

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW MEXICO**

DINÉ CITIZENS AGAINST RUINING OUR )  
ENVIRONMENT, *et al.*, )

Plaintiffs, )

v. )

Case No. 1:15-cv-00209-JB-LF

RYAN ZINKE, in his official capacity as )  
Secretary of the U.S. Department of the )  
Interior; U.S. BUREAU OF LAND )  
MANAGEMENT; and MICHAEL NEDD, in )  
his official capacity as Acting Director of the )  
Bureau of Land Management, )

Federal Defendants, )

and )

WPX ENERGY PRODUCTION, LLC, *et al.*, )  
AMERICAN PETROLEUM INSTITUTE, )

Defendant-Intervenors. )

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PLAINTIFFS' OPENING MERITS BRIEF

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**GLOSSARY OF TERMS**

2001 RFDS	2001 Reasonably Foreseeable Development Scenario
2003 RMP	2003 Resource Management Plan
2014 RFDS	2014 Reasonably Foreseeable Development Scenario
APA	Administrative Procedure Act
APD	Application for Permit to Drill
APE	Area of Potential Effect
ARTR	Air Resources Technical Report
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BLM Handbook	BLM's Land Use Planning Handbook (H-1601-1)
CEQ	Counsel on Environmental Quality
CH <sub>4</sub>	Methane
Citizen Groups	Diné Citizens Against Ruining Our Environment <i>et al.</i>
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
COA	Conditions of Approval
EA	Environmental Assessment
EIS	Environmental Impact Statement
FFO	Farmington Field Office
FLPMA	Federal Land and Policy Management Act
FONSI	Finding Of No Significant Impact
GHG	Greenhouse Gas
IM	BLM Instruction Memorandum
Mancos RMPA	Mancos Shale Resource Management Plan Amendment
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>x</sub>	Nitrous Oxide
NPS	National Park Service
Park	Chaco Culture National Historical Park
PM <sub>10</sub>	Particulate Matter at 10 microns
PM <sub>2.5</sub>	Particulate Matter at 2.5 microns
Protocol	State Protocol Agreement (BLM and NM SHPO)
RFDS	Reasonably Foreseeable Development Scenario
RMP	Resource Management Plan
SHPO	State Historic Preservation Office
SO <sub>2</sub>	Sulfur Dioxide
TCP	Traditional Cultural Properties
VOC	Volatile Organic Compound

## INTRODUCTION

This case concerns ongoing and incremental destruction of the Greater Chaco landscape in the San Juan Basin of northwestern New Mexico. The Federal Defendants<sup>1</sup> (collectively, “BLM”) have approved 362 individual Mancos Shale wells on a piecemeal basis and without first taking a hard look at the cumulative impacts to the environment, cultural resources, and people from horizontal drilling and multi-stage fracturing.

It has been over two years since Plaintiffs Diné Citizens Against Ruining Our Environment, San Juan Citizens Alliance, WildEarth Guardians, and Natural Resources Defense Council (collectively, “Citizen Groups”) initiated this lawsuit. Although much has transpired in the case during that time, the conditions that precipitated this case have not improved. In fact, an ever-increasing number of Mancos Shale wells continue to be approved and drilled across the Greater Chaco landscape. To date, BLM has issued at least 122 environmental assessments (“EAs”) in support of its approvals of 362 individual Mancos Shale wells, with an additional 3,960 foreseeable wells predicted. BLM issued these approvals despite its failure to complete a comprehensive review of the additional cumulative impacts from Mancos Shale oil and gas development, through the Mancos Shale/Gallup Formation Resource Management Plan Amendment (“Mancos RMPA”) and environmental impact statement (“EIS”), for which BLM recently reinitiated the scoping period.

In the meantime, wells continue to be approved and drilled, and people and communities are forced to endure the mounting impacts to the regions water, air, climate and landscapes, all while incomparable cultural resources are threatened and lost.

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<sup>1</sup> Pursuant to Federal Rule of Civil Procedure 25(d), Secretary of the U.S. Department of the Interior Ryan Zinke is automatically substituted for former Secretary Sally Jewell, and Acting Director of the Bureau of Land Management Michael Nedd is automatically substituted for former Director Neil Kornze.

## BACKGROUND

### **I. BLM'S OIL AND GAS PLANNING AND MANAGEMENT FRAMEWORK**

BLM manages onshore oil and gas leasing and development through a three-phase process. Each phase serves a distinct purpose, and is subject to unique rules, policies, and procedures, though the three phases, ultimately, must ensure “orderly and efficient” development. 43 C.F.R. § 3160.0-4. Oil and gas development is a multiple use managed in accord with the Federal Land Policy and Management Act (“FLPMA”), 43 U.S.C. §§ 1701 *et seq.* FLPMA, in 43 U.S.C. § 1701(a)(8), provides that BLM must manage the public lands:

[I]n a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition, that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use.

In the first phase of oil and gas decisionmaking, BLM prepares a resource management plan (“RMP”) in accordance with FLPMA, the National Environmental Policy Act (“NEPA”), and associated planning regulations, 43 C.F.R. §§ 1600 *et seq.*, with additional guidance from BLM’s Land Use Planning Handbook (H-1601-1). “The BLM shall prepare an environmental impact statement when preparing a resource management plan. The environmental analysis of alternatives and the proposed resource management plan shall be accomplished as part of the resource management planning process and, wherever possible, the proposed resource management plan shall be published in a single document with the related environmental impact statement.” 43 C.F.R. § 1601.0-6. Through an RMP, BLM predicts present and future use of public lands and their resources by establishing management priorities, as well as guiding and constraining BLM’s implementation-stage management. With respect to fluid minerals leasing decisions, the RMP determines which lands containing federal minerals will be open to leasing

and under what conditions, and analyzes the landscape-level cumulative impacts from predicted implementation-stage development. BLM is further required to supplement its RMP/EIS if substantial changes in the proposed action occur, or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. 40 C.F.R. §§ 1502.9(c)(1)(i), (ii). A reasonably foreseeable development scenario (“RFDS”) underlies BLM’s assumptions regarding the pace and scope of fluid minerals development within the RMP planning area.

In the second phase of oil and gas decisionmaking, BLM identifies the boundaries for lands to be offered for sale and proceeds to sell and execute leases for those lands through a lease sale. Leases are sold in accordance with 43 C.F.R. §§ 3120 *et seq.*, with additional agency guidance outlined in BLM Instruction Memorandum (“IM”) No. 2010-117. Prior to a BLM lease sale, BLM has the authority to subject leases to terms and conditions, which can serve as “stipulations” to protect the environment. 43 C.F.R. § 3101.1-3. Once BLM issues a lease, it may impose conditions of approval that are delimited by the terms and conditions of the lease. 43 C.F.R. § 3101.1-2. Oil and gas leases confer “the right to use so much of the leased lands as is necessary to explore for, drill for, mine, extract, remove and dispose of all the leased resource in a leasehold.” *Id.*

The third-phase occurs once BLM issues a lease, wherein the lessee is required to submit an application for permit to drill (“APD”) to BLM prior to drilling. 43 C.F.R. § 3162.3-1(c). At this stage, BLM may condition the approval of the APD on the lessees’ adoption of “reasonable measures” whose scope is delimited by the lease and a lessee’s surface use rights. 43 C.F.R. § 3101.1-2. NEPA allows BLM to tier site-specific oil and gas decisionmaking at the APD phase to the analysis covered in a broader RMP/EIS. 40 C.F.R. § 1508.28. Where specific issues in

subsequent oil and gas decisionmaking processes are not covered in the RMP/EIS, the agency cannot tier to the RMP/EIS. In that case, a site-specific NEPA analysis must be prepared that includes an analysis of relevant impacts.

## **II. BLM'S PLANNING AND MANAGEMENT IN THE SAN JUAN BASIN**

In 2001, BLM released a 20-year RFDS to project fluid mineral development for the New Mexico portion of the San Juan Basin and to support agency decisionmaking for the Farmington Field Office's ("FFO") then-pending RMP, which was subsequently completed in 2003 and was accompanied by an EIS. AR0000821-22 (stating the 2001 RFDS "forms the basis for projected oil and gas development in the planning area."). With respect to the basin's Mancos Shale formation, the 2001 RFDS provided:

[E]xisting Mancos Shale and Gallup Sandstone reservoirs are approaching depletion and are marginally economic. Most are not currently considered candidates for increased density development or further enhanced oil recovery operations. It is anticipated that many Mancos/Gallup wells will need to be plugged within the term of this RFD.

AR0000081. While the 2001 RFDS acknowledged that horizontal drilling was a possibility for the basin, BLM ultimately dismissed the use of this technology as economically and technically infeasible. AR0000113. In fact, the prospect of using horizontal drilling to develop the Mancos Shale was so remote that the 2003 RMP/EIS failed to mention Mancos Shale or the type of horizontal drilling and multi-stage hydraulic fracturing technology necessary to develop shale, let alone evaluate the environmental impacts, alternatives, or mitigation measures associated with these technologies, as required by NEPA.

On February 25, 2014, BLM posted a Notice of Intent to prepare a RMP Amendment and EIS for the FFO in the Federal Register, AR0173818, which provided in part:

The RMP amendment is being developed in order to analyze the impacts of additional development in what was previously considered a fully developed oil

and gas play within the San Juan Basin in northwestern New Mexico ... Subsequent improvements and innovations in horizontal drilling technology and multi-stage hydraulic fracturing have enhanced the economics of developing [the Mancos Shale] horizon ... As full-field development occurs, especially in the shale oil play, additional impacts may occur that previously were not anticipated in the RFD or analyzed in the current 2003 RMP/EIS, which will require an EIS-level plan amendment and revision of the RFD for complete analysis of the Mancos Shale/Gallup Formation.

