

CENTER FOR BIOLOGICAL DIVERSITY • CITIZENS CARING FOR THE FUTURE •
EARTHWORKS • SIERRA CLUB RIO GRAND CHAPTER • WESTERN
ENVIRONMENTAL LAW CENTER • WILDEARTH GUARDIANS

October 13, 2026

Submitted via ePlanning

BLM Director
Attn: Protest Coordinator (HQ210)
PO Box 151029
Lakewood, CO 80215

Re: Protest of Proposed Resource Management Plan and Final Environmental Impact Statement, Carlsbad Field Office, Pecos District, New Mexico, DOI-BLM-NM-P020-2010-0001-RMP-EIS

Director Pearce:

The Western Environmental Law Center, Center for Biological Diversity, Citizens Caring for the Future, Earthworks, Sierra Club Rio Grande Chapter, and WildEarth Guardians (collectively, “Conservation Groups”) submit this protest of the Bureau of Land Management’s Proposed Resource Management Plan (Proposed RMP) and Final Environmental Impact Statement (FEIS), Carlsbad Field Office, Pecos District, New Mexico covering 2,091,000 acres of surface estate and 2,757,949 acres of subsurface estate in southeast New Mexico.

BLM’s issuance of the Proposed RMP and FEIS comes more than 16 years after the scoping process was initiated and nearly 8 years after the draft EIS was issued for public comment in 2018. Since that time, oil and gas operations have expanded exponentially within the planning area, requiring BLM to supplement its existing environmental analyses in order to consider the significantly changed conditions and substantial new information that have arisen in the interim. Under the Federal Land and Policy Management Act (FLPMA) and the National Environmental Policy Act (NEPA), BLM must ensure that its environmental analysis is current and informed by the best available data and resources. After such a lengthy delay, BLM must not only supplement its EIS to incorporate and analyze updated information and circumstances pertaining to the planning area, but also to provide a renewed opportunity for public input and tribal consultation on its preferred alternative, in keeping with the requirements of NEPA, FLPMA, and the APA. Proceeding directly to a proposed final plan based on the 2018 draft would be arbitrary, capricious, and contrary to law.

CONSERVATION GROUPS’ STATEMENT OF INTEREST IN THE CARLSBAD RMP

The **Western Environmental Law Center** uses the power of law to foster thriving, resilient western U.S. lands, water, wildlife, and communities in the face of a changing climate. We envision a western U.S. abundant with protected and interconnected ecosystems, powered by renewable energy, and cared for by communities brought together in an ecology of kinship.

Across the West, WELC has participated in and represented clients participating in BLM planning, leasing, and permitting processes to ensure the agency's adherence to its statutory and regulatory obligations as steward of our public lands. Specifically, WELC and partner organizations filed comment letters at various stages of BLM's extended process for revising the Carlsbad RMP, including multiple comment letters on the draft RMP and EIS dated November 5, 2018, as well as supplemental comment letters dated March 7, 2019, June 8, 2026, and June 17, 2026.¹

The Center for Biological Diversity ("Center") is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center also works to reduce greenhouse gas emissions to protect biological diversity, our environment, and public health. The Center has over one million members and activists, including those living in New Mexico who have visited these public lands for recreational, scientific, educational, and other pursuits and intend to continue to do so in the future, and are particularly interested in protecting the many native, imperiled, and sensitive species and their habitats that may be affected by the proposed oil and gas leasing. The Center has participated throughout this RMP revision process, including submitting comments on the 2018 Carlsbad Draft RMP/EIS.

Citizens Caring for the Future ("CCFF") is an unincorporated non-profit membership association based in southeastern New Mexico in the Permian Basin. CCFF's mission is to bring together southeastern New Mexico community members who support protecting the air, water and public health and safety during the current oil and gas boom in the Permian. The organization seeks to find an informed and safe path to ensure protections for the local community in the face of the health, safety and environmental dangers posed by rapid oil and gas development in the greater Carlsbad region of southeastern New Mexico. Having only formed in 2019, CCFF and its members did not have the opportunity to comment on the 2018 Carlsbad Draft RMP/EIS.

Earthworks protects communities and the environment from the adverse impacts of mineral and energy development, and since 1988 has been the only national organization focused exclusively on preventing the harms of oil, gas, and mineral extraction. Since 2017, Earthworks' certified Optical Gas Imaging thermographers have documented methane and VOC emissions from oil and gas facilities in New Mexico's Permian Basin, many on BLM lands within the Carlsbad planning area, and used that evidence to file complaints with regulators and inform state and federal policy. Earthworks contributed to The Wilderness Society et al., comment letter

¹ These comments are incorporated by reference in their entirety and are included as exhibits attached to this protest letter. See Exhibit 1, WildEarth Guardians et al., Comments on the Carlsbad Field Office's Draft Resource Management Plan and Environmental Impact Statement (Nov. 5, 2018); Exhibit 2, TWS et al., Comments on the Carlsbad Draft Resource Management Plan and Environmental Impact Statement (Nov. 5, 2018); Exhibit 3, WildEarth Guardians et al., Supplemental Comments on Draft Carlsbad Field Office Resource Management Plan and Environmental Impact Statement, Request for Supplemental Environmental Impact Statement (Mar. 7, 2019); Exhibit 4, TWS et al., Carlsbad Field Office Final Resource Management Plan (Jun. 8, 2026); Exhibit 5, WildEarth Guardians' Supplemental Comments on the Carlsbad Field Office's 2018 Draft Resource Management Plan and Environmental Impact Statement (June 17, 2026); Exhibit 6, WildEarth Guardians' Exhibits to Supplemental Comments on the Carlsbad Field Office's 2018 Draft Resource Management Plan and Environmental Impact Statement (June 17, 2026).

for the Carlsbad Regional Management Plan project scoping comment period with a specific example of a complaint filed.

Sierra Club Rio Grande Chapter represents over 35,000 members and supporters in New Mexico and West Texas, including those who live in Eddy, Lea and Chaves Counties who hike, cave, camp and birdwatch on public lands within the Carlsbad Field Office planning area and in Carlsbad Caverns and Guadalupe Mountains National Parks. The chapter works on methane and ozone pollution reduction and clean-air policy affecting the Permian Basin counties, including the State's oil and gas ozone-precursor rule and its methane waste rule, and on public-lands planning in southeastern New Mexico. The chapter's members breathe air that the Final EIS itself reports exceeds the ozone standard, and their health, use and enjoyment of the planning area will be adversely affected by approval of the Proposed RMP.

WildEarth Guardians (“Guardians”) is a nonprofit environmental advocacy organization dedicated to protecting the wildlife, wild places, wild rivers, and health of the American West. On behalf of our members, Guardians has an interest in ensuring the BLM fully protects the West’s public lands and resources. More specifically, Guardians has an interest in ensuring BLM meaningfully and genuinely takes into account all of the environmental impacts of its decision to permit extensive fossil fuel development across southeastern New Mexico, including objectively and robustly weighing the costs and benefits of authorizing the release of more greenhouse gas emissions known to contribute to climate change. Guardians has actively engaged this RMP revision process through submitting comments, including on the 2018 Carlsbad Draft RMP/EIS.

TABLE OF CONTENTS

I. CONSERVATION GROUPS' STATEMENT OF ISSUES AND PARTS OF THE PROPOSED RMP/FEIS BEING PROTESTED	7
II. NEW CIRCUMSTANCES AND SUPPLEMENTAL INFORMATION DEMAND A SUPPLEMENTAL EIS AND PUBLIC PROCESS	7
III. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)	11
A. BLM Must Consider a Reasonable Range of Alternatives	11
1. BLM's preferred alternative is invalid because it is substantially different from the alternatives considered in the Draft RMP-EIS.....	12
2. BLM must consider a no fossil fuel leasing alternative.....	14
a. BLM has the authority to consider a no leasing alternative	15
b. BLM must consider a no fossil fuel leasing alternative in response to threats posed by climate change	16
c. BLM must consider the no fossil fuel leasing alternative in response to threats posed by air pollution	18
3. BLM must consider an alternative that would protect caves and karst.....	18
4. BLM must consider an alternative that would protect wildlife	18
B. BLM Must Take a Hard Look	19
1. BLM failed to analyze the lifecycle of oil and gas development, including the growing idle-well, orphan-well, reclamation, and financial-assurance liabilities	19
2. BLM failed to analyze the climate impacts of opening lands to oil and gas leasing and consider measures to avoid additional GHG pollution.....	20
a. In light of current climate science and carbon budgets, ALL additional oil and gas development and resultant GHG emissions are significant.....	20
3. BLM must include a quantitative and qualitative analysis of human health impacts .	24
a. Overview of human health impacts and sources of peer-reviewed literature related to proximity of oil and gas development	25
b. Cumulative health risks and impacts to social and structural factors affecting health	25
c. Climate change and health impacts	26
d. Air pollution and health impacts.....	26
e. Maternal, prenatal and child health impacts.....	27
4. BLM fails to take a hard look at impacts from methane emissions and waste	28
5. BLM fails to take a hard look at impacts to caves and karst	30
6. BLM fails to take a hard look at water quantity	31
a. BLM fails to provide essential information regarding the baseline conditions of water availability in the planning area	31
b. BLM does not identify what water resources will be used, and in what quantities, to support oil and gas development in the planning area	32
c. BLM fails to take a hard look at produced water reuse and disposal	34
7. BLM fails to take a hard look at water quality	35

a.	BLM’s FEIS violated NEPA and FLPMA by failing to analyze impacts from spills of produced water and other fracking waste associated with proposed oil and gas extraction in the planning area	36
i.	BLM failed to take a hard look at environmental impacts from past, present, and reasonably foreseeable oil and gas extraction-related spills in the planning area.....	36
A.	Overall spill trends in the Carlsbad planning area	36
B.	BLM’s 2023 snapshot of spill data does not provide a hard look at spill impacts in the planning area	38
C.	BLM arbitrarily concluded that oil and gas spills will not significantly impact water resources.....	39
D.	The record contradicts BLM’s assertion that there are no documented past instances of groundwater contamination from well-drilling.....	42
E.	BLM failed to analyze impacts from current and future Class II injection wells.....	42
ii.	BLM was required to supplement its environmental analyses to consider substantial new information and changed circumstances related to impacts from past, present, and reasonably foreseeable oil and gas extraction-related spills in the project area	44
A.	New information requiring supplemental analysis – oil and gas waste .	44
B.	Increased oil and gas extraction and associated cumulative impacts from produced water and other fracking waste spills constitute changed circumstances requiring supplemental analysis	44
8.	BLM’s Analysis of the Proposed RMP’s Effects on Special-Status Species is Deficient	46
a.	BLM fails to take a hard look at impacts to aquatic species.....	46
i.	BLM fails to take a hard look at Pecos Pupfish	51
b.	BLM fails to take a hard look at impacts to plants	53
c.	BLM fails to take a hard look at the plan’s impacts on Lesser Prairie Chicken and how the Proposed RMP comports with the Plan’s objectives, FLPMA, and BLM’s Sensitive Species Policies	56
d.	BLM fails to take a hard look at the Plan’s impacts on Dunes Sagebrush Lizard	62
IV.	FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA)	66
A.	Effect of the 2025 Budget Reconciliation Act on the Proposed RMP/FEIS and BLM’s Corresponding FLPMA Obligations	66
1.	BLM fails to disclose how it interprets and applies the 2025 Budget Reconciliation Act in the Proposed RMP/FEIS in light of its FLPMA obligations.....	66
2.	BLM fails to ensure compliance with its substantive obligation under FLPMA, including taking actions necessary to prevent UUD	68
B.	BLM Fails to Provide for Compliance with Pollution Control Laws, Including Ozone NAAQS, in Violation of FLPMA.....	69
C.	BLM Fails to Eliminate/Minimize Natural Gas Waste and Methane Emissions from Mineral Extraction on Federal Lands, in Violation of FLPMA and the MLA	71
V.	CONCLUSION.....	74

I. CONSERVATION GROUPS' STATEMENT OF ISSUES AND PARTS OF THE PROPOSED RMP/FEIS BEING PROTESTED

As further detailed in the Discussion section below, there are a number of significant substantive flaws in BLM's Proposed RMP and FEIS. BLM has failed to consider a reasonable range of alternatives as required by NEPA, and has failed to take a hard look at impacts to air quality, climate, water quality and quantity, induced seismicity, caves and karst, and public health, among others. BLM's Proposed RMP and FEIS also downplay the significance of impacts to a wide range of fish and wildlife species in violation of the Endangered Species Act (ESA) and NEPA. Implementation of the Proposed RMP would inevitably lead to unnecessary and undue degradation of public lands, in violation of FLPMA.

Moreover, underlining each of the substantive issues in Conservation Groups' protest is BLM's improper reliance on a 2018 Draft EIS without additional public process, despite the significant changes in the status of oil and gas development, air quality, the climate crisis, water quantity and quality, induced seismicity, caves and karst resources, public health, numerous fish and wildlife species, and the legal regime governing land use planning and oil and gas development on BLM lands. Because BLM has failed to meaningfully engage the public regarding the significantly changed circumstances over the past eight years, the Proposed RMP and FEIS are fundamentally flawed, and Conservation Groups protest BLM's decision to issue these documents in their entirety.

II. NEW CIRCUMSTANCES AND SUPPLEMENTAL INFORMATION DEMAND A SUPPLEMENTAL EIS AND ADDITIONAL PUBLIC PROCESS

On June 10, 2010, BLM published its Notice of Intent (NOI) to revise and replace the 1988 Carlsbad RMP, as amended in 1997 and 2008, initiating the scoping process. BLM issued its scoping report on May 13, 2011, followed by an Analysis of the Management Situation (AMS) in September 2014. BLM released the Draft RMP-EIS in 2018, with a public comment period that ran from August 3 through November 5, 2018. Yet despite the significant passage of time and materially changed circumstances, BLM released a Proposed RMP and Final EIS on September 11, 2026, without soliciting any additional public involvement.

Over the intervening years since BLM solicited public input on the Draft RMP-EIS, the Carlsbad Planning Area has experienced rapid and extensive oil and gas development and is now in a materially different condition than in 2018. Since then, substantial new scientific information bearing on the management of public lands in the region has also emerged, while policies and legal developments affecting public land management have profoundly changed.

BLM must ensure its NEPA and Federal Land Policy and Management Act (FLPMA) processes remain current and legally sufficient before finalizing plan-level decisions. The considerable length of the delay and the magnitude of intervening changes and new information since 2018 require BLM to consider these changed circumstances and information in supplemental environmental review and renewed public participation. Illustrating the prejudice to the public engendered by BLM's unreasonable delay in finalizing the EIS and releasing a Proposed RMP, at least one of the Conservation Groups, Citizens Caring for the Future, did not

even exist in 2018. Yet BLM's regulations contemplate limiting protests "any person who participated in the planning process" and only "those issues which were submitted for the record during the planning process." 43 C.F.R. § 1610.5-2(a). Such a limitation only functions without violating due process where the planning process and protest period are relatively contemporaneous, such that the parties impacted by the proposed plan and the issues at stake remain the same. But where more than eight years have passed since BLM last opened the planning process for public participation (16 years since the process begun), new issues have arisen and new people and organizations have accrued an interest in the outcome of the plan, by virtue of group organization or individuals relocating into the region. Limiting the participation of parties or the raising of issues based on a public participation window that closed more than eight years ago would violate due process and be arbitrary, capricious, and contrary to law. Similarly, proceeding directly to the Proposed RMP and Final EIS based on the 2018 draft is arbitrary, capricious, and contrary to law.

