

FRACKING THE SACRED: RESOLVING THE TENSION BETWEEN UNCONVENTIONAL OIL AND GAS DEVELOPMENT AND TRIBAL CULTURAL RESOURCES

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ABSTRACT

Unconventional oil and gas development is surging in the United States despite the inconsistent market for oil and gas. 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. Although federal and tribal lands make up a relatively small percentage of the total oil and gas producing lands in the United States, that percentage becomes significant when analyzed against the other values Congress has designated for these lands. One of these values is the cultural resources of indigenous Americans. These 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. For cultural resources in the path of the unconventional oil and gas trajectory, like those of the Standing Rock Sioux Tribe, 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 southeastern Utah, and the Blackfeet Reservation in western Montana.

This Article discusses 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. It highlights three examples of cultural resources on federal and tribal lands in the United States facing threats from existing or proposed unconventional oil and gas development and explains the relevant laws governing oil and gas exploration on federal public and tribal

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lands. Finally, it concludes with some recommendations for reconciling the statutory disconnect in a manner that will actually protect the resources at stake.

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Unconventional oil and gas development and the infrastructure it requires is surging in the United States, despite the inconsistent market for oil and gas.¹ By most estimates, if unconventional gas exploration and extraction continues at current rates, the United States could become

1. Evan J. House, *Fractured Fairytales: The Failed Social License for Unconventional Oil and Gas Development*, 13 WYO. L. REV. 5, 8–9 (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).

a net exporter of natural gas by 2020.² One reason for this projection is the relative strength of the United States's unconventional oil and gas reserves, which are enormous. This nation is home to the second largest "tight oil" reserves in the world³ and the fourth largest shale gas reserves, both of which are tapped for extensive development.⁴ Although federal and tribal 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.⁵

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 resources⁶ 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

2. Jude Clemente, *World Benefits from U.S. Liquefied Natural Gas Exports*, FORBES (Jan. 10, 2016, 5:10 PM), <http://www.forbes.com/sites/judeclemente/2016/01/10/world-benefits-from-u-s-liquefied-natural-gas-exports/#6ecdc3502b71>.

3. Jamie Webster, Senior Dir. of Glob. Oil Mkts., IHS, Presentation at the 2014 EIA Energy Conference: Going Global: Tight Oil Production (July 2014), <http://www.eia.gov/conference/2014/pdf/presentations/webster.pdf>.

4. *Analysis & Projections: World Shale Resource Assessments*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/analysis/studies/worldshalegas/> (last updated Sept. 24, 2015). 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. See U.S. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, SHORT-TERM ENERGY OUTLOOK (STEO) 1 (2016), <http://www.eia.gov/forecasts/steo/archives/Feb16.pdf> ("Natural 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."); see also *Natural Gas: U.S. Natural Gas Marketed Production*, U.S. ENERGY INFO. ADMIN. (Feb. 28, 2017), <https://www.eia.gov/dnav/ng/hist/n9050us2a.htm>.

5. See generally U.S. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, SALES OF FOSSIL FUELS PRODUCED FROM FEDERAL AND INDIAN LANDS, FY 2003 THROUGH FY 2014 (2015), <https://www.eia.gov/analysis/requests/federallands/pdf/eia-federallandsales.pdf>.

6. This Article uses the term cultural resources to refer to items or places of cultural value to various tribes. It does not include intangible values such as intellectual property rights however.

7. *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng'rs*, No. 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*, WASH. 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.

8. THE WILDERNESS SOC'Y, NO EXIT: FIXING THE BLM'S INDISCRIMINATE ENERGY LEASING 2 (n.d.), http://wilderness.org/sites/default/files/TWS%20No%20Exit%20Report%20Web_0.pdf.

9. See generally U.S. ENERGY INFO. ADMIN., *supra* note 5.

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 southeastern Utah; and the Blackfeet Reservation in western Montana. All four areas 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 as well as 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 cultural resources but do not require it.¹³ Similarly and surprising-

10. See, e.g., BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, CANYONS OF THE ANCIENT NATIONAL MONUMENT: TRAIL CANYON ACQUISITION MAP 1 OF 2 (n.d.), 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); BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, MAP 2 FLUID MINERAL LEASING: CANYONS OF THE ANCIENTS NATIONAL MONUMENT (2010), http://www.blm.gov/style/medialib/blm/co/nm/canm/CANM_Documents.Par.65309.File.dat/CANM_FinalPlanMap2_FluidMineralLeasing.pdf (showing dozens of active wells in and near Canyons of the Ancients National Monument in Colorado); see also *Diné 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, *supra* note 7.

11. See generally Archeological Resources Protection Act, 16 U.S.C. §§ 470aa–470mm (2012); 30 U.S.C. §§ 181–287 (2012); American Indian Religious Freedom Act, 42 U.S.C. § 1996 (2012); Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701–1785 (2012). 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. See National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4331–4370m-12 (2012); see also *Enos v. Marsh*, 769 F.2d 1363, 1373–74 (9th Cir. 1985) (discussing NEPA protections against potentially harmful effects of industrialization).

13. See, e.g., 16 U.S.C. § 429 (2012); 43 U.S.C. § 1711; GEORGE CAMERON COGGINS & ROBERT L. GLICKSMAN, PUBLIC NATURAL RESOURCES LAW § 15.1 (2d ed. 2016); Walter E. Stern

ly, 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, are largely procedural and impose only temporary barriers to the development of unconventional oil and gas in the vicinity of cultural resources.¹⁴

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,¹⁵ and discrete but unrelated subtopics related to cultural resource protection, such as theft of archaeological resources.¹⁶ Environmental and natural resources scholarship has addressed oil and gas development in general, and some recent publications have addressed unconventional mineral development specifically.¹⁷ However, the current legal scholarship surrounding oil and gas development has failed to address the enormous tension between these two values in a comprehensive manner. That conflict is precisely what this Article sets out to examine.

Part I will define unconventional oil and gas development and explaining the various extraction techniques and processes. Part II will highlight three examples of cultural resources on federal and tribal lands in the United States facing threats from existing or proposed unconventional oil and gas development. Following this discussion, Part III will explain relevant laws governing oil and gas exploration on federal public and tribal lands, including the newly promulgated BLM fracking rule. Then, Part IV will examine the various laws related to cultural resource protection in the United States, with a focus on the intersection between unconventional mineral development and protection of cultural resources in particular. Finally, Part V will conclude with some recommendations for reconciling the statutory disconnect in a manner that will actually protect the resources at stake.

& 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, 139 (1995).

14. See 16 U.S.C. §§ 470aa–470mm; National American Graves Protection Repatriation Act, 25 U.S.C. §§ 3001–3013 (2012).

15. Karan L. Dunnigan & Holly C. Meyer, Access to Federal Oil and Gas on Public Lands 3 (2008) (paper presented at the 2008 Special Institute on Surface Use for Mineral Development in the New West: Finding Good Ground) (on file with the Rocky Mountain Mineral Law Foundation).

16. Stern & Slade, *supra* note 13, at 134; Glenna J. Sheveland, Note, *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).

17. House, *supra* note 1, at 8; David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. 431, 488 (2013).

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.¹⁸ 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.¹⁹

Unconventional oil and gas is often extracted from geological formations previously deemed inaccessible, such as shale plays, “tight gas” formations, coalbed seams, and oil sands.²⁰ Thus, “[u]nconventional 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.”²¹ 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.”²² 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.”²³ 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.”²⁴

Regarding the method of extraction, this varies wildly depending on the subsurface formation but includes fracking and oil sands extraction.²⁵ In essence, “[a]s conventional oils become less accessible, new, more

18. DEBORAH GORDON, CARNEGIE ENDOWMENT FOR INT’L PEACE, UNDERSTANDING UNCONVENTIONAL OIL 5 (2012), http://carnegieendowment.org/files/unconventional_oil.pdf.

19. *Id.* at 5–6.

20. *Unconventional Oil & Gas*, OIL & GAS FIN. J., <http://www.ogfj.com/unconventional.html> (last visited Oct. 19, 2016).

21. GORDON, *supra* note 18, at 1. 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.” *See id.*

22. *Id.* at 6.

23. *Id.*

24. *Id.* at 7.

25. 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).

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.²⁶ The same is true of unconventional natural gas.²⁷ Although the characteristics of unconventional 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.²⁸ 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.”²⁹ This production has been deemed a “domestic energy revolution.”³⁰

Two primary unconventional gas resources have been driving this revolution: shale gas and tight gas.³¹ 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 2020.³² 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).”³³ By conservative estimates, the shale gas and tight gas production rate in the Lower Forty-Eight will increase by seventy-three percent by 2040.³⁴

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

26. GORDON, *supra* note 18, at 7.

27. House, *supra* note 1, at 12.

28. *Id.* at 8, 12.

