

Fracking the Sacred: Resolving the Tension Between Unconventional Oil and Gas Development and Tribal Cultural Resources

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Unconventional oil and gas development and the infrastructure it requires are surging in the United States, despite the inconsistent market for oil and gas.² By most estimates, if unconventional gas exploration and extraction continues at current rates, the United States could become a net exporter of natural gas by 2020.³ One reason for this projection is the relative strength of the United States' unconventional oil and gas reserves, which are enormous. This nation is home to the second largest "tight oil" reserves in the world⁴ and the fourth largest shale gas reserves, both of which are tapped for extensive development.⁵ Although federal and tribal

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² Evan J. House, *Fractured Fairytales: The Failed Social License for Unconventional Oil and Gas Development*, 13 Wyo. L. Rev. 5, 8 (2013); Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 Fordham Envtl. L. Rev. 115, 115 (2009).

³ Jude Clemente, "World Benefits from U.S. Liquefied Natural Gas Exports," *Forbes*, Jan. 10, 2016, <http://www.forbes.com/sites/judeclemente/2016/01/10/world-benefits-from-u-s-liquefied-natural-gas-exports/#6ecdc3502b71>.

² Evan J. House, *Fractured Fairytales: The Failed Social License for Unconventional Oil and Gas Development*, 13 Wyo. L. Rev. 5, 8 (2013); Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 Fordham Envtl. L. Rev. 115, 115 (2009).

³ Jude Clemente, "World Benefits from U.S. Liquefied Natural Gas Exports," *Forbes*, Jan. 10, 2016, <http://www.forbes.com/sites/judeclemente/2016/01/10/world-benefits-from-u-s-liquefied-natural-gas-exports/#6ecdc3502b71>.

⁴ U.S. Energy Info. Admin., "Going Global: Tight Oil Production" (July 2014), <http://www.eia.gov/conference/2014/pdf/presentations/webster.pdf>.

⁵ U.S. Energy Info. Admin., "World Shale Resource Assessments" (Sept. 24, 2015), <http://www.eia.gov/analysis/studies/worldshalegas/>. The growing push for "cleaner" energy sources has only increased the desirability of unconventional natural gas development in the United States, resulting in all-time peak production outputs during the last decade. U.S. Energy Info. Admin., Short Term Energy Outlook (Feb. 9, 2016), <https://www.eia.gov/forecasts/steo/index.cfm> (noting that "[n]atural gas working inventories were 2,934 billion cubic feet (Bcf) on January 29, 20% higher than during the same week last year and 18% higher than the previous five-year average (2011-15) for that week"); *Id.*, "U.S. Natural Gas Marketed Production," <https://www.eia.gov/dnav/ng/hist/n9050us2a.htm>.

lands make up a relatively small percentage of the total oil and gas producing lands, that percentage becomes significant when analyzed against the other values Congress has designated for these lands.⁶

The impacts of unconventional oil and gas operations are vast and multifaceted, but this form of energy development has been particularly devastating to the cultural resources of indigenous Americans. Tribal cultural resources are virtually everywhere; they do not observe political or jurisdictional boundaries, and they are continually threatened by unconventional oil and gas operations. The recent controversy over the Dakota Access Pipeline (DAPL) and the threat it poses to the cultural resources of the Standing Rock Sioux Tribe illustrates this tension all too well.⁷ And that is but one example. More broadly, the Bureau of Land Management (BLM), which is the agency that manages the largest percentage of federal lands, has committed over ninety percent of the lands it manages to oil and gas production.⁸ Even in Indian Country, tribes are opening their lands to oil and gas production.⁹ For cultural resources in the path of the unconventional oil and gas trajectory, these trends will result in permanent cultural losses.

This article will focus on four prominent areas where unconventional oil and gas development threatens cultural resources: the Sacred Stone camp and burial sites along the proposed DAPL, near the Standing Rock Sioux Reservation in North Dakota, the greater Chaco Canyon region in northwestern New Mexico and southern Utah, the Bears Ears region of

⁶ <https://www.eia.gov/analysis/requests/federallands/>.

⁷ *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, No. CV 16-1534 (JEB), 2016 WL 4734356, at *1 (D.D.C. Sept. 9, 2016); Joe Heim & Mark Berman, “Federal Government Moves to Halt Oil Pipeline Construction Near Standing Rock Sioux Tribal Land,” *Washington Post* (Sept. 9, 2016), https://www.washingtonpost.com/news/post-nation/wp/2016/09/09/federal-judge-denies-standing-rock-sioux-tribes-request-to-stop-work-on-four-state-oil-pipeline/?utm_term=.1616a3a02a04 (Heim & Berman).

⁸ The Wilderness Society, “No Exit: Fixing the BLM’s Indiscriminate Energy Leasing”, at 2, http://wilderness.org/sites/default/files/TWS%20No%20Exit%20Report%20Web_0.pdf.

⁹ <https://www.eia.gov/analysis/requests/federallands/>.

southeastern Utah, and the Blackfeet Reservation in western Montana. All are located above large oil and gas reserves proposed for hydraulic fracturing or tar sands development., or along the transport route to move crude oil to a refining location.¹⁰ Despite tribal objections to the siting of the unconventional oil and gas developments in areas of great cultural value, federal law does little to protect tribal values. The reason for this is a combination of international and domestic demand for the oil and gas reserves, and highly discretionary federal and tribal mineral leasing and cultural protection laws.¹¹

This Article will discuss the laws that ostensibly protect tribal cultural resources on federal or tribal lands, as well as the multitude of federal and tribal laws governing unconventional oil and gas development on both types of land. For instance, on federal land, there are general environmental statutes like the National Environmental Policy Act (NEPA), which gives an agency discretion to protect cultural resources from the hazards of oil and gas operations.¹² The multiple-use statutes, such as the Federal Land Policy and Management Act (FLPMA) and the National Forest Management Act (NFMA), also provide discretion to protect

¹⁰ *See e.g.*

http://www.blm.gov/style/medialib/blm/co/nm/canm/CANM_Documents.Par.65309.File.dat/CANMFinalPlanMap2_FluidMineralLeasing.pdf (showing dozens of active wells in and near Canyons of the Ancients National Monument, in Colorado);

http://www.blm.gov/style/medialib/blm/co/nm/canm/CANM_Documents.Par.71946.File.dat/TC_acquisition_map_1.pdf (showing Bureau of Land Management lands along the northwestern border of Mesa Verde National Park); *Dine Citizens Against Ruining Our Env't v. Jewell*, No. CIV 15-0209 JB/SCY, 2015 WL 4997207, at *12 (D.N.M. Aug. 14, 2015). Heim & Berman.

¹¹ 30 U.S.C. §§ 181-287; 43 U.S.C. §§ 1701 *et seq.*; 16 U.S.C. § 470aa *et seq.*; 16 U.S.C. § 470 *et seq.*; 42 U.S.C. § 1996. On tribal lands, there are several statutes that govern oil and gas operations, and some tribes have laws protecting cultural and other resources on their lands, but many tribal cultural resources are not located on federal lands due to the forced relocation policies of the federal government during the nineteenth century, rendering many tribes powerless to protect cultural resources not located within their territorial borders.

¹² 43 U.S.C. §§ 4331-21; *see Enos v. Marsh*, 769 F.2d 1363, 1373-74 (9th Cir. 1985).

cultural resources but do not require it.¹³ Similarly, and surprisingly, the statutes with a stated purpose of protecting cultural resources, such as the Archaeological Resources Protection Act (ARPA) and the Native American Graves Protection and Repatriation Act (NAGPRA), are largely procedural and impose only temporary barriers to the development of unconventional oil and gas in the vicinity of cultural resources.

To date, the scholarship on this issue has addressed the general lack of importance placed on preserving items of historic or prehistoric significance in the United States, the effects of cultural resource statutes on federal land management decisions,¹⁴ and discrete but unrelated subtopics related to cultural resource protection, such as theft of archaeological resources.¹⁵ Environmental and natural resources scholarship has addressed oil and gas development in general, and some recent publications have addressed unconventional mineral development specifically.¹⁶ However, the current legal scholarship surrounding oil and gas development has yet to address the enormous tension between these two values in a comprehensive manner. That conflict is precisely what this Article sets out to examine.

It will begin by defining unconventional oil and gas development and explaining the various extraction techniques and processes. Then the Article will highlight three examples of cultural resources on federal and tribal lands in the United States facing threats from existing or

¹³ See 43 U.S.C. § 1711; 16 U.S.C. § 429; Walter E. Stern & Lynn Slade, *Effects of Historic and Cultural Resources and Indian Religious Freedom on Public Lands Development: a Practical Primer*, 35 Nat. Resources J. 133, 139 (1995); G. C. Coggins, PUBLIC NATURAL RESOURCES LAW § 15.04(4) (2d ed. 2007).

¹⁴ Karan L. Dunnigan & Holly C. Meyer, ACCESS TO FEDERAL OIL AND GAS ON PUBLIC LANDS, 2008 No. 1 RMMLF-INST Paper No. 3.

¹⁵ Stern & Slade, at 134; Glenna J. Sheveland, *Evaluation of the Effectiveness of Cultural Resource Laws in Criminal Prosecution for Theft of Archeological and Cultural Resources from Federal Lands*, 28 New Eng. J. on Crim. & Civ. Confinement 27, 28 (2002).

¹⁶ House, at 8; David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. Pa. L. Rev. 431, 488 (Jan. 2013).

proposed unconventional oil and gas development. Following this discussion, the Article will explain relevant laws governing oil and gas exploration on federal public and tribal lands, including the newly promulgated BLM fracking rule. Then, the various laws related to cultural resource protection in the United States will be discussed, with a focus on the intersection between unconventional mineral development and protection of cultural resources in particular. Finally, this Article will conclude with some recommendations for reconciling the statutory disconnect, in a manner that will actually protect the resources at stake.

I. Unconventional Oil and Gas Development: Definitions and Trends.

A. Unconventional Oil and Gas Terminology.

According to the U.S. Department of Energy, “unconventional” oil and gas development is a term that has yet to be defined.¹⁷ As a starting point though, it can perhaps best be defined by what it is not, which is any conventional form of liquid oil or gas obtained through traditional vertical drilling methods. That is to say, one quality that makes unconventional oil and gas unconventional is the drilling or extraction method used. Another is the nature of the subsurface formations from which the minerals can be extracted. Finally, the form that these substances take upon reaching the surface is often unconventional as well, particularly with respect to oil, which can be heavier and thicker when it is located beyond the reach of conventional drills, deep beneath the surface.¹⁸

Unconventional oil and gas is often extracted from geological formations previously deemed “inaccessible,” such as shale plays, “tight gas” formations, coalbed seams, and oil

¹⁷ Deborah Gordon, *Understanding Unconventional Oil*, The Carnegie Papers, at 5 (May 2012), http://carnegieendowment.org/files/unconventional_oil.pdf.

¹⁸ *Id.*

sands.¹⁹ Thus, unconventional oils in particular “tend to be heavy, complex, carbon laden, and locked up deep in the earth, tightly trapped between or bound to sand, tar, and rock.”²⁰ They “include *tight* oils, [or] oil trapped in shale that can be accessed by hydraulic fracturing or fracking, a procedure by which rock formations are fractured by injecting fluids to force them open, allowing oil (and gas) to flow out.”²¹ They also include “[u]ltra-deep oils that are buried as remotely as 10 miles below the water’s surface . . . [and] coal-like oils[,] . . . such as bitumen in tar and oil sands, kerogen in oil shale, and liquid oils derived from coal itself.”²² As for unconventional gas, it most often takes the form of “shale gas, tight gas, coal bed methane, coal seam gas, and deep-ocean gas hydrates.”²³

Regarding the method of extraction, this varies wildly depending on the subsurface formation, but includes fracking, and oil sands extraction.²⁴ In essence, “[a]s conventional oils become less accessible, new, more technical, energy-intensive methods are being developed for their recovery, from ultra-deep wells drilled miles below the sea to fracturing shale rock in order to tap oil trapped in low-permeability siltstones, sandstones, and carbonates deep in the earth.”²⁵ The same is true of unconventional natural gas.²⁶ Although the characteristics of unconventional

¹⁹ <http://www.ogfj.com/unconventional.html>.

²⁰ Deborah Gordon, Understanding Unconventional Oil, The Carnegie Papers, at 1 (May 2012), http://carnegieendowment.org/files/unconventional_oil.pdf. Some scholars break oil and gas production into three categories, conventional, transitional (including tight shale oil and gas), and unconventional (including oil sands and oil shale). For the purposes of this Article, transitional and unconventional methods will both be defined as “unconventional.”

²¹ *Id.* at 11.

²² *Id.*

²³ *Id.*

²⁴ David A. Dana & Hannah J. Wiseman, A Market Approach to Regulating the Energy Revolution: Assurance Bonds, Insurance, and the Certain and Uncertain Risks of Hydraulic Fracturing, 99 Iowa L. Rev. 1523, 1526 (2014).

²⁵ Gordon, at 12.

²⁶ House, at 12.

oil and gas are somewhat general, they provide a basis for discussion of the relevant trends in the industry and its regulation.

B. Unconventional Oil and Gas Trends.

As unconventional oil and gas extraction techniques have improved, an American oil and gas “phenomenon” has emerged, in which the United States has been able to access domestic oil and gas reserves at an unprecedented rate. This phenomenon is freeing the nation from some of its dependence on foreign markets, while at the same time, spurring industry efforts in the unconventional drilling sector.²⁷ In 2014 alone, “approximately 560,000 barrels of oil per day and 7.5 billion cubic feet of natural gas per day were produced on onshore [federal] lands, including tribal lands.”²⁸ This production has been deemed a “domestic energy revolution.”²⁹

Two primary unconventional gas resources have been driving this revolution: shale gas and tight gas.³⁰ They formed a small percentage of U.S. domestic production in the early 2000s but have been increasing as a percentage since the mid-2000s, which is expected to continue until at least 2020.³¹ Total natural gas production in the United States “increased by 35% from 2005 to 2013, . . . largely from the development of shale gas resources in the Lower 48 states (including natural gas from tight oil formations).”³² By conservative estimates, the shale gas and tight gas production rate in the Lower Forty-Eight will increase by seventy-three percent by 2040.³³

²⁷ *Id.* at 8.