In response to BLM's stated intent to prepare a programmatic amendment to its 2003 RMP to consider—for the first time—development of the Mancos Shale using horizontal drilling and multi-stage hydraulic fracking, Citizen Groups, through letters and in-person meetings, repeatedly requested a moratorium on further Mancos Shale drilling approvals pending completion of the RMP Amendment process. However, BLM repeatedly denied these requests.

BLM recently reinitiated its NEPA scoping process for the Mancos RMPA “specific to the extension of analysis in that EIS to [Bureau of Indian Affairs (“BIA”)] decision-making where BIA manages mineral leasing and associated activities in the RMPA Planning Area.” 81 Fed. Reg. 72,819 (Oct. 21, 2016). Accordingly, BLM has not yet identified the range of alternatives being considered in the Mancos RMPA, or released a draft EIS for public comment, some three-years after initiating the NEPA process for the Mancos RMPA. Nonetheless, BLM continues to approve APDs.

### **III. DRILLING AUTHORIZATIONS GIVING RISE TO THIS LITIGATION**

Horizontal well development in the Mancos Shale formation began in 2010 with two gas wells drilled in the northern portion of the San Juan Basin. AR0173833. The first horizontal oil producing well was drilled in 2011 in the northwestern portion of the basin, with a second oil well drilled in early 2012 in the southern portion, which sparked increased industry interest and

activity. *Id.* From early 2012 through April of 2014, 70 horizontal wells were drilled and completed in the Mancos Shale. *Id.*

BLM has not sufficiently involved the public during authorizations of this development, as required by NEPA. BLM failed to make any NEPA documentation available online or in BLM's FFO Reading Room throughout most of 2014. Consequently, Citizen Groups were unable to comment on the environmental impacts of this development or track its pace. In a letter to Citizen Groups, dated December 11, 2014, BLM stated: "EAs for routine APDs do not generally require a public comment period because of their routine nature, the tight regulatory timeframes, and because numerous public involvement opportunities are provided during the initial stages of project development." Dkt. 16-4. At the continued urging of Citizen Groups, however, BLM began posting NEPA documentation for APD approvals to its website in February 2015, and Citizen Groups have since participated through the submission of administrative comments. *See, e.g.*, AR0178400; AR0222369.

In a meeting between Citizen Groups and BLM on December 18, 2014, BLM staff stated that it had approved 119 individual APDs targeting the Mancos Shale since the beginning of 2014.<sup>2</sup> Subsequent to this litigation, and during Citizen Groups' multiple amendments of the complaint to add additional Mancos Shale wells approved after the filing of this lawsuit, BLM has now approved at least 362 APDs. Dkt. 110-1. The record demonstrates that BLM continues to approve Mancos Shale drilling permits at an intense pace and without the required environmental review under NEPA.

For its APD approvals, BLM routinely prepares separate EAs and Findings of No Significant Impact ("FONSI"), resulting in the piecemeal authorization of Mancos Shale wells.

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<sup>2</sup> Mike Eisenfeld Decl. ¶ 9 (Exhibit 1).

BLM's analysis approving individual Mancos Shale wells considers only the environmental impacts anticipated within the APD footprint, and fails to provide any environmental review of past, ongoing, and reasonably foreseeable cumulative impacts from Mancos Shale development across the Greater Chaco landscape. Each EA "tiers" to and incorporates by reference the information and analysis contained in BLM's 2003 RMP/EIS—a plan and environmental review that did not analyze the impacts associated with horizontal drilling and multi-stage hydraulic fracturing—and failed to provide any meaningful analysis of contemporary drilling techniques or associated impacts to the air, water, land, climate, or human health in the San Juan Basin.

#### **STANDARD OF REVIEW**

Courts review agency compliance with NEPA and the National Historic Preservation Act ("NHPA") pursuant to the Administrative Procedure Act, which provides that a "reviewing court shall ... hold unlawful and set aside agency action, findings, and conclusions found to be ... arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A); *WildEarth Guardians v. Nat'l Park Serv.*, 703 F.3d 1178, 1182-83 (10th Cir. 2013) (NEPA compliance reviewed under "arbitrary and capricious" standard); *Coal. of Concerned Citizens v. Fed. Transit Admin. of USDOT*, 843 F.3d 886, 901 (10th Cir. 2016) (accord for review of NHPA compliance). Arbitrary and capricious review requires a court to "determine whether the agency considered all relevant factors and whether there has been a clear error of judgment." *Olenhouse v. Commodity Credit Corp.*, 42 F.3d 1560, 1574 (10th Cir. 1994).

Accordingly, agency action will be set aside if:

the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

*Motor Vehicle Mfrs. v. State Farm*, 463 U.S. 29, 43 (1983). A reviewing court may not “supply a reasoned basis for the agency’s action that the agency itself has not given.” *Id.* (quoting *SEC v. Chenery Corp.*, 332 U.S. 194, 196 (1947)). Instead, “[a]n agency’s action must be upheld, if at all, on the basis articulated by the agency itself.” *Id.* at 50. Though this standard of review is ultimately narrow and agency action is “entitled to a presumption of regularity,” review must nevertheless be “searching and careful,” and “thorough, probing, and in-depth.” *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 415, (1971).

### **STANDING**

Citizen Groups have standing to bring this action. Standing requires a showing of injury, traceability, and redressability. *S. Utah Wilderness All. v. Palma*, 707 F.3d 1143, 1153 (10th Cir. 2013). An organization has standing “when its members would otherwise have standing to sue in their own right, the interests at stake are germane to the organization’s purpose, and neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit.” *Friends of the Earth v. Laidlaw*, 528 U.S. 167, 181 (2000). A plaintiff’s members’ “reasonable concerns” of harm caused by the defendant’s activity directly affecting those affiants’ recreational, aesthetic, and economic interests establishes injury-in-fact. *Id.* at 183-84.

The Tenth Circuit has applied a two-part test to determine injury-in-fact, which a plaintiff satisfies by showing: (1) that the alleged NEPA violation “created an increased risk of actual, threatened, or imminent environmental harm,” and (2) “that this increased risk of environmental harm injures its concrete interest.” *Comm. to Save Rio Hondo v. Lucero*, 102 F.3d 445, 449 (10th Cir. 1996). In other words, “[u]nder [NEPA], an injury results not from the action authorized by the agency’s decision, but from the agency’s *uninformed* decisionmaking.” *Id.* at 452.

“[E]nvironmental plaintiffs adequately allege injury in fact when they aver that they use the affected area and are persons ‘for whom the aesthetic and recreational values of the area will be lessened’ by the challenged activity.” *Friends of the Earth*, 528 U.S. at 183; *S. Utah Wilderness All.*, 707 at 1156 (finding injury where a declarant has “traversed through or within view of parcels of land where oil and gas development will occur, and plans to return”). Actual environmental harm from complained-of activity need not be shown, as “reasonable concerns” that harm will occur are enough. *Comm. to Save Rio Hondo*, 102 F.3d at 450. To establish traceability in NEPA cases, the Tenth Circuit has explained that a plaintiff “need only trace the risk of harm to the agency’s alleged failure to follow [NEPA] procedures.” *Id.* at 451-52. Redressability is satisfied by showing that a plaintiff’s “injury would be redressed by a favorable decision requiring the [agency] to comply with [NEPA’s] procedures.” *Id.* at 452.

Here, Citizen Groups meet this standard. Citizen Groups’ members are directly harmed by the Federal Defendants’ failure to comply with NEPA and the NHPA in authorizing drilling permits on at least 362 Mancos Shale wells in the Greater Chaco region.<sup>3</sup> Citizen Groups’ members live and work in the areas affected by Mancos Shale drilling activities, as well as routinely hike, recreate, camp, research, derive inspiration, engage in cultural and spiritual practices, and otherwise use areas on and near the parcels where the horizontal drilling and multi-stage fracturing of Mancos Shale wells is occurring, and from which the effects of this drilling are visible and audible.<sup>4</sup> Citizen Groups’ members’ activities and enjoyment of developing areas are both personal and professional, and include: cultural practices, recreational uses, solitude, night sky viewing, wildlife viewing, use of waters, birding, artistic endeavors, and

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<sup>3</sup> See Eisenfeld Decl. ¶¶ 7, 9, 13-14; Jeremy Nichols Decl. ¶¶ 4, 10, 12 (Exhibit 2); Deborah Green Decl. ¶ 7 (Exhibit 3); Hope Miura Decl. ¶¶ 6-7 (Exhibit 4).

<sup>4</sup> See Eisenfeld Decl. ¶¶ 2, 9, 13-14; Nichols Decl. ¶¶ 3-5, 7; Green Decl. ¶¶ 4-5, 7; Miura Decl. ¶ 4.

aesthetic enjoyment.<sup>5</sup> Having already witnessed the impact that current oil and gas development can have on nearby landscapes, Citizen Groups' members identify ongoing injuries from drilling and development of Mancos Shale wells, which includes not only injuries to their use and enjoyment of the areas, but also injuries from increased concerns about threats to their health and safety.<sup>6</sup>

Citizen Groups' members' injuries can be traced to BLM's ongoing authorization of Mancos Shale drilling permits without first evaluating the impacts of such drilling under NEPA and the NHPA, which increases the likelihood of environmental, recreational, aesthetic, and health related injuries to Citizen Groups from negative impacts to air, water, landscapes, climate, cultural resources and other resources due to oil and gas development.