In addition to the submittal of a joint comment letter on BLM's Draft RMP-DEIS, Conservation Groups also submitted supplemental comment letters dated March 7, 2019, and June 8, 2026. The June 8, 2026, supplemental comment letter included multiple exhibits and detailed significant updated information and circumstances pertaining to the planning area and specifically requested BLM provide a renewed opportunity for public engagement and tribal consultation. Conservation Groups' previously-submitted comment letters and exhibits are incorporated by reference in full as part of this protest and attached as identified in the Exhibit Indices below.

As detailed in the June 8, 2026, supplemental comment letter, there is significant new information related to the Carlsbad Planning Area that must be considered as part of a reopened supplemental EIS process. This includes information related to ozone concentrations at Carlsbad Caverns National Park and across the Planning Area, which routinely exceed EPA health standards (70 ppb), largely due to oil and gas development. Particulate matter (PM_{2.5}) from Permian oil and gas operations is now linked to hundreds of deaths annually and billions of dollars in economic damages. Methane emissions have been shown to significantly exceed EPA estimates relied upon by BLM. Thousands of spills of oil, gas, and liquid waste across New Mexico are allowing millions of gallons of toxic liquid waste to be introduced into New Mexico's environment. BLM also needs to take into consideration changes in endangered species status and other species protections in its planning process, as well as the identification of induced seismicity systems and linkage between earthquakes and wastewater injection in the Permian Basin.

In addition to new information, the planning area has experienced materially changed circumstances that BLM must consider in supplemental analysis before finalizing the Proposed RMP. Oil and gas development in the planning area and surrounding Permian Basin tripled between 2018-2024, according to data from the New Mexico Oil Conservation Division. BLM updated its reasonably foreseeable development scenario in 2023, projecting a significantly higher well count than in the 2018 Draft EIS. But even this more recent RFDS is now out-of-date and must be updated to reflect changes in market, technological, production, infrastructure and policy conditions. The agency must also reassess any assumption that not all parcels made available for leasing would ultimately be leased or developed, particularly in light of recent

changes to federal law affecting planning as it relates to oil and gas activities. See e.g. P.L. 119-21 (July 4, 2025), 30 U.S.C. § 226(b). BLM must update its analysis of idle wells, orphan wells, reclamation obligations, and financial assurance. That information is relevant to whether BLM's leasing allocations and mitigation framework adequately account for cleanup liabilities, reclamation shortfalls, long-term land-health impacts, and the risk that development burdens will be shifted to the public. Finally, BLM must prepare a supplemental EIS to account for the fact that the overall environmental baseline of the Planning Area - including air quality, water quality, water availability, induced seismicity, vegetation and ecosystem resilience, and biological integrity of fish and wildlife resources – has been significantly degraded by the region's increased oil and gas development over the past eight years, compounding and compounded by the impacts of climate change.

In addition to the material changes in the on-the-ground environmental conditions of the Planning Area, there have also been significant changes in federal and state law and policy that BLM needs to take into consideration through a supplemental EIS process. Relying on changes to 30 U.S.C. § 226 and 43 C.F.R. § 3101.13(a), BLM has begun refusing to consider adding new stipulations at the leasing stage beyond those identified in the applicable approved RMP, based on BLM's interpretation of the statutory and regulatory changes as barring the agency from imposing new stipulations at the leasing stage. This is a significant shift in approach that requires BLM to take a much more comprehensive approach to identifying stipulations in the RMP. If, as BLM contends, the agency cannot add new stipulations at the leasing stage based on new information or circumstances that may arise for a potential future lease that may be proposed for issuance 20 or more years into the future, BLM must adopt a wide range of open-ended stipulations as part of the RMP process that are sufficient to protect against any unnecessary and undue degradation of the lands under all reasonably foreseeable future scenarios.

Since the Draft RMP-EIS was issued, New Mexico's regulatory landscape with respect to produced water has also dramatically changed. The Produced Water Act of 2019 opened the door to produced water recycling and reuse in the oilfields, and New Mexico regulators are actively contemplating regulatory changes that would authorize reuse of produced water outside the oilfields, including uses such as agricultural irrigation as well as discharge into rivers and streams. Produced Water Act, ch. 197, 2019 N.M. Laws 1195 (codified as amended at N.M. Stat. Ann. §§ 70-13-1 to -5); NM WQCC Dkt. 26-18. To inform the public and decisionmakers regarding the potential impacts of opening the door to some 12,000 new federal wells through the Proposed RMP, the agency needs to account for the reasonably foreseeable potential reuse and discharge of produced water outside the oilfield.

To the extent the Final EIS still relies on information underlying the Draft EIS, that information is stale, out-of-date, and requires updating through a supplemental EIS. To the extent BLM has updated the Final EIS and Proposed RMP from the Draft EIS to reflect new information and changed circumstances, BLM has failed to adequately involve the public in its environmental review and decision-making processes, in violation of the public participation provisions of both NEPA and FLPMA. To remedy these errors and account for the more than 16 years that have passed since BLM began this EIS process, BLM needs to press pause on finalizing the RMP until the agency is able to conduct an open and transparent supplemental EIS process starting with a new scoping period.

III. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

A. BLM Must Consider a Reasonable Range of Alternatives

Under NEPA, BLM must “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. § 4332(E). The EIS must include a “detailed statement ... [on] a reasonable range of alternatives to the proposed agency action” in its analysis. 42 U.S.C. § 4332(2)(c)(iii).

The alternatives analysis is critical to a reasoned NEPA document to support land management planning because “[w]ithout substantive, comparative environmental impact information regarding other possible courses of action, the ability of [a NEPA analysis] to inform agency deliberation and facilitate public involvement would be greatly degraded.” *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 708 (10th Cir. 2009).

FLPMA planning regulations also impose additional environmental review requirements on BLM. BLM must “consider all reasonable resource management alternatives and develop several complete alternatives for detailed study” in its analysis. 43 C.F.R. § 1610.4-5. Analyzing a reasonable range of alternatives allows the agency to make an informed choice from the spectrum of reasonable options. An agency’s alternatives analysis, including its range of reasonable alternatives, must necessarily be informed by any significant changes or new information bearing on the proposal.

Here, BLM has failed to consider a reasonable range of alternatives in the Final EIS, including various alternatives previously identified by Conservation Groups, in violation of NEPA and FLPMA. BLM has also failed to meaningfully reconsider the alternatives considered in the 2018 Draft RMP in light of the significantly changed circumstances of 2026. BLM must develop and analyze a reasonable range of alternatives that reflects current conditions, updated scientific understanding, and the full scope of impacts associated with oil and gas development in the Carlsbad Planning Area. The alternatives considered in the 2018 Draft RMP/EIS are now outdated and no longer provide a meaningful basis for informed decision-making.

The Draft RMP/EIS relied on baseline information and assumptions that pre-date 2018 by several years. Since then, conditions in the Permian Basin have changed dramatically, including substantial increases in oil and gas development intensity, associated infrastructure, and cumulative impacts. Those changes have fundamentally altered both the affected environment and the context in which alternatives must be evaluated. Over the last decade, rapid expansion of oil and gas development has increased air emissions, surface disturbance, water use, waste generation and spills, and industrial activity across the landscape, with cumulative effects on air quality, water resources, wildlife, cultural resources, and public health that were not fully anticipated in the 2018 Draft RMP/EIS. As a result, the alternatives developed in that document do not meaningfully capture the environmental tradeoffs BLM faces today.

Substantial new scientific information has also emerged since 2018, including updated research on ozone formation and air quality degradation near Carlsbad Caverns National Park,

elevated methane emissions, increased spill frequency and volume, induced seismicity associated with wastewater injection, new listings and protections for imperiled species, and the growing inventory of idle and orphan wells and associated reclamation and financial assurance liabilities. Together, these developments show that the magnitude and nature of impacts from oil and gas development are greater and more complex than previously understood.

The limited range of alternatives evaluated by BLM – particularly the minimal differences between the two alternatives actually considered by the agency, Alternative C and D – illustrate BLM’s narrow focus on promoting oil and gas development in the planning area, as opposed to fulfilling the agency’s broad multiple-use mandate. BLM must actually consider a range of alternatives, including a no fossil fuel leasing alternative, a caves and karst protection alternative, and a wildlife protection alternative.

1. BLM’s preferred alternative is invalid because it is substantially different from the alternatives considered in the Draft RMP-EIS

As noted above, the environmental impacts of the Selected Alternative differ substantially from the impacts assessed – and offered for public comment – in the Draft RMP-EIS. For that reason alone, a Supplemental EIS process is needed. Because the baseline environmental conditions of the planning region have changed substantially – largely for the worse due to increased oil and gas development – the environmental impacts disclosed to the public by the Draft RMP-EIS fail to inform the public regarding the true nature and scope of impacts that can be expected from approval of the Proposed RMP. Given degradation in air quality, increased drought and temperatures due to climate change, higher levels of induced seismicity, more spills of oil, gas, and oil and gas wastewater, and a general increase in all other impacts of oil and gas development – visual blight, noise, light pollution, smells, truck traffic, etc. – the environmental baseline underlying the Draft RMP-EIS has dramatically shifted, rendering the public without an adequate opportunity to weigh in regarding the impacts of the Preferred Alternative selected more than eight years after the last public comment opportunity. BLM’s understanding of the widespread nature of important karst resources has also increased dramatically over the past eight years, underlining the need for BLM to reopen a public process to inform the public regarding potential impacts to critical karst resources, including caves and connected aquifers.

Further, BLM has modified many of the stipulations from those outlined in the Draft RMP-EIS, rendering such mitigation measures illusory. Specifically, BLM has inserted “up to” language in nearly every single mitigation measure that originally mandated protective measures within a certain specified distance from a protected resource. Thus, instead of a mandated protection that the public could assume would be uniformly applied based on an objective threshold – i.e. distance from the protected resource – BLM has inserted complete discretion in these mitigation measures, leaving the public with no reassurance regarding how – if at all – BLM will, in fact, apply such stipulations to future leases. This problem is exacerbated by recent changes in law, which BLM has interpreted as barring the agency from adopting any additional stipulations that are not expressly included within the adopted RMP.

For example, instead of prohibiting “surface occupancy within 984 feet of domestic freshwater wells and monitoring wells,” as contemplated by the Draft RMP-EIS, BLM proposed instead to prohibit surface occupancy “within *up to* 300 meters (984 feet) of domestic freshwater wells and monitoring wells.” *Compare* Stipulation C-3; Draft RMP-EIS, at C-2 to Final EIS, Appx. C at C-4.2 This pattern is repeated throughout the stipulations included in the Proposed RMP, where BLM has inserted “up to” in more than a dozen stipulations that previously required protective mitigation measures within a certain distance of a protected resource. *See e.g.* Stipulation C-3 (requiring spill prevention and leak detection plan and appropriate equipment within certain distance of domestic wells and monitoring wells); Stipulation C-4 (protecting floodplains, springs, seeps, downstream riparian areas, and riparian-wetlands); Stipulation C-5 (protecting playas); Stipulation C-6 (protecting cave and karst resources); Stipulation C-10 (protecting prairie dog towns); Stipulation C-11 (protecting habitat improvement projects); Stipulation C-12 (protecting bat roosts); Stipulation C-13 (protecting raptor nests); Stipulation C-14 (protecting heronries); Stipulation C-16 (protecting habitat for federally listed, proposed, and candidate plant species); *compare* Stipulation C-17 (Draft RMP) to Stipulation C-18 (Proposed RMP) (protecting habitat for Pecos Bluntnose Shiner). BLM also made other changes to stipulations that collectively reduce the environmental and health protections that such stipulations could be expected to provide. For example, BLM removed the prohibition on oil and gas development on steep slopes greater than 20% in Stipulation C-2, removed noise restrictions on operations within riparian areas, (Stipulation C-4); and raised allowable noise levels in lesser prairie chicken habitat (*Compare* C-19 draft to C-20 Final).

Perhaps most alarming, BLM removed the prohibition on “surface disturbance or occupancy within 0.25 mile from human occupied permanent structures including sensitive receptors” in Stipulation C-36, replacing it with a much more discretionary prohibition on surface disturbance and occupancy “within up to 0.25 mile” from such locations. Based on the Draft RMP-EIS, the public was not sufficiently informed that BLM would now propose to retain substantial discretion to authorize oil and gas development within the originally-proposed 0.25-mile buffer zone from occupied residences, as well as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. BLM also arbitrarily eliminated the noise restrictions applicable to leases that contain sensitive receptors, occupied structures, and dwellings.

Particularly when coupled with BLM’s restrictive interpretation of the One Big Beautiful Bill Act (OBBBA) as tying the agency’s hands with respect to imposition of stipulations at the leasing stage, BLM’s consistent weakening of objective metrics in the stipulations from the Draft RMP is arbitrary, capricious, and contrary to law. These changes render the environmental impacts of the Preferred Alternative significantly different than those considered in the Draft EIS, as BLM cannot rely on such subjective stipulation measures to ensure resource protections to the same degree as the original stipulations. Because BLM thus did not actually consider the Preferred Alternative in the Draft EIS, the public was not informed of the project’s environmental impacts, violating the public participation provisions of NEPA, FLPMA, and the Administrative Procedure Act (APA).

² There is also a critical inconsistency in BLM’s stipulation for protection of springs and seeps, which reads “up to 300 meters (984 feet),” and BLM’s explanation for establishment of such a buffer protection zone, which indicates a buffer zone of “200 meters (656 feet).” *Compare* Final Stipulation C-4 with Appendix T.

2. BLM must consider a no fossil fuel leasing alternative

When determining whether an EIS analyzed sufficient alternatives to allow BLM to take a hard look at the available options, courts apply the “rule of reason.” *New Mexico ex rel. Richardson*, 565 F.3d at 709 (citing *Westlands Water Dist. v. U.S. Dep’t of the Interior*, 376 F.3d 853, 868 (9th Cir. 2004)). The reasonableness of the alternatives considered is measured against two guideposts. First, when considering agency actions taken pursuant to a statute, an alternative is reasonable only if it falls within the agency’s statutory mandate. *Westlands*, 376 F.3d at 866. Second, reasonableness is judged with reference to an agency’s objectives for a particular project. *See Colorado Envtl. Coal. v. Dombeck*, 185 F.3d 1162, 1174–75 (10th Cir. 1999); *Simmons v. U.S. Army Corps of Eng’rs*, 120 F.3d 664, 668–69 (7th Cir. 1997); *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1520 (9th Cir. 1992).

FLPMA does not mandate that every use be accommodated on every piece of land; rather, delicate balancing is required. *See Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 58 (2004). “‘Multiple use’ requires management of the public lands and their numerous natural resources so that they can be used for economic, recreational, and scientific purposes without the infliction of permanent damage.” *Public Lands Council v. Babbitt*, 167 F.3d 1287, 1290 (10th Cir. 1999) (citing 43 U.S.C. § 1702 (c)). As held by the Tenth Circuit, “[i]f all the competing demands reflected in FLPMA were focused on one particular piece of public land, in many instances only one set of demands could be satisfied. A parcel of land cannot both be preserved in its natural character and mined.” *Rocky Mtn. Oil & Gas Ass’n v. Watt*, 696 F.2d 734, 738 n.4 (10th Cir. 1982) (quoting *Utah v. Andrus*, 486 F.Supp. 995, 1003 (D. Utah 1979)); *see also* 43 U.S.C. § 1701(a)(8) (stating, as a goal of FLPMA, the necessity to “preserve and protect certain public lands in their natural condition”); *Pub. Lands Council*, 167 F.3d at 1299 (citing § 1701(a)(8)). As further provided by the Tenth Circuit:

It is past doubt that the principle of multiple use does not require BLM to prioritize development over other uses... BLM’s obligation to manage for multiple use does not mean that development *must* be allowed on [a particular piece of public lands]. Development is a *possible* use, which BLM must weigh against other possible uses—including conservation to protect environmental values, which are best assessed through the NEPA process. Thus, an alternative that closes the [proposed public lands] to development does not necessarily violate the principle of multiple use, and the multiple use provision of FLPMA is not a sufficient reason to exclude more protective alternatives from consideration.

