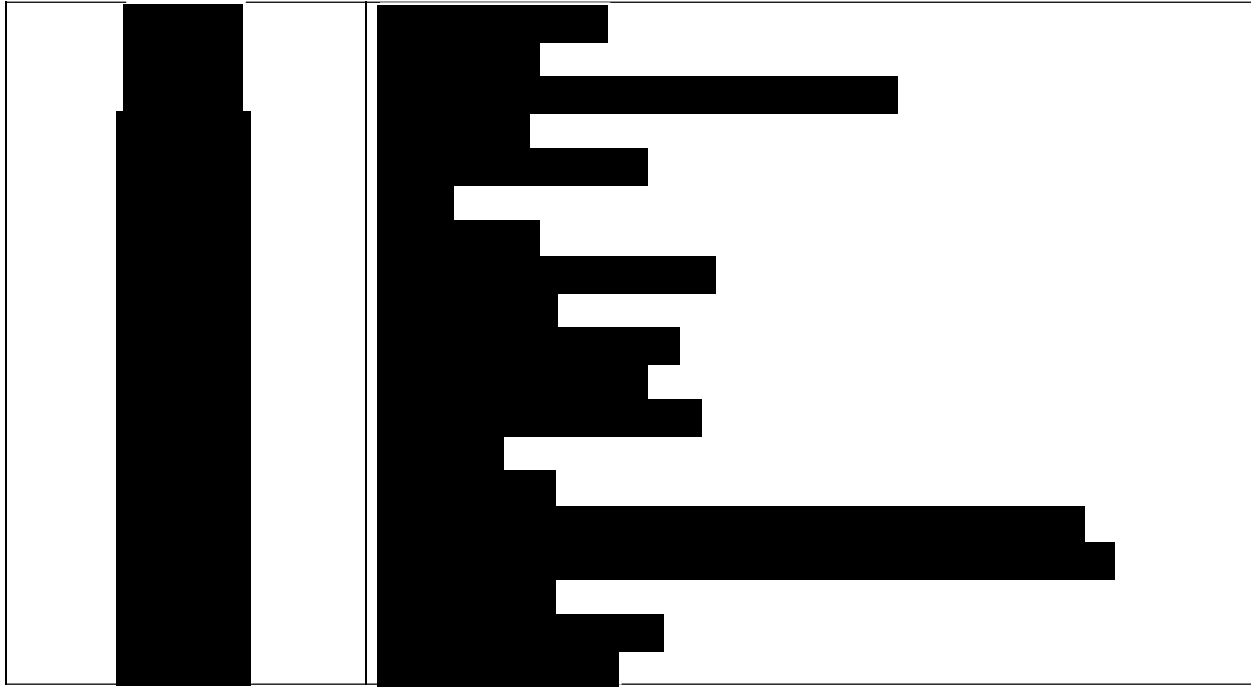
No previous oil and gas development has taken place in the parcel (Appendix B). Medium and high site probability are predicted across large areas within the parcel, interspersed with small discrete areas of low site probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, and the application of BLM’s stipulations Controlled Surface Use – Cultural (UT-S-170) and the Controlled Surface Use – Alkali Ridge ACEC, the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 44 comprises 1600 acres and is located on the east edge Alkali Point, above Montezuma Creek between its confluences with Johnny Benal Canyon and Nancy Canyon. Previous survey in the parcel has inventoried 351 acres, 22% of the parcel (Appendix A).

Table 73 Cultural Resource Projects in Parcel 044

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1600	U80AF0318 U80CD0340 U81NH0543 U81UB0401 U82DB0306 U83EC0373 U84AS0329 U84AS0395 U84LA0109	351	22	41	35	85



There are two (2) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium and high site probability are predicted across large areas within the parcel, interspersed with small, discrete areas of low site probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Parcel 47 comprises 1904.96 acres and is located at the southwest end of Cedar Park, spanning Monument Canyon and its confluence with Bull Canyon. Previous survey in the parcel has inventoried 318 acres, 16% of the parcel (Appendix A).