²⁸ *Dine Citizens Against Ruining Our Env't v. Jewell*, No. CIV 15-0209 JB/SCY, 2015 WL 4997207, at *12 (D.N.M. Aug. 14, 2015).

²⁹ House, at 8.

³⁰ *Id.*

³¹ U.S. Energy Info. Admin., Annual Energy Outlook 2015, [http://www.eia.gov/forecasts/aeo/pdf/0383\(2015\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf)

³² *Id.* at 36.

³³ *Id.*

North American tight shale oil reserves are focused “in the northern Bakken (spanning North Dakota, Montana, Saskatchewan, and Manitoba); in Eagle Ford, Barnett, and the Permian basin in Texas and New Mexico; in the Cardium play in Alberta; in the Miocene Monterey and Antelope deposits in California; in Mowry-Niobrara in Wyoming and Colorado; in Oklahoma’s Penn Shale; in Montana’s Exshaw Shale; and in Utica Shale in Colorado, Wyoming, and New Mexico.”³⁴ Locations with tight shale reserves include “New York, Maine, Mississippi, Utah, and Alaska’s North Slope and Cook Inlet.”³⁵ Oil sands resources are located in “at least a dozen states, including (in relative order) Alaska, Utah, Alabama, California, Texas, Wyoming, Colorado, and Oklahoma.”³⁶ The oil sands resources “may also be less easily recovered due to different physical and chemical compositions.”³⁷ As for oil shale, the “richest and thickest” deposits are “in the Green River Formation, which covers portions of Colorado, Utah, and Wyoming, Prudhoe Bay, Alaska, and additional basins in Colorado (Piceance), Utah and Colorado (Uinta), and Wyoming (Washakie).”³⁸

Globally, conventional oil production has plateaued, and while many had expected that renewables such as biofuels, solar electricity, and light gas would offset the decline in conventional oil production, what has happened instead is that the “heavier” oil found in deep, tight formations has begun to replace it.³⁹ In other words, while conventional oil production fell from a peak of almost eighty million barrels per day in 1990 to less than seventy million barrels per day in 2015, global demand for oil increased, and biofuels have had only played a small role

³⁴ Gordon, at 16.

³⁵ *Id.*

³⁶ *Id.* at 17.

³⁷ *Id.*

³⁸ Gordon, at 17.

³⁹ *Id.* at 3.

in offsetting the 2015 demand for approximately eighty-five million barrels a day.⁴⁰ The bulk of the roughly fifteen million-barrel deficit has been accounted for by an increase in natural gas and unconventional oil production.⁴¹

The political geography of oil development, in particular, is changing as well.⁴² While the Middle East, Africa, and Russia used to be the leading sources of oil, North America has taken over as “home to the world’s largest stores of unconventional oils.”⁴³ Tight oil alone has gone from a negligible source of U.S. oil production in 2005 to more than three million barrels per day in 2015, and is projected to increase to over 4,000 barrels per day in 2020.⁴⁴ If this projection holds, tight oil will become the largest source of U.S. oil production by 2020.

As global demand for liquid oils continues to increase, several types of unconventional oil production are expected to satisfy it, including “oil sands, tight oil, new heavy oils, deepwater oil and eventually oil shale.”⁴⁵ The unproved onshore oil reserves in the United States far outnumber the proved oil reserves, measured in billions of barrels per day, with the proved Lower Forty-Eight onshore oil reserves coming in at 24.5 bbd and the unproved coming in at

⁴⁰ *Id.*

⁴¹ *Id.* Although the U.S. Energy Information Administration notes that total production of oil and gas on federal lands actually decreased from 2003-2014, <https://www.eia.gov/analysis/requests/federallands/pdf/table1.pdf>, the expressions of interest in oil and gas on federal lands has increased during that same time. http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/energy/oil___gas_statistics/data_sets.Par.40656.File.dat/EOI%20Acres%202006-2013.pdf

⁴² Gordon, at 15.

⁴³ *Id.*

⁴⁴ Andrew Slaughter, “Global Supply and Market Impacts of U.S. Unconventional Oil Production Growth”, U.S. Energy Info. Admin. (June 18, 2013), <http://www.eia.gov/conference/2013/pdf/presentations/slaughter.pdf>.

⁴⁵ Gordon, at 4.

144.8 bbd.⁴⁶ In Alaska, the onshore and offshore proved reserves are 3.4 bbd and the unproved reserves are estimated at 34 bbd.⁴⁷ The Colorado River Basin alone “contains the largest untapped deposits of oil shale in the world.”⁴⁸ Roughly speaking, this means that only slightly more than thirteen percent of the onshore U.S. oil reserves have been developed, leaving roughly eighty-seven percent left to tap.

With respect to natural gas, the proved onshore gas reserves in the Lower Forty-Eight total 287.3 trillion cubic feet (tcf), while the unproved, onshore gas reserves measure 1,392 tcf.⁴⁹ This is a smaller percentage discrepancy than with oil but shows a striking amount of unproved reserves in the Lower Forty-Eight states.⁵⁰ Of this total, only fifteen percent of the tight gas reserves, nineteen percent of the shale gas and tight oil reserves, and ten percent of the coalbed methane reserves have been developed.⁵¹ In Alaska, the potential for development of natural gas resources is huge—only .03 percent of the total onshore and offshore, gas reserves have been developed.⁵²

Natural gas has also become one of the largest “domestically produced energy resource[s].”⁵³ It is the preferred fuel source for large power plants due to its relatively low cost and cleaner emissions, which allow these facilities to continue operating in compliance with

⁴⁶ U.S. Energy Info. Admin., Assumptions to the Annual Energy Outlook 2015, p. 129, <http://www.eia.gov/forecasts/aeo/assumptions/pdf/oilgas.pdf>. The Administration notes that only areas where oil and gas development is allowed were factored into the numerical values in the report. *Id.* at 130.

⁴⁷ *Id.*

⁴⁸ Melissa Sevigny, “Scientists Call for Moratorium on Oil Shale, Tar Sands Development,” KJZZ.org (June 19, 2015).

⁴⁹ *Id.* at 130.

⁵⁰ *Id.* (noting that 17% of the total lower 48 gas reserves have been proved).

⁵¹ *Id.*

⁵² *Id.*

⁵³ Hilary M. Goldberg, *et al.*, *It’s a Nuisance: The Future of Fracking Litigation in the Wake of Parr v. Aruba Petroleum, Inc.*, 33 Va. Env’tl. L.J. 1, 5 (2015).

ever-stricter environmental regulations under the Clean Air Act.⁵⁴ National health organizations such as the American Lung Association have even endorsed fracking as a means of increasing the use of natural gas, which they argue improves air quality and consequently, public health.⁵⁵ All of these factors indicate that the tension among unconventional oil and gas operators, the BLM, tribes, and other groups seeking to protect cultural resources on federal and tribal lands will only grow in the coming years.

C. Unconventional Oil and Gas Development Methods.

As noted above, the unconventional forms of natural gas are “tight gas sands, coalbed methane, and shale gas.”⁵⁶ Unconventional oil typically includes oil sands, tight oil, new heavy oils, and oil shale.⁵⁷ Fracking is the most common and effective method to extract all forms of natural gas, as well as tight oil, heavy oil, and oil shale.⁵⁸ The process of hydraulic fracturing is fairly simple. It involves using water and chemical mixtures to fracture tight subsurface rock spaces, which frees trapped oil and gas pockets.⁵⁹ After a well is drilled, either vertically, horizontally, some combination of the two, or using a spiral pattern, millions of gallons of water and chemical additives are pumped into the well.⁶⁰ The water and chemical mixture is injected at

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ House, at 18.

⁵⁷ Andrew Slaughter, “Global Supply and Market Impacts of U.S. Unconventional Oil Production Growth”, U.S. Energy Info. Admin. (June 18, 2013), <http://www.eia.gov/conference/2013/pdf/presentations/slaughter.pdf>.

⁵⁸ House at 18; Phillip M. Bender, California Creates New Regulatory Regime for "Fracking", ABA Trends, November/December 2013, at 13.

⁵⁹ Michael Dillon, *Water Scarcity and Hydraulic Fracturing in Pennsylvania: Examining Pennsylvania Water Law and Water Shortage Issues Presented by Natural Gas Operations in the Marcellus Shale*, 84 Temp. L. Rev. 201, 207 (2011); House, at 27.

⁶⁰ Philip P. Cristaldi III, *Have We Been Looking at this All Wrong? Fracking and the BLM's Proposed Regulations: A Different Idea to Promote Safe Operations*, 8 Fed. Cts. L. Rev. 21, 25 (2014).

a “very high rate of speed” to crack open the rock.⁶¹ When the rock breaks apart or fractures, the embedded oil or gas is released and flows back to the surface through the same well that was used to inject the fracking fluids.⁶²

The injected water and chemical mixture that flows back to the surface is referred to as “flowback” or “flowback fluids.”⁶³ After fracking is complete, the flowback must be disposed of and is often reinjected back into a nonproducing well or injected into a new disposal well.⁶⁴ Although industry publications often describe flowback as “water”⁶⁵ or even fail to mention this part of the operation at all,⁶⁶ the fluids produced by hydraulic fracturing operations are voluminous and may or may not resemble water depending on the needs of the drilling operator, the subsurface formation, and the depth of the reserve.⁶⁷ Because of the potential toxicity of the flowback fluids, they must be disposed of in a manner that protects drinking water supplies, either *in situ* or offsite.⁶⁸

Fracking is appealing to the industry in that it can extract more oil and gas from conventional wells, which may have already reached the end of their conventional producing

⁶¹ *Id.*

⁶² House, at 25.

⁶³ Cristaldi, at 26.

⁶⁴ Heather Whitney-Williams & Hillary M. Hoffmann, *Fracking in Indian Country: The Federal Trust Relationship, Tribal Sovereignty, and the Beneficial Use of Produced Water*, 32 *Yale J. on Reg.* 451, 466 (2015).

⁶⁵ Waterworld, “Techology Helps Recycle Texas Fracking Flowback, Produced Water,” Nov. 19, 2013, at <http://www.waterworld.com/articles/2013/11/produced-flowback-recycled-water-increased-at-eagle-ford-shale-texas.html>.

⁶⁶ Ken Cohen, “Facts on the hydraulic fracturing process,” June 17, 2011, at http://www.exxonmobilperspectives.com/2011/06/17/facts-hydraulic-fracturing-process/?gclid=Cj0KEQjwk7msBRCJj67khY2z_NIBeiQAPTFjv2D3dw13h-j89Z1CUITV9ORwsfTUeX0jo8-zJyT_TzwaAi_l8P8HAQ&gelsrc=aw.ds.

⁶⁷ BLM Final Fracking Rule, 80 *Fed. Reg.* at 16136 (Fracking Rule).

⁶⁸ *Id.*

lives.⁶⁹ With increasing horizontal drilling and spiral drilling technology, oil and gas operators are able to target subsurface formations where “tight” oil and gas are located in a relatively inexpensive manner and without requiring surface access rights immediately above the oil or gas pocket.⁷⁰ They can also drill multiple wells from a single surface pad, allowing greater potential for extraction with a smaller surface footprint, which requires a less complicated surface leasing arrangement.⁷¹

The extraction process for tar sands or oil sands is somewhat different. Tar sands are naturally-occurring petroleum deposits composed of a “mixture of sand, clay or other minerals, water and bitumen.”⁷² Because the oil is so tightly bound to the other materials found with it, the process for extracting it “involves more processing and refining than conventional crude oil.”⁷³ Two methods of extraction are used to “mine” oil from tar sands deposits, depending on whether the minerals are located near or on the surface or below ground.⁷⁴ For surface deposits, the method “is much like a strip mining operation, requiring heavy earthmoving equipment to clear away the dirt and rocks covering the thick, asphalt-like deposits.”⁷⁵ The size and scale of a large tar sands operation is massive, especially compared to the relatively compact surface area involved in a single fracking pad.⁷⁶

⁶⁹ Cristaldi, at 27.

⁷⁰ *Id.*

⁷¹ House, at 25.

⁷² Steven Watmore, *Tar Sands Oil and Pipeline Safety: Examining Regulatory Shortcomings*, 59 Wayne L. Rev. 175, 176 (2013).

⁷³ *Id.* at 177.

⁷⁴ *Id.*

⁷⁵ *Id.* at 177-78.

⁷⁶ The largest North American tar sands deposit is located in Alberta, Canada, and occupies an area roughly the size of the state of Florida. James Murphy, *Tar Sands Development: A Test for Our Energy Future*, 27 Nat. Resources & Env't 54, 54 (Summer 2012).

Removing the tar-laden material from the ground in a surface operation is only the first step in extracting the petroleum, however.⁷⁷ After this occurs, “it must be processed to separate the bitumen from the sand, clay, and other minerals that are also trapped in the tar sand.”⁷⁸ The mixture is then “treated with hot water and . . . agitated, making the bitumen rise to the top of the slurry mixture, where it can be skimmed off.”⁷⁹ The remaining slurry material, containing water, suspended solids, and processing chemicals, is deposited into slurry ponds, usually near the mining operation.⁸⁰

Subsurface tar sand deposits are mined in place, or *in situ*, using various techniques to separate the oil and bitumen mixture from any gravel or rock substrate, before pumping it to the surface.⁸¹ These methods involve injecting hot water or water and a chemical mixture into the tar sand deposit at a high rate of speed, which causes the oil and bitumen to soften, separate, and pool into an extraction well, typically located below the tar sand deposit.⁸² The oil and bitumen mixture can then be pumped from the extraction pool to the surface and retrieved for refining.⁸³ Once at the surface, the oil must be separated from the bitumen, which requires on-site refining infrastructure.⁸⁴ During the refining process, the bitumen is mixed “with other lighter petroleum products, typically natural gas condensate, to produce a more fluid substance that can be transported through pipelines for further refining and upgrading.”⁸⁵

⁷⁷ *Id.* at 178.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.* at 178-79.