29. *Diné 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).

30. House, *supra* note 1, at 8.

31. *Id.*

32. U.S. ENERGY INFO. ADMIN., U.S. DEP’T OF ENERGY, ANNUAL ENERGY OUTLOOK 2015 WITH PROJECTIONS TO 2040, at 19 (2015), [http://www.eia.gov/forecasts/aeo/pdf/0383\(2015\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf).

33. *Id.* at 20.

34. *Id.*

Montana's Exshaw Shale; and in Utica Shale in Colorado, Wyoming, and New Mexico.³⁵

Locations with tight shale reserves include "New York, Maine, Mississippi, Utah, and Alaska's North Slope and Cook Inlet."³⁶ Oil sands resources are located in "at least a dozen states, including (in relative order) Alaska, Utah, Alabama, California, Texas, Wyoming, Colorado, and Oklahoma."³⁷ The oil sands resources "may also be less easily recovered due to different physical and chemical compositions."³⁸ 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)."³⁹

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.⁴⁰ 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 only played a small role in offsetting the 2015 demand for approximately 85 million barrels a day.⁴¹ The bulk of the roughly fifteen million-barrel deficit has been accounted for by an increase in natural gas and unconventional oil production.⁴²

The political geography of oil development is changing as well.⁴³ 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."⁴⁴ 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 will increase to over 4,000 barrels per day in 2020.⁴⁵ If this projection holds, tight oil will become the largest source of U.S. oil production by 2020.

35. GORDON, *supra* note 18, at 11.

36. *Id.*

37. *Id.* at 12.

38. *Id.*

39. *Id.*

40. *Id.* at 3–4.

41. *Id.* at 3 (depicting conventional oil production decrease).

42. *Id.*; *cf.* U.S. ENERGY INFO. ADMIN., *supra* note 5, at 2. Although the U.S. Energy Information Administration notes that total production of oil and gas on federal lands actually decreased from 2003–2014, the expressions of interest in oil and gas on federal lands has increased during that same time. U.S. ENERGY INFO. ADMIN., *supra* note 5, at 2.

43. GORDON, *supra* note 18, at 10.

44. *Id.*

45. Andrew Slaughter, Vice President, Energy Insight, IHS, Presentation at the EIA Energy Conference: Global Supply and Market Impacts of US Unconventional Oil Production Growth (June 18, 2013), <http://www.eia.gov/conference/2013/pdf/presentations/slaughter.pdf>.

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.”⁴⁶ The unproved onshore oil reserves in the United States far outnumber the proved oil reserves, measured in billions of barrels per day (bbd), with the proved Lower Forty-Eight onshore oil reserves coming in at 24.5 bbd and the unproved coming in at 144.8 bbd.⁴⁷ In Alaska, the onshore and offshore proved reserves are 3.4 bbd and the unproved reserves are estimated at 34 bbd.⁴⁸ The Colorado River Basin alone “contains the largest untapped deposits of oil shale in the world.”⁴⁹ 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.⁵⁰ This is a smaller percentage discrepancy than with oil but shows a striking amount of unproved reserves in the Lower Forty-Eight.⁵¹ 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.⁵² In Alaska, the potential for development of natural gas resources is huge—only .03% of the total onshore and offshore gas reserves have been developed.⁵³

Natural gas has also become one of the “largest domestically produced energy resource[s].”⁵⁴ 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 ever-stricter environmental regulations under the Clean Air Act.⁵⁵ National health organizations such as the American Lung Association have endorsed fracking as a means of increasing the use of natural gas, which they ar-

46. GORDON, *supra* note 18, at 4.

47. U.S. ENERGY INFO. ADMIN., U.S. DEP’T OF ENERGY, ASSUMPTIONS TO THE ANNUAL ENERGY OUTLOOK 2016, at 129–30 (2017), <http://www.eia.gov/forecasts/aeo/assumptions/pdf/oilgas.pdf> (noting that only areas where oil and gas development is allowed were factored into the numerical values in the report).

48. *Id.*

49. Melissa Seigny, *Scientists Call for Moratorium on Oil Shale, Tar Sands Development*, 91.5 KJZZ (June 19, 2015, 10:59 AM), <http://kjzz.org/content/154815/scientists-call-moratorium-oil-shale-tar-sands-development>.

50. U.S. ENERGY INFO. ADMIN., *supra* note 47, at 130.

51. *Id.* (noting that seventeen percent of the total lower forty-eight gas reserves have been proved).

52. *Id.*

53. *Id.*

54. 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. ENVTL. L.J. 1, 5 (2015).

55. *Id.*

gue improves air quality and consequently, public health.⁵⁶ 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.”⁵⁷ Unconventional oil typically includes oil sands, tight oil, new heavy oils, and oil shale.⁵⁸ 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.⁵⁹ 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.⁶⁰ 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.⁶¹ The water and chemical mixture is injected at a “very high rate of speed” to crack open the rock.⁶² 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.⁶³

The injected water and chemical mixture that flows back to the surface is referred to as flowback or flowback fluids.⁶⁴ 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.⁶⁵ Although industry publications often describe flowback as “water”⁶⁶ or even fail to mention this part of the operation at all,⁶⁷ the fluids produced by hydrau-

56. *Id.*

57. House, *supra* note 1, at 18 (footnotes omitted).

58. See generally Slaughter, *supra* note 45.

59. House, *supra* note 1, at 18; see also *The United States Now Produces Nearly All of the Natural Gas That It Uses*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energy_in_brief/article/shale_in_the_united_states.cfm (last updated Jan. 10, 2017).

60. House, *supra* note 1, at 27–28; Michael Dillon, Comment, *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, 206 (2011).

61. 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, 25–27 (2014).

62. *Id.* at 25.

63. House, *supra* note 1, at 26–27.

64. Cristaldi, *supra* note 61, at 26.

65. 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).

66. See *Technology Helps Recycle Texas Fracking Flowback, Produced Water*, WATERWORLD (Nov. 19, 2013), <http://www.waterworld.com/articles/2013/11/produced-flowback-recycled-water-increased-at-eagle-ford-shale-texas.html>.

67. Ken Cohen, *Facts on the Hydraulic Fracturing Process*, EXXONMOBIL (June 17, 2011), <http://www.exxonmobilperspectives.com/2011/06/17/facts-hydraulic-fracturing->

lic fracturing operations are voluminous and may resemble water depending on the needs of the drilling operator, the subsurface formation, and the depth of the reserve.⁶⁸ 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.⁶⁹

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 lives.⁷⁰ 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.⁷¹ 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.⁷²

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.”⁷³ Because the oil is so tightly bound to the other materials found with it, the process for extracting it “involves considerably more processing and refining than conventional crude oil.”⁷⁴ 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.⁷⁵ For surface deposits, the method “is much like a strip mining operation, requiring heavy earthmoving equipment to clear away the dirt and rocks (and natural ecosystems) covering the thick, asphalt-like deposits.”⁷⁶ 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.⁷⁷

process/?gclid=Cj0KEQjwk7msBRCJj67khY2z_NIBeiQAPTFjv2D3dwl3h-j89Z1CUIV9ORwsfTUeX0jo8-zJyT_TzwaAi_l8P8HAQ&glsr=aw.ds.

68. See 43 C.F.R. § 3160 (2017).

69. See *id.*; see also Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16,128 (Mar. 26, 2015) (codified at 43 C.F.R. § 3160 (2017)) (discussing the goals of the rule as including “protecting water supplies [and] to make certain that the fluids that flow back to surface . . . are managed in an environmentally responsible way”).

70. Cristaldi, *supra* note 61, at 27.

71. *Id.*

72. House, *supra* note 1, at 25.

73. Steven Watmore, Note, *Tar Sands Oil and Pipeline Safety: Examining Regulatory Shortcomings*, 59 WAYNE L. REV. 175, 176 (2013).

74. *Id.*

75. *Id.* at 177.

76. *Id.* at 177–78.

77. 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*, NAT. RESOURCES & ENV'T, Summer 2012, at 54, 54.