Table 75 Cultural Resource Projects in Parcel 047

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1940.96	U77BC0150 U77BC0204 U79AF0203 U80AF0317 U81AF0433 U82BC0331 U82DB0306 U83AS0251 U83LA0267 U84AS0323 U84LA0238 U84LA0824 U84LA0832	318	16	33	28	48

	U85LA0541 U86LA0756 U87AF0564 U87LA0439 U88LA0144 U91FE0571 U91LA0250 U95JB0198					
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The parcel contains all or portions of [REDACTED] known sites (Appendix E), [REDACTED] of which are recommended eligible for the NRHP. These include [REDACTED] sites interpreted as [REDACTED]. There are [REDACTED] previously recorded sites within ½ mile of the parcel.

Table 76 Historic Properties in Parcel 047

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

No previous oil and gas development has taken place in the parcel (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with areas of high site probability and small, discrete areas of low probability (Appendix C).

Based on moderate survey coverage, current known site densities, large areas of moderate probability, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G),

and judicious well placement if necessary, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 48 comprises 1280 acres and is located on the Rincon at the head of Bug Canyon, south of Monument Canyon. Previous survey in the parcel has inventoried 431 acres, 34% of the parcel (Appendix A).

Table 77 Cultural Resource Projects in Parcel 048

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
1280	U77BC0150 U77BC0204 U82CD0356 U82DB0306 U83AS0251 U83LA0268 U84AS0323 U84LA0810 U85LA0541 U86AF0388 U86LA0010 U86LA0756 U90LA0474 U91FE0571 U91LA0250 U95JB0198 U96FE0039 U14ERO258	431	34	25	23	45

The parcel contains all or portions of [redacted] known sites (Appendix E); [redacted] of which are recommended eligible for the NRHP. These include [redacted] sites interpreted as [redacted] and [redacted]. There are [redacted] previously recorded sites within ½ mile of the parcel.

Table 78 Historic Properties in the Parcel

Smithsonian Trinomial	Description
[redacted]	[redacted]

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There is one (1) plugged and abandoned well in the parcel which was developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with areas of high site probability and small, discrete areas of low probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 49 comprises 640 and is located on Bug Point, spanning Nancy Patterson Canyon. Previous survey in the parcel has inventoried 157 acres, 25% of the parcel (Appendix A).

Table 79 Cultural Resource Projects in Parcel 049

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
640	U79CD0237 U80CD0334 U80DB0364 U82DB0306 U83LA0263 U83LA0326 U83LA0331 U84AS0314 U84AS0323 U84LA0810 U87BC0344 U91LA0250	157	25	15	14	42

The parcel contains all or portions of [redacted] known sites (Appendix E), [redacted] of which are recommended eligible for the NRHP; these include [redacted] interpreted as [redacted]. There are [redacted] previously recorded sites within ½ mile of the parcel.

Table 80 Historic Properties in Parcel 049

Smithsonian Trinomial	Description
[redacted]	[redacted]



There is one (1) plugged and abandoned well in the parcel which was developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across large areas within the parcel, interspersed with discrete areas of high site probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), and judicious well placement if necessary, this large, topographically complex parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties.

Parcel 50 comprises 965.04 acres and is located on the east flank of Cross Canyon at the mouth of McLean Basin, hard on the Colorado border. Previous survey in the parcel has inventoried 409 acres, 42% of the parcel (Appendix A).

Table 81 Cultural Resource Projects in Parcel 050

Acreage	Projects	# Acres Surveyed	% Parcel Surveyed	Sites Recorded	Eligible Sites	Sites within ½ Mile
965.04	U78AF0277	409	42	25	10	25
	U79AF0203					
	U79PA0255					
	U80AF0317					
	U80AF0319					
	U82DB0306					
	U82UB0418					
	U83AS0250					
	U83AS0251					
	U83EC0373					
	U83PA0349					
	U84AS0117					
	U84AS0323					
	U84LA0238					
	U85LA0574					
	U89LA0701					
	U10FO0916					
	U12FO0399					
	U12XN0454					
	U13FO1089					

The parcel contains all or portions of [redacted] known sites (Appendix E). [redacted] of the sites are recommended eligible for the NRHP; these include [redacted] interpreted as [redacted] and [redacted] sites. There are [redacted] previously recorded sites within ½ mile of the parcel. Data submitted by Friends of Cedar Mesa (FCM) for the consulting parties meeting indicates the presence of [redacted] site they call a ‘community site’ [redacted] the parcel; for which they desire viewshed analysis to be part of the calculus for determination of effect.