⁸² *Id.* at 179.

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.* at 180.

Although the extent of the surface impact depends on the method of extraction, which is to some degree dependent on the resource being targeted, unconventional oil and gas extraction processes tend to leave a heavy surface “footprint.”⁸⁶ Fracking also uses vast quantities of water, which must be stored onsite after being used in production and then trucked offsite for disposal or reinjection.⁸⁷ Subsurface oil and tar sands operations leave a heavy, surface footprint due to the refining that must take place after these semi-liquid minerals are brought to the surface.⁸⁸ Finally, ancillary impacts of oil and tar sands operations are similar to strip-mining, requiring extensive excavating, dredging, removing of any vegetation, and leaving a giant, shallow hole in their wake.

After the oil and gas is extracted, it must be transported to a refining location, typically located in a distant state. Currently, the methods of transport include railways, trucks, pipelines, and ships, or a combination of the above.⁸⁹ By percentage, the largest amount of crude is moved in the United States using pipelines, followed by ships, then trucks and lastly, railways.⁹⁰ There are five main refining locations, on the west coast, in the northern Rocky Mountains, along the Gulf Coast, in the upper Midwest, and on the East Coast.⁹¹ All of the transport options involve risks, but none involves more infrastructure than a pipeline. Sometimes crossing over a thousand miles, multiple states and jurisdictions, pipelines have an immense impact on the areas they transect. In addition, refineries can only process certain types of crude, so new pipelines must be

⁸⁶ See Michael Burger, *The Re-Federalization of Fracking Regulation*, 2013 Mich. St. L. Rev. 1483, 1495 (2013).

⁸⁷ *Id.*

⁸⁸ Lilly Fang, *Environmental Review Problems of Cross-Border Projects Under Nepa: Lessons from the Tar Sands Pipelines*, 31 Stan. Env'tl. L.J. 285, 290 (2012).

⁸⁹ James Conca, “Pick Your Poison for Crude—Pipeline, Rail, Truck, or Boat,” *Forbes*, April 26, 2014, <http://www.forbes.com/sites/jamesconca/2014/04/26/pick-your-poison-for-crude-pipeline-rail-truck-or-boat/#2ce4b6895777>.

⁹⁰ *Id.*

⁹¹ *Id.*

constructed when the crude produced by a formation changes (because of the depth or location of the oil) and can no longer be transported and processed by the same refinery.⁹²

II. Unconventional Oil and Gas Development and Cultural Resources on Federal and Tribal Lands.

A. Cultural Resources on Federal Lands.

Like unconventional oil and gas resources, cultural resources are somewhat hard to define. The term “cultural resources” could theoretically include anything of cultural value to any population in the United States, including objects of antiquity, locations of historical significance, or religious sites. A discussion of the impacts of unconventional oil and gas extraction on everything that might qualify as a “cultural resource” is beyond the scope of this Article, which focuses only on areas of cultural significance to Native American tribes. This Article further limits its discussion to those resources located on federal and tribal lands.⁹³

Although exact numbers are impossible to determine, throughout the United States, the estimates of the total number of archaeological sites on federal lands range from two million to seven million.⁹⁴ In the Southwest alone, the catalogued sites are voluminous. New Mexico is estimated to contain 35,000 documented sites on roughly thirteen million acres of BLM land alone.⁹⁵ In Arizona, the BLM office has inventoried 11,000 sites on over 750,000 acres.⁹⁶ In a 2003 report on cultural and fossil resources on public lands, the BLM stated that there were

⁹² *Id.*

⁹³ Cultural resources, for obvious reasons, do not respect jurisdictional boundaries, and there are many located on state and private lands throughout the country.

⁹⁴ Roberto Iraola, *The Archaeological Resources Protection Act—Twenty-five Years Later*, 42 Duq. L. Rev. 221, 221 (2004); Monograph, Trade in Illicit Antiquities: The Destruction of the World's Archaeological Heritage, Chapter 11 Protecting the Past for the Future: Federal Archaeology in the United States (2001), at 97.

⁹⁵ http://www.blm.gov/nm/st/en/prog/more/cultural_resources.html.

⁹⁶ <http://www.blm.gov/az/st/en/prog/cultural.html>.

“hundreds of thousands” of documented archaeological sites on the 261 million acres of BLM-managed land.⁹⁷

This Article focuses on four examples of federal and tribal lands containing cultural resources under threat from unconventional mineral development. These examples were chosen because they illustrate so well the tension between these resources. The first three, Standing Rock Sioux sacred sites, and Chaco Canyon and the Bears Ears region in southeastern Utah,⁹⁸ are similar in that they are considered sacred to various tribes indigenous to the region, but they differ with respect to the type of resource and the method of oil and gas development. The Standing Rock Sioux sacred sites are not on federal or tribal land, but fall under federal jurisdiction by virtue of the permitting required. The Greater Chaco Region’s significance is somewhat more tangible given the large concentration of archaeological sites, all located on federal lands, while the Bears Ears region is considered sacred primarily because of its intangible cultural and religious value.⁹⁹ Finally,, the Blackfeet Reservation contains numerous examples of planned fracking operations that threaten sacred sites on tribal lands.

B. Standing Rock Sioux Sacred Lands, the Bakken Shale, and the Dakota Access Pipeline Proposal.

Perhaps no current controversy embodies the tensions between oil and gas development and cultural resources than the DAPL proposal.¹⁰⁰ DAPL is designed to transport “over a half-

⁹⁷ BLM 2003 inventory at 5, 9.

⁹⁸ Char Miller, “Is Nothing Sacred? Fracking and Chaco Culture National Historic Park”, KCET News online (Aug. 7, 2013), <http://www.kcet.org/news/redefine/revisit/commentary/golden-green/is-nothing-sacred-fracking-and-chaco-canyon-national-historic-park.html>.; Proposal to President Barack Obama for the Creation of Bears Ears National Monument, Bears Ears Inter-Tribal Coalition, p. 34 (Oct. 15, 2015) (Proposal).

⁹⁹ Proposal, p. 18.

¹⁰⁰ Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers, No. CV 16-1534 (JEB), 2016 WL 4734356, at *1 (D.D.C. Sept. 9, 2016); Joe Heim & Mark Berman, “Federal Government Moves to Halt Oil Pipeline Construction Near Standing Rock Sioux Tribal Land,” Washington

billion gallons of crude oil across four states daily.”¹⁰¹ It would carry crude extracted from the massive Bakken shale formation, underlying parts of North Dakota and Montana, and produced using primarily unconventional drilling techniques, to refining facilities in Patoka, Illinois.¹⁰² Because DAPL is sited primarily on private land, outside the Standing Rock Sioux Reservation, the federal permitting requirements are minimal, despite the “nearly 1,200” mile length of the project.¹⁰³ However, DAPL did require federal permits for the hundreds of locations where it would traverse federal waters.¹⁰⁴

This permitting process gave the tribe a foothold under NEPA and the NHPA because DAPL construction would traverse the tribe’s ancestral lands and sacred waters and, as discussed further below, the Army Corps was required to review the permit application under both federal statutes.¹⁰⁵ According to the tribe, “the pipeline crosses areas of great historical and cultural significance to the Tribe, the potential damage or destruction of which greatly injures the Tribe and its members. The pipeline also crosses waters of utmost cultural, spiritual, ecological, and economic significance to the Tribe and its members.”¹⁰⁶ In its federal complaint, the tribe alleged that, in violation of the NHPA, the Army Corps of Engineers granted the DAPL permit, which would authorize construction in these sacred locations, without consulting the tribe about

Post (Sept. 9, 2016), https://www.washingtonpost.com/news/post-nation/wp/2016/09/09/federal-judge-denies-standing-rock-sioux-tribes-request-to-stop-work-on-four-state-oil-pipeline/?utm_term=.1616a3a02a04 (Heim & Berman).

¹⁰¹ *Standing Rock Sioux*, 2016 WL 4734356, at *1.

¹⁰² Jennifer Reingold, “Will America’s Shale Boomtowns Bust? A Report from the Heart of North Dakota’s Fracking Country,” *Fortune*, Feb. 22, 2015, <http://fortune.com/north-dakota-fracking/>.

¹⁰³ *Standing Rock Sioux*, 2016 WL 4734356, at *1.

¹⁰⁴ Heim & Berman.

¹⁰⁵ *Id.*

¹⁰⁶ *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, No. CV 16-1534 (JEB), 2016 WL 4734356, Complaint, ¶ 9 (July 27, 2016) (Standing Rock Complaint).

potential impacts beforehand.¹⁰⁷ Construction of the DAPL will eventually require “clearing and grading a 100-150 foot access pathway nearly 1200 miles long, digging a trench as deep as 10 feet, and building and burying the pipeline” itself.”¹⁰⁸

The locations in the path of the DAPL are vital pieces of the Tribe’s “historic and cultural connection to the [entire] Great Plains” region.¹⁰⁹ Originally part of the Great Sioux Nation, the Standing Rock Sioux once inhabited much of what are now the states of North Dakota and South Dakota.¹¹⁰ After the war between the Great Sioux Nation and the United States over the Black Hills, all of the Sioux were relegated to a series of small reservations that constituted a fraction of the nation’s traditional boundaries.¹¹¹ Yet, the tribes maintained their spiritual connections to their former homelands, and some even retained treaty rights to hunt in the seized territory.¹¹²

The Standing Rock Sioux “created stone alignments, burial cairns, and other rock features throughout the [ceded] area to conduct important spiritual rituals related to the rhythms of their daily life.”¹¹³ These artifacts can be found along many nearby tributaries of the Missouri River, reflecting “water’s sacred role in [the tribe’s] deeply held spiritual beliefs.”¹¹⁴ They serve today as a visual spiritual connection to tribal ancestors.¹¹⁵ One particularly sacred place “lies at the traditional confluence of the Missouri and Cannonball Rivers . . . , where the ancestors to the

¹⁰⁷ Standing Rock Sioux, 2016 WL 4734356, at *1. Although it is outside the scope of this Article, the DAPL proposal also required a permit under the Clean Water Act, and a finding that when tribal cultural resources are present, construction will not violate the agency’s General Conditions governing tribal resources, before the permit is approved. *Id.* at 4.

¹⁰⁸ Standing Rock Complaint, ¶ 51.

¹⁰⁹ Standing Rock Sioux, 2016 WL 4734356, at 6.

¹¹⁰ <http://standingrock.org/history/>.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ Standing Rock Sioux, 2016 WL 4734356, at *6.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

Standing Rock Sioux gathered ... to peacefully trade with other tribes.”¹¹⁶ Currently, this site is under a lake, however, created by the Army Corps of Engineer’s approval of a dam on the Missouri River, which flooded the region and subsumed the stone markers designating the sacred gathering location.¹¹⁷

The DAPL’s proposed course was revealed to the tribe in the summer of 2014, at which point the tribe discovered that it would undercut Lake Oahe in the immediate vicinity of the sacred stones marking the tribe’s traditional gathering and trading site.¹¹⁸ The company proposing the pipeline, Dakota Access, had conducted numerous historic and cultural resource surveys prior to selecting the final route of the pipeline and because one of these had revealed cultural resources sacred to the Standing Rock Sioux, the company requested input from the tribe about the proposed route.¹¹⁹

However, the extent to which the permitting agency, the Army Corps of Engineers, engaged in meaningful discussions with the tribe about the location of the pipeline in the areas around Lake Oahe was heavily disputed in the district court. The Army Corps alleged that it contacted the tribe’s historic preservation officer multiple times in 2014 and either did not receive a response, or received a response, only to set up meetings that never occurred.¹²⁰ In addition, the Army Corps claimed, and the trial court found, that the tribal officer informed the Army Corps that the tribe preferred to work directly with Dakota Access on re-routing the pipeline, rather than discussing its concerns with the Army Corps tribal liaison.¹²¹ The Tribe disputed this version of events – stating in its complaint that it participated extensively in the

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.* at 7.

¹¹⁹ *Id.*

¹²⁰ *Id.* at 8-9.

¹²¹ *Id.* at 9.

public hearings and public comment periods held by the Army Corps, and sought formal consultation with the Army Corps, but the Army Corps failed to engage it before approving all of the construction activities near the Reservation.¹²² According to the tribe, the Army Corps only offered post-approval joint “monitoring” of construction activities for potential threats to the tribe’s cultural resources.¹²³

Despite the tribe’s objections, the district court denied its motion for a preliminary injunction on the NHPA issue, holding that the tribe could not demonstrate that “additional harm” would befall its cultural resources, given that construction of the pipeline had begun already and, by implication, any sacred sites in its path had already been damaged or destroyed beyond recovery.¹²⁴ According to the district court, the tribe was required to demonstrate that the sites around and under Lake Oahe would result in “additional harm” to the tribe and the tribe had failed to meet that burden. On the NHPA consultation issue, the court found that the Army Corps had made “dozens of attempts to engage” the tribe in consultation, but the tribe had “refused to engage.”¹²⁵ In fact, the court found that the Army Corps had “exceeded its NHPA obligations” with respect to the DAPL permitting process.¹²⁶

The tribe filed an emergency motion for a stay pending an appeal to the D.C. Circuit Court of Appeals, which the court summarily granted on September 16, 2016.¹²⁷ The court did not discuss the merits of the case in its order, only that granting the emergency motion would

¹²² Standing Rock Complaint, ¶¶ 60-62.

¹²³ *Id.* at 62.

¹²⁴ Standing Rock Sioux, 2016 WL 4734356, at *24.

¹²⁵ *Id.* at 22.

¹²⁶ *Id.*

¹²⁷ Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers, No. CV 16-1534 (JEB), 2016 WL 4734356, at *1 (D.D.C. Sept. 9, 2016).

give the court sufficient time to consider the merits of the appeal.¹²⁸ Thus, it remains to be seen whether the D.C. Circuit will find that the Army Corps satisfied its NHPA consultation obligations for this project and whether and how the tribe's sacred sites will be impacted by further construction activities. The D.C. Circuit's stay has given many tribes hope that the NHPA consultation requirement will be interpreted more strictly in years to come, though.