Citizen Groups' members' injuries would be redressed by a favorable result in this case because BLM would be required to sufficiently analyze the cumulative, landscape-level environmental and cultural impacts from the authorization of at least 362 Mancos Shale wells. Such analysis is fundamental to NEPA and the NHPA's role in agency decisionmaking, and could lead to a denial of the drilling permits or the application of additional stipulations that would lessen the potential impacts to people, the environment, and nearby communities. "Under [NEPA], 'the normal standards of redressability' are relaxed; a plaintiff need not establish that the ultimate agency decision would change upon [NEPA] compliance." *Comm. to Save Rio Hondo*, 102 F.3d at 452 (quoting *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 572 n.7 (1992)).

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<sup>5</sup> See Eisenfeld Decl. ¶¶ 3, 5, 9, 13-14; Nichols Decl. ¶¶ 3-5, 7; Green Decl. ¶¶ 4-5, 7; Miura Decl. ¶ 4; Gina Trujillo Decl. ¶¶ 7-8 (Exhibit 5);

<sup>6</sup> See Eisenfeld Decl. ¶¶ 12-15; Nichols Decl. ¶¶ 7-12; Green Decl. ¶¶ 7-8; Miura Decl. ¶¶ 6-7.

## ARGUMENT

### **I. BLM VIOLATED THE NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA is our “basic national charter for the protection of the environment.” 40 C.F.R. § 1500.1. It was enacted with the recognition that “each person should enjoy a healthful environment,” to ensure that the federal government uses all practicable means to “assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings,” and to “attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences,” among other policies. 42 U.S.C. § 4331(b).

NEPA regulations explain, at 40 C.F.R. §1500.1(c), that:

Ultimately, of course, it is not better documents but better decisions that count. NEPA’s purpose is not to generate paperwork—even excellent paperwork—but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.

“Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts.” 40 C.F.R. § 1501.2. To accomplish this purpose, NEPA requires that all federal agencies prepare a “detailed statement” regarding all “major federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). This statement, known as an EIS, must, among other things, describe the “environmental impact of the proposed action,” and evaluate alternatives to the proposal. *Id.* Notably, alternatives are the “heart” of the NEPA process, ensuring that agencies “sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public.” 40 C.F.R. § 1502.14.

To determine whether a proposed action significantly affects the environment, and whether an EIS is therefore required, regulations promulgated by the Council on Environmental Quality (“CEQ”) provide for preparation of an EA. Based on the EA, a federal agency either concludes its analysis with a FONSI, or the agency goes on to prepare a full EIS. 40 C.F.R. § 1501.4. “If an agency decides not to prepare an EIS, it must supply a ‘convincing statement of reasons’ to explain why a project’s impacts are insignificant.” *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998). “The statement of reasons is crucial to determining whether the agency took a ‘hard look’ at the potential environmental impact of a project.” *Id.*; *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976).

Pending completion of an EIS, an agency, *inter alia*:

shall not undertake in the interim any major Federal action covered by the program which may significantly affect the quality of the human environment unless such action: (1) Is justified independently of the program; (2) Is itself accompanied by an adequate environmental impact statement; and (3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.

40 C.F.R. § 1506.1(c).

**A. BLM Failed to Take a Hard Look at Additional Impacts from Mancos Shale Well Development in the San Juan Basin.**

NEPA imposes “action forcing procedures ... requir[ing] that agencies take a *hard look* at environmental consequences.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (citations omitted) (emphasis added). The purpose of the “hard look” requirement is to ensure that the “agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary or capricious.” *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 97 (1983). These “environmental consequences” may be

direct, indirect, or cumulative. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8; *see also Hillsdale Envtl. Loss Prevention v. U.S. Army Corps of Eng'rs*, 702 F.3d 1156, 1166 (10th Cir. 2012).

For the San Juan Basin, through the 2003 RMP/EIS, BLM analyzed the environmental consequences of drilling a projected 9,942 wells—a number aggregated from the well estimates of individual formations made in the 2001 RFDS. AR0001020. The 2003 RMP/EIS is expressly based on contextual assumptions regarding the specific formations, drilling technologies, and practices that underlie the analysis of oil and gas development impacts anticipated at that time, which formed the basis of BLM's consideration of alternatives. AR0001013 (recognizing that “[t]he actual number of wells to be drilled is subject to economic and technological considerations.”). Specifically, the 2003 RMP/EIS identified five natural gas formations: Fruitland, Pictured Cliffs, Mesaverde, Dakota, and Chacra, which together account for 99.7 percent of the 9,942 wells predicted for BLM's chosen Alternative D. AR0001020. This context formed the underlying basis of BLM's cumulative impacts analysis. 40 C.F.R. § 1508.27. Critically, this analysis did not include the Mancos Shale. AR0000081 (noting, at the time of the 2003 RMP/EIS, Mancos Shale reservoirs “are approaching depletion and are marginally economic.”); Dkt. 63 at 16 (stating: “New technology is allowing for additional development of what was previously considered a fully developed oil and gas play in the planning area.”).

Because development of the Mancos Shale formation was not reasonably foreseeable at the time the 2003 RMP/EIS was prepared, the formation was not included in the NEPA analysis of the direct, indirect, and cumulative environmental impacts of oil and gas development foreseeable across the basin in 2003. However, the advent of horizontal drilling and multi-stage fracturing technology made development of the Mancos Shale foreseeable. Consequently, BLM prepared the 2014 RFDS, which estimated the drilling of 3,960 Mancos Shale wells.

AR0173823. These wells are in addition to—not instead of—the 9,942 vertical wells previously projected by BLM in the 2003 RMP/EIS. AR0001020.

Accordingly, BLM correctly determined that it was required to amend the 2003 RMP/EIS to account for “additional” environmental impacts that were not previously anticipated or analyzed. AR0173818. In other words, BLM is required to revisit its programmatic decisionmaking for the San Juan Basin to account for a 40% increase in foreseeable well development—now a total of 13,902 wells, as well as their impacts. BLM’s Scoping Report for the Mancos RMPA supports this rationale:

The primary purpose of this planning effort is to amend the 2003 RMP with management decisions based on a more accurate assessment of the extent and impacts of oil and gas development occurring in the planning area ... *The existing 2003 RMP does not satisfactorily address the impacts of changing patterns of oil and gas development that have occurred since its publication. New technology is allowing for additional development of what was previously considered a fully developed oil and gas play in the planning area.* Development of this play, the Mancos/Gallup formation, was analyzed in a 2002 [RFD], but oil and gas development activity ... since that time has occurred in different areas than projected in the RFD... [T]he impacts of development occurring now and into the future must be reanalyzed and management for oil and gas development ... reevaluated to ensure that efficient resource development adequately protects other resources.

Dkt. 52-1 at 1-1 (emphasis added).

This case is not about the adequacy of BLM’s 2003 RMP/EIS, but rather, that new, previously unanalyzed technology—horizontal drilling and multi-stage fracturing—has fundamentally altered the reasonably foreseeable impacts from oil and gas development in the San Juan Basin. The 2003 RMP/EIS does not offer any analysis for the landscape-level impacts from drilling at this new scale, and therefore cannot be used as an underlying basis for analyzing Mancos Shale EAs and approving APDs. BLM’s ongoing approval of Mancos Shale drilling permits thus violates NEPA’s requirement that the agency take a hard look at the cumulative

impacts of an action prior to making an irretrievable commitment of resources. 42 U.S.C. § 4332(2)(C)(v); 40 C.F.R. § 1508.7.

**(1) Additional impacts from the development of Mancos Shale wells exceed the total foreseeable impacts from the 2003 RMP/EIS.**

As a procedural statute, NEPA’s fundamental purpose is to influence the agency’s decisionmaking process “by focusing the [federal] agency’s attention on the environmental consequences of a proposed project,” so as to “ensure[ ] that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.” *Methow Valley*, 490 U.S. at 349; *see also Sierra Club v. Hodel*, 848 F.2d 1068, 1093 (10th Cir. 1988) (holding that agencies are required to perform a hard look NEPA analysis “before committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values.”). The “assessment of all ‘reasonably foreseeable’ impacts must occur at the earliest practicable point, and must take place before an ‘irretrievable commitment of resources’ is made.” *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 718 (10th Cir. 2009); 42 U.S.C. § 4332(2)(C)(v); 40 C.F.R. §§ 1501.2, 1502.22. In short, agencies must “look before they leap.” *Methow Valley*, 490 U.S. at 349.

At the preliminary injunction stage of this litigation, both this Court and the Tenth Circuit concentrated on BLM’s analysis in the 2003 RMP/EIS, reasoning that Mancos Shale development had not yet *exceeded* the foreseeable impacts from 9,942 wells. As this Court explained: “Proliferation of an activity to an extent that the presently operative EIS did not foresee only necessitates a new EIS when the quantum of environmental impact exceeds that which the operative EIS anticipated.” Dkt. 63 at 87. Citizen Groups do not dispute the logic of this reasoning; rather, we maintain that the full spectrum of past, present, and reasonably

foreseeable impacts must be considered in its calculus, in which case a new EIS *is* required—as BLM concluded. AR0173818.