New Mexico ex rel. Richardson, 565 F.3d at 710. Accordingly, the Carlsbad Field Office (CFO) must consider, on equal footing, the value of permanent protection and preservation of public lands in the planning area, along with industry pressure to lease and develop public lands for fossil fuel resources. Indeed, a federal court held an RMP invalid based on “BLM’s failure to consider any alternative that would decrease the amount of extractable coal available for leasing.” *Western Org. of Res. Councils v. U.S. Bureau of Land Mgmt.*, CV 16-21-GF-BMM, 2018 WL 1475470, at *9 (D. Mont. Mar. 26, 2018). In order to avoid this outcome, the CFO must consider a no leasing alternative.

a. BLM has the authority to consider a no leasing alternative

BLM has explicit legal authority under FLPMA, the MLA and NEPA, to adopt a no leasing alternative as necessary to respond to the threats posed by climate change, as well as local impacts to air quality, water resources, and public health. BLM has broad discretion in determining whether fossil fuel resources are made available for leasing through its resource management planning process.

In recent leasing decisions, BLM has interpreted recent statutory changes as limiting the agency's discretion to defer leasing or impose new stipulations. Accordingly, it is imperative that BLM exercise its discretion now to adopt an alternative at the RMP stage that constrains the lands made available for leasing. Because Congress amended 30 U.S.C. § 226 to require that lands open under an approved resource management plan "shall be made available for leasing" within 18 months of an expression of interest, the agency can no longer rely on assumptions from an earlier legal regime when finalizing this plan.

Importantly, however, Congress has not determined that *all* lands should be available for leasing. Instead, leasing is only permitted "if the Secretary determines that the parcel of land is open to oil or gas leasing under the approved resource management plan applicable to the planning area in which the parcel of land is located." 30 U.S.C. § 226(a)(1). Determination of whether particular lands should be made available for oil and gas leasing is to be made through the resource management planning process, in conformity with FLPMA's multiple use mandate. In other words, BLM retains discretion in its planning process to decide which, if any, lands in a particular planning area should be made available for oil and gas leasing, and to determine some or all lands in a planning area to be ineligible for leasing.

The Secretary of the Interior also has authority under FLPMA to "withdraw" an area of federal land from oil, gas or coal leasing to "maintain . . . public values" or for a "particular public purpose." FLPMA defines a withdrawal as:

withholding an area of Federal land from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserving the area for a particular public purpose or program . . .

43 U.S.C. § 1702(j). FLPMA further provides that Congress declares that it is the policy of the United States that "the public lands [shall] be managed in a manner that will protect the quality of . . . air and atmospheric . . . values." *Id.* § 1701(a)(8).

Under FLPMA's "multiple use and sustained yield" management directive, *id.* § 1701(a)(7), the federal government must manage public lands and resources in a manner that "takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the

land.” *Id.* § 1702(3). Further, “[i]n managing the public lands the Secretary shall ... take any action necessary to prevent unnecessary or undue degradation of the lands.” *Id.* § 1732(b).

Under these authorities, BLM is required not only to evaluate the impacts of federal oil and gas leasing to public lands, water, and wildlife resources, but to avoid harm to those resources whenever possible. Accordingly, the MLA and FLPMA provide BLM the legal authority to either decide not to lease particular lands, or to withdraw large tracts from leasing.

Here, as BLM has previously acknowledged, “[t]he public lands managed by the CFO support a variety of ecosystems rich in biodiversity and include unique geology not found anywhere else in the United States.” DRMP-EIS at 2-1. There are three ecoregions in the area, including the Chihuahuan Desert, the Arizona/New Mexico Mountains, and High Plains. *Id.* at 1-3. And, visitors from all over the world travel to Carlsbad Caverns. *Id.* Clearly, the public lands in the area support a wide variety of uses and resources. Thus, it is incumbent on the Carlsbad CFO to evaluate these competing resources and give suitable weight to FLPMA’s mandate to preserve and protect public lands in their natural condition. *See* 43 U.S.C. § 1701(a)(8). This is, after all, the agency’s statutory mandate. *See New Mexico ex rel. Richardson*, 565 F.3d at 709.

b. BLM must consider a no fossil fuel Leasing alternative in response to threats posed by climate change

As further detailed below, greenhouse gas emissions are not an abstract issue, but are scientifically and causally linked to numerous on-the-ground impacts negatively affecting BLM lands, as well as air and water resources. BLM’s obvious obfuscation of this issue and refusal to seriously consider climate impacts, evidenced by the agency’s complete removal of the term “climate change” from the Proposed RMP and Final EIS, is alarming and demonstrates a clear political agenda in contravention of the clearly established scientific connection between fossil fuel development and greenhouse gas-fueled climate change. BLM’s climate denial is also at odds with NEPA’s fundamental purpose of informing decisionmakers and the public regarding the environmental impacts of agency actions. BLM’s head-in-the-sand approach to climate change – quantifying GHG emissions without providing any context whatsoever for the meaning and impacts of such emissions – represents a meaningless exercise in form over substance. BLM must do better.

As noted above, the Department of Interior is uniquely situated to address climate change. BLM is responsible for the management of 700 million acres of federal onshore subsurface minerals. As noted in Conservation Groups’ June 2026 supplemental comment letter, N. Ratledge et al. (2022) (attached as Exhibit 7) calculated that lifecycle emissions from federal fossil fuel development resulted in an average of 1,408 million metric tons (MMT) of Carbon Dioxide-equivalent (CO₂e) per year since 2005—the equivalent of 377 coal-fired power plants, or the emissions from 303 million cars—and are projected to be around 1,130 MMT CO₂e by 2030. These emissions will amount to around 20% of total U.S. greenhouse gas emissions each year.

If new federal fossil fuel leasing ceases and existing non-producing leases are not renewed, 65% of oil production and 59% of gas production could be avoided by 2040.³ A comparison with other measures shows that “no leasing” could be a very significant part of U.S. efforts to address climate change.

A “no leasing” alternative, which would bar all new leasing within the CFO as well as bar renewal of existing leases, would be an excellent way to address competing uses within the CFO and could be a very significant part of U.S. efforts to address climate change. Here, the impact of no new leasing for the CFO alone would achieve significant CO₂ savings. The Final EIS estimates about 3,378 MMT CO₂e in life-cycle emissions for new federal oil and gas under the preferred alternative. *FEIS* at 3-179, tbl. 3.2.11-6. The new federal oil and gas development will generate GHG emissions equivalent to 42.4 coal-fired power plants, or the energy use of more than 21.6 million homes for at least the next 20 years. *FEIS* at E-34.

BLM describes this as a “negligible difference from the No Action Alternative,” illustrating the problematic nature of relying on the current RMP – which allocates 96.6% of the total planning area for oil and gas development – as the comparative baseline for assessing the impacts of BLM’s Proposed RMP. *See FEIS* at E-14, tbl. E11. A No Leasing Alternative is necessary for BLM to take a hard look at and meaningfully inform the public and decisionmakers regarding the impacts of allowing 97% of the planning area to remain open for oil and gas leasing for the next twenty years.

Also, importantly, avoided production through no new leasing and non-renewal of existing non-producing leases could help avoid further carbon lock-in in terms of investment in both fossil fuel-producing and fossil fuel-using infrastructure. Simply put, the timeframe to avoid catastrophic climate change is short, and the management of our federal minerals is dangerously out of step with this reality.

Yet all of the alternatives evaluated by BLM propose to leave available an extensive amount of lands for fossil fuel leasing and development, and BLM’s preferred alternative completely ignores BLM’s multiple-use mandate. *See FEIS* at E-14, tbl. E11. Instead, it proposes to allow oil and gas leasing on 96.9% of the available mineral resources within the CFO. *FEIS* at E-14, tbl. E11. This is hardly multiple-use. Indeed, BLM’s preferred alternative would result in an *increase* in acres open to leasing as compared to the 1997 CFO RMP. *Id.* at E-14, tbl. E-11.

BLM has failed in its basic obligation to consider all reasonable alternatives, including alternatives that would significantly reduce planning area greenhouse gas emissions, and in particular an alternative that considers not leasing public lands and minerals in the planning area for fossil fuel development. 42 U.S.C. § 4332(2)(c)(iii); 43 C.F.R. § 1610.4-5. Finally, a no leasing alternative would contribute to resiliency by leaving lands in their natural state. BLM thoroughly culled the Final EIS-RMP of any references to “climate change,” but such obvious climate denial only demonstrates the arbitrary and capricious nature of BLM’s refusal to consider a range of reasonable alternatives.

³ Exhibit 8, Peter Erickson and Michael Lazarus, Stockholm Environmental Institute, *How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO₂ Emissions and 2°C Goals?* 16 (2016), <https://www.sei.org/mediamanager/documents/Publications/Climate/SEI-WP-2016-02-US-fossilfuel-leases.pdf>.

c. BLM must consider the no fossil fuel leasing alternative in response to threats posed by air pollution

A no leasing alternative would likely address the worsening air quality within in the CFO. While the Final EIS projects improvements to ozone pollution levels, BLM fails to explain the incongruity between worsening pollution levels monitored in the planning area and the rosy projections generated by the air model relied upon by BLM. *See FEIS* at 3-173, tbl. 3.2-11.2. BLM also fails to explain the significant change in pollution levels projected in the Final EIS, compared to the projections of the DRMP-EIS, which predicted that two out of the three monitors within the CFO would exceed the 2008 ozone standard and that all three monitors would exceed the 2015 standard. In addition to reassessing the ozone impacts of increased oil and gas development in the planning area, BLM must consider an alternative that results in compliance with the Clean Air Act. Here, a no new leasing alternative would very likely meet these requirements because it would restrict new well development, thereby reducing ozone precursor emissions.

The Final EIS also projects serious exceedances of EPA's health-based one-hour SO₂ air quality standard under each of the considered alternatives. *See FEIS* at 3-173, tbl. 3.2-11.2. BLM recognizes that reducing federal oil and gas development will substantially improve air quality but fails to consider any alternatives that would actually bring SO₂ pollution levels into compliance with the National Ambient Air Quality Standards (NAAQS). Here, BLM should evaluate a no leasing alternative that would restrict well development, thereby further reducing SO₂ emissions and pollution levels towards NAAQS compliance.

3. BLM must consider an alternative that would protect caves and karst.

As noted below, BLM's preferred alternative would also allow for extensive drilling across high and medium karst potential lands in violation of the Federal Cave Resources Protection Act. In fact, all of BLM's alternatives would provide limited protection to cave and karst resources, with even the most restrictive alternative (Alternative B) allowing oil and gas leasing with surface development on well over half of all medium and high karst zones. *Id.* at 3-39. BLM must consider an alternative that protects these landscapes.

BLM should consider an alternative that forecloses new leasing on lands identified as medium, high, or critical karst potential. *FEIS* at 3-30 to 3-31, tbl. 3.2.2-1. Such an alternative would be meaningfully distinct from the alternatives BLM has considered and result in significantly different environmental impacts on important cave and karst resources. Alternatively, a no new leasing alternative, coupled with retirement of leases on high and/or medium karst landscapes would likely further this goal substantially.

4. BLM must consider an alternative that would protect wildlife

Finally, BLM must consider an alternative that would protect wildlife, including the lesser prairie chicken and the dunes sagebrush lizard. More specifically, BLM should close to oil

and gas leasing and development, livestock grazing, and ORV use, all potential, suitable, and occupied habitat for both species.

B. BLM Must Take a Hard Look

1. BLM failed to analyze the lifecycle of oil and gas development, including the growing idle-well, orphan-well, reclamation, and financial-assurance liabilities

BLM failed to analyze the growing number of idled and orphaned wells, as well as the costs associated with the decommissioning of existing and future oil and gas wells in the planning area. The Permian Basin is the epicenter of well orphaning in New Mexico, with Chaves, Eddy, and Lea—all counties either fully or partially within the Carlsbad planning area—contributing the greatest number of orphaned wells within the state.⁴ Idled wells, too, are a significant issue in New Mexico, with almost 1,700 federal wells across the state having not reported production in 15 months or more.⁵ Idled wells are at a heightened risk of becoming orphaned, as the likelihood of idled wells coming back into production declines over time.⁶ Both idled and orphaned wells are associated with myriad environmental, fiscal, and human health harms.⁷ However, BLM failed to incorporate new studies and data on well idling and orphaning within New Mexico in the FEIS.

BLM’s analysis of the increase in idling and orphaning of wells in New Mexico would be directly relevant to whether BLM’s leasing allocations and mitigation framework adequately account for cleanup liabilities, reclamation shortfalls, long-term land-health impacts, and the risk that development burdens will be shifted to the public. Data indicate that wells often are *not* properly plugged and reclaimed at the end of their productive lives.⁸ BLM bonding requirements are usually insufficient to meet the costs associated with plugging and abandoning these wells, retiring other equipment, and cleaning up the well sites.⁹ Indeed, these problems are ones that have long been identified by the Government Accountability Office and Office of Inspector General that served as the basis justifying the bonding and reclamation updates in BLM’s recent

⁴ **Exhibit 9**, *Mapping Orphan Wells in New Mexico*, Environmental Defense Fund, <https://www.edf.org/sites/default/files/2021-10/Orphan%20Well%20FactSheet%20NM.pdf> (accessed May 26, 2026).

⁵ *Well Search*, Oil Conservation Division, <https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/data/wells.aspx> (data downloaded on May 11, 2026). Several hundred of those idled wells have not produced in the past ten years, and over a dozen report their last production occurring in the 1990s. *Id.*

⁶ *See, e.g., Exhibit 10*, U.S. Gov’t Accountability Off., *GAO-19-615*, Oil and Gas: Bureau of Land Management Should Address Risks from Insufficient Bonds to Reclaim Wells (2019) at 4 (well production used as a proxy for risk). *See also Exhibit 11*, Applicants’ Prehearing Statement at 0283, In the Matter of Proposed Amendments to 19.15.2, 19.15.5, 19.15.8, 19.15.9, and 19.15.25 NMAC, Case No. 24683, New Mexico Oil Conservation Commission, https://ocdimage.emnrd.nm.gov/Imaging/FileStore/santafe/cf/20250811/24683_08_11_2025_10_11_12.pdf.

⁷ Applicants’ Prehearing Statement at 0307-0310, Exhibit 11; *Mapping Orphan Wells in New Mexico*, Environmental Defense Fund. U.S. Gov’t Accountability Off., *GAO-19-615*, Exhibit 9.

⁸ *See Exhibit 12*, Trey Cowan, *Plugging the Gap*, Institute for Energy Economics and Financial Analysis (Sept. 2025), https://ieefa.org/sites/default/files/2026-09/Plugging%20the%20Gap_September%202026.pdf.