C. The Chaco Canyon Region and the Mancos Shale Play.

Chaco Canyon National Historic Park and the region surrounding it, known as the "Greater Chaco Canyon Region," contain the greatest concentration of tenth and eleventh century ancient Pueblo architecture in the world.¹²⁹ Because of the relative high quality of these ancient structures, the Greater Chaco Canyon region was named a United Nations World Heritage Site in 1987.¹³⁰ Yet, for a decade prior to this designation, and some would argue, continuing to the present date, the region has also been deemed a "national energy sacrifice zone" because of the extensive energy development and associated activities that take place within it.¹³¹ For the past five years, the region has faced an influx of hydraulic fracturing operations, primarily due to the BLM allowing oil and gas companies to push deeper into the region.¹³²

The Greater Chaco Canyon Region once contained a network of civilizations that arose in the tenth century throughout the modern states of Colorado, Utah, New Mexico, and Arizona.¹³³

¹²⁸ *Id.*

¹²⁹ John W. Ragsdale, Jr., *The Rise and Fall of the Chacoan State*, 64 UMKC L. Rev. 485, 487 (1996).

¹³⁰ www.nps.gov/chcu/learn/historyculture/worldheritage.htm.

¹³¹ Julie Dermansky, "Will New Mexico Double Down on Dirty Energy?," *Desmog* (Mar. 7, 2015), <http://www.desmogblog.com/2015/03/07/will-new-mexico-double-down-dirty-energy>.

¹³² Ellen M. Gilmer, "Courtroom Slugfest Nears as Drilling Creeps Toward Ancient Chaco World," *E&E News* (July 13, 2015), <http://www.eenews.net/stories/1060021627>.

¹³³ Ragsdale, *supra* note ____, at 487.

At that time, previously disparate populations settled in more urban patterns, and the cities, towns, and isolated outcroppings that emerged formed a vast population network from the seventh century until the middle of the twelfth century.¹³⁴ Remnants of the outer edges of this civilization are visible today in Mesa Verde National Park in Colorado,¹³⁵ Hovenweep National Monument on the Utah/Colorado border,¹³⁶ Canyons of the Ancients National Monument in Colorado,¹³⁷ Canyon de Chelly National Park and Navajo National Monument in Arizona.¹³⁸ The sites these preserves have been created to protect make up what is often referred to as the “American cradle of civilization.”¹³⁹

It is difficult to produce an exact number or percentage of related archaeological sites on federal public lands in the greater Chaco region because the agencies responsible for managing the lands where most are located—the Forest Service and the BLM—have not completely inventoried them.¹⁴⁰ Also, the Anasazi sites are particularly difficult to catalog because of the Anasazi obsession with building in seemingly inaccessible caves, sometimes located hundreds of feet from the rim or floor of a sheer vertical cliff and often deep within canyons with limited accessibility. Another difficulty of surveying these archaeological sites is that some of them are now underground and not detectable through surface viewing alone.¹⁴¹

Despite these challenges, the Anasazi’s skilled and prolific building has resulted in many of their larger villages and communities being protected as national monuments and national

¹³⁴ Lekson, at 1; <http://www.nps.gov/meve/index.htm>; Ragsdale at 521, 544.

¹³⁵ <http://www.nps.gov/meve/index.htm>.

¹³⁶ <http://www.nps.gov/hove/index.htm>.

¹³⁷ <http://www.blm.gov/co/st/en/nm/canm.html>.

¹³⁸ <http://www.nps.gov/cach/learn/historyculture/index.htm>;

<http://www.nps.gov/nava/planyourvisit/guidedtours.htm>.

¹³⁹ http://www.earthworksaction.org/earthblog/detail/fracking_threatens_the_chaco_canyon_world_heritage_site#.VYB81VVViko

¹⁴⁰ *See S. Utah Wilderness All. v. Norton*, 326 F. Supp. 2d 102, 109 (D.D.C. 2004).

¹⁴¹ *Id.*

parks, such as Chaco Canyon, Mesa Verde, and the others mentioned above.¹⁴² The number and size of these Anasazi communities and individual structures is impressive even by today's standards. A typical Anasazi or Chacoan community was focused around the "unit house," which was "basically a household module with six to fifteen adjacent rooms employed for storage, living space and ceremonial use."¹⁴³ The community consisted of several of these houses "loosely clustered" near one another and always oriented in rows from east to west, facing a plaza.¹⁴⁴ Some of the communities also contained larger buildings, such as "great houses," kivas," and other structures for storage or ceremonial purposes.¹⁴⁵ Great houses, as the name indicates, were much larger than unit houses, reaching four or five stories in height and containing hundreds of rooms.^{146, 147} In its day, Chaco was a large city, even by today's measure, occupying over 100 square kilometers.

The architectural feats of the ancient civilizations in the American Southwest have been described as "spectacular" and "unrivaled" in North America.¹⁴⁸ The care with which many of these structures were built is extraordinary; estimates of the numbers of stones that went into the construction of the Chacoan great houses is in the millions.¹⁴⁹ The great houses also contained rooms with eight-foot, timber-beamed ceilings requiring the transport of "hundreds of

¹⁴² Ragsdale, *supra* note ____, at 489.

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 495.

¹⁴⁶ *Id.* (noting that Pueblo Bonito, one of the largest great houses at Chaco, has been called the "largest apartment building in the world" before the construction of a New York City tenement in 1882).

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

thousands” of trees without the benefit of livestock or even the wheel.¹⁵⁰ Construction of a complex, large great house alone could take several decades.¹⁵¹

Perhaps the most delicate, and signature feature of these communities are the kivas, circular ceremonial rooms built into the ground with a covered roof.¹⁵² Kivas began as dwelling structures, in the early Anasazi period and evolved into purely ceremonial use by the mid-1100s.¹⁵³ They ranged in size anywhere from thirty feet in diameter to more than eighty.¹⁵⁴ Kivas typically contained a “roof . . . made of large support beams, generally ponderosa, which were covered, in a layered fashion, with successively smaller logs, with branches and bark, and with earth.”¹⁵⁵ The roof was “flat but possibly domed, and was between eleven and sixteen feet above the floor, [and] supported by four columns-massive, unsquared logs or rock-which were themselves set on footings of huge, shaped stone discs.”¹⁵⁶ Their interior walls contained large and small recessed spaces, which were finished with stucco-style coatings and decorated with ornamental beads and stones.¹⁵⁷ Kivas appeared to serve as religious centers, oriented along cardinal directions and in discernible spatial relationships with planetary features.¹⁵⁸

Smaller remnants of Anasazi civilization can be found far from the community areas, and they range from earthen and masonry dams of a few feet in height to storage structures for grains and other crops.¹⁵⁹ There are also massive irrigation systems using masonry canals controlled by

¹⁵⁰ *Id.* at 496-97.

¹⁵¹ *Id.* at 497.

¹⁵² *Id.* at 499.

¹⁵³ *Id.* at 500-01.

¹⁵⁴ *Id.* at 501.

¹⁵⁵ *Id.*

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at 502.

¹⁵⁹ *Id.* at 506.

headgates.¹⁶⁰ The greater Chaco area contains thousands of smaller villages, remote settlements, and agricultural lands that were connected to the nerve center at Chaco by myriad roads.¹⁶¹ Archeologists believe that these satellites of the main urban center at Chaco may have been part of a planned civilization network due to the repetitive features found in each of the outlier sites.¹⁶² Although the exact nature of the relationship between the main urban centers and the outlier communities is unclear, archaeologists agree that the settlement and road patterns indicate a planned, rather than spontaneous, effort.¹⁶³ These settlements fostered a political and economic network that archaeologists today refer to as the “Chaco Phenomenon.”¹⁶⁴

Underneath the greater Chaco region lies the Mancos Shale play, which potentially contains “up to 60 billion barrels of oil.”¹⁶⁵ Until 2003, it was considered to have reached the end of its useful production life by conventional means, although the BLM recognized in its planning documents that significant oil reserves remained even after conventional drilling methods ceased being capable of accessing them.¹⁶⁶ In 2010, the BLM starting receiving significant amounts of

¹⁶⁰ *Id.*

¹⁶¹ *Id.* at 509.

¹⁶² *Id.*; Stuart, David E., Ancient Southwest: Chaco Canyon, Bandelier, and Mesa Verde, at 77 (U. N.M. Press 2009).

¹⁶³ Ragsdale, *supra* note 1, at 510-11.

¹⁶⁴ Stuart, *supra* note ____, at 77. The road network that connected Chaco Canyon to the greater region is so vast that only a small fraction of it has been thoroughly inventoried or documented. Ragsdale, *supra* note 1, at 514. In the 1980s, the BLM initiated the most comprehensive survey of these roads to date, cataloguing approximately 1500 roads radiating outward from the San Juan Basin. *Id.* The longest road segments measure up to fifty kilometers and appear to connect outlier great houses with urban great houses. *Id.* Main roads were approximately twenty-seven feet wide and smaller, spur roads were roughly ten feet wide. *Id.* at 515.

¹⁶⁵ Alex Ritchie, *On Local Fracking Bans: Policy and Preemption in New Mexico*, 54 Nat. Resources J. 255, 317, n. 127 (2014).

¹⁶⁶ *Dine Citizens Against Ruining Our Env't v. Jewell*, No. CIV 15-0209 JB/SCY, 2015 WL 4997207, at *4 (D.N.M. Aug. 14, 2015).

drilling applications for hydraulic fracturing operations in the Mancos shale, and fracking began to proliferate there in 2011.¹⁶⁷

In 2014, the BLM began the process of revising its resource management plan for the Farmington Area, which is located near Chaco Canyon, because of the increased interest in oil and gas in the Mancos Shale.¹⁶⁸ Prior to this, the BLM had considered oil and gas reserves in this area to be fully “developed.”¹⁶⁹ However, the advances in hydraulic fracturing techniques and the increase in applications to frack in the Mancos required the agency to revise the (Resource Management Plan) RMP to account for a variety of new, fracking-related impacts to air quality, water quality, riparian protection, paleontological resources, and cultural resources.¹⁷⁰ In particular, the new RMP was required to address impacts to previously unknown archaeological sites in the Mancos-Gallup basin.¹⁷¹

The need for a new RMP was born out by the fracking numbers—from the date the previous plan was adopted until the BLM began revising it in 2015, the BLM approved 185 new wells in the Mancos Shale.¹⁷² The BLM estimates that the play might yield in the neighborhood of 1.5 billion barrels of oil, recoverable only through unconventional means.¹⁷³ So far, the agency has approved drilling permit applications without a thorough inventory of archaeological

¹⁶⁷ *Id.* at 6.

¹⁶⁸ http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_planning/farmington_rmp/rmp_a_mancos.html.

¹⁶⁹ *Id.*

¹⁷⁰ U.S. Dept. of Interior, Bureau of Land Mgmt., Farmington Field Office, “Mancos-Gallup Resources Management Plan and Environmental Impact Statement: Assessment of the Management Situation,” at 1-5 (Mar. 2015) (Mancos-Gallup RMP); *Dine Citizens*, at *7 (noting that BLM approved 250 applications for permission to commence hydraulic fracturing operations between January 2014 and March 2015).

¹⁷¹ Mancos-Gallup RMP, at 1-6.

¹⁷² *Dine Citizens*, at *7.

¹⁷³ *Id.* at 8. The revisions to the RMP are not yet complete, but the BLM can permit fracking and vertical drilling in the interim, under the existing plan. *Id.* at 9.

or cultural resource sites in place, resulting in litigation which, to date, has not been successful in halting the development efforts.¹⁷⁴ Because the archaeological sites have not been surveyed and because those that have are protected from disclosure in litigation, it is not possible to even describe the resources that may be lost as a result of this increase in drilling in the Mancos Shale. What is certain is that cultural resources will be lost, and it may not be possible to ever determine what was lost.

D. The Bears Ears Region and Tar Sands Potential.

The Bears Ears region is sacred to several tribes indigenous to the Four Corners area, where Colorado, Utah, Arizona, and New Mexico intersect.¹⁷⁵ Although the area does not yet have exact boundaries, it was described in a 2015 proposal by an inter-tribal coalition for a national monument (Monument Proposal) as the general region southwest of Moab, Utah; west of Monticello, Utah; east of the Glen Canyon National Recreation Area; and north of the Navajo Nation.¹⁷⁶ It consists of roughly 1.9 million acres of federal, public land and is currently managed in part by the United States Forest Service, the United States Park Service, and the BLM.¹⁷⁷ This region is sacred to the Hopi, Navajo, Zuni, Ute Mountain Ute, Uintah and Ouray Ute tribes, and contains ancestral burial grounds, remnants of ancestral communities and places of worship, petroglyphs and pictographs, and several physical features of cultural value to one or more of

¹⁷⁴ *Id.* at 50.

¹⁷⁵ Bears Ears Inter-tribal Coalition, Proposed Bears Ears National Monument Map, http://www.bearssearscoalition.org/wp-content/uploads/2015/12/map_Bears_Ears_Proposal_11x14.pdf.