Removing the tar-laden material from the ground in a surface operation is only the first step in extracting the petroleum, however.⁷⁸ 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.”⁷⁹ The mixture is then “treated with hot water and then agitated, making the bitumen rise to the top of the slurry mixture, where it can be skimmed off.”⁸⁰ The remaining slurry material, containing water, suspended solids, and processing chemicals, is deposited into slurry ponds, usually near the mining operation.⁸¹

Subsurface tar sand deposits are mined in place, using various techniques to separate the oil and bitumen mixture from any gravel or rock substrate, before pumping it to the surface.⁸² 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.⁸³ The oil and bitumen mixture can then be pumped from the extraction pool to the surface and retrieved for refining.⁸⁴ Once at the surface, the oil must be separated from the bitumen, which requires on-site refining infrastructure.⁸⁵ 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.”⁸⁶

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.⁸⁷ 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.⁸⁸ 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.⁸⁹ 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.

78. Watmore, *supra* note 73, at 178.

79. *Id.*

80. *Id.*

81. *Id.*

82. *Id.* at 178–79.

83. *Id.* at 179.

84. *Id.*

85. *Id.* at 179–80.

86. *Id.* at 180.

87. See Michael Burger, *The (Re)Federalization of Fracking Regulation*, 2013 MICH. ST. L. REV. 1483, 1495 (2013).

88. *Id.* at 1492.

89. Lilly Fang, Note, *Environmental Review Problems of Cross-Border Projects Under NEPA: Lessons from the Tar Sands Pipelines*, 31 STAN. ENVTL. L.J. 285, 290 (2012).

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.⁹⁰ By percentage, the largest amount of crude is moved in the United States using pipelines, followed by ships, then trucks and lastly, railways.⁹¹ 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.⁹² 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 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.⁹³

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. 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.⁹⁴

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.⁹⁵ In the Southwest alone, the catalogued sites are voluminous. In a 2003 report on cultural and fossil resources on public lands, the BLM stated that

90. James Conca, *Pick Your Poison for Crude -- Pipeline, Rail, Truck or Boat*, FORBES (Apr. 26, 2014, 10:35 AM), <http://www.forbes.com/sites/jamesconca/2014/04/26/pick-your-poison-for-crude-pipeline-rail-truck-or-boat/#2ce4b6895777>.

91. *Id.*

92. *Id.*

93. *Id.*

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

95. Velella Canouts & Francis P. McManamon, *Protecting the Past for the Future: Federal Archaeology in the United States*, in *TRADE IN ILLICIT ANTIQUITIES: THE DESTRUCTION OF THE WORLD'S ARCHAEOLOGICAL HERITAGE* 97 (Neil Brodie et al. eds., 2001); Roberto Iraola, *The Archaeological Resources Protection Act – Twenty Five Years Later*, 42 DUQ. L. REV. 221, 221 (2004).

there were “hundreds of thousands” of documented archaeological sites on the 261 million acres of BLM-managed land.⁹⁶

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, Chaco Canyon, and the Bears Ears region in southeastern Utah,⁹⁷ 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 they do 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.⁹⁸ 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.⁹⁹ The DAPL is designed to transport “over a half-billion gallons of crude oil across four states daily.”¹⁰⁰ 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.¹⁰¹ Because the 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.¹⁰² However, the DAPL did require

96. BUREAU OF LAND MGMT., U.S. DEP’T OF THE INTERIOR, AMERICA’S PRICELESS HERITAGE: CULTURAL AND FOSSIL RESOURCES ON PUBLIC LANDS iii, 1 (2003).

97. Char Miller, *Is Nothing Sacred? Fracking and Chaco Culture National Historic Park*, KCET (Aug. 7, 2013), <https://www.kcet.org/redefine/is-nothing-sacred-fracking-and-chaco-culture-national-historic-park>; Bears Ears Inter-Tribal Coalition, Proposal to President Barack Obama for the Creation of Bears Ears National Monument 34 (Oct. 15, 2015) [hereinafter Bears Ears Proposal], <http://www.bearscoalition.org/wp-content/uploads/2015/10/Bears-Ears-Inter-Tribal-Coalition-Proposal-10-15-15.pdf>.

98. Bears Ears Proposal, *supra* note 99, at 18.

99. *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs*, No. 16-1534 (JEB), 2016 WL 4734356, at *1 (D.D.C. Sept. 9, 2016); Heim & Berman, *supra* note 7.

100. *Standing Rock Sioux Tribe*, 2016 WL 4734356, at *1.

101. See *Where Does the Dakota Access Pipeline Run?*, DAKOTA ACCESS PIPELINE FACTS, https://daplpipelinefacts.com/dt_articles/where-does-the-dakota-access-pipeline-run/ (last visited Mar. 3, 2017).

102. *Standing Rock Sioux Tribe*, 2016 WL 4734356, at *1.

federal permits for the hundreds of locations where it would traverse federal waters.¹⁰³

This permitting process gave the tribe a foothold under NEPA and the National Historic Preservation Act (NHPA) because the DAPL's 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.¹⁰⁴ According to the tribe, "[t]he 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."¹⁰⁵ 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 potential impacts beforehand.¹⁰⁶ 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]."¹⁰⁷

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.¹⁰⁸ 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.¹⁰⁹ 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.¹¹⁰ Yet, the tribes maintained their spiritual connections to their former homelands, and some even retained treaty rights to hunt in the seized territory.¹¹¹

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."¹¹² They serve today as a visual spiritual connection to

103. Heim & Berman, *supra* note 7.

104. *Id.*

105. Complaint for Declaratory and Injunctive Relief ¶ 9, *Standing Rock Sioux Tribe*, 2016 WL 4734356 (No. 1:16-cv-01534), 2016 WL 4033936 [hereinafter *Standing Rock Complaint*].

106. *Standing Rock Sioux Tribe*, 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.

107. *Standing Rock Complaint*, *supra* note 107, ¶ 51.

108. *Standing Rock Sioux Tribe*, 2016 WL 4734356, at *6.

109. *History*, STANDING ROCK SIOUX TRIBE, <http://standingrock.org/history/> (lasted visited Oct. 29, 2016).

110. *Id.*

111. *Id.*

112. *Standing Rock Sioux Tribe*, 2016 WL 4734356, at *6.

tribal ancestors.¹¹³ One particularly sacred place “lies at the traditional confluence of the Missouri and Cannonball Rivers. The ancestors to the Standing Rock Sioux gathered [at this confluence] to peacefully trade with other tribes.”¹¹⁴ However, this site is currently under a lake created by the Army Corps of Engineers on the Missouri River, which flooded the region and subsumed the stone markers designating the sacred gathering location.¹¹⁵

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.¹¹⁶ The company proposing the pipeline, Dakota Access, conducted numerous historic and cultural resource surveys prior to selecting the final route of the pipeline, and because one of these private assessments revealed cultural resources sacred to the Standing Rock Sioux, the company requested input from the tribe about the proposed route.¹¹⁷

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.¹¹⁸ 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.¹¹⁹ 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 rerouting the pipeline, rather than discussing its concerns with the Army Corps tribal liaison.¹²⁰ The Tribe disputed this version of events, stating in its complaint that it participated extensively in the 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.¹²¹ 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.¹²²

Despite the tribe’s objections, the district court denied its motion for a preliminary injunction on the NHPA issue, holding that the tribe could

113. *Id.*

114. *Id.* (citations omitted).

115. *Id.*

116. *Id.* at *6–7.

117. *Id.* at *7.

118. *Id.* at *8.

119. *Id.* at *8–9.

120. *Id.* at *9.

121. Standing Rock Complaint, *supra* note 107, ¶¶ 60–62.

122. *Id.* ¶ 62 (internal quotation marks omitted).

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.¹²³ 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.¹²⁴ 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 and stated only that granting the emergency motion would give the court sufficient time to consider the merits of the appeal.¹²⁸ The court later lifted the stay and ultimately denied the tribe’s motion in March 2017.¹²⁹ According to Dakota Access, the pipeline would begin transporting oil in late March 2017.¹³⁰ Although the court’s approval of the final construction phase of the pipeline likely destroyed several sites sacred to the Standing Rock Sioux, the litigation regarding the Army Corps of Engineers’ and other agencies’ consultation duties under the federal statutes authorizing these projects is ongoing.¹³¹ If the courts were to rule in favor of the tribe on the consultation claims, such a ruling might indicate to agencies that they need to bolster their consultation efforts in the future.

123. *Standing Rock Sioux Tribe*, 2016 WL 4734356, at *24.

124. *Id.*

125. *Id.* at *22.