Both this Court and the Tenth Circuit focused exclusively on *past* levels of drilling in the San Juan Basin, aggregating that number with the number of new Mancos Shale wells to conclude that the environmental impacts of 9,942 wells analyzed in the 2003 RMP/EIS had not been exceeded.<sup>7</sup> Although past levels of drilling under the 2003 RMP/EIS are relevant, this focus disregards all other categories of impacts, such as the impacts from *foreseeable* development. *See* 40 C.F.R. § 1508.7 (focusing agency analysis on “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions”). Indeed, consideration of reasonably foreseeable oil and gas production formed the basis for BLM’s 2003 programmatic analysis. AR0000821 (describing alternatives based on “reasonably foreseeable demand for oil and gas development in the San Juan Basin”); AR0001011 (describing the scope of analysis as “the effects of the proposed action in combination with other known and reasonably foreseeable past, present, and future actions within the San Juan Basin”). A calculation based solely on *past* drilling, yet calibrated to analysis of *foreseeable* drilling in the 2003 RMP/EIS, distorts a true accounting of the added impacts from Mancos Shale well development in the San Juan Basin. This conflation is inconsistent with NEPA. *New Mexico*, 565 F.3d at 718; 40 C.F.R. § 1502.22.

Here, the 2003 RMP/EIS anticipated cumulative impacts from 9,942 wells across the San Juan Basin. However, the advent of horizontal drilling and multi-stage fracturing technology has allowed the development of an *additional* 3,960 Mancos Shale wells. AR0173823. The addition

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<sup>7</sup> *Diné CARE v. Jewell*, 839 F.3d 1276, 1283 (10th Cir. 2016) (stating: “As the district court pointed out, only 3,860 of the anticipated 9,942 new wells in the planning area were drilled in the twelve years between the issuance of the 2003 RMP and the court’s consideration of this issue in 2015. Thus, even with increased drilling in the Mancos Shale formation and the switch to horizontal drilling and multi-stage fracturing, the overall amount of drilling and related surface impacts are still well within the anticipated level.”).

of these Mancos Shale wells *exceeds* the quantum of environmental impacts anticipated and analyzed in the 2003 RMP/EIS, demonstrating that total *foreseeable* impacts indeed surpass the level previously analyzed under NEPA.

Both BLM and this Court acknowledge that the vertical wells contemplated in the 2003 RMP/EIS targeting natural gas-bearing formations are still being approved by BLM and drilled by operators in the San Juan Basin. *See* Dkt. 63 at 15, 18. The challenged Mancos Shale wells are in addition to, not in lieu of, the vertical wells contemplated in 2003. Hearing Trans. at 109 (July 13, 2015) (“All wells that will be drilled in the Mancos Shale will be horizontally drilled and fractured.”). This is underscored by conclusions in the 2014 RFDS, in which BLM projected the addition of 3,960 reasonably foreseeable Mancos Shale wells in the San Juan Basin, but did not provide any downward projection of development from other formations. AR0173826. It remains reasonably foreseeable that all 9,942 wells analyzed in the 2003 RMP/EIS will be developed, regardless of the number of wells drilled to date. AR0001020. The historic pace of oil and gas development is a reflection of market conditions, not industry intentions.

Critically, BLM has never analyzed the environmental and human health impacts from the combined total of 13,902 reasonably foreseeable oil and gas wells across the San Juan Basin, which far “exceeds that which the operative EIS anticipated.” Dkt. 63 at 87. BLM is in the process of preparing the Mancos RMPA and EIS to cure this deficiency, but absent this analysis, BLM cannot lawfully continue to approve site-specific Mancos Shale APDs based on the cumulative analysis of only 9,942 wells provided in the 2003 RMP/EIS. *See Diné CARE v. U.S. OSMRE*, 82 F.Supp.3d 1201, 1218 (D. Colo. 2015) (rejecting as contrary to NEPA agency’s argument that it could satisfy NEPA for a mine expansion it had already approved through a pending NEPA process analyzing impacts of expansion).

**(2) Tiering to the 2003 RMP/EIS is unlawful because BLM never analyzed the impacts of horizontal drilling and multi-stage fracturing.**

The approval of drilling permits represent the third and final stage in BLM's decisionmaking process, wherein BLM authorizes specific wells only after the agency conducts a site-specific NEPA analysis of drilling's reasonably foreseeable environmental impacts. *Pennaco Energy, Inc. v. U.S. DOI*, 377 F.3d 1147, 1151-52 (10th Cir. 2004), 1160; 43 C.F.R. § 3162.3-1. In this multistage decisionmaking process, NEPA permits BLM to analyze the impacts of oil and gas development through a practice known as "tiering." 40 C.F.R. §§ 1502.20, 1508.28. However, NEPA only permits tiering when the project being considered is part of the broader agency action addressed in the earlier NEPA document. 40 C.F.R. § 1502.20. NEPA regulations specify that an EA tiering to a broader EIS "must include a finding that the conditions and environmental effects described in the broader NEPA document are still valid or address any exceptions." 43 C.F.R. § 46.140. A site-specific EA "can be tiered to a programmatic or other broader-scope [EIS] ... for a proposed action with significant effects, whether direct, indirect, or cumulative, if ... a broader [EIS] fully analyzed those significant effects." *Id.* at § 46.140(c). Therefore, tiering to a broader EIS is not allowed if significant effects of the proposed action are not fully analyzed therein.

While the 2001 RFDS considered several types of advances in drilling technology, consultations with industry indicated "little enthusiasm for horizontal wells with or without laterals." AR0000104. The 2003 RMP/EIS explicitly focused its analysis on drilling practices used in the planning area *at that time*—practices that did not include horizontal drilling and multi-stage fracturing. AR0000109 (stating "[h]orizontal drilling has not yet found an economic application in the basin"); AR0000113 (stating "[h]orizontal drilling is possible but not currently applied in the San Juan Basin due to poor cost to benefit ratio."); AR0000107 (showing zero

interest from industry to drill horizontal wells). Fittingly, BLM's focus was on the formations and drilling techniques anticipated during the life of the plan. As stated by BLM, "analysis [in the 2003 RMP/EIS] focused on gas reserves contained in the major gas-producing formations in the San Juan Basin because of their relative importance as compared to oil production."

AR0001019. Thus, BLM explicitly focused on the impacts of *vertical* drilling used to develop gas-bearing formations, and did not analyze different extraction methods in what it considered low-potential formations like the Mancos Shale. *See* Dkt. 16-7 ¶¶ 30, 32.

Hydraulic fracturing, or "fracking," is an oil and gas drilling "stimulation" technique involving the high-pressure injection of large quantities of water, proppants (typically sand), and chemical additives into the wellbore to fracture the targeted geologic formations to enhance the release of oil and natural gas. 80 Fed. Reg. 16,128, 16,131 (March 26, 2015). Although fracking has been used as a stimulation technique for oil and gas development of vertical wells for several decades in the San Juan Basin, the use of fracking "coupled with relatively new horizontal drilling technology in larger-scale operations [] have allowed greatly increased access to shale oil and gas resources" not previously targeted for development. *Id.* Horizontal drilling involves the drilling of a single vertical or directional wellbore from the surface to a desired geologic strata—here, the Mancos Shale formation—where multiple additional horizontal wellbores are then drilled. These horizontal wellbores are then "completed" using a series of multi-stage fracturing applications. This Court acknowledged that these advances have "been 'a game changer' in natural gas and oil extraction." Dkt. 63 at 12.

This Court also found that horizontally drilled wells result in a greater magnitude of environmental impacts compared to vertically drilled wells. Dkt. 63 at 21-22 (citing Dkt. 16-7); *see also Diné CARE*, 839 F.3d at 1283 (finding "horizontal drilling and multi-stage fracturing

may have greater environmental impacts than vertical drilling and older fracturing techniques.”).

Record evidence supports this conclusion. For example:

- Horizontal wells (5.2 acres) have double the surface impact of vertical wells (2 acres) (Dkt. 16-7 ¶ 36);
- Horizontal wells increase air pollutant emissions 242%-333% over a vertical wells (*Id.* at ¶ 47), including 11.88 more tons of volatile organic compounds and 1.13 more tons of hazardous area pollutants per well (*Id.* at ¶ 62); and
- Horizontal wells consume 5-10 times more water (*Id.* at ¶ 66), averaging 1,020,000 gallons versus 105,000 gallons for the Dakota, 150,000 gallons for the Mesaverde, and 207,000 gallons for the Gallup formations using vertical wells (AR0173847).

BLM further acknowledged that wells drilled using this new technology involve a number of “complexities” not associated with vertical wells, including “be[ing] significantly deeper and cover[ing] a larger horizontal area than the operations of the past.” 80 Fed. Reg. 16,128.

These contextual differences in the type of drilling technology used and the formation targeted are meaningful. *See* 40 C.F.R. § 1508.27. As the Tenth Circuit recognized in *Pennaco*, where different oil and gas extraction technologies result in a different magnitude of impacts, BLM’s reliance on preexisting NEPA analysis that fails to account for the “unique environmental concerns” between drilling technologies violates NEPA. 377 F.3d at 1158-59. This Court similarly held: “If the EIS did not conduct an analysis of a particular technology, then, clearly, the EA may not tier to the EIS for the EIS’ (nonexistent) analysis of that technology; rather, either the EA or a new EIS must analyze the technology.” Dkt. 63 at 88. The record in this case clearly demonstrates that BLM’s 2003 RMP/EIS did not analyze the impacts associated with horizontal drilling and multi-stage fracturing.