¹⁷⁶ *Id.*

¹⁷⁷ Bears Ears Inter-tribal Coalition, Proposal to President Barack Obama for the Creation of Bears Ears National Monument, pp. 7-8 (Oct. 15, 2015), <file:///Users/hillhoffmann/Documents/Scholarship/Bears-Ears-Inter-Tribal-Coalition-Proposal-10-15-15.pdf>.

the tribes.¹⁷⁸ Indeed, according to the Monument Proposal, “large numbers of contemporary Indian people visit Bears Ears regularly to gather medicines, herbs, and vegetative materials.”¹⁷⁹

Most of the area within the Bears Ears region consists of high-desert plateaus or dramatic canyon country. Within the canyons, such as those on Comb Ridge or in Grand Gulch, there are many Ancient Pueblo or Anasazi archeological sites from the period when these civilizations occupied structures in seemingly inaccessible caves located high up steep canyon walls.¹⁸⁰ These are similar to the famous sites at Mesa Verde National Park, although greater in number and smaller in size. The Bears Ears Buttes are located in the center of the proposed Monument boundary on Cedar Mesa, and from a distance they somewhat resemble the ursine features for which they are named.¹⁸¹

The Bears Ears region holds great significance for the various tribal signatories to the Monument Proposal. One commonality for all tribal proponents is that the region is part of the creation myth of all five tribes.¹⁸² For the Hopi and Zuni, the Bears Ears region also represents part of the tribes’ ancestral homelands.¹⁸³ The Ute used the area more seasonally, of with “hunting expeditions ma[king] their way to the Bears Ears region and [establishing] many trails, including one that led to . . . the Henry Mountains” in south-central Utah.¹⁸⁴ The Navajo hunted in the region and also occupied it seasonally, building “hogans and other structures” until the federal government forcibly removed the Navajo and marched them to a reservation to the south,

¹⁷⁸ *Id.* at 3.

¹⁷⁹ *Id.* at 4.

¹⁸⁰ *Nat'l Wildlife Fed'n et al. v. BLM*, 140 IBLA 85, 88 (Aug. 21, 1997); *S. Utah Wilderness Alliance, et al.*, 128 IBLA 382, 384 (Mar. 11, 1994).

¹⁸¹ Proposal, at 8.

¹⁸² *Id.*

¹⁸³ *Id.* (“Hopi and Zuni people moved from foraging to farming some 3,500 years ago and constructed their stone villages, many of which remain in place today.”).

¹⁸⁴ *Id.* at 9.

in what is now Arizona.¹⁸⁵ The region also contains vast archaeological resources; the Monument Proposal lists over 100,000 documented sites within the boundaries of the proposed monument.¹⁸⁶

Part of the reason for the Monument Proposal is that various portions of the Bears Ears region are threatened by oil and gas development and critically, by unconventional forms.¹⁸⁷ The conventional oil and gas potential is limited to the far northern boundary of the proposed Monument, near Hatch Point, Harts Point, and in the Lockhart Basin by Canyonlands National Park.¹⁸⁸ However, there are “significant deposits of tar sands” located in White Canyon, which is basically right in the middle of the proposed Monument, close to the Bears Ears formation.¹⁸⁹ The White Canyon deposit is included within every alternative considered by the BLM for tar sands development in the State of Utah.¹⁹⁰

The tribal proponents of the Monument designation are hopeful that after a designation, although oil and gas development will not be halted altogether, it can be planned in such a manner as to avoid damaging or destroying the most sacred sites and locations.¹⁹¹ It seems clear from state efforts to lobby the BLM to continue to allow mineral extraction in the Hatch Point, Harts Point, Lockhart Basin, and White Canyon locations that, short of a Monument designation, those locations will in fact be developed without regard for the cultural resources the Tribes seek to protect.¹⁹² Because the tar sands deposits are located on federal land, the tribes lack many

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

¹⁸⁷ Bears Ears Coalition, “Threats to Bears Ears,” <http://www.bearscoalition.org/threats/>.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ See http://ostseis.anl.gov/documents/docs/draftmtgs/11_tar_sands_utah.pdf.

¹⁹¹ Proposal, at 37.

¹⁹² Rep. Rob Bishop, Proposed Bill _____, at 63, http://robbishop.house.gov/uploadedfiles/discussion_draft_20jan16.pdf.

legal recourses to stop or modify the proposed development, as will be discussed further below.

E. Blackfeet Sacred Land: Red Blanket Butte, Chief Mountain, and the Bakken Shale Play.

Within Indian Country, cultural resources face threats from unconventional oil and gas operations as well.¹⁹³ Although this occurs throughout tribal lands across the nation, it is perhaps best illustrated by recent events on the Blackfeet Reservation in western Montana, where the tribe had authorized unconventional gas development throughout large portions of the reservation, but individual tribal members mounted a campaign to prevent the development in areas of great cultural and religious significance.¹⁹⁴ Bordering Glacier National Park to the east, the Blackfeet Reservation is a long, narrow band constituting a small portion of the original homelands of the tribe.

In 2006, the Blackfeet Tribal Business Council approved unconventional oil and gas development throughout the reservation by tribal resolution.¹⁹⁵ When the Bureau of Indian Affairs (BIA) and the tribe began the environmental review process for a 640 acre lease unit near a formation called Red Blanket Butte in 2012, several tribal members submitted comments opposing the potential drilling because of concerns related to family members' grave sites on and near the Butte, damage to places of spiritual retreat, and erosion to other cultural values.¹⁹⁶ After

¹⁹³ "Indian Country" is a legal term of art, which includes reservations, dependent Indian communities (such as the Pueblo villages of New Mexico), and trust allotments. *See Alaska v. Native Village of Venetie Tribal Gov't*, 522 U.S. 520, 526-27 (1998).

¹⁹⁴ Jack Healy, "Tapping Into the Land, and Dividing its People," *N.Y. Times* (Aug. 15, 2012), http://www.nytimes.com/2012/08/16/us/montana-tribe-divided-on-tapping-oil-rich-land.html?_r=0.

¹⁹⁵ Tristan Scott, "Oil Exploration Plans Suspended at Blackfeet Sacred Site," *The Missoulian* (Mar. 18, 2012), http://missoulian.com/news/local/oil-exploration-plans-suspended-at-blackfeet-sacred-site/article_a06088ba-70b3-11e1-a7f7-0019bb2963f4.html.

¹⁹⁶ *Id.*

receiving the comments in opposition to drilling, the operator, Anschutz Corporation, suspended its pursuit of the Red Blanket lease to determine a more viable location for extraction.¹⁹⁷

In another location on the reservation, Chief Mountain, the tribal council also approved drilling in 2006, then entered into a lease agreement with an oil company, Nations Energy, LLC, in early 2013, to frack from pads occupying nearly 4,000 acres surrounding the base of the mountain.¹⁹⁸ When tribal members became aware of the 2013 lease signing they started a petition to protect Chief Mountain, which is a site of spiritual retreat for the entire Blackfeet nation.¹⁹⁹ Upon receiving the petition, the tribal council cancelled the lease, although the area remains “open” for future oil development.²⁰⁰ On the Blackfeet Reservation, the tribe has been able to protect some of the most valuable cultural resources, such as these two sacred places, more quickly and effectively than has occurred on federal lands in the areas listed above. The reasons for this are discussed further below, in relation to the powers of a tribe to authorize or limit oil and gas development in Indian Country.

III. Unconventional Mineral Leasing on Federal and Tribal Lands.

A. Unconventional Mineral Leasing on Federal Lands.

There are several statutes governing oil and gas exploration and extraction on federal public lands, including the Mineral Leasing Act and the Federal Mineral Leasing Act for Acquired Lands.²⁰¹ There are also general multiple-use statutes that apply to all activities on federal lands, such as the Federal Lands Policy and Management Act (FLPMA), the National

¹⁹⁷ *Id.*

¹⁹⁸ Associated Press, “Blackfeet Cancel Oil, Gas Leases Near Sacred Chief Mountain,” *The Missoulian* (Aug. 16, 2013), http://missoulian.com/news/local/blackfeet-cancel-oil-gas-leases-near-sacred-chief-mountain/article_e7482950-05d5-11e3-8722-001a4bcf887a.html.

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ 30 U.S.C. §§ 223-236b; 241-242.

Forest Management Act (NFMA), and the Multiple Use-Sustained Yield Act (MUSYA).²⁰²

Together, these statutes provide a legal framework governing the development of the mineral resource in particular and also the impacts of that development on other public resources.

Passed in 1920, the Mineral Leasing Act's primary purpose and effect was "to remove coal, oil, gas, oil shale, and four chemical minerals from the location system" of the General Mining Law and make these minerals readily available on public-domain lands to those who entered into a lease agreement with the federal government.²⁰³ The Mineral Leasing Act for Acquired Lands contained similar provisions but applied to non-public domain lands acquired from private parties or the states.²⁰⁴ In theory, these two statutes created a temporary interest in valuable minerals located on public lands (rather than a fee simple estate in them) and gave the Secretary of Interior "broad discretion" over private entities' acquisition of public lands for mineral development.²⁰⁵ More recently, Congress passed the Energy Policy Act of 2005, encouraging the rapid development of oil shale and tar sands specifically "to reduce the growing dependence of the United States on politically and economically unstable sources of foreign oil imports."²⁰⁶

In general, the BLM is authorized to issue mineral leases on BLM land and in national forests,²⁰⁷ and the leasing process includes four phases.²⁰⁸ First, the BLM determines which lands will be made available for oil and gas extraction and incorporates that designation into its

²⁰² 43 U.S.C. § 1712; 16 U.S.C §§ 528, 1604.

²⁰³ Robert L. Glicksman & George Cameron Coggins, *Hardrock Minerals, Energy Minerals and Other Resources on the Public Lands: The Evolution of Federal Natural Resources Law*, 33 *Tulsa L.J.* 765, 782 (1998); Timothy M. Miller, *et al.*, *Leasing Federal Oil and Gas*, 32 *E. & Min. L. Found.* § 14.06.

²⁰⁴ Miller, *supra* note ____, at § 14.06.

²⁰⁵ Glicksman & Coggins at 782.

²⁰⁶ 42 U.S.C. § 15927.

²⁰⁷ Glicksman & Coggins at 796.

²⁰⁸ *Id.* at 1156.

resource management plan under FLPMA.²⁰⁹ In national forests, the determination occurs within the process of developing a land and resource management plan under NFMA.²¹⁰ Additionally, although the BLM has primary authority over mineral leasing on BLM land and in national forests, the Forest Service has the authority to approve surface activities related to mineral leasing in national forests.²¹¹

The determination of which lands will be made available for oil and gas exploration also includes some initial criteria the agency will impose on any future leases to accommodate other overlapping uses or to mitigate environmental harm.²¹² In general, the planning processes under FLPMA and NFMA are subject to the requirements of the National Environmental Policy Act (NEPA), which requires the agency to consider various alternatives to the proposed oil and gas leasing use.²¹³

For lands determined to be suitable for oil and gas extraction, the BLM authorizes specific exploration or drilling activities through a bidding process.²¹⁴ After the passage of the Onshore Oil and Gas Leasing Reform Act in 1987, bidding must be competitive—at least initially.²¹⁵ Also, either the agency or private parties can nominate lands for bidding.²¹⁶ If there is only one interested bidder, the agency can issue a noncompetitive lease. However, if the bidding

²⁰⁹ BLM Final Fracking Rule, at 16129.

²¹⁰ Charles L. Kaiser and Scott W. Hardt, *Fitting Oil and Gas Development Into the Multiple-Use Framework: A New Role for the Forest?*, 62 U. Colo. L. Rev. 827, 839 (1991); Miller, *supra* note ____, § 14.06.

²¹¹ *Id.* at 840.

²¹² Miller, *supra* note ____, § 14.06.

²¹³ *Id.* The specifics of NEPA as it relates to cultural resources will be discussed in more detail below.

²¹⁴ Miller, *supra* note ____, § 14.06.

²¹⁵ Pub. L. No. 100-203 (1987).

²¹⁶ Miller, *supra* note ____, § 14.06.

is competitive, the agency is required to accept the highest bid, and the winner of the auction process obtains an exclusive leasehold right to extract oil and gas from within the opened tract.²¹⁷

..

The third phase of oil and gas leasing is entry into the lease agreement with the federal government. Leases generally last either five years or ten years, depending on whether they were competitively obtained (five years), or the result of an exclusive bid (ten years), although all leases “continue in effect . . . ‘so long after their primary term as oil and gas is produced in paying quantities.’”²¹⁸ The BLM is required to hold quarterly auctions for mineral leases in each state with lands that have been designated as “open” for oil and gas extraction but are not currently in production.²¹⁹ The lease agreement sets the fee structure for renting the physical space involved in the exploration and drilling activities, such as the “pad” required for fracking operations, and the royalty rate for any minerals actually extracted.²²⁰

The final phase is the filing of the application to drill and a drilling plan with the BLM.²²¹ Prior to drilling, the BLM must review the drilling plan and determine whether there will be any adverse environmental consequences associated with the drilling.²²² This phase is also subject to NEPA, which requires the agency to produce an Environmental Impact Statement (EIS) prior to approval of any drilling.²²³ The EIS reflects the agency’s site-specific assessment of the location for any proposed drilling and any “concerns and other issues identified earlier in the process, or

²¹⁷ Rasband, *supra* note ___, at 1156. The size of the tracts “opened up” for bidding start at 2560 acres in all states but Alaska, for liquid minerals other than tar sands. 30 U.S.C. § 226(b)(1). Tracts containing tar sands are leased in parcels of 5,760 acres.²¹⁷ This is also the minimum size of a non tar sand-bearing tract in Alaska. *Id.*

²¹⁸ Rasband, *supra* note ___, at 1156 (quoting 30 U.S.C. § 226(b)(1)).

²¹⁹ 30 U.S.C. § 226(b).

²²⁰ Miller, *supra* note ___, § 14.06.

²²¹ *Id.*

²²² *Id.*

²²³ *Id.*

during site examinations, may result in conditions of approval (COA) on the operator’s drilling permit.”²²⁴ These conditions may “require, forbid, or control specified activities or disturbances.”²²⁵ None of these requirements relate to cultural resources specifically, however.

1. Specific Requirements for Hydraulic Fracturing

There are new measures in place to regulate fracking on federal and tribal lands after the BLM promulgated its long-awaited Final Fracking Rule in 2015.²²⁶ According to the Rule, more than thirty-six million acres of federal lands “are under lease for potential oil and gas development . . .” across thirty-three states.²²⁷ The Department of Interior catalogued 95,000 active oil and gas wells on federal land, including conventional and unconventional wells.²²⁸ Moreover, roughly “90 percent” of currently drilled wells are fracked.²²⁹ Given that wells are often fractured at the end of their useful life for conventional drilling, the number of fracked wells could increase at a greater rate than the rate of conventional wells.