⁹ U.S. Gov’t Accountability Office, *GAO 19-615, Bureau of Land Management Should Address Risks from Insufficient Bonds to Reclaim Wells* (Sept. 2019), Exhibit 10.

Fluid Mineral Leases and Leasing Process final rule,¹⁰ which the current administration has proposed to rescind¹¹. Instead of performing this analysis, however, BLM simply assumed that wells will be properly plugged and reclaimed at the end of their useful lives. *See* B-121 (“When a well is no longer capable of producing in commercial quantities, it is plugged and abandoned, and the well site is reclaimed” (in description of the leasing process generally)). BLM must anticipate these end-of-life costs—which are presently unaddressed in the FEIS—before it proceeds to authorize new oil and gas development.

We urge BLM to adopt a “lifecycle approach,” whereby the agency plans for the leasing, development, production, and reclamation of federal mineral resources. Under such an approach, BLM would approach planning with proactive oversight of development at the planning area level to ensure a fair return to the public, statutorily compliant management of public lands, and critically needed reduction of GHG emissions from those lands. Moreover, such an approach would provide guardrails to ensure that the full “lifecycle” of oil and gas leasing and development—from the acquisition of a lease, to exploratory and full-field production and ultimate recovery, to reclamation and restoration—is carried out in the public interest consonant with the agency’s FLPMA, NEPA, and other statutory obligations.

2. BLM failed to analyze the climate impacts of opening lands to oil and gas leasing and consider measures to avoid additional GHG pollution

BLM failed to properly analyze and contextualize the reasonably foreseeable greenhouse gas pollution that would result from implementation of the Carlsbad RMP-FEIS. This should include an analysis of the impacts of those emissions on climate change, as well as impacts on the human environment resulting from climate change. This should also include an explanation for BLM’s stark change between how it discusses climate change in the Draft EIS and the FEIS—most notably, that BLM uses the term “meteorological trends,” which conveys different information to the public than the term “climate change.” BLM’s failure to accurately and adequately discuss the impacts of this RMP on climate change falls within the context of an improved scientific understanding of climate change and significantly increased total global emissions since 2018.

a. In light of current climate science and carbon budgets, ALL additional oil and gas development and resultant GHG emissions are significant

BLM’s failure to address the impacts of the projected greenhouse gas emissions on climate change is inherently arbitrary.¹² Climate science is clear that every ton matters when it comes to emissions and impacts on global climate change. *Any* additional oil and gas development in the planning area must be considered significant under NEPA. Scientific research has established that there is no room in the remaining global carbon budget for new fossil fuel leasing or extraction if we are to avoid the worst dangers from climate change. Instead, new fossil fuel production and infrastructure must be halted and as much existing

¹⁰ 88 Fed. Reg. 47,562 (July 24, 2023).

¹¹ 91 Fed. Reg. 38,084 (June 24, 2026).

¹² BLM’s brief discussion of “meteorological trends” in the southwestern United States on species or air pollutants is not a substitute for this analysis. *See, e.g.*, FEIS at B-2.

production as possible must be phased out to avoid catastrophic climate damage. BLM's failure to provide a meaningful context for anticipated emissions under this RMP/FEIS, by failing to compare alternatives to a true no-action baseline in which further oil and gas development did not occur, prevents the public from understanding the magnitude of the action being taken.

The Intergovernmental Panel on Climate Change (IPCC) released the entirety of its sixth assessment report (AR6), including a synthesis of its findings, in 2023.¹³ The IPCC Sixth Assessment provided the remaining carbon budget from the beginning of 2020 as 500GtCO₂ 50% probability of meeting the 1.5°C limit.¹⁴ At 2019 emissions levels, the world will exceed the global carbon budget for a 50% chance of limiting warming to 1.5°C in just 10 years.¹⁵ Nationally determined contributions (NDCs) make it likely that we will exceed 1.5°C this century. Policies implemented at the end of 2020 are projected to result in higher global GHG emissions than even those implied by NDCs. Projected CO₂ emissions over the lifetime of existing and planned fossil fuel infrastructure exceed the CO₂ emissions in pathways that limit warming to 1.5°C.¹⁶ Without strengthening policies beyond those at present, GHG emissions are projected to rise beyond 2025, leading to global warming of 3.2°C by 2100.¹⁷ Reducing GHG emissions across the energy sector requires substantial reduction in overall fossil fuel use and the deployment of low-emission energy sources. The continued installation of unabated fossil fuel infrastructure will 'lock-in' GHG emissions.¹⁸ As a result of this conclusion *any* additional development must be considered significant under NEPA.

One 2021 study concluded that in order to maintain just a 50% chance of limiting global temperature rise to 1.5°C, approximately 60% of global oil and gas must be left in the ground.¹⁹ As a practical matter, this means that the U.S., along with most other oil producing regions, must reach peak production now or within the next decade, which would render many already operational and planned fossil fuel producing projects unviable.²⁰ In order to increase our odds of maintaining global temperature increase at 1.5°C (i.e. better than a 50/50 chance), even more existing reserves must remain undeveloped.²¹ Given the large number of outstanding but undeveloped leases on federal lands, there is simply no room for expanded production.

Another 2021 analysis similarly concluded that the largest increases by far in global oil and gas production between now and 2030 are projected to occur in the U.S.²² If U.S. fossil fuel expansion is not immediately halted, it will make it impossible to meet the 1.5°C limit and preserve a livable planet.

¹³ **Exhibit 17**, IPCC 2023: *Synthesis Report of the IPCC Sixth Assessment Report* [Paola Arias et al. (eds.)], Cambridge University Press.

¹⁴ *Id.* at 46

¹⁵ *Id.*

¹⁶ *Id.* at 24.

¹⁷ *Id.* at 33.

¹⁸ *Id.* at 60.

¹⁹ **Exhibit 18**, Welsby, D., Price, J., Pye, S. *et al* Unextractable fossil fuels in a 1.5 °C world. *Nature* 597, 230–234 (2021). <https://doi.org/10.1038/s41586-021-03821-8>.

²⁰ *Id.*

²¹ *Id.*

²² **Exhibit 19**, Achakulwisut, Ploy and Peter Erickson, Trends in fossil fuel extraction: Implications for a shared effort to align global fossil fuel production with climate limits, Stockholm Environment Institute (April 2021), www.sei.org/publications/trends-in-fossil-fuel-extraction/.

These analyses highlight that the United States has an urgent responsibility to lead in the transition from fossil fuel production to 100 percent clean energy, as a wealthy nation with ample financial resources and technical capabilities, and due to its dominant role in driving climate change and its associated harms. The U.S. is currently the world's largest oil and gas producer and third-largest coal producer.²³ The U.S. is also the world's largest historic emitter of greenhouse gas pollution, responsible for 25 percent of cumulative global CO₂ emissions since 1870, and is currently the world's second highest emitter on an annual and per capita basis.²⁴ The U.S. must focus its resources and technology to rapidly phase out extraction while investing in a just transition for affected workers and communities currently living on the front lines of the fossil fuel industry and its pollution.²⁵

Research on the United States' carbon budget and the carbon emissions locked in U.S. fossil fuels similarly establishes that the U.S. must halt new fossil fuel production and rapidly phase out existing production to avoid the worst dangers of climate change. An analysis of U.S. fossil fuel resources demonstrates that the potential carbon emissions from already leased fossil fuel resources on U.S. federal lands would essentially exhaust the remaining U.S. carbon budget consistent with the 1.5 degrees Celsius target. This 2015 analysis estimated that recoverable fossil fuels from U.S. federal lands would release up to 349 to 492 GtCO₂eq of carbon emissions, if fully extracted and burned.²⁶ Of that amount, already leased fossil fuels would release 30 to 43 GtCO₂eq of emissions, while as yet unleased fossil fuels would emit 319 to 450 GtCO₂eq of emissions. Thus, carbon emissions from already leased fossil fuel resources on federal lands alone (30 to 43 GtCO₂eq) would essentially exhaust the U.S. carbon budget for a 1.5 degrees target if these leased fossil fuels are fully extracted and burned. The potential carbon emissions from unleased federal fossil fuel resources (319 to 450 GtCO₂eq) would exceed the U.S. carbon budget for limiting warming to 1.5 degrees many times over.²⁷ This does not include the additional carbon emissions that will be emitted from fossil fuels extracted on non-federal lands, estimated up to 500 GtCO₂eq if fully extracted and burned.²⁸

Put another way, the production horizons for already leased federal fossil fuel resources underscore how unwarranted, unreasonable, and capricious any additional permitting is. Comparing production horizons to dates at which carbon budgets would be exceeded if current emission levels continue:

- Federal crude oil already leased will continue producing for 34 years beyond the 1.5 degrees Celsius threshold and 19 years beyond the 2 degrees threshold; and

²³ **Exhibit 20**, Trout, Kelly, and Lorne Stockman, *Drilling Toward Disaster*, Oil Change International (Jan. 2019) at 5.

²⁴ **Exhibit 21**, LeQuéré, Corinne et al., *Global Carbon Budget 2018*, 10 Earth System Science Data 2141 (2018) at Figure 5, 2167 (historical cumulative fossil CO₂ emissions by country).

²⁵ **Exhibit 22**, Piggot, Georgia et al., *Realizing a Just and Equitable Transition Away from Fossil Fuels*, Discussion brief, Stockholm Environment Institute (Jan. 2019), available at: <https://www.sei.org/publications/just-and-equitable-transition-fossil-fuels/>.

²⁶ **Exhibit 23**, Ecoshift Consulting, et al., *The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels*, prepared for Center for Biological Diversity & Friends of the Earth (2015).

²⁷ *Id.* at 4, Exhibit 23.

²⁸ *Id.* at 3 (“[T]he potential GHG emissions of federal fossil fuels (leased and unleased) are 349 to 492 Gt CO₂e, representing 46 percent to 50 percent of potential emissions from all remaining U.S. fossil fuels.”), Exhibit 23.

- Federal natural gas already leased will continue producing 23 years beyond the 1.5 degrees Celsius threshold and 8 years beyond the 2 degrees threshold.²⁹

In 2018, the U.S. Geological Survey and DOI estimated that carbon emissions released from extraction and end-use combustion of fossil fuels produced on federal lands alone—not including non-federal lands—accounted for approximately one quarter of total U.S. carbon emissions during 2005 to 2014.³⁰ This research further establishes that the United States must halt new fossil fuel projects and close existing fields and mines before their reserves are fully extracted to achieve the Paris climate targets and avoid the worst damages from climate change.

Such action is commensurate with findings in the International Energy Agency’s report “Net Zero by 2050: A roadmap for the global energy system articulates a pathway for the global energy sector to reach net zero emission by 2050.”³¹ Even with reliance on unproven future emissions reduction technologies, it cites the incompatibility of new fossil fuel supply projects with the goal of limiting warming to 1.5 degrees Celsius: Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required.³² “Net Zero by 2050” shows, like many earlier analyses and reports³³, that there is simply no room left in the global carbon budget for new federal fossil fuel leasing. Importantly, the pathway in “Net Zero by 2050” starts now.

Inexplicably, BLM references an older report, the *2023 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends*, see *FEIS*, at B-2, to support its purported assessment of euphemistically-named “meteorological trends,” ignoring BLM’s more recent 2025 version of that report. Notably, the 2025 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends avoids any mention of the term “climate change” and notably disclaims any intent to “analyze climate trends.”³⁴ BLM’s attempt to incorporate by reference outdated analysis of climate change that has since been superseded by BLM’s newer report fails to demonstrate a hard look at the environmental impacts of climate change. Similarly, BLM fails to account for the development of the *Fifth National Climate Assessment*, including recent advances in attribution science that mean that the role of climate change in some extreme events can now be quantified in real time.³⁵ BLM’s continued refusal to engage with climate science,

²⁹ **Exhibit 24**, DUSTIN MULVANEY, ET AL. OVER-LEASED: HOW PRODUCTION HORIZONS OF ALREADY LEASED FEDERAL FOSSIL FUELS OUTLAST GLOBAL CARBON BUDGETS (2016), https://1bps6437gg8c169i0y1drtgz-wpengine.netdna-ssl.com/wp-content/uploads/wpallimport/files/archive/Over_Leased_Report_EcoShift.pdf (hereinafter Over-Leased).

³⁰ **Exhibit 25**, Merrill, Matthew D. et al., *Federal Lands Greenhouse Gas Emissions and Sequestration in the United States—Estimates for 2005–14*, U.S. Geological Survey Scientific Investigations Report 2018–5131 (2018) at 8.

³¹ **Exhibit 26**, STÉPHANIE BOUCKAERT ET AL., INTERNATIONAL ENERGY AGENCY, NET ZERO BY 2050: A ROADMAP FOR THE GLOBAL ENERGY SECTOR (2021) (hereinafter IEA 2021), https://iea.blob.core.windows.net/assets/beceb956-0dcf-4d73-89fe-1310e3046d68/NetZeroBy2050-ARoadmapfortheGlobalEnergySector_CORR.pdf.

³² *Id.* at 21.

³³ **Exhibit 27**, SEI, IISD, ODI, E3G, and UNEP. 2020. *The Production Gap Report: 2020 Special Report*, available at: <http://productiongap.org/2020report>.

³⁴ **Exhibit 27.1**, 2025 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends 8 (2026)

³⁵ See **Exhibit 27.2**, U.S. Global Change Research Program, Fifth National Climate Assessment: Report-in-Brief 19 (2023).

and well-developed scientific techniques to link GHG emissions with real-world impacts violates NEPA's hard look requirement.

Importantly, BLM has the authority to manage production and surface use rights under 43 C.F.R. § 3101.12 to address potential emissions from the many thousands of acres of BLM mineral estate currently leased but as yet undeveloped or now subject to production.³⁶ Specifically, BLM retains its full authority to condition development and production on leases after the lease issues to respond to findings of site-specific NEPA analyses or changing conditions between the time a lease issues and when it is developed. These changing conditions include those emerging from interwoven climate, ecological, and biodiversity crises and the implications of these crises to public lands. Those long-term needs must, in turn, be understood relative to the agency's ultimate imperative: to provide for the "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment."³⁷ This imperative is also reflected in the "sustained yield" mandate which obliges BLM to take the long view and to satisfy the multiple use mandate "in perpetuity."³⁸ Resource management planning is FLPMA's engine, providing BLM with its most important opportunity to reconcile tensions intrinsic to multiple use management, and serving a primary point of engagement for Tribal, state, and local governments, public lands stakeholders, and the public at large. BLM should clarify in this Proposed RMP-FEIS that a lessee's surface use rights are subject to the RMPs' terms, including terms provided in any future revisions to the RMPs that occur *after* a lease is issued.

3. BLM must include a quantitative and qualitative analysis of human health impacts

Supplemental comments on the DEIS submitted June 8, 2026, raised the need for an assessment of health impacts resulting from oil and gas leasing and development. Courts have recognized BLM's obligation to take a hard look at health impacts in its NEPA analyses. Most recently, the Tenth Circuit held that BLM was obligated to—and failed to—take a hard look at the long-term and cumulative health impacts of Hazardous Air Pollutant (HAP) emissions from oil and gas development. *Diné CARE v. Haaland*, 59 F.4th at 1046–1047. Although that was a drilling-stage case, nothing in the decision suggests that the same obligation does not apply at other stages or points in BLM's oil and gas decisionmaking. This is particularly true now that BLM has interpreted OBBBA as limiting the agency's discretion to impose stipulations not included in land use plans.