Nevertheless, all of the EAs completed for Mancos Shale wells tier to the 2003 RMP/EIS for analysis of the cumulative impacts from oil and gas development in the planning area. *See* Dkt. 63 at 14 (recognizing BLM’s “EAs, being narrow and site-specific, tiered to the broader

2003 RMP/EIS and incorporated that document by reference”). Because the 2003 RMP/EIS never considered the drilling technology used to develop Mancos Shale wells—horizontal drilling and multi-stage hydraulic fracturing—there is no relevant analysis to which the agency can tier. *See S. Fork Band Council of W. Shoshone of Nevada v. U.S. Dep't of Interior*, 588 F.3d 718, 726 (9th Cir. 2009) (“Though ‘tiering’ to a previous EIS is sometimes permissible, the previous document must actually discuss the impacts of the project at issue.”). Thus, BLM’s decision to tier to the 2003 RMP/EIS in lieu of doing this analysis violates NEPA. *See Center for Bio. Diversity v. Bureau of Land Mgmt.*, 937 F.Supp.2d 1140, 1157 (N.D. Cal. 2013) (holding that tiering to an EIS was inadequate to fulfill the requirements of NEPA because “the scale of fracking in shale-area drilling today involves risks and concerns that were not addressed” by the previous EIS).

**(3) The impacts to land, air, water, and climate from 3,960 additional Mancos Shale wells are not analyzed in site-specific EAs, which fail to cure BLM’s programmatic defects.**

The different magnitude and unique environmental and human health impacts resulting from horizontal drilling and multi-stage fracturing—and in particular the cumulative, landscape-level impacts from this type of development across the San Juan Basin—were not analyzed in the 2003 RMP/EIS, nor in site-specific Mancos Shale EAs supporting individual APDs.

A cumulative impact is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions... Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 C.F.R. § 1508.7. “Cumulative impacts that result from individually minor but collectively significant actions are the crux of what the regulations implementing NEPA seek to avoid.” *High Sierra Hikers Ass'n v. Blackwell*, 390 F.3d

630, 645 (9th Cir. 2004). Although federal agencies are given “the primary task of defining the scope of NEPA review and their determination is given considerable discretion, ... cumulative [proposed] actions must be considered together [in one EIS] to prevent an agency from dividing a project into multiple actions, each of which individually has an insignificant environmental impact, but which collectively has a substantial impact.” *Wetlands Action Network v. U.S. Army Corps of Eng'rs*, 222 F.3d 1105, 1118 (9th Cir. 2000); see 40 C.F.R. § 1508.25(a)(2). As this Court stated, “[s]pecifically, NEPA requires that an EIS provide ‘cumulative effects’ analysis based on actual data.” Dkt. 63 at 42.

In this context, BLM’s cumulative analysis should include the incremental impact of individual Mancos Shale wells, together with:

- *Past* oil and gas drilling, including: over 40,000 historic wells, at least 21,150 active oil and gas wells (AR0141356), and at least 3,860 wells drilled under the 2003 RMP/EIS (Dkt. 63 at 15);
- *Present* oil and gas drilling, including: at least 362 approved Mancos Shale wells (Dkt. 110-1); and
- *Future* foreseeable drilling, including: 9,942 wells predicted under the 2003 RMP/EIS (AR0001020), and 3,960 wells predicted in the 2014 RFDS (AR0173823).

Neither the 2003 RMP/EIS, nor the individual, site-specific Mancos Shale EAs provided any analysis based on consideration of this well data.

As conceded by BLM, horizontal drilling and multi-stage fracturing has allowed “*additional* development in what was previously considered a fully developed oil and gas play [Mancos Shale] within the San Juan Basin.” AR0173818. The 2014 RFDS predicted that 3,960 Mancos Shale oil and gas wells would be added to the basin-wide total as a result of these technological advancements. AR0173823. Applying this projected well total to impacts from individual horizontal wells, detailed above, provides a scale of the unanalyzed cumulative

impacts to specific resources, including:

- Additional surface impacts of 20,592 acres;
- Additional criteria pollutant and VOC emissions (tons/year): 24,275 NO<sub>x</sub>; 6,494 CO; 2,178 VOC; 10,058 PM<sub>10</sub>; 1,148 PM<sub>2.5</sub>; 436 SO<sub>2</sub>; 40 CH<sub>4</sub>; and 2,659,298 CO<sub>2</sub>;<sup>8</sup>
- Flaring or venting of wells for a total of 79,200 days (equivalent to flaring or venting a single well continuously for over 216 years); and
- Consumption of 4,039,200,000 gallons of freshwater.

These cumulative impacts exceed what was predicted and analyzed in the 2003 RMP/EIS.

Moreover, no analysis exists concerning the impacts that an additional 3,960 Mancos Shale wells will have on greenhouse gas (“GHG”) pollution and climate change. Where an agency action causes GHG pollution, NEPA mandates that the agency analyze and disclose the impacts of that pollution. As the Ninth Circuit held:

[T]he fact that climate change is largely a global phenomenon that includes actions that are outside of [the agency’s] control ... does not release the agency from the duty of assessing the effects of its actions on global warming within the context of other actions that also affect global warming.

*Center for Bio. Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008) (quotations and citations omitted); *see also Border Power Plant Working Grp. v. U.S. Dep’t of Energy*, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (finding agency failure to disclose project’s indirect carbon dioxide emissions violates NEPA). The need to evaluate such impacts is bolstered by the fact that “[t]he harms associated with climate change are serious and well recognized,” and environmental changes caused by climate change “have already inflicted significant harms” to many resources around the globe. *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007); *see also id.* at 525 (recognizing “the enormity of the potential consequences associated

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<sup>8</sup> Each Mancos Shale EA includes the same table of estimated air pollutant emissions based on an average of 25 days to drill and complete. *See, e.g.*, AR0234990.

with manmade climate change.”). Therefore, BLM must take a hard look at the direct, indirect, and cumulative GHG emissions associated with its decisions, and their implications for climate change. 40 C.F.R. § 1508.25.

Each Mancos Shale EA includes the same boilerplate language that “estimated CO<sub>2</sub>e metric tons emissions from one horizontal oil well (609.2 metric tons) would represent a 0.0008 percent increase in New Mexico CO<sub>2</sub> emissions.” *See, e.g.*, AR0234991.<sup>9</sup> The agency then discusses cumulative impacts, approximating 21,150 active oil and gas wells in the San Juan Basin, and relying exclusively on the analysis in the 2003 RMP/EIS and the Air Resources Technical Report (“ARTR”) to support the approval of individual Mancos Shale wells. AR0234991-92. BLM ultimately concludes:

The very small increase in GHG emissions that could result from implementing the proposed alternative would not produce climate change impacts that differ from the No Action Alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth’s atmosphere. The incremental contribution to global GHGs from the action alternatives cannot be translated into effects on climate change globally or in the area of this site-specific action.

*See id.* This conclusion describes the nature of climate change—that incremental contributions of GHGs are causing global impacts—but does not excuse BLM from complying with NEPA. Rather, NEPA mandates that BLM disclose and consider the reasonably foreseeable effects of proposed actions, including cumulative effects, using data and analysis to reveal the proportional impact of the proposed action. *See* 40 C.F.R. §§ 1502.15, 1502.2(b). BLM failed to complete this required analysis.

As detailed above, the 2003 RMP/EIS did not include analysis of the Mancos Shale formation or horizontal drilling. And, critically, BLM failed to mention the GHG emissions that

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<sup>9</sup> Notably, the CO<sub>2</sub>e estimate of 609.2 metric tons is contradicted by estimates of 671.54 CO<sub>2</sub> and 0.01 CH<sub>4</sub> per well provided on the previous page of BLM’s EAs. AR0234990.

would result from its decisions or their implications on climate change in the 2003 RMP/EIS. AR0001733 (stating in response to comments “[m]ethods to determine the effects of the significance of greenhouse gas emissions (GGE) from individual projects to climate change do not exist and this issue is beyond the scope of this NEPA process. However, it is acknowledged that burning of fossil fuels developed through the RMP will produce GGE.”). Moreover, while the ARTR was intended “to collect and present the data and information needed for air quality and climate change analysis pertaining to oil and gas development,” the assumptions built into its consideration of impacts within the FFO focused on natural gas formations (Fruitland, Dakota), failed to mention the Mancos Shale, and emission estimates were entirely based on gas wells. AR0153179, AR0153200, AR0153201. In other words, neither of the documents that BLM tiers to contain any meaningful analysis of GHG emissions or climate change relative to Mancos Shale development, nor is such analysis included in site-specific EAs accompanying APD approvals. Thus, the court cannot “defer to a void.” *High Country Conserv. Advocates v. U.S. Forest Service*, 52 F. Supp. 3d 1174, 1186 (D. Colo. 2015) (quoting *Or. Natural Desert Ass’n v. BLM*, 625 F.3d 1092, 1121 (9th Cir. 2010)).

**B. BLM Failed to Complete an EIS Before Approving Site-Specific Drilling Projects.**

Federal agencies must prepare an EIS for “major federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.4. A federal action “affects” the environment when it “will or *may* have an effect” on the environment. 40 C.F.R. § 1508.3 (emphasis added); *see also Airport Neighbors Alliance v. U.S.*, 90 F.3d 426, 429 (10th Cir. 1996) (stating that an EIS is required if a “proposed action may ‘significantly affect’ the environment”). According to the Ninth Circuit:

an EIS *must* be prepared if ‘substantial questions are raised as to whether a project ... *may* cause significant degradation to some human environmental factor.’ To trigger this requirement a ‘plaintiff need not show that significant effects *will in fact occur*,’ [but instead] raising ‘substantial questions whether a project may have a significant effect’ is sufficient.

*Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1149-50 (9th Cir. 1998) (citations omitted) (emphasis original). In the Tenth Circuit, review of the decision not to prepare an EIS requires the court to determine “whether the agency acted arbitrarily and capriciously in concluding that the proposed action will not have a significant effect on the human environment.” *Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1274 (10th Cir. 2004) (quoting *Davis v. Mineta*, 302 F.3d 1104, 1112 (10th Cir.2002)).

Federal agencies determine whether direct, indirect, or cumulative impacts are significant by accounting for both the “context” and “intensity” of those impacts. 40 C.F.R. § 1508.27. Context “means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality” and “varies with the setting of the proposed action.” 40 C.F.R. § 1508.27(a). Intensity “refers to the severity of the impact” and is evaluated based on a review of the unique characteristics of the geographic area such as ecologically critical areas; the degree to which the effects are likely to be highly controversial; the degree to which the possible effects are highly uncertain or involve unique or unknown risks; and whether the action has cumulatively significant impacts, among other things. *Id.* § 1508.27(b). Courts have found that “[t]he presence of one or more of [the CEQ significance] factors should result in an agency decision to prepare an EIS.” *Fund for Animals v. Norton*, 281 F.Supp.2d 209, 218 (D.D.C. 2003) (quoting *Pub. Citizen v. Dep't of Transp.*, 316 F.3d 1002, 1023 (9th Cir. 2003)).

Here, BLM has already conceded that an EIS is required to analyze the additional impacts from 3,960 Mancos Shale wells, which were not anticipated or analyzed in the 2003 RMP/EIS. AR0173818. Therefore, BLM cannot continue to issue individual drilling approvals absent completion of an EIS.

The “assessment of all ‘reasonably foreseeable’ impacts must occur at the earliest practicable point, and must take place before an ‘irretrievable commitment of resources’ is made.” *New Mexico*, 565 F.3d at 718; 42 U.S.C. § 4332(2)(C)(v); 40 C.F.R. §§ 1501.2, 1502.22. Development of all 3,960 Mancos Shale wells is reasonably foreseeable. Yet, even if the Court only considers the 362 individual Mancos Shale wells challenged in this case, the context and intensity of those impacts, taken together, are still within the regulatory definition of significance and thus require analysis through preparation of an EIS. 40 C.F.R. § 1508.27.

BLM has also failed to “put forth a ‘convincing statement of reasons’ that explains why the project will impact the environment no more than insignificantly.” *Ocean Advoc. v. U.S. Army Corps of Engrs.*, 402 F.3d 846, 864 (9th Cir. 2005). Such a statement “proves crucial to evaluating whether the [agency] took the requisite ‘hard look.’ ” *Id.* BLM failed to provide such a statement in the Mancos Shale EAs and FONSIIs accompanying its APD approvals.

Process drives outcome under NEPA. Moving forward with full-field development of the Mancos Shale in a manner that flouts that process undermines BLM’s ability to take a hard look at impacts in the proper “context” and to consider “reasonable alternatives” that will manage and plan for “orderly and efficient” development. 40 C.F.R. §§ 1502.14, 1508.27; 43 C.F.R. § 3160.0-4; *see also Marsh v. ONRC*, 490 U.S. 360, 371 (1989) (“NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.”). Here, BLM continues to approve individual Mancos Shale wells without the benefit of a full

environmental analysis of the impacts, or the consideration of alternatives or mitigation measures, in violation of NEPA.

**C. BLM Failed to Provide Notice and Meaningful Public Involvement Before Approving Mancos Shale Development through Individual EAs.**

The foregoing failures not only represent violations of NEPA, but also characterize a decisionmaking process that has failed the public. BLM has approved at least 122 separate EAs authorizing the drilling of 362 individual Mancos Shale wells through piecemeal analysis that failed to consider the the landscape-scale impacts of these decisions. But more alarming, BLM made these decisions without meaningful engagement and consultation with the very members of the public forced to endure the harmful impacts of this oil and gas development.

NEPA regulations provide that “public scrutiny [is] essential to implementing NEPA.” 40 C.F.R. § 1500.1(b). “Federal agencies shall to the fullest extent possible . . . encourage and facilitate public involvement in decisions which affect the quality of the human environment,” “[m]ake diligent efforts to involve the public in preparing and implementing their NEPA procedures,” and provide “public notice of . . . the availability of environmental documents so as to inform those persons . . . who may be interested or affected.” 40 C.F.R. §§ 1500.2(d), 1506.6(a), 1506.6(b). Moreover, the U.S. Department of the Interior’s NEPA regulations specifically require that BLM “must notify the public of the availability of an environmental assessment and any associated finding of no significant impact once they have been completed.” 43 C.F.R. § 46.305(c).

NEPA’s regulations require that agencies “involve . . . the public, to the extent practicable, in preparing [EAs].” 40 C.F.R. § 1501.4(b); *see also Diné CARE v. Klein*, 747 F. Supp. 2d 1234, 1261 (D. Colo. 2010) (accord). The agency must make “a meaningful effort to provide information to the public affected by an agency’s actions.” *Klein*, 747 F. Supp. 2d at

1262; *see also Bering Strait Citizens v. COE*, 524 F.3d 938, 953 (9th Cir. 2008) (recognizing that “[a]n agency, when preparing an EA, must provide the public with sufficient environmental information, considered in the totality of circumstances, to permit members of the public to weigh in with their views and thus inform the agency decision-making process.”).

Here, BLM failed to satisfy NEPA’s public notice and participation requirements in approving at least 122 APDs authorizing 362 Mancos Shale wells. According to BLM, the agency’s NEPA process for APDs “employ[s] *internal scoping* to define any new issues, alternatives, and data needs” that the agency should address in a NEPA document. AR0178207 (emphasis added). Decisions about whether to involve the public in this NEPA process are made “on a case-by-case basis” depending on, *inter alia*, BLM’s unilateral characterization of a project as “routine or unique” and “who might be interested or affected” by the project. *Id.* Even if this case-by-case approach is a proper means of assessing whether BLM should involve the public in its NEPA process, record evidence shows that BLM unlawfully excluded the public from this process by arbitrarily labeling APDs as “routine” projects and ignoring correspondence from members of the public, including Citizen Groups, indicating that they would be affected by Mancos Shale development and wanted to participate in the NEPA process for these approvals.

The record demonstrates that BLM was on notice regarding public concerns with the pace and lack of transparency of its APD approvals for horizontal drilling and multi-stage fracturing as early as August 2012. AR0178179-81. Over the course of the next two and half years, Citizen Groups and others made repeated requests for access to NEPA documents supporting APD approvals in the FFO, which should have alerted BLM to the fact that APD

approvals were not simply “routine” projects.<sup>10</sup> The following timeline summarizes Citizen Groups’ attempts to access NEPA documents for APD approvals:

- August 5, 2013: Citizen Groups representative requests EAs for 35 previously approved APDs. AR0178183. BLM responds that it is working on getting documents for all approved APDs onto its website. AR0178185.
- March 6, 2014: Citizen Groups representative requests information from BLM on NEPA documents associated with four new wells. AR0178186.
- March 10, 2014: Internal BLM email stating that the agency is “really behind” on posting EAs to its website. AR0149464.
- October 2, 2014: Citizen Groups representative visited BLM’s public reading room to examine EAs for previously approved APDs, but there were none available. BLM responded that APD EAs are “compiled” but BLM has “had some workload issues that have prevented them from getting EAs into the public room.” AR0178204.
- October 27, 2014: Citizen Groups representatives send letter to BLM raising a number of issues with the APD approval process, including lack of public notice about APD approvals and lack of public access to related documentation. AR0178401.
- December 2, 2014: Petition asking BLM to provide opportunity for public comment on all FFO APD approvals and asking for copies of all NEPA documents related to APD approvals. AR0149507-13.
- December 11, 2014: Citizen Groups representative sent letter to BLM regarding unavailability of EAs in public reading room, and noting that BLM’s website for APDs was empty on Oct. 2, 2014, “and remains empty through today.” AR0178295-98.
- January 26, 2015: BLM responded to Citizen Groups’ letter, noting that BLM “made arrangements to make those EAs available,” and “have since identified and are working to improve our process for getting EAs in the Public Room.” AR0178209.

Despite these repeated requests for access to NEPA documents, it took BLM until 2015—when this litigation was filed—to make available to the public NEPA documents from APD approvals that had occurred in 2013 and 2014. Eisenfeld Decl. ¶¶ 10-11. However, posting decision documents on BLM’s website several years or months after approval, and without any

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<sup>10</sup> A Citizens Groups representative took issue with BLM’s unilateral determination of what needed to be addressed in an EA and the agency’s unilateral determination that APD approval was a “routine” project. AR0178208.

notice to the public, does not satisfy regulations requiring the agency to “*notify* the public of the availability of an environmental assessment and any associated finding of no significant impact once they have been completed.” 43 C.F.R. § 46.305(c) (emphasis added).