126. *Id.*

127. See generally Emergency Motion for a Temporary Restraining Order, *Standing Rock Sioux Tribe*, 2016 WL 4734356 (No. 1:16-cv-1534-JEB), 2016 WL 4598845; Amended Order, *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs*, No. 16-1534 (JEB) (D.C. Cir. Sept. 16, 2016) (“ORDERED that Dakota Access LLC be enjoined pending further order of the court from construction of the Dakota Access Pipeline for 20 miles on both sides of the Missouri River at Lake Oahe. The purpose of this administrative injunction is to give the court sufficient opportunity to consider the emergency motion for injunction pending appeal and should not be construed in any way as a ruling on the merits of that motion.”). The Amended Order is available in full through the Public Access to Court Electronic Records portal. See generally PACER, www.pacer.gov (last visited Mar. 4, 2017).

128. See Amended Order, *supra* note 129.

129. *Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs*, No. 16-1534 (JEB), 2017 WL 908538 (D.D.C. Mar. 7, 2017) (order denying motion for preliminary injunction), *appeal docketed*, No. 17-5043 (D.C.C. Mar. 15, 2017).

130. David Blackmon, *A New Controversy Rises as Oil Begins to Flow Through Dakota Access Pipeline*, FORBES (Mar. 20, 2017, 11:21 AM), <https://www.forbes.com/sites/davidblackmon/2017/03/20/a-new-controversy-rises-as-oil-begins-to-flow-through-dakota-access-pipeline/#50f5402d23fc>.

131. *Id.*

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.¹³² Because of the relative high quality of these ancient structures, the Greater Chaco Canyon region was named a United Nations World Heritage Site in 1987.¹³³ 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.¹³⁴ 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.¹³⁵

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.¹³⁶ 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.¹³⁷ Remnants of the outer edges of this civilization are visible today in Mesa Verde National Park in Colorado,¹³⁸ Hovenweep National Monument on the Utah/Colorado border,¹³⁹ Canyons of the Ancients National Monument in Colorado,¹⁴⁰ Canyon de Chelly National Park, and Navajo National Monument in Arizona.¹⁴¹ The sites these preserves have been created to protect make up what is often referred to as the “American Cradle of Civilization.”¹⁴²

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

133. *Chaco World Heritage Designation*, NAT'L PARK SERV., www.nps.gov/chcu/learn/historyculture/worldheritage.htm (last visited Oct. 15, 2016).

134. Julie Dermansky, *Will New Mexico Double Down on Dirty Energy?*, DESMOG (Mar. 7, 2015, 10:58 AM), <http://www.desmogblog.com/2015/03/07/will-new-mexico-double-down-dirty-energy>.

135. 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>.

136. See Ragsdale, *supra* note 134, at 487.

137. *Id.* at 521, 544; see also NAT'L PARK SERV., U.S. DEP'T OF THE INTERIOR, MESA VERDE: ANCESTRAL PUEBLOANS AND THEIR WORLD (n.d.), https://www.nps.gov/meve/learn/education/upload/ancestral_puebloans.pdf.

138. *Mesa Verde*, NAT'L PARK SERV., <http://www.nps.gov/meve/index.htm> (last visited Oct. 22, 2016).

139. *Hovenweep*, NAT'L PARK SERV., <https://www.nps.gov/hove/index.htm> (last visited Oct. 22, 2016).

140. *Canyons of the Ancients National Monument*, BUREAU OF LAND MGMT., <http://www.blm.gov/co/st/en/nm/canm.html> (last updated Aug. 16, 2016).

141. *Canyon de Chelly*, NAT'L PARK SERV., <https://www.nps.gov/cach/index.htm> (last visited Oct. 22, 2016).

142. Pete Dronkers, *Fracking Threatens the Chaco Canyon World Heritage Site*, EARTHWORKS (June 11, 2014) (internal quotation marks omitted),

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.¹⁴³ 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.¹⁴⁴

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 parks, such as Chaco Canyon, Mesa Verde, and the others mentioned above.¹⁴⁵ 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."¹⁴⁶ 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.¹⁴⁷ Some of the communities also contained larger buildings, such as "great houses," kivas, and other structures for storage or ceremonial purposes.¹⁴⁸ Great houses, as the name indicates, were much larger than unit houses, reaching four or five stories in height and containing hundreds of rooms.¹⁴⁹ In its day, Chaco was a large city even by today's measure, occupying over 100 square kilometers.¹⁵⁰

The architectural feats of the ancient civilizations in the American Southwest have been described as "spectacular" and "unrivaled" in North America.¹⁵¹ 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.¹⁵² The great houses also contained rooms with eight-foot, timber-beamed ceil-

https://www.earthworksaction.org/earthblog/detail/fracking_threatens_the_chaco_canyon_world_heritage_site#.WAvvLqNFSRs.

143. See *S. Utah Wilderness All. v. Norton*, 326 F. Supp. 2d 102, 109–10 (D.D.C. 2004).

144. See *id.*

145. See Ragsdale, *supra* note 134, at 489.

146. *Id.*

147. *Id.*

148. *Id.* at 495, 498–99.

149. *Id.* at 495 (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).

150. *Id.* at 486.

151. *Id.* at 496.

152. *Id.*

ings requiring the transport of “[h]undreds of thousands” of trees without the benefit of livestock or even the wheel.¹⁵³ Construction of a complex, large great house alone could take several decades.¹⁵⁴

Perhaps the most delicate and signature feature of these communities are the kivas, which are circular ceremonial rooms built into the ground with a covered roof.¹⁵⁵ Kivas began as dwelling structures in the early Anasazi period and evolved into purely ceremonial use by the mid-1100s.¹⁵⁶ They ranged in size from thirty feet in diameter to more than eighty.¹⁵⁷ 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.”¹⁵⁸ 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.”¹⁵⁹ Their interior walls contained large and small recessed spaces, which were finished with stucco-style coatings and decorated with ornamental beads and stones.¹⁶⁰ Kivas appeared to serve as religious centers, oriented along cardinal directions and in discernible spatial relationships with planetary features.¹⁶¹

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.¹⁶² There are also massive irrigation systems using masonry canals controlled by headgates.¹⁶³ The greater Chaco area contains thousands of smaller villages, remote settlements, and agricultural lands that were connected to the nerve center at Chaco by a myriad of roads.¹⁶⁴ 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.¹⁶⁵ 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.¹⁶⁶ These settle-

153. *Id.* at 496–97.

154. *Id.* at 497.

155. *Id.* at 499–500.

156. *Id.* at 500–01.

157. *Id.* at 501.

158. *Id.*

159. *Id.* (footnote omitted).

160. *Id.* at 501–02.

161. *Id.*

162. *Id.* at 506.

163. *Id.*

164. *Id.* at 508–09.

165. *Id.* at 509; *see also* DAVID E. STUART, THE ANCIENT SOUTHWEST: CHACO CANYON, BANDELIER, AND MESA VERDE 77 (2009).

166. Ragsdale, *supra* note 134, at 510–11.

ments fostered a political and economic network that archaeologists today refer to as the “Chaco Phenomenon.”¹⁶⁷

Underneath the greater Chaco region lies the Mancos Shale play, which potentially contains “up to 60 billion barrels of oil.”¹⁶⁸ 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.¹⁶⁹ In 2010, the BLM started receiving significant amounts of drilling applications for hydraulic fracturing operations in the Mancos and fracking began to proliferate there in 2011.¹⁷⁰

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.¹⁷¹ Prior to this, the BLM had considered oil and gas reserves in this area to be “fully developed.”¹⁷² 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.¹⁷³ In particular, the new RMP was required to address impacts to previously unknown archaeological sites in the Mancos-Gallup basin.¹⁷⁴

167. STUART, *supra* note 167, 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 134, 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.

168. See Alex Ritchie, *On Local Fracking Bans: Policy and Preemption in New Mexico*, 54 NAT. RESOURCES J. 255, 277 n.127 (2014).

169. *Diné 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).

170. *Id.* at *6.

171. *Farmington RMP: Mancos-Gallup Amendment*, BUREAU OF LAND MGMT., <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=68107> (last updated Jan. 26, 2017).

172. *Id.*

173. BUREAU OF LAND MGMT., U.S. DEP'T OF THE INTERIOR, MANCOS-GALLUP RESOURCE MANAGEMENT PLAN AMENDMENT AND ENVIRONMENTAL IMPACT STATEMENT: ASSESSMENT OF THE MANAGEMENT SITUATION 1-5 (2015) [hereinafter MANCOS-GALLUP RMPA], http://www.blm.gov/style/medialib/blm/nm/field_offices/farmington/farmington_planning/ffo_planning_docs/rmpa_mancos.Par.39210.File.dat/FMG_FinalAMS_20150317_508_reduced.pdf; *Diné Citizens*, 2015 WL 4997207, at *7 (noting that BLM approved 250 applications for permission to commence hydraulic fracturing operations between January 2014 and March 2015).