³⁶ See **Exhibit 28**, WELC et al., *Comments on Proposed Fluid Mineral Leases and Leasing Process Rule – RIN 1004-AE80* (Sept. 22, 2023).

³⁷ 43 U.S.C. § 1701(a)(8).

³⁸ 43 U.S.C. § 1702(h) (emphasis added). "The term cautions against managing public lands for the short-term expediencies of the day, and, as the Supreme Court has explained, 'requires the BLM to control depleting uses over time, so as to ensure a high level of valuable uses in the future.' [citing *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 58 (2004).] Because the term 'sustained yield' expressly incorporates principles of 'multiple use,' its reference to perpetually maintained 'output' accounts for impacts to both developable resources, such as timber for harvest, and environmental resources, such as watersheds and wildlife. Principles of sustained yield, like principles of multiple use, do not elevate certain uses over others, but rather, delegate discretion to the BLM to manage public lands in the best interests of the American people today, tomorrow and into the future." Solicitor's Opinion M-37039 at 8–9.

We appreciate that in the FEIS, BLM discusses some health and safety risks and impacts associated with oil and gas development. *See, e.g.*, FEIS at 3-172 to 3-177. However, BLM does not take a hard look at a full suite of reasonably foreseeable health and safety impacts, particularly cumulative impacts, and does not make clear whether, to what extent, or how consideration of health and safety risks and impacts affects its selection among alternatives or otherwise affects its decision-making.

NEPA requires BLM to do more than list generalized categories of risks or present tables with figures: the agency must analyze and take a hard look at those risks and their *effects*. The intent of NEPA is for agencies to study the impact of their actions on the environment *before* the action is taken.³⁹

a. Overview of human health impacts and sources of peer-reviewed literature related to proximity of oil and gas development

Peer-reviewed research shows what people living near oil and gas operations already know firsthand—that proximity to drilling and fracking operations and other oil and gas facilities is linked to adverse health risks and impacts. One resource, a report by Physicians for Social Responsibility (“PSR”) on the health impacts of fracking, states frankly that the researchers have “uncovered no evidence that fracking can be practiced in a manner that does not threaten human health directly or without imperiling climate stability upon which human health depends.”⁴⁰ BLM must take a hard look at the adverse health risks and effects associated with proximity to oil and gas activity and facilities and disclose them to the public.

b. Cumulative health risks and impacts to social and structural factors affecting health

BLM failed to take a hard look not only at direct health impacts and proximity-related health impacts of oil and gas development, but also at cumulative health risks and impacts.

The existing health status and pollution burdens experienced by individuals and populations in the planning area, and the disproportionate health risks they face in light of social determinants of health and environmental justice concerns, are precisely the kinds of incremental actions that NEPA requires BLM to analyze here. BLM must analyze additive short and long-term emissions from reasonably foreseeable oil and gas development in the planning area—the impacts which result from the incremental impact when added to existing and reasonably foreseeable future actions. And, as with GHG emissions, BLM must put these emissions into

³⁹ *See Conner v. Burford*, 848 F.2d 1441, 1452 (9th Cir. 1988) (NEPA requires that agencies prepare an EIS before there is “any irreversible and irretrievable commitment of resources”); *see also Upper Pecos Ass’n v. Stans*, 500 F.2d 17 (10th Cir. 1974) (concluding that “consideration of environmental factors should come in the early stages of program and project formulation”).

⁴⁰ **Exhibit 29**, Physicians for Social Responsibility and Concerned Health Professionals of NY, *Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking*, 9th Edition (2023); **Exhibit 30**, Orenstein, Carmi et al., *Public Health Effects of Fracking: An Update*, Concerned Health Professionals of New York and the Science and Environmental Health Network (Sept. 2026), https://concernedhealthny.org/wp-content/uploads/2026/08/9th-ed-Public-Health-Effects-Update-2026_Final.pdf.

context and discuss their potentially significant impacts, including health risks and impacts. For example, BLM acknowledges that the total cancer risk in the three counties in the planning area exceeded the total cancer risk of New Mexico. FEIS at E-6. However, BLM failed to analyze how the industrial activities that would be authorized under the proposed RMP would contribute to and exacerbate these existing health disparities.

In fact, BLM completely – and arbitrarily – removed all mention of “environmental justice,” presumably responding to a similar political mandate as spurred the deletion of all references to “climate change.” *Compare Draft RMP-EIS* at Glossary-v, 3-126, 3-129, 3-139 to 3-142, 4-449, 4-489 to 4-490 *to Proposed RMP-FEIS* (no BLM references to “environmental justice”). While specific regulatory requirements may have changed, NEPA still mandates BLM take a hard look at relevant environmental impacts, necessitating consideration of environmental justice issues and communities. BLM’s redaction of all references to “environmental justice” from the Proposed RMP-FEIS is arbitrary, capricious, and contrary to law.

BLM also can’t assume that wells will be properly plugged and reclaimed at the end of their useful lives and thus cease to cause health risks and impacts at that time. First, a well’s production can span decades. BLM must analyze cumulative emissions and their impacts over the full life course of a well, in conjunction with other wells in the planning area and other existing and reasonably foreseeable future actions and emissions. Second, information from several states, and nationally, indicates that wells often are not properly plugged and reclaimed at the end of their productive lives, as discussed above at Section III.B.1.

c. Climate change and health impacts

In its 2021 “Climate and Social Vulnerability” report, the U.S. EPA concluded that the most severe harms from climate change fall disproportionately upon underserved communities who are least able to prepare for, and recover from, heat waves, poor air quality, flooding, and other impacts.⁴¹ BLM failed discuss, let alone account for, these health and climate justice risks and impacts in analyzing and selecting among alternatives in the Proposed RMP-FEIS. As noted above, BLM’s removal of environmental justice considerations from the Proposed RMP-FEIS appears to have been driven by transparent political objectives, not the “twin aims of NEPA” – informing decisionmakers and the public regarding environmental impacts.

d. Air pollution and health impacts

Comments submitted on the Draft EIS also raised the concern of air pollution with respect to the direct and cumulative health impacts of oil and gas development within the planning area. The potential harms resulting from exposure to dangerous air pollutants associated with fracking and drilling are serious and wide-ranging. These harms include reproductive, respiratory, and developmental harms, as well as cancer and an increased risk of morbidity and mortality. The comments also detailed the limitations of safety thresholds, due to the reality of chronic exposure for people living near oil and gas development.

⁴¹ **Exhibit 31**, U.S. EPA, *Climate and Social Vulnerability Report*, 2021, available at <https://www.epa.gov/cira/social-vulnerability-report>.

Comments on the Draft EIS specifically raised the dangers of ozone, a criteria pollutant of particular concern in the region, as well as particulate matter—including PM₁₀ and PM_{2.5}. However, BLM failed to acknowledge, let alone discuss, that ozone concentrations within the planning area frequently violate the 2015 ozone NAAQS.⁴² Moreover, BLM cannot rely solely on attainment of standards like the NAAQS, or on other indicators such as the Air Quality Index (“AQI”), most of which are at the county level or other areas of analysis that are not sufficiently localized, and assume that attainment of these standards alone would satisfy its hard look NEPA obligations with respect to the impacts of its decisions on air quality and human health. *See* FEIS at 3-169.⁴³ And although BLM projects that ozone levels will near but not exceed NAAQS standards, FEIS at E-15, BLM also acknowledges that warming temperatures can increase ground-level ozone concentrations on a regional basis, and that “even greater exceedances leading to non-attainment are *likely to occur*,” FEIS at E-11 (emphasis added). BLM also fails to explain the incongruity between its rosy air quality modeling projections and on-the-ground monitoring results, which continue to show high – and worsening – levels of ozone pollution. BLM failed to analyze impacts in the context of poor baseline air quality conditions due to historical and ongoing oil and gas development in the planning area, and the cumulative risks and impacts related to air quality, including the potential for social and structural factors to exacerbate those risks.

BLM failed to adequately analyze the health risks and impacts of air pollution from fracking, on specific populations in the planning area, or from reasonably foreseeable oil and gas leasing and development overall. BLM’s discussion of air quality impacts—with respect to health or otherwise—in the FEIS falls short of NEPA’s requisite hard look. Although BLM lists quantities of projected air pollutant emissions, *see, e.g.*, FEIS at E-15, the agency does not take a hard look at their cumulative and long-term effects, nor does it provide any metric by which BLM or the public can put these emissions in context, understand their significance, and evaluate alternatives or identify mitigation measures. This is the type of analysis the Tenth Circuit rejected with respect to both GHG emissions and Hazardous Air Pollutant emissions in *Diné CARE v. Haaland*, 59 F.4th at 1046-1047.

e. Maternal, prenatal and child health impacts

⁴² *See Exhibit 32*, Center for Biological Diversity et al., *Petition to Designate Permian Basin of Southeast New Mexico a Nonattainment Area Due to Ongoing Violations of Ozone Health Standards; Petition to Find New Mexico’s State Implementation Plan is Failing to Attain and Maintain Ambient Air Quality Standards* (April 29, 2026), https://biologicaldiversity.org/programs/climate_law_institute/pdfs/26-04-29_Permian-Nonattainment-Petition-Final.pdf; *Exhibit 33*, Andrey Marsavin, Da Pan, Ilana B. Pollack, Yong Zhou, Amy P. Sullivan, Lillian E. Naimie, Katherine B. Benedict, Julieta F. Juncosa Calahoranno, Emily V. Fischer, Anthony J. Prenni, Bret A. Schichtel, Barkley C. Sive, Jeffrey L. Collett, *Summertime Ozone Production at Carlsbad Caverns National Park, New Mexico: Influence of Oil and Natural Gas Development*. *Journal of Geophysical Research: Atmospheres*, 2024; 129 (14) DOI: [10.1029/2024JD040877](https://doi.org/10.1029/2024JD040877) (<https://www.sciencedaily.com/releases/2024/07/240716122718.htm#>); *Exhibit 34*, Jerry Redfern, *The EPA stalled and then a fix for New Mexico oil and gas pollution evaporated*, *SourceNM* (Nov. 15, 2024), <https://sourcenm.com/2024/11/15/the-epa-stalled-and-then-a-fix-for-new-mexico-oil-and-gas-pollution-evaporated/>.

⁴³ This is particularly true where federal air monitors are declining due to lack of funding and maintenance. *See Exhibit 35*, Ames, Alexander, and Brad Racino, *America’s air monitors are disappearing. So is your power to expose polluters.*, *Grist* (Sept. 13, 2026), <https://grist.org/accountability/americas-air-monitors-are-disappearing-so-is-your-power-to-expose-polluters/>.

As discussed in supplemental comments on the DEIS submitted June 8, 2026, higher exposure to oil and gas operations during pregnancy can increase the incidence of high-risk pregnancies, premature births, low-birthweight babies, and birth defects.⁴⁴ BLM failed to account for local health data as part of its “hard look” at health impacts, especially as they relate to social determinants of health and environmental justice.

4. BLM fails to take a hard look at impacts from methane emissions and waste

BLM failed to take a hard look at the impacts of methane. Methane is an incredibly potent greenhouse gas. Methane has contributed to approximately 30% of the global rise in temperatures to date.⁴⁵ Because of methane’s potent short-term warming characteristics, curbing methane emissions is one of the most effective near-term ways to address the climate crisis. Methane emissions from fossil fuel operations represent nearly one-third of human-caused emissions.⁴⁶ These emissions represent both a major climate threat and also an opportunity. Slowing and ultimately halting fossil fuel demand will not by itself achieve needed GHG cuts, particularly in the near-term. This means that curbing wasteful methane emissions from oil and gas production are an essential element of reducing climate-warming emissions.⁴⁷

In 2019, oil and gas operators vented or flared approximately 150 billion cubic feet of methane, resulting in the loss of over \$50 million in federal royalty revenue. This is enough natural gas to meet the needs of 2.1 million households, which is nearly as many households as the states of New Mexico, North Dakota, Utah and Wyoming combined. This waste also means lost royalty revenues for taxpayers and Tribes. A recent analysis conducted by Synapse Energy Economics calculated natural gas methane emissions volumes from venting, flaring, and leaks in the production segment on federal and Tribal lands and determined the value of that lost gas in the form of (1) lost royalties, (2) lost state revenue from taxes, and (3) lost revenue from wasted natural gas that could be used for other purposes. It found that \$63.3 million in royalties, \$18.8 million in state revenue from taxes (from the top six states), and \$509 million in gas value was lost due to venting, flaring, and leaks on federal and Tribal lands.⁴⁸ The report found that, in 2019, leaks accounted for 46% and flaring for 54% of lost gas.⁴⁹ This report also found that the six states with the highest volumes of gas lost from federal and Tribal lands are New Mexico, North Dakota, Wyoming, Utah, Pennsylvania, and Colorado.⁵⁰

⁴⁴ See, e.g., **Exhibit 36**, Ali Mohammad Latifi, Fatemeh Abdi, Mohammad Miri, Sara Ashtari, Seyedeh Noushin Ghalandarpour-attar, Milad Mohamadzadeh, Abbas Ali Imani Fooladi, Shahab Uddin and Amir Vahedian-azimi, *Association between maternal exposure to oil and gas extraction process with adverse birth outcomes: a systematic review and meta-analysis*, BMC Pregnancy and Childbirth, 25:126 (2025), <https://pmc.ncbi.nlm.nih.gov/articles/PMC12645784/>.

⁴⁵ **Exhibit 37**, IEA (2021) Michaels, K.C., de Oliveira, Tomás, *Curtailing Methane Emissions from Fossil Fuel Operations, Pathways to a 75% cut by 2030*, International Energy Agency.

⁴⁶ *Id.*

⁴⁷ *Id.* See also **Exhibit 38**, *The Imperative of Cutting Methane from Fossil Fuels*, International Energy Agency (Oct. 11, 2023), <https://iea.blob.core.windows.net/assets/9efb310e-94d7-4c46-817b-9493fe5abb0a/Theimperativeofcuttingmethanefromfossilfuels.pdf>.

⁴⁸ **Exhibit 39**, Olivia Griot et al., *Onshore Natural Gas Operations on Federal and Tribal Lands in the United States: Analysis of Emissions and Lost Revenue*, Synapse Energy Economics Inc., 3 (Jan. 20, 2023), https://blogs.edf.org/energyexchange/files/2023/01/EMBARGOED_EDF-TCS_Public_Lands_Analysis.pdf.

⁴⁹ *Id.* at 23.

⁵⁰ *Id.* at 24.

Furthermore, further oil and gas development could worsen existing and disparate impacts to human health. According to a study conducted by HEI Energy in New Mexico, for example, samples show high levels of methane, ethane and other volatile organic compounds, indicating that the ozone comes from oil and gas production.⁵¹ At a national level, such waste on federal and Tribal lands already has significant and disproportionate health and other impacts on minority and low-income communities, including Indigenous communities.⁵² On federal and Tribal lands in the U.S., there are roughly 12,000 people living within a half mile of a well with flaring. This includes approximately 1,000 children under the age of five, more than 1,600 older Americans over the age of 65, 1,800 people living in poverty, and almost 6,000 people of color.⁵³ These groups live near flaring wells at much higher rates when compared to the nation at large. For example, Native Americans are 25% more likely to live within one mile of wells compared to the populations in the counties studied, while nationally they represent less than 2% of the country.⁵⁴ This proximity to oil and gas infrastructure creates disproportionate adverse health risks and impacts on Indigenous communities.⁵⁵ Moreover, the Indigenous people living on these lands are more likely to be living in poverty compared to the population of the encompassing state(s), which exacerbates the already disparate health burdens faced by these individuals and communities.⁵⁶ Waste from flared gas in particular has disparate health impacts on Indigenous

⁵¹ See **Exhibit 40**, Jerry Redfern, *In This Tiny New Mexico Town, the Air Quality Is Worse Than in Downtown L.A.*, Capital and Main (August 20, 2024), available at <https://capitalandmain.com/in-this-tiny-new-mexico-town-the-air-quality-is-worse-than-in-downtown-l-a>.