Although the new BLM fracking rule has generated a lot of controversy,²³⁰ it does not differ greatly from the old rules in terms of leasing and operator requirements.²³¹ As far as the application for a permit to drill, the new rule requires similar information as the old rule—plans that outline the depth of the well, the materials that will be used to enclose the well shaft, the depth and location of existing faults, and other information related to the subsurface

²²⁴ BLM Final Fracking Rule, at 16129.

²²⁵ *Id.*

²²⁶ Fracking Rule, at 16129.

²²⁷ *Id.*

²²⁸ *Id.*

²²⁹ BLM fracking rule web cover page.

²³⁰ *Wyoming v. United States Dep't of the Interior*, No. 2:15-CV-041-SWS, 2015 WL 5845145 at *5 (D. Wyo. Sept. 30, 2015); vacated and remanded by *Wyoming v. Sierra Club*, No. 15-8126, 2016 WL 3853806, at *1 (10th Cir. July 13, 2016).

²³¹ Whitney-Williams & Hoffmann, 32 Yale J. on Reg. at 482-83.

geomorphology.²³² The new rule does differ from the old in that it focuses more on impacts to drinking water sources in the drilling phase and disposal of vast quantities of flowback after operations have ceased.²³³ Because of the heavy reliance on water, the new fracking rule adds a requirement to list the depths and location of “all usable water” and the estimated volume of water that will be used to frack the well. Lastly, the rule adds a requirement that fracking fluids must be disposed of in surface tanks or impoundments after operations are completed, with “very limited exceptions.”²³⁴

With respect to cultural resources specifically, there are no additional requirements in the new rule and the agency’s approach to protecting cultural resources from the impacts of fracking remains the same as under prior regulations.²³⁵ This approach can be summarized as follows: the authorizing statutes give the BLM authority to accommodate cultural resources in the mineral leasing process but do not require the agency to do so. This discretion will be discussed more fully below.

2. Specific Requirements for Oil Shale and Tar Sands Extraction

The federal government “owns 72 per cent of all oil shale acreage and 79 per cent of the shale oil in place in the United States,”²³⁶ and there are special requirements governing the exploration and extraction of these public oil shale and tar sands reserves.²³⁷ Although originally subject to lease agreements under the Mineral Leasing Act, in 2005, Congress formulated a

²³² BLM Final Fracking Rule, at 16129.

²³³ *Id.* at 16138.

²³⁴ *Id.*

²³⁵ *Id.* at 16129.

²³⁶ Robert P. Baker, Robert D. Mulford, Problems and Policies of Oil Shale Development, 19 *Stan. L. Rev.* 190, 194 (1966).

²³⁷ *Id.* at 194-95; 42 U.S.C. § 15927.

specific system for leasing federal lands for oil shale.²³⁸ That year, in the Oil Shale, Tar Sands, and Other Strategic Unconventional Fuels Act of 2005 (Unconventional Fuels Act), Congress provided that “oil shale, tar sands, and other unconventional fuels are strategically important domestic resources that should be developed to reduce the growing dependence of the United States on politically and economically unstable sources of foreign oil imports.”²³⁹

To accomplish this purpose, the Unconventional Fuels Act focused on streamlining development of the largest known oil shale deposit in the world, the Piceance Basin, located under the states of Wyoming, Utah, and Colorado.²⁴⁰ The Unconventional Fuels Act imposed three requirements under which the previously withdrawn shale source could be accessed, which can be summarized as follows:

First, rather than setting royalty rates and rental fees at a level meant to encourage the growth of the oil shale industry, the EPO Act requires the Interior Secretary to ensure a fair rate of return to the United States for every lease. Second, regulations implemented for the issuance of oil shale leases now must contain work requirements and milestones to ensure the diligent development of the lease. Finally, the EPO Act includes a consultation requirement: before a commercial oil shale lease can be issued in a state, the BLM must consult the governor, representatives of the affected local government, interested Indian tribes, and other interested persons in that state.²⁴¹

Moreover, the Act directed the Secretary of Interior to develop implementing regulations, which she did in the late 2000s.²⁴² In brief, the leasing process contained in the regulations starts with an initial bidding process, similar to conventional oil and gas leasing.²⁴³ Each leased parcel

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ 42 U.S.C. § 15927(d)(1); Alexander Hood, *The Same Nepa Proposal or Connected Nepa Actions?: Why the Bureau of Land Management's New Oil Shale Rules and Regulations Should Be Set Aside*, 37 B.C. Envtl. Aff. L. Rev. 191, 199 (2010).

²⁴¹ Alexander Hood, *The Same Nepa Proposal or Connected Nepa Actions?: Why the Bureau of Land Management's New Oil Shale Rules and Regulations Should Be Set Aside*, 37 B.C. Envtl. Aff. L. Rev. 191, 200 (2010) (internal quotations omitted).

²⁴² *E.g.* 43 C.F.R. § 3900.2 (promulgated in 2008).

²⁴³ George C. Coggins & Robert Glicksman, 4 Pub. Nat. Resources L. § 40:7 (2nd ed. 2016).

cannot exceed 5,760 acres, and the Secretary of Interior has absolute discretion to determine the lease terms, including length.²⁴⁴ Due to the volume of mining waste from a shale mining operation, the lessee is entitled to an additional disposal site lease of up to 320 acres.²⁴⁵ Unlike the leasing decision, which is not subject to NEPA review, the decision to issue the disposal site lease is subject to NEPA.²⁴⁶

With respect to cultural resources threatened by shale mining operations, the Unconventional Fuels Act is silent. Therefore, the assessment of cultural resources prior to mining begins would only occur pursuant to a regulation implementing the statute or in the context of NEPA review. The 2008 regulations are also silent as to cultural resources, which essentially leaves NEPA and the cultural resource protection statutes as the only means of protecting cultural resources from oil shale development. NEPA and the scope of its authority in this area will be addressed further below, as will the specific statutes governing cultural resources.

B. Unconventional Mineral Leasing on Tribal Lands.

Native American tribes are “the third-largest owners of mineral resources in the country, behind only the federal government and the railroads.”²⁴⁷ Tribal lands “contain approximately 3-4% of known oil and gas reserves” in the nation and “more than 10% of federal on-shore energy production occurs on tribal lands, representing more than 5% of domestic oil production [and] 8% of gas production.”²⁴⁸ The Department of Interior administers between 2,500 and 500

²⁴⁴ *Id.*

²⁴⁵ *Id.*

²⁴⁶ *Id.*

²⁴⁷ Judith V. Royster, *et al.*, NATIVE AMERICAN NATURAL RESOURCES LAW, at 277 (3d ed. 2013).

²⁴⁸ *Id.*

producing mineral leases on tribal lands, resulting in revenue that is projected to reach 1 billion dollars in the near future.²⁴⁹

Tribes have different options for developing oil and gas reserves on tribal lands.²⁵⁰ Because tribes hold rights to develop subsurface mineral resources underlying tribal lands,²⁵¹ they can develop mineral resources directly by forming tribal energy corporations to explore and extract oil and gas.²⁵² They can also use the “638 program” under the Indian Self-Determination and Education Assistance Act of 1974 to “enter into contracts and self-governance compacts to assume administration of federal Indian programs” using funds from the program.²⁵³ The third and final option for tribes is to “enter into leases or other types of arrangements” with private oil and gas companies.²⁵⁴ Under this model, which is by far the most common arrangement, the federal government plays a limited oversight role.²⁵⁵

This federal oversight role is authorized by several statutes: The Indian Mineral Leasing Act,²⁵⁶ the Indian Long-Term Leasing Act,²⁵⁷ the Indian Mineral Development Act,²⁵⁸ and the Indian Tribal Energy Development and Self-Determination Act.²⁵⁹ The Indian Mineral Leasing Act, passed in 1938, established mineral leasing requirements and procedures such as tribal

²⁴⁹ *Id.*; <http://www.bia.gov/cs/groups/xieed/documents/document/idc1-024535.pdf>.

²⁵⁰ Royster, *supra* note ____, at 277.

²⁵¹ In some cases, land that might be characterized as “tribal land”, such as an individual allotments or fee land within a reservation, is held by an individual tribal member, who may hold the mineral rights individually. Judith V. Royster, *Mineral Development in Indian Country: The Evolution of Tribal Control over Mineral Resources*, 29 *Tulsa L.J.* 541, 550 (1994). For the sake of this survey discussion, however, the general rule that tribes hold mineral rights underlying their reservations (collectively) is followed. *Id.*

²⁵² Judith V. Royster, *et al.*, *NATIVE AMERICAN NATURAL RESOURCES LAW*, at 277.

²⁵³ *Id.*; Public Law 93-638, 88 Stat. 2203.

²⁵⁴ Royster, *supra* note ____, at 278.

²⁵⁵ *Id.*

²⁵⁶ 25 U.S.C. §§ 396a-396g.

²⁵⁷ 25 U.S.C. § 415.

²⁵⁸ 25 U.S.C. §§ 2101-2108.

²⁵⁹ 25 U.S.C. §§ 3501-3506.

consent and lease approval by the Secretary of the Interior.²⁶⁰ Similar to the terms of the Mineral Leasing Act, the Indian Mineral Leasing Act (IMLA) established a lease term of ten years, allowing leases to be renewed “as long thereafter as minerals are produced in paying quantities.”²⁶¹ IMLA also established “a system of bonuses, rents, and royalties” and removed states’ abilities to tax tribal royalty payments.²⁶² The Indian Long-Term Leasing Act, passed in 1955, added another element of federal control to the surface component of mineral leasing on tribal lands and similarly required tribal consent and the approval of the Secretary of Interior.²⁶³

In 1982, Congress passed the Indian Mineral Development Act (IMDA), which authorized tribes “to enter into mineral agreements of any kind, including ‘any joint venture, operating, production sharing, service, managerial, lease or other agreement.’”²⁶⁴ In theory, IMDA gave tribes more control over the leasing structure, terms, and corresponding level of risk they would undertake in the various types of mineral development leases.²⁶⁵ If tribes decide to authorize oil and gas development, the federal government exercises some oversight over the details.²⁶⁶ Critically though, if tribes do not want oil and gas development on their lands, they have the sovereign authority to prohibit it, and some tribes have done just that.²⁶⁷

²⁶⁰ *Id.*; 25 U.S.C. § 396A.

²⁶¹ 25 U.S.C. § 396A?

²⁶² Royster, *supra* note ____, at 282.

²⁶³ 25 U.S.C. § 415.

²⁶⁴ Royster, *supra* note ____, at 283; 25 U.S.C. § 2101.

²⁶⁵ Royster, *supra* note ____, at 283.

²⁶⁶ The only exceptions to this general rule are for tribes that do not reside in Indian Country, such as those in Alaska, unrecognized tribes, and recognized tribes in Indian Country that have received Congressional exemptions from the three statutes mentioned in the text. *See* Royster, *supra* note ____, at 284.

²⁶⁷ <http://www.indianz.com/News/2016/020131.asp>.

The 2005 Energy Policy Act contained within it the Indian Tribal Energy Development and Self-Determination Act (ITEDSA).²⁶⁸ This statute authorizes tribes to enter into Tribal Energy Resource Agreements (TERAs), with the Department of the Interior.²⁶⁹ Under this framework, if tribes can demonstrate that they have the necessary infrastructure and resources to regulate the development of mineral resources on tribal lands, the Department of Interior will approve a TERA.²⁷⁰ Once a tribe has a TERA in place, it can freely enter into oil and gas leases and business arrangements related to those activities without obtaining the approval of the Secretary of the Interior for each agreement.²⁷¹ Mineral leases under ITEDSA have varying terms and “may be made for the standard term of ten years and as long thereafter as the oil or gas is produced in paying quantities, [while] business agreements, and rights of way may be made for terms not to exceed thirty years.”²⁷²

Like the other mineral leasing statutes though, the ITEDSA is silent as to cultural resources. However, tribes possess sovereign authority to regulate activities of both members and nonmembers on tribal lands as a matter of federal law.²⁷³ This authority, combined with the mineral leasing structure Congress has imposed in Indian Country, means that tribes have the authority to protect cultural resources located on tribal lands from the threats associated with unconventional mineral development. They can do so by refusing all forms of mineral development, by refusing certain forms or certain proposals in particular that might be harmful to cultural resources, or by approving mineral development but siting individual leased tracts in a

²⁶⁸ Royster, *supra* note ____, at 285.

²⁶⁹ *Id.*

²⁷⁰ *Id.*; 25 U.S.C. § 3504.

²⁷¹ Royster, *supra* note _____, at 285.

²⁷² Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self-Determination Act*, 12 Lewis & Clark L. Rev. 1065, 1081 (2008).

²⁷³ *Montana v. United States*, 450 U.S. 544, 557 (1981).

manner so as to avoid any impact to cultural resources. In this way, tribes have much greater authority to protect their cultural resources when they are located on tribal lands as opposed to federal public lands.

IV. Cultural Resource Protection Statutes.

A. The Antiquities Act.

Congress's first attempt to stop the looting and destruction of cultural resources was the Antiquities Act of 1906. The Antiquities Act protected "any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the government of the United States"²⁷⁴ Although today the Antiquities Act is used often for the purposes of land conservation and environmental protection, its original purpose, reflected in the language above, was to protect aboriginal objects and artifacts," or other items of cultural significance.²⁷⁵ As it relates to mineral leasing, the Antiquities Act does not automatically withdraw all land from mineral development.²⁷⁶ Rather, it prevents future opening of broad tracts to mineral leasing while protecting existing leases.²⁷⁷ Therefore, it can be used to prevent future unconventional mineral development that threatens cultural resources if the President includes language to that effect in the Presidential Proclamation establishing the monument²⁷⁸

This is precisely the situation facing the Bears Ears cultural resource region. There are several locations within the proposed monument boundaries that have been targeted for unconventional oil and gas development and contain resources of significance to the tribal monument proponents. To the extent that there are existing leases in the proposed Monument, a

²⁷⁴ 54 U.S.C. § 320101.