174. MANCOS-GALLUP RMPA, *supra* note 175, at 1-5.

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.¹⁷⁵ The BLM estimates that the play might yield in the neighborhood of 1.5 billion barrels of oil, recoverable only through unconventional means.¹⁷⁶ So far, the agency has approved drilling permit applications without a thorough inventory of archaeological or cultural resource sites in place, resulting in litigation which, to date, has not been successful in halting the development efforts.¹⁷⁷ 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 once there.

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.¹⁷⁸ In December 2016, President Obama declared it a National Monument.¹⁷⁹ The Monument encompasses 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.¹⁸⁰ It consists of roughly 1.35 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.¹⁸¹ 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 the tribes.¹⁸² Indeed, according to the tribal proposal to create the Bears Ears Monument (Monument Proposal), “large numbers of contemporary Indian people visit Bears Ears regularly to gather medicines, herbs, and vegetative materials.”¹⁸³

Most of the areas within the Monument are high-desert plateaus or dramatic canyon country. Within the canyons, such as those on Comb

175. *Diné Citizens*, 2015 WL 4997207, at *7.

176. *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.

177. *See id.* at *50.

178. BEARS EARS INTER-TRIBAL COALITION, PROPOSED BEARS EARS NATIONAL MONUMENT, http://www.bearscoalition.org/wp-content/uploads/2015/12/map_Bears_Ears_Proposal_11x14.pdf.

179. Establishment of the Bears Ears National Monument, Proclamation 9558 of Dec. 28, 2016, 82 Fed. Reg. 1,139 (Jan. 5, 2017).

180. BEARS EARS INTER-TRIBAL COALITION, *supra* note 180.

181. Establishment of Bears Ears National Monument, 82 Fed. Reg. at 1,143.

182. Bears Ears Proposal, *supra* note 99, at 8.

183. *Id.* at 2.

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.¹⁸⁴ 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.¹⁸⁵

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.¹⁸⁶ For the Hopi and Zuni, the Bears Ears region also represents part of the tribes' ancestral homelands.¹⁸⁷ The Ute used the area more seasonally, 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.¹⁸⁸ 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, in what is now Arizona.¹⁸⁹ The region also contains vast archaeological resources; the Monument Proposal lists over 100,000 documented sites.¹⁹⁰

Part of the reason the tribes petitioned President Obama to create the Monument is that various portions of the Bears Ears region were being threatened by oil and gas development generally, and in critical areas, by unconventional forms.¹⁹¹ The conventional oil and gas potential was limited to the far northern boundary of the proposed Monument, near Hatch Point, Harts Point, and in the Lockhart Basin by Canyonlands National Park.¹⁹² However, there are "significant deposits of tar sands" located in White Canyon, which is basically right in the center of the Monument, close to the Bears Ears formation.¹⁹³ The White Canyon deposit was included within every alternative considered by the BLM for tar sands development in the State of Utah.¹⁹⁴

184. See, e.g., *Nat'l Wildlife Fed'n v. BLM*, 140 IBLA 85, 88 (1997).

185. Bears Ears Proposal, *supra* note 99, at 7–8.

186. *Id.*

187. *Id.* at 8–9 ("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.").

188. *Id.* at 9.

189. *Id.*

190. *Id.*

191. *Threats*, BEARS EARS INTER-TRIBAL COALITION, <http://www.bearscoalition.org/threats/> (last visited Feb. 17, 2017).

192. *Id.*

193. *Id.*

194. See BUREAU OF LAND MGMT., TAR SANDS – ALTERNATIVES: UTAH (n.d.), http://ostseis.anl.gov/documents/docs/draftmtgs/11_tar_sands_utah.pdf (showing alternative areas

Although almost half a million acres of the proposed Monument were excluded from the final Proclamation, the tribes are satisfied that it will protect the most sacred sites and culturally important locations.¹⁹⁵ 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, even after the Monument designation, those locations still face development threats.¹⁹⁶ The Bears Ears Monument has been seen as a highly effective means of protecting tribal cultural resources within the Monument boundaries, although many have called for President Trump to decommission the Monument despite the benefits it has bestowed upon the tribes of this region.¹⁹⁷

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

On tribal lands, cultural resources also face threats from unconventional oil and gas operations. The Blackfeet Reservation in western Montana recently experienced this firsthand when the tribe 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.¹⁹⁸ 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.¹⁹⁹ When the Bureau of Indian Affairs (BIA) and the tribe began the environmental review process in 2012 for a 640 acre lease unit near a formation called Red Blanket Butte 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.²⁰⁰ After receiving the comments in opposition to drilling, the operator, Anschutz Corpora-

for potential mineral extraction as part of the 2012 Oil Shale and Tar Sands Programmatic Environmental Impact Statement conducted by the Bureau of Land Management).

195. Lauren Markoe, *Bears Ears National Monument, Sacred to Native Tribes, Faces Challenge to Its Status*, NAT'L CATH. REP. (Mar. 11, 2017), <https://www.nronline.org/blogs/eco-catholic/bears-ears-national-monument-sacred-native-tribes-faces-challenge-its-status>.

196. *Id.*; H.R. 5780, 114th Cong. (2016).

197. Michael Blumm & Hillary Hoffmann, Opinion, *Obama's National Monument Designations Were Lawful, Not Land Grabs*, L.A. TIMES (Jan. 23, 2017, 4:00 AM), <http://www.latimes.com/opinion/op-ed/la-oe-blumm-hoffmann-validity-of-national-monument-designations-20170120-story.html>.

198. 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.

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

200. *Id.*

tion, suspended its pursuit of the Red Blanket lease to determine a more viable location for extraction.²⁰¹

In another location on the reservation, Chief Mountain, the tribal council also approved drilling in 2006. Then, in early 2013, the tribe entered into a lease agreement with an oil company, Nations Energy, LLC, to frack from pads occupying nearly 4,000 acres surrounding the base of the mountain.²⁰² 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.²⁰³ Upon receiving the petition, the tribal council cancelled the lease, although the area remains “open” for future oil development.²⁰⁴ 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 Section III.B.

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.²⁰⁵ There are also general multiple-use statutes that apply to all activities on federal lands, such as the FLPMA, the NFMA, and the Multiple-Use Sustained-Yield Act (MUSYA).²⁰⁶ Together, these statutes provide a legal framework governing mineral resource development and 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.²⁰⁷ The Mineral Leasing Act for Acquired Lands contained similar provisions but applied to

201. *Id.*

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

203. *Id.*

204. *Id.*

205. See 30 U.S.C. §§ 223–229, 233(a), 241–242 (2012).

206. See 16 U.S.C §§ 528, 1604 (2012); 43 U.S.C. § 1712 (2012).

207. 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., *Oil and Gas Operations on Public Lands in the Marcellus Shale Region*, 32 ENERGY & MIN. L. INST. 517, 539 (2011).

non-public domain lands acquired from private parties or the states.²⁰⁸ In theory, these two statutes created a temporary interest in valuable minerals located on public lands (rather than a fee simple estate) and gave the Secretary of Interior “broad discretion” over private entities’ acquisition of public lands for mineral development.²⁰⁹ More recently, Congress passed the Energy Policy Act of 2005, which encouraged 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.”²¹⁰

In general, the BLM is authorized to issue mineral leases on BLM land and in national forests,²¹¹ and the leasing process includes four phases.²¹² First, the BLM determines which lands will be made available for oil and gas extraction and incorporates that designation into its resource management plan under FLPMA.²¹³ In national forests, the determination occurs within the process of developing a land and resource management plan under NFMA.²¹⁴ 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.²¹⁵

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.²¹⁶ In general, the planning processes under FLPMA and NFMA are subject to the requirements of the NEPA, which requires the agency to consider various alternatives to the proposed oil and gas leasing use.²¹⁷

In phase two, the BLM authorizes specific exploration or drilling activities through a bidding process on lands previously determined to be suitable for oil and gas extraction.²¹⁸ After the passage of the Onshore Oil and Gas Leasing Reform Act in 1987, bidding must be competitive—at least initially.²¹⁹ Also, either the agency or private parties can nomi-

208. Miller et al., *supra* note 209, 539–540.

209. Glicksman & Coggins, *supra* note 209, at 782.

210. See Energy Policy Act of 2005 § 369, 42 U.S.C. § 15927 (2012).

211. Glicksman & Coggins, *supra* note 209, at 796.

212. JAMES RASBAND ET AL., NATURAL RESOURCES LAW AND POLICY 1156 (2d ed. 2009).

213. 43 C.F.R. § 3160 (2017).