⁵² **Exhibit 41**, Jeremy Proville et al., *The demographic characteristics of populations living near oil and gas wells in the USA*, 44 *Population and Environment* 1 (2022), <https://doi.org/10.1007/s11111-022-00403-2> (hereinafter “Proville, *The demographic characteristics*”); **Exhibit 42**, Cushing et al., *Up in Smoke: Characterizing the Population Exposed to Flaring From Unconventional Oil and Gas Development in the Contiguous U.S.*, 16 *Environmental Research Letters* 1, 1 (2021); **Exhibit 43**, Caron-Beaudoin, *VOCs in indoor air and tap water samples*; **Exhibit 44**, Jill Johnston et al., *Environmental Justice Dimensions of Oil and Gas Flaring in South Texas: Disproportionate Exposure among Hispanic Communities*, *Environ. Sci. Technol.* (2020); **Exhibit 45**, Lara J. Cushing et al., *Flaring from Unconventional Oil and Gas Development and Birth Outcomes in the Eagle Ford Shale in South Texas*, 128 *ENVIRONMENTAL HEALTH PERSPECTIVES*, 077003 (2020).

⁵³ This data was compiled by analysts at Environmental Defense Fund (EDF). EDF used Enverus data to identify wells with reported flaring in 2019 for Texas, New Mexico, Colorado, North Dakota, Montana, Wyoming, and Mississippi. EDF then used GIS spatial files from BLM (oil and gas leases), U.S. Forest Service (mineral rights), and Bureau of Indian Affairs (surface ownership) to extract just those wells on federal and Tribal lands. (As there is not a comprehensive databased of tribal mineral ownership, surface ownership was used as a proxy for determining wells on tribal lands.) By identifying wells with flaring, we are also able to identify the local communities that are impacted by the air pollution from these wells. Using the methodology described in Proville, *The demographic characteristics*, Exhibit 53, U.S. Census Bureau’s American Community Survey 5-year estimates for 2015–2019, and health data from the Centers for Disease Control and Prevention’s Places dataset, we were able to estimate the populations living within a half mile radius of the previously identified wells using areal apportionment. See Centers for Disease Control and Prevention, PLACES: Local Data for Better Health, <https://www.cdc.gov/places/index.html> (last visited Jan. 30, 2023).

⁵⁴ Proville, *The demographic characteristics* at 10, Exhibit 41.

⁵⁵ See, e.g., **Exhibit 46**, Clean Air Task Force, *Tribal Communities at Risk: The Disproportionate Impacts of Oil and Gas Air Pollution on Tribal Air Quality* 3, 2–5 (2018), <https://www.catf.us/resource/tribal-communities-at-risk/>.

⁵⁶ *Id.* at 4.

people and other overburdened communities. Studies have found that “flaring is an environmental justice issue.”⁵⁷ The majority of lost gas on Tribal lands is flared.⁵⁸

Flaring has significant health impacts, and those impacts are clearly in communities near oil and gas infrastructure. A recent study found that a 1% increase in flared natural gas in North Dakota increases the respiratory-related hospitalization rate by 0.73%, for example.⁵⁹ Such effects are clearly documented in communities living near oil and gas infrastructure. According to an Environmental Defense Fund (EDF) analysis, roughly 1,100 adults with asthma, 800 adults with chronic obstructive pulmonary disease, 700 adults with coronary heart disease, and 400 adults who have experienced a stroke live within a half mile of a flaring well.⁶⁰ Another study links flaring to shorter gestation and reduced fetal growth.⁶¹ Indigenous communities bearing the brunt of excessive flaring therefore face significant adverse health impacts. Reducing waste from flaring on federal and Tribal lands would lessen these harms.

BLM must take a hard look at the methane emissions that will result from development under this RMP/FEIS and their commensurate impacts in accordance with NEPA. This includes Interior’s duty to quantify methane emissions and, on that basis, to assess impacts and a range of reasonable alternatives and mitigation measures to cut those emissions. BLM must also consider the other environmental impacts of this wasted resource, including the public health and welfare impacts of flaring.⁶²

5. BLM fails to take a hard look at impacts to caves and karst.

As previously detailed in Conservation Groups’ November 5, 2018 comment letter and June 8, 2026 supplemental comment letter, BLM must take a hard look at the impacts of its management decisions on the significant caves and karst resources within the planning area, both above- and below-ground. Two statutes mandate this: NEPA and the federal Cave Resources Protection Act (“CRPA”). As noted above, NEPA mandates that federal agencies take a hard look at the direct, indirect, and cumulative impacts of their actions. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). Additionally, Congress passed the CRPA in order to: “(1) to secure, protect, and preserve significant caves on Federal lands for the perpetual use, enjoyment, and benefit of all people; and (2) to foster increased cooperation and exchange of information between governmental authorities and those who utilize caves located on Federal lands for scientific, education, or recreational purposes.” 16 U.S.C. § 4301(b). The CRPA also

⁵⁷ Lara J. Cushing, et al., *Up in Smoke* at 7, Exhibit 33; see **Exhibit 47**, Wesley Blundell & Anatolii Kokoza, *Natural gas flaring, respiratory health, and distributional effect*, 208 Journal of Public Economics 104601, at 4, 10 (2022), <https://doi.org/10.1016/j.jpubeco.2022.104601> (hereinafter “Blundell, *Natural gas flaring, respiratory health*”).

⁵⁸ Olivia Griot et al., *Onshore Natural Gas Operations on Federal and Tribal Lands in the United States: Analysis of Emissions and Lost Revenue*, Synapse Energy Economics Inc., 3 (Jan. 20, 2023), https://blogs.edf.org/energyexchange/files/2023/01/EMBARGOED_EDF-TCS_Public_Lands_Analysis.pdf at 27, Exhibit 39.

⁵⁹ Blundell, *Natural gas flaring, respiratory health* at 1, Exhibit 47.

⁶⁰ See *supra* footnote discussing data compiled by analysts at Environmental Defense Fund (EDF).

⁶¹ Cushing South Texas study at 077003-1, Exhibit 45.

⁶² **Exhibit 48**, EDF, *Flaring Aerial Survey Results* (2021), available at <https://www.permianmap.org/flaring-emissions/>; see also **Exhibit 49**, Gvakharia et al., *Methane, Black Carbon, and Ethane Emissions from Natural Gas Flares in the Bakken Shale, North Dakota*, *Environmental Science & Technology* 5317, 5317 (2017); Cushing et al., *Up in Smoke*, Exhibit 42.

specifies that “[i]t is the policy of the United States that Federal lands be managed in a manner which protects and maintains, to the extent practicable, significant caves.” *Id.* § 4301(c).

According to Interior’s regulations, “significant caves” are those which possess one or more of six criteria: habitat for organisms and animals, historical or archaeological properties, specific geologic features, connectivity to important water systems, recreational opportunities, and educational or scientific properties. *See* 43 C.F.R. § 37.11(c)(1)–(6). “If a cave is determined to be significant, its entire extent, including passages not mapped or discovered at the time of the determination, is deemed significant.” *Id.* § 37.11(h). “This includes caves that extend from lands managed by any Federal agency into lands managed by one or more other bureaus or agencies of the Department of the Interior, as well as caves initially believed to be separate for which interconnecting passages are discovered after significance is determined.” *Id.* The regulations then echo the statute, providing that “Federal lands be managed in a manner which, to the extent practical, protects and maintains significant caves and cave resources. The type and degree of protection will be determined through the agency resource management planning process with full public participation.” *Id.* § 37.2.

According to the Final RMP-EIS, “[k]arst terrain covers over one million acres of the planning area, encompassing almost one-third of its area.” Final EIS at 3-13. Indeed, there are more than 1,000 documented karst features, *id.* at 3-30, and “more than 500 caves designated as significant across BLM-administered lands within the planning area.” DRMP-EIS at 4-33. Caves in Carlsbad Caverns National Park “come within 1,000 feet of BLM-administered lands.” *Id.* at 3-11. “Carlsbad Caverns National Park received World Heritage Site designation in 1995 following “examples of the major stages of the earth’s history and outstanding geological features” and “superlative natural phenomena or natural beauty.” *Id.*

Given a lack of detailed understanding of the cave and karst resources in the planning area, including unique ecological communities, important aquifer protection zones, and recreational and cultural resources, BLM’s cursory treatment of caves and karst did not meet NEPA’s hard look standard.

6. BLM fails to take a hard look at water quantity

BLM’s assessment of impacts to water resources in the planning area relies on inconsistent, confusing, and misleading statistics, failing to inform the public and decisionmakers regarding the baseline conditions of water resources in the region or the incremental and cumulative impacts of additional oil and gas development contemplated by the Proposed RMP.

a. BLM fails to provide essential information regarding the baseline conditions of water availability in the planning area

As an initial matter, BLM fails to accurately assess or describe the baseline conditions of the surface and groundwater resources of the planning area. While BLM notes in an appendix that historical groundwater levels in the region have dropped up to 97 feet and are declining at close to a foot per year, Final EIS, at B-11, BLM fails to explain the implications of this historic and ongoing decline in water levels. Specifically, it means that the aquifers of the area are in a

state of unsustainable overdraft that will – without substantial reductions in water usage – lead to water shortages and a regional water crisis. Perhaps even more concerning, BLM also acknowledges – in an appendix – that “water resources in southeast New Mexico, including Eddy, Lea, and Chaves Counties, are predicted to be severely impacted by temperature and precipitation trends,” and are characterized as “Extreme” and “High” in a projected 20250 Water Supply Sustainability Risk Index map. FEIS, at B-11 (citing Roy et al 2012).

Yet despite this general acknowledgment of the unsustainability of regional water supplies, BLM fails to provide any assessment of long-term regional water supply availability or any discussion of how long local and regional water supplies may last under current – and projected – overdraft conditions. Future oil and gas development is projected to use more than 1.1 million acre-feet of water during the planning period, more than three times the full capacity of the region’s largest reservoir, Red Bluff Reservoir. But BLM fails to assess whether regional aquifers can sustain this level of water production without wells running dry, aquifer subsidence, or other crisis points. This is particularly problematic given that BLM even contemplates the potential use of even **more** water: “Note that if more water-intensive stimulation methods (e.g., slickwater fracturing) are implemented or if laterals become longer, water use could increase from this estimate.”⁶³

Similarly, BLM notes that river conditions are historically dry, but attributes this simply to “drought cycles common to the southwestern United States,” ignoring the impacts of extraction for human use and long-term climate change, and failing to assess future impacts and trends in surface water flows in light of “temperature and precipitation trends” resulting from BLM’s proverbial elephant-in-the-room – fossil-fuel driven climate change. Again, BLM notes in an appendix that “[t]he environment of New Mexico is predicted to become progressively warmer and drier over the foreseeable future,” FEIS, at B-22, but fails to acknowledge the fundamental cause of such well-established predictions – the extraction and combustion of fossil fuels, including oil and gas from the Permian Basin.

b. BLM does not identify what water resources will be used, and in what quantities, to support oil and gas development in the planning area

BLM provides a highly precise estimate for water used for new federal oil and gas development: 725,733 acre-feet of water for 12,096 new federal wells over the 20-year planning period. But it does not adequately explain what that number represents, where the water will come from, or what environmental consequences follow from using it. Appendix P states that the RFD uses approximately 60 acre-feet of water per well and scales projected water use by the number of wells under each alternative.⁶⁴ Under the Proposed RMP, the federal component alone therefore represents approximately 236.5 billion gallons of gross water use. When BLM’s 7,104-well nonfederal development projection is added, the Proposed RMP’s RFD (reasonably foreseeable development) scenario represents approximately 1.1 million acre-feet, or 375 billion gallons, of projected oilfield water use from 2023 through 2043.

⁶³ Final EIS at Appendix W, W-7.

⁶⁴ Final EIS, Appendix P, P-2 to P-4.

That projected demand is substantial even before accounting for gross water use already being used by oil and gas development in the region. BLM's 2025 Water Support Document reports approximately 5101,000 acre-feet of oilfield water use in Chaves, Eddy, and Lea Counties from 2014 through 2024, including 113,000 acre-feet in 2024 alone (this is the highest annual total in BLM's series).⁶⁵ The Proposed RMP would thus extend intensive industrial water use on top of an already substantial existing burden.

Perhaps the most important omission is that BLM's gross water-use number does not tell the public or decisionmakers how much new water must be withdrawn from freshwater or groundwater resources. Appendix P defines "direct water" as being used for activities such as drilling, cementing, stimulation, and maintaining wells.⁶⁶ But BLM simultaneously recognizes that produced-water has increasingly substituted for newly sourced water, stating that produced-water has supplied between 40% and 90% of stimulation water since 2020.⁶⁷ BLM also discusses brackish groundwater and states in its Water Support Document that groundwater accounts for approximately 88% of regional water use and essentially all reported mining-sector withdrawals.⁶⁸ Yet BLM never combines these pieces of information into a source-specific water budget for the Proposed RMP. Thus, BLM fails to provide any clarity or consistency in informing the public or decisionmakers in how produced water is – or is not – reflected in the water usage statistics and projections included in the Final EIS.

As a result, the RMP does not quantify the amount of projected use that would consist of newly withdrawn freshwater, brackish or saline groundwater, recycled produced water, or surface water. It does not identify annual withdrawals by source or aquifer, quantify net freshwater depletion, or establish an enforceable minimum produced-water reuse rate.

BLM's reliance on produced-water reuse makes this omission particularly significant. BLM admits that New Mexico's Produced Water Act only "encourages" recycled water use and identifies reuse and brackish water as ways to reduce pressure on freshwater resources.⁶⁹ Appendix W similarly states that future water use "could be lower if produced water is reused or recycled."⁷⁰ But the Proposed RMP does not incorporate the observed 40-90% range as a planning assumption or enforceable requirement. Consequently, BLM cannot simultaneously rely on high levels of reuse to suggest that actual new-water demand may be lower while declining to quantify how much reuse will occur. Applying the 40-90% historical reuse range to the projected federal-plus-nonfederal stimulation demand produces a difference of roughly 185 billion gallons in potentially non-recycled water demand. Even that comparison does not establish freshwater demand, because BLM has not identified what portion of the non-recycled water would be fresh, brackish, or saline.

BLM's significance comparison compounds the problem. Appendix W compares projected oilfield water use against a 619,375-acre-foot estimate of total 2015 water withdrawals

⁶⁵ Water Support Document for Oil and Gas Development in New Mexico 2025, at 3-9, Table 3-5.

⁶⁶ Final EIS at Appendix P, P-2 n.2.

⁶⁷ *Id.* at P-3.

⁶⁸ Water Support Document for Oil and Gas Development in New Mexico 2025 at 3-14.