²⁷⁵ Mark Squillace, *The Monumental Legacy of the Antiquities Act of 1906*, 37 Ga. L. Rev. 473, 477 (2003).

²⁷⁶ *Id.* at 507.

²⁷⁷ *Id.*

²⁷⁸ *Id.*

presidential proclamation could not revoke them without compensation required by the Fifth Amendment, but a proclamation could broadly curtail future mineral leasing.²⁷⁹ Although a Monument designation would likely bring litigation, similar to the challenges to President Clinton's Grand Staircase-Escalante National Monument in southern Utah,²⁸⁰ any Proclamation could easily survive those challenges and serve as an effective tool to preserve the cultural legacy of the five petitioning tribes. The Antiquities Act is therefore a moderately useful statute for protecting cultural resources from mineral development—at least with respect to those located in areas not subject to existing leases.

B. The Archaeological Resources Protection Act.

Congress passed the Archaeological Resources Protection Act (ARPA) in 1979²⁸¹ in part because the problems of large scale looting of archaeological sites for their pottery, human remains, and other artifacts were still rampant even after Congress passed the Antiquities Act.²⁸² Despite the seemingly broad protections implied by ARPA's title, the statute contains mostly inventory and planning mandates.²⁸³ In ARPA, Congress directed all federal agencies to “develop plans” to survey the lands under their management authority “to determine the nature and extent of archaeological resources on those lands.”²⁸⁴ Congress further directed these

²⁷⁹ Paul Veravanich, *The Propriety of President Bill Clinton's Establishment of the Grand Staircase Escalante National Monument*, *Environ. L. & Pol'y J.*, DECEMBER 1996, at 2, 7.

²⁸⁰ *Utah Ass'n of Counties v. Bush*, 455 F.3d 1094, 1096 (10th Cir. 2006).

²⁸¹ Archaeological Resources Protection Act of 1979, Pub. L. No. 96-95, 93 Stat. 721 (codified as amended at 16 U.S.C. § 470aa-mm (2002)); Iraola, at 223.

²⁸² 16 U.S.C. § 470aa.

²⁸³ Walter E. Stern & Lynn H. Slade, *Effects of Historic and Cultural Resources and Indian Religious Freedom on Public Lands Development: A Practical Primer*, 35 *Nat. Resources J.* 133, 174 (1995).

²⁸⁴ 16 U.S.C. § 470mm.

agencies to “prepare a schedule for surveying lands that are likely to contain the most scientifically valuable archaeological resources”²⁸⁵

Although ARPA does have a permitting requirement, courts have limited it to projects aimed at intentionally removing or altering archaeological resources rather than projects with incidental impacts.²⁸⁶ Moreover, ARPA expressly exempts mineral development activities from the permitting requirement.²⁸⁷ Therefore, despite its title, ARPA is not an effective method of protecting cultural resources on federal or tribal lands from unconventional mineral development.

B. National Historic Preservation Act

Congress passed the National Historic Preservation Act (NHPA) in 1966 to require all federal agencies to assess impacts of their activities and activities they authorize on “historic” properties or resources.²⁸⁸ There are two primary mechanisms for enforcing the NHPA on federal lands, § 106 and § 110. Section 106 provides that:

The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under section 470i to 470v of this title a reasonable opportunity to comment with regard to such undertaking.²⁸⁹

²⁸⁵ *Id.*

²⁸⁶ *Id.*

²⁸⁷ *Id.* § 470kk.

²⁸⁸ Walter E. Stern & Lynn H. Slade, *Effects of Historic and Cultural Resources and Indian Religious Freedom on Public Lands Development: A Practical Primer*, 35 Nat. Resources J. 133, 136 (1995).

²⁸⁹ 16 U.S.C. § 470f.

“Undertaking” is defined as “any project, activity, or program that can result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effects.”²⁹⁰ If a project or activity meets the definition of “undertaking,” a consultation requirement is triggered, under which the head of the acting agency must consult with the Advisory Council before proceeding with the activity.²⁹¹

Section 110 provides that:

- (1) The heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency.
- (2) Each agency shall undertake, consistent with the preservation of such properties and the mission of the agency, any preservation, as may be necessary to carry out this section.
- (3) [Each] Federal agency shall establish a program to locate, inventory, and nominate to the Secretary [of the Interior] all properties under the agency's ownership or control . . . , that appear to qualify for inclusion on the National Register.
- (4) Consistent with the agency's missions and mandates, all Federal agencies shall carry out agency programs and projects (including those under which any Federal assistance is provided or any Federal license, permit, or other approval is required) in accordance with the purposes of [the Act].²⁹²

However, like the NEPA, the NHPA imposes largely procedural rather than substantive requirements.²⁹³ Courts have described it as a “stop, look, and listen” statute, but not one that demands particular substantive outcomes.²⁹⁴

Thus, when unconventional oil and gas development is proposed for an area that contains archaeological sites or other tribal resources, the NHPA is triggered, but it does not automatically prohibit the mineral development activities.²⁹⁵ It merely requires the agency to consider mitigation options for potential damage to any historic resources threatened by the development

²⁹⁰ 36 C.F.R. § 800.2(o).

²⁹¹ *Dine Citizens*, 2015 WL 4997207, at *23.

²⁹² Stern & Slade, at 137.

²⁹³ *Dine Citizens*, at 23.

²⁹⁴ *Narragansett Indian Tribe v. Warwick Sewer Auth.*, 334 F.3d 161, 166 (1st Cir. 2003); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 805 (9th Cir.1999) (per curiam).

²⁹⁵ Stern & Slade, at 141-42.

before proceeding with oil and gas development.²⁹⁶ If tribal cultural resources may be impacted, the agency is required to consult with the tribe before authorizing the “undertaking.”²⁹⁷ This consultation must provide “a reasonable opportunity to identify [the tribe’s] concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate [tribal] views on the undertaking’s effects on such properties, and participate in the resolution of adverse effects.”²⁹⁸ Although some courts have noted that tribal consultation should be conducted prior to a NEPA analysis,²⁹⁹ other courts have refused to invalidate a NEPA analysis or bar an activity for a violation of the NHPA’s procedural consultation requirement when the tribal consultation did not occur until well after the NEPA analysis was concluded.³⁰⁰ Moreover, there is a limited window for tribes to engage in consultation – 30 days under the NHPA regulations.³⁰¹ Courts have interpreted this provision strictly, denying tribal claims under the NHPA consultation requirement because the tribe’s response or consultation attempt came too late.³⁰²

This statute provides a more meaningful role for tribes seeking to protect cultural resources on federal and tribal lands, but it does not define “consultation” in a way that requires an agency to heed the tribe’s wishes before making a decision on a leasing proposal. The opportunity to “identify” objects or areas of concern, for example, could mean little more than a phone call between the tribal cultural resource liaison and the federal land management official

²⁹⁶ *Dine Citizens*, at 23.

²⁹⁷ *Id.* at 24.

²⁹⁸ 36 C.F.R. § 800.2(c)(2)(ii).

²⁹⁹ *See Dine Citizens*, 2015 WL 4997207, at *27.

³⁰⁰ *See Te-Moak Tribe of W. Shoshone of Nevada v. U.S. Dep't of Interior*, 608 F.3d 592, 609 (9th Cir. 2010); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 807 (9th Cir. 1999).

³⁰¹ 36 C.F.R. § 800.3.

³⁰² *Narragansett Indian Tribe v. Warwick Sewer Auth.*, 334 F.3d 161, 167 (1st Cir. 2003).

stating that there are cultural resources that lie in the path of the proposed leasing arrangement. However, the federal land management agency would not subsequently be required to deny the development application or proposal based on those identified concerns or even to mention them in any final decision-making document such as a Record of Decision under NEPA. Therefore, the NHPA imposes mostly procedural obstacles to oil and gas development projects that threaten tribal cultural resources. There is no substantive element of this statute that requires protection of the cultural resources at all costs.

C. National Environmental Policy Act.

While a complete explanation of the National Environmental Policy Act is outside the scope of this article, this discussion attempts to catalog the ways in which NEPA applies to cultural resources threatened by unconventional mineral development. Generally, NEPA “imposes a procedural requirement ‘(1) to ensure [that an] agency will have detailed information on significant environmental impacts when it makes its decisions; and (2) to guarantee that this information will be available to a larger audience.’”³⁰³ Thus, the statute requires that “public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.”³⁰⁴

The purpose of these requirements, as reflected in the statute itself, is to “restore[] and maintain[]” the overall quality of the environment for the “welfare” of the American citizenry.³⁰⁵ The “environment,” as defined in NEPA, is broad enough to include “important historical [and]

³⁰³ *Te-Moak Tribe of W. Shoshone of Nevada v. U.S. Dep't of Interior*, 608 F.3d 592, 599 (9th Cir. 2010) (quoting *Inland Empire Pub. Lands Council v. U.S. Forest Serv.*, 88 F.3d 754, 758 (9th Cir.1996)).

³⁰⁴ 40 C.F.R. § 1500.1(c).

³⁰⁵ 42 U.S.C. § 4331(a).

cultural” “aspects of our national heritage.”³⁰⁶ Therefore, NEPA directs the federal government “to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may” preserve these resources.³⁰⁷

In the context of mineral leasing projects on federal and tribal lands, NEPA review is required during the initial planning process undertaken by the respective land management agency responsible for the surface estate in collaboration with the BLM, which has jurisdiction over the mineral estate.³⁰⁸ There is a dispute amongst federal courts as to whether NEPA review is also required at the individual leasing stage,³⁰⁹ and then concurrently with the review of an application for a permit to drill.³¹⁰ At a minimum though, and at each stage the agency contemplating mineral leasing must conduct an environmental assessment to determine if the activity is “significant.”³¹¹ If so, an EIS will be necessary.³¹²

In the EIS, NEPA regulations direct the federal agency to “include discussions of: . . . historic and cultural resources,” as well as “the environmental impacts of the alternatives including the proposed action,” “adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable

³⁰⁶ *Id.*

³⁰⁷ *Id.*

³⁰⁸ Timothy M. Miller, *et al.*, LEASING FEDERAL OIL AND GAS, § 14.06.

³⁰⁹ See *Sierra Club v. Peterson*, 717 F.2d 1409, 1411 (D.C. Cir. 1983) (environmental assessment required prior to entering into individual lease agreements); *Park Cty. Res. Council, Inc. v. U.S. Dep't of Agric.*, 817 F.2d 609, 622 (10th Cir. 1987) *overruled by Vill. of Los Ranchos De Albuquerque v. Marsh*, 956 F.2d 970 (10th Cir. 1992) (no environmental assessment was required prior to individual leasing decision)); *Dine Citizens*, 2015 WL 4997207, at *15 (same).

³¹⁰ *Park Cty.*, 817 F.2d at 622.

³¹¹ *Id.*

³¹² Craig P. Hall, APPLICATION FOR PERMIT TO DRILL., Eastern Mineral L. Found. § 18.06.

commitments of resources which would be involved in the proposal should it be implemented.”³¹³ However, nothing in NEPA or its regulations requires an agency to deny or restructure a proposal because of negative impacts to cultural resources alone, with the exception perhaps of the regulatory requirement that the agency analyze the “cumulative effects” of a project rather than the individual impact of each application for a permit to drill (APD).³¹⁴

Likewise, the agency must analyze the impacts of actions that are “connected” and “similar.”³¹⁵ However, even when the agency is considering hundreds of proposed wells within the same shale play and it might seem that the impacts to cultural resources from the numerous drill sites would be devastating to any fragile cultural resources such as archaeological sites courts may still decline to find a NEPA violation sufficient to enjoin the proposed drilling if the agency has undertaken a partial NEPA analysis—even if it was conducted over a decade prior to the decision to approve the APDs.³¹⁶ In short, as long as the agency has satisfied the procedural mandate of considering alternatives when cultural resources are present and has “discuss[ed]” the cultural resources in the environmental impact statement, NEPA is satisfied.³¹⁷ This is true even when the “discussion” involved is outdated and the inventory of cultural resources is incomplete.

NEPA’s role in protecting cultural resources from unconventional mineral leasing is therefore somewhat limited. This is especially true in those states falling within the Tenth Circuit, because an initial NEPA review conducted concurrently with the drafting or revision of a land management plan may be deemed “enough” of a NEPA analysis even when the planning

³¹³ 40 C.F.R. § 1502.16.

³¹⁴ *Id.* §§ 1508.25(c), 1508.7.

³¹⁵ *Id.* § 1508.25(a)(1)-(3).

³¹⁶ *Dine Citizens*, 2015 WL 4997207, at *43.

³¹⁷ *See N. Idaho Cmty. Action Network v. U.S. Dep't of Transp.*, 545 F.3d 1147, 1157 (9th Cir. 2008).

was conducted before unconventional drilling potential was understood or uncovered.³¹⁸ This is precisely what happened in the greater Chaco region, discussed above. In a lawsuit challenging the BLM’s issuance of hundreds of applications for permits to drill, a number of environmental groups from within the Navajo Nation and from nearby communities argued that the BLM’s 2003 resource management plan and associated EIS were not adequate to satisfy NEPA at the application for permit to drill stage because in 2003, drilling techniques that would be eventually used in 2013 were barely contemplated, let alone given the “hard look” that NEPA requires.³¹⁹ Although vertical and horizontal drilling had been used in the area for nearly half a century, the specific directional drilling technique that the applicants sought to use in the APDs were unknown to the BLM at the time it conducted its initial NEPA review.³²⁰

Moreover, the plaintiffs argued the impacts of directional drilling are greater on both the surface and subsurface than those associated with traditional vertical or horizontal drilling primarily because one drill “pad” can be used as an access point for multiple directionally-drilled wells.³²¹ In this situation, the disposal needs are greater as well because a much higher volume of water is needed to fracture the various wells, and that water must be disposed of on the surface or injected back underground pursuant to the BLM’s new final fracking rule. However, despite these arguments, the district court in the *Dine Citizens* case held that no NEPA violation occurred because the BLM had relied on its initial EIS and RMP as a basis for later, tiered environmental assessments, and when the agency found that no significant impacts to cultural

³¹⁸ *Dine Citizens*, 2015 WL 4997207, at *15.