214. Charles L. Kaiser & 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 et al., *supra* note 209, 539–541.

215. Kaiser & Hardt, *supra* note 216, at 840.

216. Miller et al., *supra* note 209, 539–541.

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

218. *Id.*

219. See generally 30 U.S.C. § 226 (2012).

nate lands for bidding.²²⁰ If there is only one interested bidder, the agency can issue a noncompetitive lease. However, if the bidding 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.²²¹

The third phase of oil and gas leasing is entry into the lease agreement with the federal government. Leases generally last either five 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.”²²² 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.²²³ 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.²²⁴

The final phase is the filing of the application to drill and a drilling plan with the BLM.²²⁵ Prior to drilling, the BLM must review the drilling plan and determine whether there will be any adverse environmental consequences associated with the drilling.²²⁶ This phase is also subject to NEPA, which requires the agency to produce an Environmental Impact Statement (EIS) prior to approval of any drilling.²²⁷ 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 during site examinations, may result in conditions of approval (COA) on the operator’s drilling permit.”²²⁸ These conditions may “require, forbid, or control specified activities or disturbances.”²²⁹ However, none of these requirements relate to cultural resources specifically.

1. Specific Requirements for Hydraulic Fracturing

BLM promulgated its long-awaited Final Fracking Rule in 2015, outlining new requirements to regulate fracking on federal and tribal

220. Miller et al., *supra* note 209, 540–41.

221. RASBAND ET AL., *supra* note 214, 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)(A). Tracts containing tar sands are leased in parcels of 5760 acres. *Id.* § 226(b)(2)(A)(i). This is also the minimum size of a non tar sand-bearing tract in Alaska. *Id.* § 226(b)(1)(A).

222. RASBAND ET AL., *supra* note 214, at 1156 (internal quotation marks omitted).

223. 30 U.S.C. § 226(b)(1)(A).

224. Miller et al., *supra* note 209, 539–41, 545.

225. *Id.* at 539–41.

226. *Id.*

227. *Id.*

228. Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16,128, 16,129 (Mar. 26, 2015) (codified at 43 C.F.R. § 3160 (2017)).

229. *Id.*

lands.²³⁰ According to the new rule, more than thirty-six million acres of federal lands “are under lease for potential oil and gas development . . .” across thirty-three states.²³¹ The Department of Interior catalogued 95,000 active oil and gas wells on federal land, including conventional and unconventional wells.²³² Moreover, roughly “90 percent” of currently drilled wells are fracked.²³³ 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 rule has generated a significant controversy,²³⁴ it does not differ greatly from the old rules in terms of leasing and operator requirements.²³⁵ 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 geomorphology.²³⁶ 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.²³⁷ 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.²³⁸ Lastly, the new rule adds a requirement that fracking fluids must be disposed of in surface tanks or impoundments after operations are completed, with “a limited exception.”²³⁹

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.²⁴⁰ This approach can be summarized as follows: the authorizing statutes give the BLM authority to accommodate cultural

230. *Id.* A district invalidated the rule shortly after it was finalized, holding that BLM lacked the authority to promulgate the rule and an appeal is currently pending before the Tenth Circuit Court of Appeals. *Wyoming v. U.S. Dep’t of the Interior*, 136 F. Supp. 3d 1317, 1326–28 (D. Wyo. 2015), *vacated by* *Wyoming v. Sierra Club*, No. 15-8126, 2016 WL 3853806, at *1 (10th Cir. July 13, 2016); Timothy Cama, *Court Delays Appeal over Obama’s Fracking Rule*, HILL (Jan. 4, 2017, 11:13 AM), <http://thehill.com/policy/energy-environment/312644-court-delays-appeal-case-over-obamas-fracking-rule>.

231. Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. at 16,129.

232. *Id.*

233. Press Release, Jessica Kershaw, Bureau of Land Mgmt., Office of the Sec’y of the Interior, Interior Department Releases Final Rule to Support Safe, Responsible Hydraulic Fracturing Activities on Public and Tribal Lands (Mar. 20, 2015), http://www.blm.gov/wo/st/en/info/newsroom/2015/march/nr_03_20_2015.html.

234. *Wyoming*, 136 F. Supp. 3d at 1326–28.

235. Whitney-Williams & Hoffmann, *supra* note 65, at 482–83.

236. 43 C.F.R. § 3160 (2017).

237. *Id.*

238. *Id.*

239. *Id.*

240. *Id.*

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,”²⁴¹ and there are special requirements governing the exploration and extraction of these public oil shale and tar sands reserves.²⁴² Although originally subject to lease agreements under the Mineral Leasing Act, in 2005, Congress formulated a specific system for leasing federal lands for oil shale.²⁴³ 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.”²⁴⁴

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.²⁴⁵ 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 EPL 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 EPL 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.”²⁴⁶

Moreover, the Unconventional Fuels Act directed the Secretary of Interior to develop implementing regulations, which she did in the late 2000s.²⁴⁷ In brief, the leasing process contained in the regulations starts with an initial bidding process similar to that used in conventional oil and

241. Robert P. Baker & Robert D. Mulford, *Problems and Policies of Oil Shale Development*, 19 STAN. L. REV. 190, 194 (1966).

242. *Id.* at 194–95; see also 42 U.S.C. § 15927(c) (2012).

243. 42 U.S.C. § 15927(c), (e).

244. *Id.*

245. *Id.* § 15927(d)(1); Alexander Hood, Note, *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).

246. Hood, *supra* note 247, at 200 (footnotes omitted).

247. 42 U.S.C. § 15927(c)(2); e.g., 43 C.F.R. § 3900.2 (2017).

gas leasing.²⁴⁸ Each leased parcel cannot exceed 5,760 acres, and the Secretary of Interior has absolute discretion to determine the lease terms.²⁴⁹ 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.²⁵⁰ Unlike the leasing decision, which is not subject to NEPA review, the decision to issue the disposal site lease is subject to NEPA.²⁵¹

With respect to cultural resources threatened by shale mining operations, the Unconventional Fuels Act is silent. The agency therefore has not imposed regulations requiring it to survey or assess development sites for the presence of cultural resources before drilling begins. This essentially leaves NEPA and the cultural resource protection statutes as the only legal barriers to oil shale development. NEPA and the scope of its authority in this area will be addressed further below.

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.”²⁵² 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.”²⁵³ The Department of Interior administers between 2,500 and 500 producing mineral leases on tribal lands, resulting in revenue that is projected to reach \$1 billion in the near future.²⁵⁴

Tribes have different options for developing oil and gas reserves on tribal lands.²⁵⁵ Because tribes hold rights to develop subsurface mineral resources underlying tribal lands,²⁵⁶ they can develop mineral resources directly by forming tribal energy corporations to explore and extract oil and gas.²⁵⁷ They can also use the “638 Program” under the Indian Self-Determination and Education Assistance Act of 1974 to “enter into con-

248. COGGINS & GLICKSMAN, *supra* note 13, § 40.7.

249. *Id.*

250. *Id.*

251. *Id.*

252. JUDITH V. ROYSTER, MICHAEL C. BLUMM & ELIZABETH ANN KRONK, *NATIVE AMERICAN NATURAL RESOURCES LAW* 277 (3d ed. 2013).

253. *Id.*

254. *Id.*; BUREAU OF INDIAN AFFAIRS, U.S. DEP'T OF THE INTERIOR, *OIL AND GAS OUTLOOK IN INDIAN COUNTRY* (n.d.), <http://www.bia.gov/cs/groups/xieed/documents/document/idc1-024535.pdf>.