In two recent decisions dealing with agency practices analogous to those at issue here, courts held that agency practices for preparing NEPA documents through a wholly internal process and without involving the public violated NEPA. In *WildEarth Guardians v. OSMRE*, the court found OSM’s practice of “silently plac[ing] hard copies of its completed EAs and FONSI on a shelf in its high-rise office . . . in Denver” failed to satisfy NEPA’s public involvement requirements. 104 F. Supp. 3d 1208, 1224 (D. Colo. 2015) (citing 43 C.F.R. § 46.305(c)). Based on similar facts in a parallel case, the court also rejected this practice as failing to comply with NEPA’s public involvement requirements. *WildEarth Guardians v. OSMRE*, 2015 WL 6442724 at \*7 (D. Mont. 2015). There, the court found a “complete lack of notice” where the administrative record “include[ed] no suggestion of public notice by the Federal Defendants of the FONSI” nor any “indication . . . that the FONSI actually was placed in a reading room in Denver.” *Id.* As stated by these courts, the requirement that NEPA documents be made available for public review is meaningless if the public does not know that such documents exist.

Here, as in the *WildEarth Guardians* cases, BLM made no meaningful efforts to either “[e]ncourage and facilitate public involvement” or “involve . . . the public, to the extent practicable” in any stage of its APD approvals. 40 C.F.R. §§ 1500.2(d), 1501.4(b). This failure is contrary to the basic purpose of public involvement: to prompt a dialogue between BLM and the public and to trigger responsive agency action such as “[s]upplement[ing], improv[ing], or modify[ing] its analyses.” 40 C.F.R. § 1503.4(a). Yet the record demonstrates that BLM does not

view the public as central participants—indeed the very people who are forced to endure the environmental and health impacts that result from this exploitation. Failure to involve the public in its APD approvals, in the face of repeated demonstrations of public interest and concern about these approvals, is illustrative of how broken this process is in BLM’s FFO. *See* AR0001163 (identifying concerns with outreach to tribal communities during the 2003 RMP/EIS process, specifically that neither “Navajo populations living in remote locations” nor FIMO were consulted).

Posting the NEPA documentation for approved APDs to BLM’s website months after the agency made the decisions does not satisfy NEPA’s public involvement requirements. As the Court stated in *Klein*, 747 F. Supp. 2d at 1262: “[a]dequate notice requires a meaningful effort to provide information to the public affected by an agency’s actions.” By not including the public in its decisionmaking process for APDs, BLM violated NEPA’s public notice and participation requirements. 40 C.F.R. § 1500.2(d).

## **II. BLM VIOLATED THE NATIONAL HISTORIC PRESERVATION ACT**

BLM’s approval of the challenged Mancos Shale drilling permits violated the NHPA. The NHPA, like NEPA, requires agencies to take a “hard look” at a project’s impacts, and was enacted specifically to protect America’s historic and cultural heritage. 16 U.S.C. §§ 470(b), 470-1. The heart of the NHPA is Section 106, which prohibits federal agencies from approving any federal “undertaking” unless the agency takes into account the effects of the undertaking on historic properties that are included in, or eligible for, inclusion in the National Register of Historic Places. 16 U.S.C. §§ 470(f), 470(w)(7); *see also Pueblo of Sandia v. United States*, 50 F.3d 856, 859 (10th Cir. 1995). Section 106 is a “stop, look, and listen provision” that requires federal agencies to consider the effects of their actions and programs on historic properties and

sacred sites before implementation. *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 805 (9th Cir. 1999); *see also Valley Cmty. Pres. Comm'n v. Mineta*, 373 F.3d 1078, 1085 (10th Cir. 2004).

To adequately “take into account” the impacts on historic and cultural properties under Section 106, BLM must first determine whether the “proposed Federal action is an undertaking,” and if so, “whether it is a type of activity that has the potential to cause effects on historic properties.” 36 C.F.R. §§ 800.3(a), 800.16(y). BLM must then “[d]etermine and document the area of potential effects” and then “[r]eview existing information on historic properties within [that] area.” *Id.* § 800.4(a)(1)-(2). The area of potential effects (“APE”) is defined as:

the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties . . . The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

*Id.* § 800.16(d).

BLM must make a “reasonable and good faith effort” to identify historic and cultural properties within the APE, and consult with Indian Tribes and the state historic preservation office (“SHPO”) regarding the results of identification efforts. *Id.* at § 800.4(b)(1). Consultation involves a comprehensive assessment of actual adverse impacts on historic properties and of ways to “avoid, minimize or mitigate the adverse effects,” including proposing alternatives. *Id.* at § 800.6(a).

If the undertaking is a type of activity where historic properties “may be affected,” BLM applies the “criteria of adverse effect” to historic properties within the APE. *Id.* at §§ 800.4(d)(2), 800.5(a)(1). An “effect” is defined broadly to include any alteration that directly or indirectly affects the characteristics of a historic property that make it eligible for listing in the National Register of Historic Places. *Id.* §§ 800.16(i), 800.5(a)(1). An effect is “adverse” when it

may “diminish the integrity of the property’s location ... setting ... feeling, or association.” *Id.* Adverse effects are not limited to physical destruction of historic properties, but also include “[c]hange of the ... physical features within the property’s setting that contribute to its historic significance,” as well as the “introduction of visual, atmospheric or audible elements that diminish the integrity of the property’s significant historical features.” *Id.* at §§ 800.5(a)(2)(iv), (v). In addition to considering an undertaking’s direct and indirect impacts to historic properties, BLM must also consider “reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.” *Id.* at § 800.5(a)(1).

BLM may establish a “program alternative” for complying with Section 106 requirements. 36 C.F.R. §§ 800.3(a)(2), 800.14(a). In June 2004, BLM’s New Mexico State Director and the New Mexico SHPO entered into a State Protocol Agreement (“Protocol”) regarding the manner in which BLM would meet its responsibilities under the NHPA, and renewed the Protocol in 2014. AR0169038-59; AR0169217-63. For all of Mancos Shale APDs, BLM used the Protocol to meet its NHPA obligations in lieu of the Section 106 regulations. *See, e.g.*, AR0149723 (establishing boilerplate language for APD EAs describing BLM’s use of the Protocol for APD approvals).

**A. Mancos Shale Development May Adversely Affect Significant Historic Properties.**

Chaco Culture National Historical Park (“the Park”) is the heart of the Greater Chacoan landscape in northwestern New Mexico, characterized by a network of outlying sites and ancient roads, and located within a geographic area that includes lands and federal minerals under the FFO’s jurisdiction. The Greater Chaco landscape has been described as the “Chaco Phenomenon” due to its unique archeological signatures. Congress recognized “the national significance of the Chacoan sites” and the need to protect these “unique archaeological

resources” when it created the Park in 1980. 16 U.S.C. § 410ii. The Park is listed on the National Register of Historic Places and is designated a World Heritage Site. *See* AR0217967-0218011. The World Heritage designation includes not only the Park, but also several satellite villages—known as “Chacoan Outliers”—including Pierre’s Site, Halfway House, Twin Angels, Aztec Pueblo, Kin Nizhoni and Casamero.<sup>11</sup> AR0218004. These sites are all linked through a network of roads—the most prominent of which is the Great North Road, which connects Chaco Canyon to a settlement approximately 55 miles to the north known today as Aztec Ruin. *See* AR0218001 (map of prehistoric Chacoan roads).

The legislation creating the Park also designated 33 separate “Chaco Cultural Archaeological Protection Sites” outside the Park boundaries for preservation and interpretation, which are jointly managed by the National Park Service (“NPS”), BLM, BIA, and the Governor of New Mexico. 16 U.S.C. § 410ii-1(b). Of the 33 sites on the list, 13 of them are on BLM lands, which the agency characterizes as “outstanding examples of cultural resources from [the Pueblo II and Pueblo III] period[s].” AR0000977-78.

Air and light pollution, noise, and vehicle traffic from BLM-authorized oil and gas development all have the potential to adversely affect landscape-level historic properties such as the Park and Chaco Protection Sites that are within the boundaries of the FFO. AR0217748-54. Despite the abundance of landscape-level historic properties in the FFO that may be adversely affected by Mancos Shale development, including in and adjacent to areas where BLM has approved hundreds of APDs, BLM has failed to analyze oil and gas development’s indirect and

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<sup>11</sup> To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria. The Park and the Outliers were added to the WHS list based on criterion III of the selection criteria, meaning the Park and the Outliers “bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.” AR0218079-80.

cumulative impacts to these properties. Such a “landscape-level” analysis of impacts is required before BLM can approve any APDs in the Mancos Shale formation.

**B. BLM’s APD Approvals Violate the NHPA, Its Implementing Regulations, and the Protocol by Failing to Identify Adverse Effects to Historic Properties.**

Although BLM can meet its NHPA requirements for approving Mancos Shale APDs by using the Protocol in lieu of the Section 106 regulations, BLM has failed to comply with the Protocol, which specifically requires the agency to analyze Mancos Shale development’s indirect and cumulative effects on landscape-level properties associated with the Chaco Phenomenon—including the Chaco World Heritage Site, Chaco Protection Sites, and any Traditional Cultural Properties (“TCPs”).<sup>12</sup> By focusing exclusively on direct impacts to archaeological sites within the APD footprint, BLM fails to appreciate the essential distinction between: (1) small archaeological sites for which direct impacts can be easily identified and mitigated at a site-specific level,<sup>13</sup> and (2) off-site landscape-level cultural properties which can be indirectly and/or cumulatively impacted by APD development, and cannot be mitigated by avoidance or excavation. A number of courts have recognized that both types of analyses are required for compliance with the NHPA. *See, e.g., Coal. of Concerned Citizens*, 843 F.3d at 908 (recognizing that analysis of a project’s “indirect visual effects” to historic properties is required for NHPA compliance); *Montana Wilderness Ass’n v. Fry*, 310 F. Supp. 2d 1127, 1153 (D. Mont. 2004)

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<sup>12</sup> Unlike small archaeological sites that are generally subject to site-specific data recovery and mitigation measures, TCPs and Chacoan sites have large and amorphous boundaries on a landscape level, and their significant attributes can often be ascribed to “extensive views of natural landscape without modern intrusions.” National Park Service, “National Register Bulletin No. 38 – Guidelines for Evaluating and Documenting Traditional Cultural Properties.” *See* <https://www.nps.gov/Nr/publications/bulletins/nrb38/>. For example, a TCP or other landscape-level property “can ... lose its significance through alteration of its setting or environment.” *Id.*

<sup>13</sup> For each APD, the record includes brief reports documenting whether any archaeological sites were found within the APD footprint, and measures to mitigate direct effects to those sites. *See, e.g.,* AR0167216-19 and additional reports in the “Cultural Reports” Folder.