The site is the [redacted] in Colorado.
 The site is a [redacted]

U82CD0356					
U82FD0392					
U82UB0418					
U83AS0251					
U83EC0373					
U84AS0117					
U84AS0323					
U84LA0120					
U84LA0158					
U84LA0803					
U85LA0574					
U85LA0742					
U86AS0811					
U86LA0719					
U86LA0754					
U86LA0755					
U87LA0425					
U88AS0281					
U89LA0701					
U95JB0398					
U12XN0454					

The parcel contains all or portions of [REDACTED] known sites (Appendix E). [REDACTED] of the sites are recommended eligible for the NRHP; these include [REDACTED] interpreted as [REDACTED]. There are [REDACTED] previously recorded sites within ½ mile of the parcel.

Table 84 Historic Properties in Parcel 051

Smithsonian Trinomial	Description
[REDACTED]	[REDACTED]

There are six (6) plugged and abandoned wells in the parcel which were developed without adverse effects to historic properties (Appendix B). Medium site probability is predicted across the majority of the parcel, interspersed with areas of high and low site probability (Appendix C).

Based on high survey coverage, current known site densities, large areas of moderate probability, previous development without adverse effect, and the application of lease stipulations (Cultural Resources Protection Stipulation, stipulation UT-S-170; Appendix G), the parcel has the potential to accommodate a well pad and access comprising 9.6 acres of disturbance without adverse effects to historic properties. While sites potentially sensitive to indirect and/or cumulative effects are present, these effects can be avoided through judicious placement of a well within this large, topographically complex parcel.

Conclusion and Determination of Effect:

This report documents BLM's Section 106 reasonable and good faith identification effort to take into account this lease sale's potential to effect historic properties. To this end, BLM conducted an intensive records review and GIS analysis for the 43 parcels in Grand and San Juan Counties, totaling 40,885.87 acres within the Canyon Country District administrative area for competitive oil and gas lease sale in March 2018.

Using extant site data, survey records, the Moab Planning Model, the Monticello Planning Model, the ARRA data, ethnographies, environmental data, and information gathered through formal consultation and public participation, BLM analyzed whether reasonably foreseeable development could occur within each parcel without adverse effect to historic properties. Reasonably foreseeable development scenarios for this lease were defined as 15 acres (Moab FO parcels), 8.2 acres (Moab MLP parcels), and as 9.6 acres (Monticello FO parcels) of disturbance can be accommodated within a lease parcel without adverse effects to historic properties. The APE is the area bounded by each parcel combined with an additional one-half mile buffer of each parcel.

To broadly summarize the results of the records review, within these 43 parcels, 473 cultural resource surveys have been completed. Previous cultural resource inventory intensity varies widely across the parcels, ranging from 2% to 55%. There are [REDACTED] documented sites located within the parcels, [REDACTED] of which are eligible. Southeast Utah at large has been continuously occupied since the Early Paleoindian period and there are a wide variety of sites encountered within and near these parcels. The Moab FO sites are typically prehistoric lithic scatters as well as sites associated with the Pershing Missile Launch Area of the [REDACTED] and potential traces of the Old Spanish Trail. The Monticello FO sites include a variety of [REDACTED] sites; [REDACTED].

In addition to the above analysis, BLM took into consideration previous oil and gas leasing and development within and near the APE. Sixty-four wells have been previously developed within 27 of the 43 parcels included in this undertaking, all without adverse effects. The 64 wells includes 11 wells in six of the eight Moab Field Office parcels, seven wells within three of the 14 Moab MLP parcels, and 46 wells within 18 of the 21 Monticello Field Office parcels.