255. ROYSTER, BLUMM & KRONK, *supra* note 254, at 277.

256. Judith V. Royster, *Mineral Development in Indian Country: The Evolution of Tribal Control over Mineral Resources*, 29 *TULSA L.J.* 541, 545 (1994). 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. *Id.* at 550. For the sake of this survey discussion, however, the general rule that tribes hold mineral rights underlying their reservations (collectively) is followed. *Id.*

257. ROYSTER, BLUMM & KRONK, *supra* note 254, at 277.

tracts and self-governance compacts to assume administration of federal Indian programs” using funds from the Program.²⁵⁸ The third and final option for tribes is to “enter into leases or other types of arrangements” with private oil and gas companies.²⁵⁹ Under this model, which is by far the most common arrangement, the federal government plays only a limited oversight role.²⁶⁰

This federal oversight role is authorized by several statutes: the Indian Mineral Leasing Act,²⁶¹ the Indian Long-Term Leasing Act,²⁶² the Indian Mineral Development Act,²⁶³ and the Indian Tribal Energy Development and Self-Determination Act.²⁶⁴ The Indian Mineral Leasing Act, passed in 1938, established mineral leasing requirements and procedures such as tribal consent and lease approval by the Secretary of the Interior.²⁶⁵ 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.”²⁶⁶ IMLA also established “a system of bonuses, rents, and royalties” and removed states’ abilities to tax tribal royalty payments.²⁶⁷ 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.²⁶⁸

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.’”²⁶⁹ In theory, the 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.²⁷⁰ If tribes decide to authorize oil and gas development, the federal government exercises some oversight of the details.²⁷¹ Critically though, if tribes do not want oil and gas development

258. *Id.*; Indian Self-Determination and Education Assistance Act of 1975, Pub. L. No. 93-638, 88 Stat. 2203 (codified as amended at 25 U.S.C. §§ 450–458e (2012)).

259. ROYSTER, BLUMM & KRONK, *supra* note 254, at 278.

260. *Id.*

261. 25 U.S.C. §§ 396a–396g (2012).

262. 25 U.S.C. § 415 (2012).

263. 25 U.S.C. §§ 2101–2108 (2012).

264. 25 U.S.C. §§ 3501–3506 (2012).

265. *Id.*; 25 U.S.C. § 396a.

266. 25 U.S.C. § 396a.

267. ROYSTER, BLUMM & KRONK, *supra* note 254, at 312–13.

268. 25 U.S.C. § 415(a) (2012).

269. 25 U.S.C. § 2102(a) (2012); ROYSTER, BLUMM & KRONK, *supra* note 254, at 333.

270. ROYSTER, BLUMM & KRONK, *supra* note 254, at 333.

271. 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, BLUMM & KRONK, *supra* note 254, at 333.

on their lands, they have the sovereign authority to prohibit it, and some tribes have done just that.²⁷²

The 2005 Energy Policy Act contained within it the Indian Tribal Energy Development and Self-Determination Act (ITEDSA).²⁷³ The ITEDSA authorizes tribes to enter into Tribal Energy Resource Agreements (TERAs) with the Department of the Interior.²⁷⁴ 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.²⁷⁵ 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.²⁷⁶ 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.”²⁷⁷

Like the other mineral leasing statutes, the ITEDSA is silent as to cultural resources.²⁷⁸ However, tribes possess sovereign authority to regulate activities of both members and nonmembers on tribal lands as a matter of federal law.²⁷⁹ 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 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 al-

272. See, e.g., *Turtle Mountain Band Moved Fast to Ban Fracking on Reservation*, INDIANZ.COM (Jan. 21, 2016), <http://www.indianz.com/News/2016/020131.asp> (discussing how the Turtle Mountain Band of Chippewa Indians banned fracking on their lands).

273. ROYSTER, BLUMM & KRONK, *supra* note 254, at 333–34.

274. *Id.*

275. *Id.*; 25 U.S.C. § 3504(a) (2012).

276. ROYSTER, BLUMM & KRONK, *supra* note 254, at 334.

277. 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).

278. See 25 U.S.C. § 3504.

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

lows the President to protect 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.”²⁸⁰ Although today the Antiquities Act is used often for the purposes of land conservation and environmental protection, its original purpose was “to protect aboriginal objects and artifacts” or other items of cultural significance.²⁸¹ As it relates to mineral leasing, the Antiquities Act does not automatically withdraw all land from mineral development.²⁸² Rather, it prevents future opening of broad tracts to mineral leasing while protecting existing leases.²⁸³ 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 monument.²⁸⁴

This is precisely the situation facing the Bears Ears cultural resource region. There are several locations within the proposed monument’s boundaries that have been targeted for unconventional oil and gas development and contain resources of significance to the tribal monument proponents. The Proclamation establishing the Monument lists those resources in great detail, from archaeological sites to sacred gathering locations to “Nahodishgish,” the Navajo term for “places to be left alone.”²⁸⁵ The ancient human imprint on the Bears Ears region was over 5,000 years in the making, spanning the earliest prehistoric societies to the five modern tribes who use the region today. As demonstrated by this significant designation, 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 ARPA in 1979²⁸⁶ 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.²⁸⁷ Despite the seemingly broad protections implied by ARPA’s title, the statute contains mostly inventory and planning mandates.²⁸⁸ In ARPA, Congress directed all federal agencies to “devel-

280. 54 U.S.C. § 320301 (2012).

281. Mark Squillace, *The Monumental Legacy of the Antiquities Act of 1906*, 37 GA. L. REV. 473, 477 (2003).

282. *Id.* at 506–07.

283. *Id.* at 506.

284. *Id.* at 507.

285. Press Release, The White House, Office of the Press Sec’y, Establishment of the Bears Ears National Monument (Dec. 28, 2016), https://www.blm.gov/sites/blm.gov/files/documents/files/2016bearsbearsears.prc_rel_.pdf.

286. Archaeological Resources Protection Act of 1979, Pub. L. No. 96-95, 93 Stat. 721 (codified as amended at 16 U.S.C. §§ 470aa–470mm (2012)); Iraola, *supra* note 95, at 222.

287. 16 U.S.C. § 470aa(a)(3).

288. Stern & Slade, *supra* note 13, at 174–75.

op plans” to survey the lands under their management authority “to determine the nature and extent of archaeological resources on those lands.”²⁸⁹ Congress further directed these agencies to “prepare a schedule for surveying lands that are likely to contain the most scientifically valuable archaeological resources.”²⁹⁰

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.²⁹¹ Moreover, ARPA expressly exempts mineral development activities from the permitting requirement.²⁹² Therefore, despite its title, ARPA is not an effective method of protecting cultural resources on federal or tribal lands from unconventional mineral development.

C. National Historic Preservation Act

Congress passed the NHPA in 1966 to require all federal agencies to assess impacts of their activities and the activities they authorize on “historic” properties or resources.²⁹³ There are two primary mechanisms for enforcing the NHPA on federal lands, § 106 and § 110.²⁹⁴ 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, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, shall take into account the effect of the undertaking on any historic property. The head of such Federal agency shall afford the Council a reasonable opportunity to comment with regard to the undertaking.²⁹⁵

The statute defines 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.”²⁹⁶ If a project or activity meets this definition, a consultation requirement is triggered, requiring the head of the acting agency to consult with the Advisory Council before proceeding with the activity.²⁹⁷

289. 16 U.S.C. § 470mm.

290. *Id.*

291. *See id.*

292. *See* 16 U.S.C. § 470kk.

293. Stern & Slade, *supra* note 13, at 136.

294. 54 U.S.C. §§ 306108, 306101(a)–306114 (2012)).

295. *Id.* § 306108.

296. 36 C.F.R. § 800.2(o) (2017).

297. *Diné Citizens Against Ruining Our Env’t v. Jewell*, No. CIV 15-0209 JB/SCY, 2015 WL 4997207, at *23 (D.N.M. Aug. 14, 2015).

Section 110 provides that “[T]he heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency.”²⁹⁸ Further, “[e]ach Federal 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.”²⁹⁹ Also, the “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.”³⁰⁰ Finally,

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].³⁰¹

However, like the NEPA, the NHPA imposes largely procedural rather than substantive requirements.³⁰² Courts have described it as a “stop, look, and listen” statute but not one that demands particular substantive outcomes.³⁰³

When unconventional oil and gas development is proposed for an area that contains archaeological sites or other tribal cultural resources, the NHPA applies, but it does not automatically prohibit the mineral development activities.³⁰⁴ It merely requires the agency to consider mitigation options for potential damage to any historic resources threatened by the development before proceeding with oil and gas development.³⁰⁵ If tribal cultural resources may be impacted, the agency is required to consult with the tribe before authorizing the undertaking.³⁰⁶ 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.”³⁰⁷ Although some courts have noted that tribal consultation should be conducted prior to a NEPA analysis,³⁰⁸ other courts have refused to invali-

298. 54 U.S.C. § 306101(a).

299. *Id.*

300. *Id.*

301. *Id.*

302. *Diné Citizens*, 2015 WL 4997297, at *23.

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

304. *Stern & Slade*, *supra* note 13, at 141–42.

305. *Diné Citizens*, 2015 WL 4997297, at *23.

306. *Id.* at *24.

307. 36 C.F.R. § 800.2(c)(2)(ii)(A) (2017).