³¹⁹ *Id.*

³²⁰ *Id.* Directional drilling allows operators to access much more of the subsurface than horizontal or vertical drilling. The materials used are flexible, to the point that drilling can proceed in spiral or multiple curving patterns beneath the surface, as opposed to the straight-line of vertical drilling or the L shape of vertical drilling combined with horizontal drilling. *Id.* at 19.

³²¹ *Id.*

resources would occur, its duty was satisfied.³²² Therefore, barring a successful appeal, or perhaps a sudden downturn in the shale gas market, the cultural resources in the vicinity of the thousands of new wells in the Mancos Shale will likely be lost.

In the Ninth Circuit, courts apply a stricter NEPA analysis to mineral leases that threaten cultural resources, although again, even a finding of a NEPA violation does not ensure that the threatened cultural resources will be protected.³²³ In *Te-Moak Tribe of Western Shoshone of Nevada v. United States Department of Interior*, a group of plaintiffs, including the Western Shoshone Tribe and several environmental groups, filed suit alleging a NEPA violation because the BLM failed to supplement its EIS approving a mineral exploration project expansion from an initial drill site approval to roughly five times the original size.³²⁴ The project was proposed for the Mount Tenabo area, which “is considered a traditional locus of power and source of life for the Western Shoshone, and figures in creation stories and world renewal.”³²⁵

Upon consulting with the tribe, as required by NEPA and NHPA, “about sites of cultural and religious significance” to the tribe, the BLM designated “two sites within the project area as ‘properties of cultural and religious importance’ or ‘PCRIs’ that are eligible for inclusion on the National Register of Historic Places.”³²⁶ Despite the designations and despite the fact that the operator had not provided the exact location of the proposed exploration in the drilling plan

³²² *Id.* at 43. Part of the court’s decision was based on the common law standards of review applied to agency decisions, and the “extreme degree of deference” that courts give to agencies when reviewing scientific matters within their expertise. *Id.* at 40. Although outside the scope of this Article, it is worth noting that statutes such as the ones discussed above, lacking in citizen suit provisions, can only be enforced by private citizens or groups using the Administrative Procedures Act, which, as noted, provides significant deference to the agency making the initial determination. *Id.*

³²³ *Te-Moak Tribe*, 608 F.3d at 603.

³²⁴ *Id.* at 596.

³²⁵ *Id.* at 597.

³²⁶ *Id.*

accompanying the expansion proposal, the BLM made a finding that the expansion would have no significant impact on the designated sites and declined to draft a full EIS.³²⁷ In other words, despite not knowing which sites might be impacted or how extensively, the BLM determined that there was no need for a supplemental EIS.³²⁸ The agency simply included a provision in the approval, noting that once the exact locations were determined, the operator would have to give notice of them to the BLM to allow the agency to determine whether the designated sites would be disturbed and, if so, to create “exclusion zones” around those sites.³²⁹ However, often, an operator may not know where it can drill until after conducting exploratory drilling and seismic analysis, and those activities can cause just as much damage to cultural resources as the final drilling and extraction themselves. Thus, the extent to which NEPA can protect cultural resources depends on the diligence of the agency officials conducting the environmental and cultural resource analysis and to some extent, the jurisdiction in which the resources fall.

D. Native American Graves Protection and Repatriation Act

One statute that does have the potential to protect cultural resource from unconventional oil and gas development is the Native American Graves Protection and Repatriation Act (NAGPRA).³³⁰ Congress enacted NAGPRA in 1990 to “reallocate the custody of Native American human remains and other cultural items housed in the collections of federal agencies and federally funded museums, or discovered on federal or tribal lands after the Act took effect.”³³¹ Essentially, Congress sought to return the remains and associated funerary objects

³²⁷ *Id.* at 598.

³²⁸ *Id.*

³²⁹ *Id.* at 601.

³³⁰ 25 U.S.C. §§ 3001-3013.

³³¹ Robert W. Lannan, *Anthropology and Restless Spirits: The Native American Graves Protection and Repatriation Act, and the Unresolved Issues of Prehistoric Human Remains*, 22 Harv. Envtl. L. Rev. 369, 392-93 (1998).

taken from Native American burial grounds to the tribe of origin, whether these items had found their way to a museum or were discovered later on federal or tribal lands.³³² The purpose behind the statute was the immense theft of remains and associated objects from their original resting places—estimates ranged from in the hundreds of thousands to the multiple millions, with 18,000 skeletal remains of individual Native Americans held by the Smithsonian Museum alone.³³³

Regarding the *in situ* findings, NAGPRA requires that Native American remains and associated funerary objects “excavated or discovered” on federal lands be left where found until the federal agency with jurisdiction can identify and contact the “lineal descendants” of the remains.³³⁴ When identifiable lineal descendants of remains cannot be found, NAGPRA delineates a process by which the federal agency can attempt to identify one or more potentially affiliated tribes.³³⁵ As a last resort, when the remains are unclaimed by any lineal descendants or any tribe, they may be excavated and sent for scientific study or reinterment if a permit is procured under ARPA.³³⁶

“Inadvertent” discovery, as might occur in the course of exploratory drilling for unconventional fuel resources, is addressed in a specific section of the statute.³³⁷ This section requires “any person” who has “discovered Native American cultural items on federal or tribal lands” to notify the tribe or agency with jurisdiction over such lands in writing.³³⁸ If the discovery occurs in connection with certain activities including mining, the person shall cease

³³² *Id.*

³³³ *Id.*

³³⁴ *Id.*

³³⁵ *Id.*

³³⁶ *Yankton Sioux Tribe v. U.S. Army Corps of Engineers*, 209 F. Supp.2d 1008, 1010 (D. S.D. 2002); 25 U.S.C. § 3002.

³³⁷ *Id.* § 3002(d).

³³⁸ *Id.*

the activity in the area of the discovery [and] make a reasonable effort to protect the items discovered” while awaiting direction from the agency or tribe.³³⁹ If a permit is sought, the remains can be excavated and either returned to the tribe or sent for scientific study as provided in the statute, after which, mining activity can resume.³⁴⁰ If no permit is sought, no tribe claims the remains, and no scientific inquiry into the remains is sought, the agency may reinter the remains pursuant to NAGPRA regulations, and if this occurs, mineral development activity would have to cease unless it could proceed without affecting the reinterment.³⁴¹

NAGPRA applies to remains and associated objects discovered on federal lands and “tribal lands.”³⁴² NAGPRA defines “tribal lands” as “all lands within the exterior boundaries of any Indian reservation, . . . all dependent Indian communities . . . , [and] any lands administered for the benefit of Native Hawaiians”³⁴³ If remains or funerary objects are found on tribal lands after an oil and gas leasing program has been developed or after a tribe has entered into individual lease agreements with an operator, the tribe or operator must cease development in the area until the remains are identified and repatriated. The tribe may also terminate the lease under its general civil regulatory authority, as occurred on the Blackfeet Reservation in the area of

³³⁹ *Id.*

³⁴⁰ *Id.*

³⁴¹ *Id.*; 43 C.F.R. § 10.7.

³⁴² 25 U.S.C. § 3001(15).

³⁴³ *Id.* Although Native Hawaiian lands are included within NAGPRA’s definition of “tribal lands”, Native Hawaiians do not have the same authority over those lands under the mineral leasing statutes because those statutes only apply to federally recognized tribes, and Native Hawaiians are not “federally recognized” as an indigenous community. Therefore, the same types of conflicts between oil and gas development and cultural resource preservation would not occur in the same manner as on the Blackfeet Reservation, or other lands that are home to or occupied by members of federally recognized tribes. However, NAGPRA would still have the same effect on oil and gas development on state or federal land in Hawaii.

Chief Mountain and Red Blanket Butte.³⁴⁴ Thus, NAGPRA imposes significant barriers to oil and gas development in areas where human remains and associated funerary objects are discovered, although the barrier may only be temporary if the remains are claimed, disinterred, and returned to the tribe.

V. Moving Forward: Recommendations to Provide Greater Protection for Tribal Cultural Resources.

The future of tribal, cultural resources located above the Mancos, Bakken, and Piceance Shale Plays, as well as elsewhere on federal and tribal land throughout the United States, looks somewhat grim in light of the strong statutory support for extensive unconventional oil and gas development and the weak protections for cultural resources in the various statutes that govern them. There are exceptions to this general rule for human remains and associated objects, which are protected absolutely under NAGPRA, although that statute protects the remains and objects themselves without regard to the location in which they are found. For instance, if an ancient, tribal burial ground is located on federal public land, once the remains are discovered and in the likely event that the tribe claiming them has since been removed to a distant reservation, the remains will be disinterred and sent to the tribe for reburial in the tribe's present location. The traditional burial ground might be recognized as a sacred place or a cultural resource in the language of federal law, but it would not be protected by NAGPRA once the remains are removed. Likewise, as in the case of the DAPL, the NHPA can halt construction activity that threatens cultural resources, but only under the most specific circumstances and potentially, only temporarily. Therefore, the existing cultural resource protection statutes do not reliably or consistently prevent unconventional oil and gas development.

³⁴⁴ Associated Press, "Blackfeet Cancel Oil, Gas Leases Near Sacred Chief Mountain," The Missoulian (Aug. 16, 2013), http://missoulian.com/news/local/blackfeet-cancel-oil-gas-leases-near-sacred-chief-mountain/article_e7482950-05d5-11e3-8722-001a4bcf887a.html.

For cultural resources located on unprotected federal lands, it is clear that the mineral resource statutes, the general planning statutes, and the cultural resource statutes lack provisions that ensure that tribal cultural resources are not lost forever in the short-term pursuit of energy and fuel reserves. Simple amendments to a statute like ARPA could go a long way to protect these resources and would fit with the greater purpose and intent behind the statute. These might include a deadline for the public land-management agencies to complete the required inventory of archaeological resources on lands under their jurisdiction and the elimination of the mineral development exclusion. If the latter were too controversial to adopt, a more balanced approach could be amendments that require mineral development to proceed in a manner that avoids the destruction or permanent loss of archaeological resources. The NHPA could be similarly amended to protect sacred places that might not contain archaeological resources within the definition of the ARPA, but which tribes seek to protect nonetheless, such as the Bears Ears region, the ancient remnants of the greater Chaco region, and the Standing Rock Sioux sacred sites near and under Lake Oahe. In addition, the consultation requirements of NEPA and NHPA could be amended to enable tribes to assist in the inventory of cultural resources on federal lands, which would be relatively easy for the tribes to do and which would alleviate the resource burden on the agency required to conduct the survey. That would also engender a level and depth of communication between the tribes and the agencies that could foster closer, mutually beneficial relationships when it comes to cultural resource inventory and protection.

The Antiquities Act functions well to protect cultural resources, although it faces constant threats from Congressional representatives who find that Presidents invoke it too often and too broadly. Their argument is that the Antiquities Act should only be used to protect archaeological

or scientific sites, but not the surrounding land.³⁴⁵ To ensure that this statute continues to be a viable option for tribal interests seeking to protect cultural resources of all types, whether tangible or intangible, Congress should decline to adopt any of the proposed measures that would limit the executive's authority under it.

An additional recommendation that would ensure protection for cultural resources on lands facing unconventional oil and gas development is to amend the multiple use statutes FLPMA, MUSYA, and NFMA to require that agencies completely survey lands under their jurisdiction for the presence of tribal, cultural resources prior to the amendment of any land use plan. To ensure that this happened, provisions allowing for judicial review of agency failure to comply would be necessary. These small amendments would ensure that agencies at least possess the relevant information that would allow them to plan for unconventional mineral development in a manner that avoids unnecessary destruction of cultural resources.³⁴⁶ In addition, Congress could amend these statutes to require that unconventional mineral development be sited in a manner that avoids destruction or harm to these resources. This might prove easier to accomplish with an unconventional method like fracking, which allows extraction of the oil or gas from a variety of surface locations, than with tar sands, which is location-specific, but at the very least it would provide more protections for some cultural resources than under the current system.

³⁴⁵ Recent proposals to either eliminate or amend the Antiquities Act to restrict its use by executives include S.A. 3447, S. 228, S. 232, S. 437, S. 1416, S. 2004, H.R. 330, H.R. 488, H.R. 900, H.R. 2258, H.R. 3389, H.R. 3946, H.R. 4132, and perhaps others.

³⁴⁶ For example, with a shale play the size of the Bakken, and the advanced drilling technology that exists today, there are various surface locations where the BLM could allow fracking pads to be sited, from which horizontal or spiral drilling methods could reach the shale play. Having an accurate survey of cultural resources located on the surface would allow the agency to limit operators to certain surface locations where cultural resources are not present, avoiding unnecessary harm or destruction to the cultural resources while allowing the fracking operation to proceed.

On tribal lands, the decision of whether and how to allow unconventional oil and gas development is of course one for the tribe. Current federal law respects tribal sovereignty over this aspect of natural resource development, relegating decisions to the tribe as far as whether and how much unconventional mineral development to allow. Tribal law is therefore the appropriate mechanism to protect cultural resources located on tribal lands. Tribal laws banning or strictly regulating unconventional oil and gas development would ensure the complete protection of cultural resources on tribal lands.

Given the recent trends toward extensive and rapid development of unconventional oil and gas on federal and tribal lands, it is clear that many conflicting resource values may be sacrificed at the dual altars of “national security” and “energy independence.” With respect to environmental values, there are many statutes in place that require federal agencies and tribes to at least consider impacts to those values before proceeding with development, if not requiring them to cease development altogether. In the realm of cultural resources, relatively few such tools exist despite an extensive body of positive laws purporting to “protect” them. Yet, with just a few simple amendments to these existing statutes, Congress and the relevant tribes could ensure that tribal, cultural resources are preserved for future generations of tribal members and the general citizenry alike.