(stating agency must consider effects to historic properties located outside project footprint); *Colo. River Indian Tribes v. Marsh*, 605 F. Supp. 1425, 1438 (C.D. Cal. 1985) (finding NHPA violation where agency only considered direct effects to historic properties within project footprint).

BLM's failure to consider the indirect and cumulative impacts of Mancos Shale development on historic properties flows from the agency's arbitrary definition of the APE for development. Appropriately defining the boundaries of APEs in a project area is the first step in assessing impacts to historic properties because, once defined, the APE circumscribes what BLM must consider in assessing impacts to historic properties. The Protocol requires BLM to do the following:

In defining the APE, the BLM will consider potential direct, indirect, and cumulative effects to historic properties and their associated settings when setting is an important aspect of integrity, as applicable. The introduction of physical, visual, audible, or atmospheric elements has the potential to affect the historic setting or use of historic properties including but not limited to properties of religious and cultural significance to Indian tribes, and the BLM will take this into account in defining the limits of an APE for indirect effects.

AR0169233. With this in mind, the Protocol mandates that BLM define separate APEs for evaluating direct and indirect effects. *Id.* The "standard" APE for evaluating direct effects to small archaeological sites from well pad construction is "the well pad construction zone plus 100' on each side from the edge of the construction zone." AR0169265. The Protocol does not define a "standard" APE for evaluating indirect effects; instead "[t]he indirect APE shall include known or suspected historic properties and their associated settings where setting is an important aspect of integrity."<sup>14</sup> AR0169233. The Protocol also requires BLM to consult with the SHPO

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<sup>14</sup> The Protocol's requirement that BLM define a separate APE for indirect effects is consistent with 36 C.F.R. § 800.16(d), which instructs that the APE be broad enough geographically to include areas "within which an undertaking may directly or indirectly cause alterations in the

“where defining the APE is complicated or controversial.” *Id.*; AR0169265 (noting that consultation with the SHPO is required “[f]or *any* other APEs” not included in the standard APE for evaluating direct effects) (emphasis in original). Therefore, to fully comply with the Protocol, BLM was required to consult with the SHPO to define an APE for indirect effects to historic properties located outside the APD boundaries. No record evidence exists to indicate that BLM ever defined an APE for indirect effects, or that BLM ever analyzed the indirect adverse effects of Mancos Shale development on historic properties located outside of the development footprint for any given well pad.

As Section 106, the Protocol, and the courts have recognized, adverse effects that diminish the integrity of historic properties are not limited to physical destruction of the property, but also include off-site audible and visual intrusions that can damage features of the property’s setting that contribute to its historic significance. *See, e.g.*, 36 C.F.R. §§ 800.5(a)(2)(iv), (v); AR0169233 (recognizing that “[t]he introduction of physical, visual, audible, or atmospheric elements has the potential to affect the historic setting or use of historic properties”); *Pye v. United States*, 269 F.3d 459, 469 (4th Cir. 2001) (recognizing that “[e]ven if no shovels or backhoes will touch [an] historic area, damage to historic areas can occur in less direct ways.”). In *New Mexico el rel. Richardson v. Bureau of Land Mgmt.*, the court articulated the importance of not limiting assessment of adverse effects only to archaeological sites within a project footprint:

BLM’s argument focuses on historical sites covering relatively small areas, such as discrete archaeological sites. For such sites, mitigation of impacts can be accomplished simply by moving the proposed drill site to a different location on

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character or use of historic properties.” *See also Valley Cmty.*, 373 F.3d at 1091 (finding an APE complied with the Section 106 regulations where it “took into account both direct and indirect potential effects of the project and varied throughout the corridor depending on type of resource and the nature of [the] potential effect”).

the lease parcel. For landscape-level [properties] that may or may not be located on the leased parcel itself, however, such movement may not be adequate mitigation.

459 F. Supp. 2d 1102, 1124-25 (D.N.M. 2006). Thus, analysis of direct impacts to archaeological sites is neither the equivalent of, nor a substitute for, analysis of *indirect* effects to landscape-level historic properties.

Here, the record demonstrates that BLM has approved 362 separate APDs while ignoring potential adverse effects to the integrity of historic properties through the introduction of excess noise, air and light pollution, and other intrusive elements. Such affects may occur from smog due to increased air pollution from horizontal drilling and multi-stage fracturing, which has already impacted nearby locations once known for their pristine vistas. AR0217825-26; 0217833. Moreover, gas flares from horizontally drilled wells create light pollution that interferes with the clarity of night skies.<sup>15</sup> *Id.* As detailed above, horizontally drilled wells can increase air pollution by a magnitude of between 242% and 333%. *Supra* I(A)(2). Therefore, with foreseeable development of an additional 3,960 Mancos Shale wells in such close proximity to the Park and Chaco Protection Sites—and all within the Greater Chaco landscape—these air quality and visual impacts will affect the setting and use of historic properties.

Noise pollution from Mancos Shale development can also adversely affect the integrity of the Park and Chaco Protection Sites. Such noise pollution includes drilling, blasts of air compressors pumping fracturing fluids into the ground, flaring of gas accompanied by sounds comparable to a jet engine, heavy construction necessary for setting up and maintaining well

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<sup>15</sup> On August 28, 2013, the International Dark-Sky Association designated the Park as a “Dark-Sky Park” because of the Park’s commitment to preserving its night skies through such efforts as “adopt[ing] a set of strict lighting guidelines that include the use of dark-sky friendly lighting now and in the future, ensuring that it will do its part to keep the nighttime environment natural and unspoiled for generations to come.” A0218082.

sites, as well as the noise of trucks moving water and equipment to and from the drill pads. AR0217791, 0217838. In undeveloped areas around the Park, there may also be noise associated with the construction of roads capable of supporting the traffic of supplies and machinery needed for drill rigs and other operations. AR0217791. The cumulative total of nearby Mancos Shale operations could adversely affect the integrity of the Park's setting, in violation of the NHPA.

Finally, 36 C.F.R. 800.5(a)(1) requires BLM to consider not only direct and indirect impacts to properties within separately defined APEs, but also to consider "reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." *Id.* § 800.5(a)(1). Therefore, even if a single APD might not indirectly cause an adverse effect to the Park, the 362 APDs already approved by BLM may *cumulatively* cause an adverse effect to the integrity of the Park's setting. There is no evidence in the record that BLM ever performed this analysis.<sup>16</sup> Because BLM failed to provide cumulative analysis of impacts to historic properties as required by the Protocol and section 800.5 of the regulations, BLM's APD approvals violate the NHPA.

The NPS has identified energy development as "the greatest external threat to [Chaco Culture National Historical] park resources." AR0218033. NPS has expressed concern that oil and gas development in the vicinity of the Park and other features of the Chaco Phenomenon in the San Juan Basin will adversely affect the fundamental values associated with these properties including: physical surroundings, solitude, natural sounds, and landscape integrity, night sky viewing, and unpolluted air. AR0217785. Mancos Shale development has the potential to adversely affect these fundamental values on an unprecedented scale, yet BLM has made no

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<sup>16</sup> The two-paragraph discussion of cumulative impacts to cultural resources discussed in the 2003 RMP/EIS is limited to the cumulative amount of acreage disturbed by well development, and does not consider landscape-scale development of the Mancos Shale. AR0001138.

efforts to analyze indirect or cumulative effects of developing the hundreds of new APDs across this culturally significant landscape. Although BLM's use of an APE limited to a specific APD footprint may be sufficient for assessing *direct* effects to archaeological sites, BLM has nevertheless violated Section 106 and the Protocol by failing to consider *indirect* and *cumulative* effects to off-site historic properties and the Greater Chaco landscape. These failures violate both the NHPA and NEPA, and "fail to consider an important aspect of the problem." *Motor Vehicle Mfrs.*, 463 U.S. at 43.

### CONCLUSION

For the foregoing reasons, Citizen Groups respectfully request that this Court declare that BLM's approval of Mancos Shale drilling permits violate NEPA, the NHPA and their implementing regulations, vacate and remand BLM's EAs, and suspend and enjoin BLM from any further drilling authorizations pending BLM's full compliance with NEPA and the NHPA.

Respectfully submitted this 28<sup>th</sup> day of April 2017,

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**CERTIFICATE OF COMPLIANCE WITH RULE 32(a)**

This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because this brief contains 12,974 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

Dated this, 28<sup>th</sup> day of April, 2017.

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**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW MEXICO  
CERTIFICATE OF SERVICE (CM/ECF)**

I hereby certify that on April 28, 2017, I electronically filed the foregoing PLAINTIFFS' OPENING MERITS BRIEF with the Clerk of the Court via the CM/ECF system, which will send notification of such filing to other participants in this case.

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