308. *See Diné Citizens*, 2015 WL 4997207, at *27.

date 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.³⁰⁹ Moreover, there is a limited window for tribes to engage in consultation—thirty days under the NHPA regulations.³¹⁰ 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.³¹¹

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 tribes' 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 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.

D. National Environmental Policy Act

While a complete explanation of NEPA 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.'"³¹² 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."³¹³

309. See *Te-Moak Tribe of W. Shoshone v. U.S. Dep't of the 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) (per curiam).

310. 36 C.F.R. § 800.3(c)(4) (2017).

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

312. *Te-Moak Tribe of W. Shoshone*, 608 F.3d at 599 (quoting *Inland Empire Pub. Lands Council v. U.S. Forest Serv.*, 88 F.3d 754, 758 (9th Cir. 1996)).

313. 40 C.F.R. § 1500.1(c) (2017).

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.³¹⁴ NEPA’s language is broad enough to include “important historical [and] cultural . . . aspects of our national heritage.”³¹⁵ 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.³¹⁶

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.³¹⁷ There is a dispute among federal courts as to whether NEPA review is also required at the individual leasing stage³¹⁸ and then again when the agency reviews an application for a permit to drill.³¹⁹ At each stage, the agency contemplating mineral leasing must conduct an environmental assessment to determine if the activity is significant.³²⁰ If so, an EIS will be necessary.³²¹

In the EIS, NEPA regulations direct the federal agency to “include discussions of . . . historic and cultural resources,” as well as other criteria, such as “[t]he 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 commitments of resources which would be involved in the proposal should it be implemented.”³²² 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

314. 42 U.S.C. § 4331(a) (2012).

315. *Id.* § 4331(b).

316. *Id.*

317. Miller et al., *supra* note 209, 539–41.

318. See *Park Cty. Res. Council, Inc. v. U.S. Dep’t of Agric.*, 817 F.2d 609, 622 (10th Cir. 1987) (no environmental assessment was required prior to individual leasing decision), *overruled by* *Vill. of Los Ranchos de Albuquerque v. Marsh*, 956 F.2d 970 (10th Cir. 1992); *Sierra Club v. Peterson*, 717 F.2d 1409, 1411 (D.C. Cir. 1983) (environmental assessment required prior to entering into individual lease agreements); *Diné Citizens Against Ruining Our Env’t v. Jewell*, No. CIV 15-0209 JB/SCY, 2015 WL 4997207, at *22. (D.N.M. Aug. 14, 2015) (no environmental assessment was required prior to individual leasing decision).

319. *Park Cty. Res. Council*, 817 F.2d at 622.

320. *Id.*

321. CRAIG P. HALL, OIL AND GAS OPERATIONS ON ONSHORE FEDERAL LANDS § 18.06[3][a]–[c] (Energy & Mineral Law Found. 1991), <http://www.emlf.org/index.php?src=directory&view=whitepaper&srctype=detail&back=whitepaper&refno=3794>.

322. 40 C.F.R. § 1502.16 (2017).

of the regulatory requirement that the agency analyze the cumulative impacts of a project rather than the individual impact of each application for a permit to drill (APD).³²³

Likewise, the agency must analyze the impacts of actions that are “[c]onnected” and “[s]imilar.”³²⁴ However, even when an agency is considering hundreds of proposed wells within the same shale play and in the same area as documented archaeological resources, courts may still decline to find a NEPA violation 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.³²⁵ 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.³²⁶ 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 was conducted before unconventional drilling potential was understood or uncovered.³²⁷ This is precisely what happened in the greater Chaco region, discussed above. In a lawsuit challenging the BLM’s issuance of hundreds of APDs, a number of Navajo Nation environmental groups argued that the BLM’s 2003 RMP and EIS were not adequate to satisfy NEPA because the agency had only considered drilling techniques available in 2003. The more advanced techniques used in 2013 were barely even contemplated in 2003, let alone given the “hard look” that NEPA requires.³²⁸ 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.³²⁹

Moreover, the plaintiffs argued the impacts of directional drilling are greater on both the surface and subsurface than those associated with

323. 40 C.F.R. §§ 1508.25(c), 1508.7 (2017).

324. *Id.* § 1508.25(a)(1)–(3).

325. *Diné Citizens Against Ruining Our Env’t v. Jewell*, No. CIV 15-0209 JB/SCY, 2015 WL 4997207, at *43 (D.N.M. Aug. 14, 2015).

326. *See N. Idaho Cmty. Action Network v. U.S. Dep’t of Transp.*, 545 F.3d 1147, 1156–57 (9th Cir. 2008).

327. *Diné Citizens*, 2015 WL 4997207, at *15.

328. *Id.* at *15, *19.

329. *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.

traditional vertical or horizontal drilling primarily because one drill “pad” can be used as an access point for multiple directionally-drilled wells.³³⁰ 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 *Diné Citizens Against Ruining Our Environment v. Jewell* 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 resources would occur, its duty was satisfied.³³¹ 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.³³² In *Te-Moak Tribe of Western Shoshone v. United States Department of the 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.³³³ 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.”³³⁴

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.”³³⁵ Despite the designations and despite the fact that the operator had not provided the exact location of the proposed exploration in the drilling plan accompanying the expansion proposal, the BLM made a finding that the expansion would have no

330. *Id.* at *11.

331. *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.* at *24–28.

332. *Te-Moak Tribe of W. Shoshone v. U.S. Dep’t of the Interior*, 608 F.3d 592, 603, 606–07 (9th Cir. 2010).

333. *Id.* at 596.

334. *Id.* at 597.

335. *Id.*

significant impact on the designated sites and declined to draft a full EIS.³³⁶ In other words, despite not knowing which sites might be impacted or to what extent, the BLM determined that there was no need for a supplemental EIS.³³⁷ 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.³³⁸ 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.

E. 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).³³⁹ 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.”³⁴⁰ Essentially, Congress sought to return the remains and associated funerary objects 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.³⁴¹ 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.³⁴²

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.³⁴³ When identifiable lineal de-

336. *Id.* at 598.

337. *Id.*

338. *Id.* at 601.

339. 25 U.S.C. §§ 3001–3013 (2012).

340. 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).

341. *Id.*

342. *Id.* at 392–95.

343. *Id.* at 397–98, 400.

scendants of remains cannot be found, NAGPRA delineates a process by which the federal agency can attempt to identify one or more potentially affiliated tribes.³⁴⁴ 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 reinternment if a permit is procured under ARPA.³⁴⁵

Inadvertent discovery, as might occur in the course of exploratory drilling for unconventional fuel resources, is addressed in a specific section of the statute.³⁴⁶ 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.³⁴⁷ If the discovery occurs in connection with certain activities including mining, “the person shall cease 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.³⁴⁸ 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.³⁴⁹ 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 reinternment.³⁵⁰

NAGPRA applies to remains and associated objects discovered on “Federal lands” and “tribal land[s].”³⁵¹ NAGPRA defines tribal land 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.”³⁵² 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

344. *Id.* at 398.

345. 25 U.S.C. § 3002 (2012); *Yankton Sioux Tribe v. U.S. Army Corps of Eng’rs*, 209 F. Supp. 2d 1008, 1016 (D.S.D. 2002).

346. 25 U.S.C. § 3002(d).

347. *Id.*

348. *Id.*

349. *Id.*

350. 43 C.F.R. § 10.7 (2017).

351. *See* 25 U.S.C. §§ 3001–3013 (2012) (internal quotation marks omitted).

352. *Id.* § 3001(15). Although Native Hawaiian lands are included within NAGPRA’s definition of “tribal land,” 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 and federal land in Hawaii.

Blackfeet Reservation in the area of Chief Mountain and Red Blanket Butte.³⁵³ 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.

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 align 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.

353. Associated Press, *supra* note 204.

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, as the Bears Ears Monument demonstrates, 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.³⁵⁴ 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.³⁵⁵ In addition, Congress could amend these statutes to require that unconventional mineral development be sited in a manner that

354. Recent proposals to either eliminate or amend the Antiquities Act to restrict its use by executives include the following: H.R. 4132, 114th Cong. (2015); H.R. 3946, 114th Cong. (2015); S. 2004, 114th Cong. (2015); H.R. 3389, 114th Cong. (2015); S. 1879, 114th Cong. (2015); S. 1416, 114th Cong. (2015); H.R. 2258, 114th Cong. (2015); H.R. 900, 114th Cong. (2015); S. 437, 114th Cong. (2015); H.R. 488, 114th Cong. (2015); S. 232, 114th Cong. (2015); S. 228, 114th Cong. (2015); H.R. 330, 114th Cong. (2015), and perhaps others.

355. 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.

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.

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.