⁶⁹ *Id.*

⁷⁰ Final EIS at Appendix W, W-7.

in Chaves, Eddy, and Lea Counties. BLM describes its federal projection as approximately 6% of that total and the foreseeable nonfederal component as approximately 3%.⁷¹ Yet the subsequent significance discussion refers to the federal component as 3%, apparently conflating the federal and nonfederal figures.⁷² More fundamentally, however, the comparison lacks any grounding in actual water availability and condition of surface and groundwater resources, and whether these resources can sustain withdrawals to support even a small portion of the more than 1.1 million acre-feet of new oil and gas water use projected during the planning period.

c. BLM fails to take a hard look at produced water reuse and disposal

The same analytical uncertainty regarding the sources of water used for oil and gas development carries over to BLM's limited analysis regarding the liquid oil and gas waste, euphemistically known as produced water. BLM projects oil and gas operations to generate some 30 billion barrels of produced water over 20 years, averaging 1.5 billion barrels per year and representing a roughly 50% increase over the roughly 1 billion barrels per year produced during 2011-2022.⁷³ At 42 gallons per barrel, that is approximately 1.26 *trillion* gallons over the life of the plan, or 3.87 million acre-feet. Inexplicably relying on a 31.5 gallons per barrel conversion rate, however, BLM states that 30 billion barrels of produced water equal approximately 2.9 million acre-feet.⁷⁴ However, this is because BLM has, for some unexplained reason, decided to use 31.5 gallons per barrel as a conversion rate. This is incorrect.⁷⁵ The correct conversion is 42 gallons per barrel, as even BLM's 2025 Water Support Document shows.⁷⁶ Using the correct

⁷¹ *Id.*

⁷² *Id.*

⁷³ Final EIS at Appendix P, P-3.

⁷⁴ *Id.*

⁷⁵ There are two usages of the volume unit "barrel" in the United States, both using "bbl" as the abbreviation. For oil volumes, this is typically 42 gallons per barrel. For other volumes, including beer and other fluids, 31.5 gallons per barrel is used. Nowhere in the Final EIS does BLM make clear which rate they use. In the Final EIS, BLM appears to use 31.5 gallons of produced-water when describing a "barrel." However, this is not the industry norm or even what BLM uses in other analysis as its rate to estimate water specifically.

For example, in the *2025 Water Support Document for Oil and Gas in New Mexico*, BLM provides two charts that include in their title, "Cumulative water use in millions of barrels (multiply by 128.9 to get acre-feet)."

Thus, according to BLM: 1,000,000 barrels = 128.9 acre-feet

On page A-3 of that same water support document, BLM gives a conversion of 1 acre-foot to 325,851 gallons.

Thus, according to BLM: 1 acre-foot = 325,851 gallons
and 128.9 acre-feet = 42,002,193 gallons

And thus, 1,000,000 barrels = 42,002,193 gallons

Or, 1 barrel = 42.002 gallons (rounded to 42 gallons as industry norm).

So, BLM should be using 42 gallons of produced water per "barrel." However, the Final EIS does not. The Final EIS arbitrarily and erroneously uses 31.5 gallons per barrel as its conversion rate for produced water volume. BLM's overall projected 30,000,000,000 barrels, if multiplied by 31.5 gallons/barrel, then divided by 325,851 gallons/acre-foot, results in 2.900 billion acre-feet: the number reached in the Final EIS at Appendix P, at P-3.

This issue will be discussed in detail later, but the figures for produced-water volumes here start with the overall barrel estimation from BLM, then converts that into gallons using 42 gallons per barrel, then converts that into acre-feet, using 1 acre-foot as 325,851 gallons.

⁷⁶ See Water Support Document for Oil and Gas Development in New Mexico 2025 at 4-17 and A-3 (showing proper conversion rates for barrels-to-acre-feet and acre-feet-to-gallons, respectively).

42-gallon barrel and 325,851 gallons-per-acre-foot conversion yields approximately nearly one million acre-feet of additional produced water from what BLM analyzed – meaning that BLM failed to account for close to a million acre-feet – or 315 billion gallons – of toxic liquid waste generated over the life of the plan.

Moreover, BLM does not explain what happens to the 30 billion barrels of liquid oil and gas waste after they are generated. BLM does not attempt to quantify or project the amounts that will be reused, treated, stored, transported by pipeline or truck, injected into saltwater-disposal wells, used for enhanced recovery, spilled, or otherwise disposed.

This omission is particularly important because most produced water historically has been managed through enhanced recovery or saltwater-disposal wells. BLM reports 3,247 wells in Eddy and Lea Counties injecting produced-water or being used for saltwater disposal as of November 2025.⁷⁷ But a well count is not a capacity analysis. BLM does not calculate existing disposal capacity, remaining capacity, utilization rates, the number of additional disposal wells that would be required, or whether projected disposal demand would exceed available capacity.

Finally, BLM's mention of recycling does not resolve the waste problem; it changes it. Greater recycling may reduce the need for newly withdrawn water, but it requires additional gathering, storage, pipelines, treatment, and transfer infrastructure and can generate concentrated brines, salts, sludge, scale, solids, and other residual wastes. The Final EIS contains general requirements for containment and disposal and recognizes risks from produced water storage and transportation, but does not quantify the infrastructure or secondary waste that would be required to recycle a meaningful portion of a 1.26-trillion-gallon waste stream.⁷⁸

Likewise, BLM reports 1,003 liquid spills in the Pecos tri-county area in 2023, with an approximately 47% average loss rate across liquid spill types, and two produced-water spills that reached surface waterways.⁷⁹ BLM originally cited this 47% figure in the 2024 BLM Water Support Document for Oil and Gas Development in New Mexico.⁸⁰ However, the 47% statistic itself originated from spill data on the NMOCD (New Mexico Oil Conservation Division) website.⁸¹ The Final EIS does not disclose how NMOCD came to this 47% figure, nor is the raw data easily found (if at all) on NMOCD's website.

But even if the 47% figure is accurate, the RMP still does not use those data to estimate how a 50% increase in produced-water generation could affect future spill exposure, unrecovered waste, or remediation needs.

7. BLM fails to take a hard look at water quality

⁷⁷ Final EIS at Appendix B, B-127.

⁷⁸ See generally Final EIS at Appendix L, L-23; Appendix O, O-46.

⁷⁹ Final EIS at Appendix B, B-12 and B-126.

⁸⁰ BLM, *BLM Water Support Document for Oil and Gas Development in New Mexico* at 2-6, <https://www.blm.gov/sites/default/files/docs/2024-09/oil-and-gas-wsd-nm-2024.pdf>.

⁸¹ The 2024 BLM Water Support document lists this source cited as “2023 Spill Data. Available at: <https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/data/Spills/Spills.aspx>.” However, that link does not work anymore, and it is unclear exactly which data BLM pulled or calculated to obtain this 47% number.

- a. **BLM’s FEIS violated NEPA and FLPMA by failing to analyze impacts from spills of produced water and other fracking waste associated with proposed oil and gas extraction in the planning area**
 - i. **BLM failed to take a hard look at environmental impacts from past, present, and reasonably foreseeable oil and gas extraction-related spills in the planning area**

BLM acknowledges that spills occur, that a spill can infiltrate groundwater and reach surface water, and that increased oil and gas extraction in the Planning Area increases the risk of water contamination from spills. FEIS 3-20, B-12, W-6. Yet, the FEIS fails to adequately address and analyze the risks of water and air contamination from spills associated with oil and gas extraction in the Planning Area.

A. Overall spill trends in the Carlsbad planning area

Under New Mexico law, an oil and gas “spill” refers to the illegal release, discharge, escape, or disposal of oil, gas, produced water, or other substances associated with oil and gas extraction into the environment, including onto land, into surface water or groundwater, or into the air. NMSA 1978, § 70-2-12(B); § 19.15.29.6-7 NMAC. A single spill may involve multiple substances, each reported separately. Each spill is a release of a separate pollutant, and multiple pollutants can be spilled during a single event.⁸² Subsurface spills may migrate underground, contaminate groundwater, or reemerge far from their original source, complicating detection and cleanup. Spills are also categorized by volume contained—or not. “Recovered” spills involve the capture of some portion of the spilled material, while “lost” spills occur when pollutants seep into soil, groundwater, waterways, or are emitted into the atmosphere. In practice, some spills result in permanent contamination, particularly when gases are released into the air.

Produced water, a sanitized term for the toxic liquid waste produced during oil and gas extraction, is the largest waste stream from oil and gas extraction.⁸³ Produced water can contain salts, heavy metals, radioactive materials (including radium), hydrocarbons, chemical additives, and undisclosed trade secret chemicals, including per- and polyfluoroalkyl substances (PFAS). PFAS are highly persistent “forever chemicals” linked to cancer, immune suppression, endocrine disruption, and developmental harm, yet they are not required to be tested for or identified in

⁸² **Exhibit 50**, Melissa Troutman and Rebecca Sobel, WildEarth Guardians, *The 2025 New Mexico Oil & Gas Spill Report: Land, Air & Water Pollution from Oil and Gas* (2026) at 9, <https://wildearthguardians.org/press-releases/record-volumes-of-oil-and-gas-spills-polluted-new-mexico-in-2025-new-report-finds/>

⁸³ **Exhibit 51**, Cloelle Danforth et al., *An Integrated Method for Identification and Prioritization of Constituents of Concern and Produced Water from Onshore Oil and Gas Extraction*, ENVIRONMENT INTERNATIONAL 134 (2020) 105280. <https://doi.org/10.1016/j.envint.2019.105280>.

spill reports.⁸⁴ In New Mexico in 2025, every barrel of oil produced generates an average of four barrels of produced water.⁸⁵

As discussed in detail in WildEarth Guardians’ Supplemental comments,⁸⁶ spills associated with oil and gas extraction have been occurring since the time BLM issued the draft EIS in 2018, and are continuing. In 2021, the number of spills increased dramatically, particularly air spills, and more than doubled in the following year.⁸⁷ Industry reported spill data from the New Mexico Oil Conservation Division over the last several years demonstrates a magnitude of impact not previously analyzed in the Draft EIS or in the FEIS. Oil and gas companies reported a total of 38,813 spills in New Mexico in 2025 – an average of 106 spills per day – reflecting an immense amount of pollution to air, land, and water. The 2025 trend in spill scale and frequency is not a one-off anomaly. Between 2022 and 2025, oil and gas operators reported 178,372 spills to the New Mexico Oil Conservation Division.⁸⁸

While the overall **number** of reported oil and gas spills generally decreased between 2023 and 2025, the **volume** of toxic waste spilled increased dramatically in 2025. The table below shows that liquid spill volumes rose by 93 percent compared to 2024; 84 percent compared to 2023; and 51 percent compared to 2022.⁸⁹ The volume of liquid waste permanently lost to the environment increased by as much as 87 percent year over year, showing that spills are becoming fewer in number but significantly larger in scale and impact. These data show that fewer spills do not equal less pollution released into the environment.⁹⁰

	2022	2023	2024	2025
ALL SPILLS	42,725	54,618	42,208	38,153
LIQUID SPILLS	1,780	1,593	1,393	1,470
LIQUID VOLUME SPILLED	6,262,830 gal	5,120,052 gal	4,892,832 gal	9,442,230 gal
LIQUID VOLUME LOST	2,590,980 gal	1,879,374 gal	2,017,554 gal	3,515,064 gal
GASEOUS SPILLS	40,945	53,025	40,815	36,683
GASEOUS VOLUME SPILLED	16,013,546 MCF	20,020,455 MCF	11,471,954 MCF	9,219,554 MCF
GASEOUS VOLUME LOST	16,013,546 MCF	20,020,455 MCF	11,471,954 MCF	9,219,554 MCF

⁸⁴ **Exhibit 52**, Dusty Horwitt, J.D. and Barbara Gottlieb, *Physicians for Social Responsibility, Fracking with Forever Chemicals in New Mexico* (2023) at 4, <https://psr.org/resources/fracking-with-forever-chemicals-in-new-mexico>.

⁸⁵ **Exhibit 53**, U.S. Environmental Protection Agency, Summary of Input on Oil and Gas Extraction Wastewater Management Practices Under the Clean Water Act, EPA-821-S19-001, May 2020, <https://www.epa.gov/sites/default/files/2020-05/documents/oil-gas-finalreport-2020.pdf>

⁸⁶ **Exhibit 5**, WildEarth Guardians’ Supplemental Comments on the Carlsbad Field Office’s 2018 Draft Resource Management Plan and Environmental Impact Statement, at 6-7 (June 17, 2026).

⁸⁷ **Exhibit 54**, WildEarth Guardians, *Oil & Gas Waste Watch Report, Spill Data 2018- 2025, with January-June 2026 Update* (October 2026) analyzing publicly available spill data. *See also supra*, n.5 at 6. This October 2026 Report updates the oil and gas spill numbers reported in WildEarth Guardians’ 2026 Supplemental Comments.

⁸⁸ *Id.*

⁸⁹ *Supra*, n.1, **Exhibit 50**, at 11.

⁹⁰ *See supra*, n.5, **Exhibit 5**, at 8-9 for a comparison of liquid vs. gaseous oil and gas-related spills.

Oil and gas extraction in Eddy and Lea counties in the Carlsbad planning area is responsible for 98 percent of all reported spills in 2025.^{91, 92} Examination of the spill data specific to the three counties in the Carlsbad planning area (Eddy/Lea/Chaves counties) shows that these counties are home to the vast majority of spills in New Mexico. Between 2018 and 2025, oil and gas operators in Chaves, Lea, and Eddy counties reported a total of 197,008 spills - 98.2% of all spills reported statewide.⁹³ Since spills became illegal in 2021, oil and gas extraction in these three counties has been responsible for between 98 and 99% of total spills. Between 2018 and 2025, 18 spills have affected waterways and 53 spills have impacted groundwater in Eddy and Lea counties, according to state data.⁹⁴ Based on this historical data, and the RMP's projected levels of oil and gas extraction in the Planning Area, the problem of contamination from oil and gas spills cannot be expected to go away in the near future.

B. BLM's 2023 snapshot of spill data does not provide a hard look at spill impacts in the planning area

First, BLM limits its discussion to the number of liquid spills and gaseous releases in the Planning Area to a single year (2023), noting "a total of 1,003 liquid spills and 50,866 gaseous spills in the Permian Basin (Eddy, Lea, and Chaves Counties) in 2023." FEIS B-12. Nowhere does BLM explain why it chose to only consider one year of spill data, rather than considering spill trends since the DEIS was released in 2018. Ignoring the full picture of the magnitude of spills across the Planning Area since the DEIS was released (1) masks ongoing water contamination risks that should have been included in the environmental baseline, and (2) prevents BLM from assessing future contamination risks from reasonably foreseeable spills associated with commercial-scale oil and gas extraction. Spill data from 2018 to the present is currently available from the NMOCD database that BLM used for the 2023 spill data, 2024 BLM Water Support Document at 1-3, and was provided to BLM in WildEarth Guardians' June 2026 supplemental comments.⁹⁵ Thus, BLM has no excuse for limiting its spills discussion to one year of data, nor has BLM explained its reasons for doing so.