As a crucial part of this process, the BLM invited consultation with thirteen Native American Tribes, the Utah SHPO, and seven organizations with a demonstrated interest in this undertaking and received requests from three organizations to be consulting parties for this undertaking. As of January 4, 2018, the consulting parties for this undertaking include the Hopi Tribe, the Navajo Nation, the Utah SHPO, Friends of Cedar Mesa, the National Trust for Historic Preservation, the Southern Utah Wilderness Alliance, San Juan County, the Old Spanish Trail Association, the Utah Professional Archaeological Council, and the Advisory Council on Historic Preservation.

Additional opportunities for public involvement occurred during the public outreach and comment period for the lease sale National Environmental Policy Act (NEPA) Environmental Assessment (EA).

Consulting parties provided BLM with thorough input, suggestions for clarification, and cultural resources concerns in response to BLM's early solicitation for cultural resources data and concerns, an all-day consulting parties meeting, and as written comments on the initial draft of this report. In addition, Friend of Cedar Mesa and URARA provided BLM with point data of cultural resources known to them and about which they were concerned with effects from this undertaking, particularly indirect effects. All consulting party written comments and BLM responses for each are available in Appendix H.

In response to consulting party input, BLM incorporated into its analyses FCM and URARA's cultural resources location data, the Monticello Field Office planning model, research data from Dr. Fumiyasu Arakawa, and two ethnographies. Based on consulting party concerns, BLM also expanded its consideration of the Alkali Ridge National Historic Landmark and expanded its analysis of indirect effects. The single largest change as a result of multiple consulting party concerns was the addition of viewshed analyses for seven parcels within the Monticello Field Office. Friends of Cedar Mesa (FCM) provided BLM, as part of their comments on the draft of this report, a number of GIS points representing sites they wished to be considered as part of the analysis. Half-mile viewsheds within the parcels were generated from selected points FCM provided. The results of the analyses are included as part of the individual parcel analysis for parcels 29, 32, 36, 37, 38, 39 and 50. Viewshed analyses of the parcels for which FCM provided suggested points were incorporated into the determination of effect for each parcel.

Analysis of the above data demonstrates that there is room for reasonably foreseeable development in all parcels without adverse effects to historic properties. In all cases, direct effects to historic properties from a single well pad can be avoided through the judicious placement of that well within the lease areas. Similarly, the size and topographic complexity of the parcels containing or near to historic properties potentially sensitive to indirect effects will allow for the avoidance of indirect and/or cumulative effects through the judicious placement of disturbances.

In addition, stipulations attached to each parcel give BLM the authority and discretion to prevent adverse effects. By applying the Cultural Resource Protection Stipulation to all parcels, No Surface Occupancy – San Juan River ACEC (UT-S-16) to parcel 036, Controlled Surface Use – Alkali Ridge ACEC (UT-S-17) to parcels 028, 030, 032, 033, 037, 038, 039, 040, 043, Controlled Surface Use – Cultural (UT-S-170) to all Monticello Field Office parcels, and Controlled Surface Use - Old Spanish Trail (UT-S-395) to parcels 009, 021, 023, 024, 025, BLM retains the authority to require the modification of, or even disapprove, parcel development plans if cultural resources conflicts cannot be resolved.

Based on the information and analysis documented in this report and supporting documentation in the appendices, BLM makes a determination of **No Adverse Effect** to historic properties consistent with 36CRF800.5 (b) for the March 2018 Canyon Country District Oil and Gas Lease Sale.

Finally, the sale of a lease parcel does not authorize any ground disturbing activities, including the development of specific well pads or other oil and gas facilities. Future undertakings associated with oil and gas development on any sold leases will be handled through separate, future National Environmental Policy Act actions and National Historic Preservation Act – Section 106 processes. Meeting lease stipulation requirements is a critical component of having any future proposed development approved by the BLM. All stipulations will be enforced during any future authorization to conduct exploration or operational activities under a lease. In addition, there are multiple Lease Notices attached to each parcel, ensuring interested parties and future lessees are aware of BLM's cultural resources expectations for each parcel in terms of resource expectations, cultural resource laws, and consultation (Appendix G).