Second, BLM's consideration of a single year of spill data underestimates the scale of water contamination in the Planning Area. The FEIS reports that in 2023, two produced water spills affected surface water, two spills of unspecified material affected groundwater, and four natural gas liquid spills affected groundwater. FEIS B-12. Again, this limited snapshot fails to capture the extent of contamination over the last several years of oil and gas extraction. As discussed in WildEarth Guardians' 2026 Supplemental Comments, between 2018 and 2025, 18 spills have affected waterways and 53 spills have impacted groundwater in Eddy and Lea

⁹¹ New Mexico Oil Conservation Division Spill Search, queried January 5, 2026 for all spills reported between January 1 and December 31, 2025: <https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/data/spills/Spills.aspx>. Lea County - 22,137 spills; Eddy County - 15,301 spills; Statewide Total - 38,153 spills. Each spill is the release of a separate pollutant, and multiple pollutants can be spilled during a single event. Spills are reported to the state by oil and gas companies. The state provides public access to spill data via a Spill Search and an Incident Search. The Spill Search used for this report lists pollutants released during an incident or event as individual spills.

⁹² *Supra*, n.1, **Exhibit 50**, at 20.

⁹³ *Supra*, n.6, at 2.

⁹⁴ *Id.*

⁹⁵ *Supra*, n.5, **Exhibit 5**, at 6-10.

counties, according to state data.⁹⁶ Given the proposed scale of future oil and gas development contemplated in the RMP and 2023 RFDS, BLM should have used the available historical spill record to analyze the potential scope of water contamination from oil and gas spills associated with future commercial-scale extraction. By considering only a single year of spills data, BLM ignored significant aspects of the problem and, consequently, reached a conclusion of no significant impacts from spills that lacks support in the record.

Finally, although BLM discusses the number of gaseous spills in 2023, the agency fails to analyze the air impacts of these spills. BLM simply notes that gaseous spills are not recoverable, and did not affect groundwater in 2023. FEIS at B-12. Of the 38,153 spills in New Mexico in 2025, gaseous spills overwhelmingly dominated spill activity, accounting for 96% of all reported spills, averaging one gaseous spill every 14–15 minutes, and releasing more than 9.2 million thousand cubic feet (MCF) of methane and other gases, none of which was recovered once released.⁹⁷ The methane spilled into New Mexico’s air in 2025 caused climate damage comparable to putting more than a million additional cars on the road for an entire year—without moving a single person or producing any public benefit.⁹⁸ Since the release of the DEIS in 2018, 94 percent of all spills reported between 2018 and 2025 were gaseous releases, a total of 184,685 spills that resulted in 68,474,148 million cubic feet of methane, carbon dioxide, hydrogen sulfide, and other air toxics permanently lost to the atmosphere.⁹⁹ BLM must analyze the impacts to air quality and climate from this magnitude of gaseous spills, rather than simply dismiss them because they don’t contribute to water contamination.

C. BLM arbitrarily concluded that oil and gas spills will not significantly impact water resources

Although BLM admits that “accidental spills of hydrocarbons, fuels, or chemical additives used in well-drilling and completion processes” as well as “loss of well integrity due to breaches in mechanical, physical, and engineered barriers designed to direct or contain subsurface fluids in [well] drilling or completion operations” can cause groundwater contamination, BLM concludes that none of these breaches would “represent a significant impact

⁹⁶ *Id.* at 9.

⁹⁷ All flare and vent releases were unrecovered or “zero” under “volume recovered” in the spill data.

⁹⁸ Climate equivalency calculation: NM oil and gas operators reported releasing 9,219,554 thousand cubic feet (MCF) of gaseous pollutants in 2025, predominantly methane (CH₄), according to the NM Oil Conservation Division Spill and Incident Databases. One thousand cubic feet of methane has a mass of approximately 20.3 kilograms, or 0.0203 metric tons, based on U.S. EIA physical property data. Using the U.S. EPA 100-year global warming potential (GWP) of 28 for methane, each MCF released is equivalent to 0.57 metric tons of carbon dioxide-equivalent (CO₂e) ($0.0203 \times 28 = 0.5684$). Multiplying this factor by the total reported gas releases yields approximately 5.24 million metric tons of CO₂e ($9,219,554 \text{ MCF} \times 0.5684 \text{ tCO}_2\text{e/MCF}$). The U.S. EPA estimates that an average gasoline-powered passenger vehicle emits 4.6 metric tons of CO₂ per year, resulting in a climate impact equivalent to approximately 1.1 million passenger vehicles driven for one year ($5,240,000 \div 4.6 \approx 1,139,000$). Sources: **Exhibit 55**, U.S. EIA, Natural Gas Monthly, https://www.eia.gov/naturalgas/monthly/pdf/ngm_all.pdf; U.S. EPA, Understanding Global Warming Potentials, <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>; U.S. EPA, Greenhouse Gas Emissions from a Typical Passenger Vehicle, <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>.

⁹⁹ *Supra*, n.5, **Exhibit 5**, at 8-9.

to [] water resources” provided that operator follow federal and state drilling standards, and BMPs.¹⁰⁰ FEIS at 3-20-3-21.

The only basis offered for BLM’s conclusions that spills will not significantly impact water resources is that (1) spills will be prevented because operators are required to comply with federal and state standards and rules with specific requirements for well casing and cementing to ensure well integrity, fluid mineral lease stipulations in the RMP, and BMPs for protecting water resources, FEIS at 3-21; and (2) spills will be remediated through corrective action approved by NMOCD pursuant to state standards. FEIS at B-12.

BLM must do more than simply assert that federal and state standards will mitigate any significant impacts to water from spills, particularly in light of the record evidence that annual spill totals in the Planning Area remain in the tens of thousands over the last five years in spite of federal and state requirements to prevent and remediate spills.¹⁰¹ With respect to spill prevention, BLM relies on well casing, cementing, and inspection requirements to prevent loss of well integrity that can cause leaks of produced water and other fracking waste into groundwater. FEIS at B-12. But BLM ignores record evidence of the frequency of well casing failures, particularly with horizontally-drilled wells, and the impacts of these failure on water contamination. As discussed in the 2018 Coalition Comments on the DEIS, oil and gas wells with surface casing pressure have compromised structural integrity and pose a risk for releasing stray gas into the surrounding aquifer or atmosphere.¹⁰² AirWaterGas researchers from the University of Colorado, Boulder also found that horizontal wells develop surface casing pressure more frequently than vertical wells.¹⁰³ This evidence of water contamination from well casing and cement breaches satisfies the low threshold for consideration of the impacts under NEPA.

Moreover, the causes of spills and leaks are not limited to well casing failures. According to NMOCD’s database of self-reported spills and their causes, the most common causes of liquid spills are attributed to “equipment failure” and “corrosion.”¹⁰⁴ Even if well casing failure can be including in “equipment failure,”¹⁰⁵ NMOCD’s spill database lists 25 other spill causes besides equipment failure which include blowouts, freezing, high line pressure, initial and separation flowback, and human error. Thus, standards for well casing and cement integrity alone do not ensure prevention of spills from other causes.

Also related to spill prevention, BLM cites to NMOCD’s prohibition on “pollution of any surface or subsurface fresh water from well completion activities” and notes that operators must comply with this prohibition. FEIS at B-13. In 2021, the state adopted a rule that explicitly prohibited liquid oil and gas spills, including releases of oil, chemicals, and produced water.

¹⁰⁰ BLM’s reliance on BMPs to prevent spills is undercut by record evidence. See **Exhibit 1**, WildEarth Guardians et al.’s Comments on the Carlsbad Field Office’s 2018 Draft Resource Management Plan and Environmental Impact Statement, at 63 & n.238 (Nov. 5, 2018).

¹⁰¹ *Supra*, n.5, **Exhibit 5**, at 10.

¹⁰² *Supra*, n.19 at 63 & n.238 (Nov. 5, 2018).

¹⁰³ *Id.*

¹⁰⁴ *Supra*, n.1, **Exhibit 50**, at 19.

¹⁰⁵ Equipment failure in NMOCD’s spill database does not specifically include well casing failure. Rather it simply lists 26 types of equipment that could be responsible for a reported spill including “well” and “production well” but also flow lines, compressor stations, gaskets, generators, pumps, separators, etc.

19.15.5.10(D) NMAC. This regulatory update was intended to strengthen spill prevention and cleanup authority.¹⁰⁶ Together with the 2020 restoration of NMOCD's authority to assess civil penalties for violations of the Oil and Gas Act, these actions restored and expanded the state's legal authority to penalize spill-related violations and require cleanup. Yet publicly available records show that operators have not complied with state regulations, enforcement has not been applied at a scale commensurate with the volume and frequency of reported spills, and these regulations do not serve as a deterrent to the oil and gas operators to prevent spills. From 2021 to 2025, NMOCD issued only a small number of civil penalties, despite tens of thousands of reported spills and clear evidence that the same operators repeatedly rank among the top polluters quarter after quarter.¹⁰⁷

For spill remediation, BLM cites to NMOCD's remediation regulations as governing a cooperative relationship between BLM and NMOCD "to immediately remediate spills on BLM lands." FEIS at B-12. But, as discussed above, NMOCD's spill remediation is woefully inadequate at keeping up with the volume and frequency of reported spills. In addition, state-level spill reporting requirements do not mandate comprehensive disclosure or routine testing for many contaminants used or released during drilling, meaning that even for reported spills agencies do not know the full toxicity or scale of pollution released during spill events.¹⁰⁸

The spill problem from oil and gas extraction activities is likely to intensify as existing wells age and thousands of new wells are drilled across the Planning Area. Although state regulations specify cleanup requirements and the substances that must be addressed when contamination occurs,¹⁰⁹ cleanup obligations are not absolute. When an operator asserts that meeting cleanup standards is "technically infeasible" or would impose an "unreasonable burden," the company may petition NMOCD for an alternative abatement standard. If approved, this allows reduced cleanup requirements and permits some contamination to remain in place, subject to conditions set by the state.¹¹⁰ These provisions create a regulatory pathway for pollution to persist in the environment, particularly where contamination is difficult to locate, expensive to remediate, or challenging to verify. Over time, the cumulative effect of incomplete cleanup, undocumented contaminants, and repeated spills compounds risks to land, water, air quality, and public health, while shifting long-term burdens away from polluters and onto agencies and the public. BLM must analyze these cumulative impacts before approving more commercial-scale development in the Planning Area.

¹⁰⁶ New Mexico Energy, Minerals and Natural Resources Department, Oil Conservation Commission Spill Rule Hearing and Rule Release, July 8, 2021, quoting EMNRD Cabinet Secretary Sarah Cottrell Propst: "Finalization of the release rules are another example of this administration's commitment to collaboration and protecting the environment... Now that the updated release rules are in effect, the OCD will have additional tools to prevent and remediate spills that occur in the oil and gas field," <https://www.emnrd.nm.gov/officeofsecretary/wp-content/uploads/sites/2/OCDSpillRuleHearingRuleRelease070821.pdf>.

¹⁰⁷ **Exhibit 56**, WildEarth Guardians, Oil & Gas Waste Watch Reports, Q1–Q3 2025 analyzing publicly available spill data at <https://wildearthguardians.org/climate-health/oil-gas-waste/>; public information request and review of publicly available OCD enforcement actions and press releases (2021–2025); OCD compliance activity available at <https://www.emnrd.nm.gov/o cd/compliance/>. See also, *supra*, n.1, at 28.

¹⁰⁸ ¹⁰⁸ *Supra*, n.1, **Exhibit 50**, at 9.

¹⁰⁹ NMSA 1978, § 74-6-4; 20.6.4 NMAC; 20.6.2 NMAC.

¹¹⁰ 19.15.30.9 NMAC.

D. The record contradicts BLM's assertion that there are no documented past instances of groundwater contamination from well-drilling

BLM's unsupported assertion that "there have not been any documented past instances of groundwater contamination attributed to well-drilling" is contradicted by record evidence and BLM's own finding a page earlier that four of the spills in 2023 "were reported as having affected groundwater." FEIS at B-12, B-13. Where comprehensive well testing has been done, the results show multiple instances of fracking waste releases into groundwater.¹¹¹ In New Mexico, one report found "743 instances of all types of oil and gas operations polluting groundwater" in the state.¹¹² Reporting available prior to the 2018 DEIS has also acknowledged a proliferation of "frack hits," or "downhole communication," where new horizontal drilling for oil is communicating with both historic and active vertical wells.¹¹³ This is a significant development that could result in well blowouts, contamination of resources, and issues over who is responsible for liabilities and costs of such impacts. Major spills with potential to contaminate groundwater are not uncommon in oil and gas extraction. As identified above and at length in the 2018 Coalition Comments for the DEIS, there are many documented instances where groundwater contamination has, in fact, resulted from the fracking of oil and gas wells. BLM summarily dismissed this issue the same way in both the DEIS and FEIS - claiming that "[w]ith consideration of proper construction practices, drilling practices, and BMPs," oil and gas extraction would not represent a significant impact to soil and water resources." FEIS at 3-21, *compare with* DEIS at 4-25. BLM's consistent brief and dismissive responses and lack of analysis of the potential for groundwater contamination as a result of produced water and fracking waste spills fails to satisfy the agency's obligation under NEPA to take a hard look at these impacts.

E. BLM failed to analyze impacts from current and future Class II injection wells

To the extent BLM mentions produced water and other fracking waste disposal, it limits its discussion to a single paragraph noting that "[m]ost produced water is disposed of in enhanced oil recovery (EOR) or saltwater disposal (SWD) wells." FEIS at B-13. BLM says nothing more. It fails to discuss the extent of this disposal in the Planning Area, the potential for groundwater contamination from injection-well activities, or any other impacts related to produced water and other fracking waste disposal. Such a complete failure to analyze the impacts of this aspect of oil and gas extraction violates NEPA's hard look requirement.

Underground injection of produced water and other fracking wastes is a disposal method known as "Class II" underground injection.¹¹⁴ The majority of Class II wells as used either to enhance oil and gas recovery or to dispose of oil and gas waste.¹¹⁵ First, as discussed in the 2018 Coalition Comments on the DEIS, disposal of fracking wastewater in Class II wells has been

¹¹¹ *Supra*, n.19, **Exhibit 1**, at 59-62.

¹¹² *Id.* at 63 & n.243.

¹¹³ *Id.* & n.245.

¹¹⁴ **Exhibit 57**, EPA UIC program. https://www.epa.gov/sites/default/files/2020-04/documents/uic_fact_sheet.pdf.

¹¹⁵ *Id.*

associated with earthquakes in several states, including New Mexico.¹¹⁶ Although BLM recognizes induced seismicity as an impact of these injection wells, and an increase in the use of produced water for well stimulation, the agency summarily concludes that “future potential development of the RFD is not expected to result in induced seismicity.” FEIS at 3-21. This is the extent of BLM’s analysis of seismicity impacts. Given the recognized correlation between oil and gas extraction practices and the inducement of earthquakes, BLM must analyze the threat of seismic activity from continued use of Class II injection wells as part of future commercial-scale oil and gas extraction in the Planning Area.

Second, BLM’s reliance on the state’s Underground Injection Control Program to regulate injection practices and ensure monitoring of pressure limits and seismic activity is misplaced for the same reasons as its reliance on other state programs and requirements for preventing and mitigating produced water and other fracking waste spills. NMOCD lacks the capacity to oversee and enforce its Class II injection program. In the Ground Water Protection Council’s 2020 Peer Review of New Mexico’s Class II UIC Program, the Council reported:

The OCD projects that its workload will continue to increase in the foreseeable future as a result of Permian production . . . Despite this vastly increased workload, staffing within OCD has not increased as a result of an inability to expand staffing levels, recruit new staff to replace departing staff due to salary constraints, and retain existing staff because of budget limitations. These three conditions have resulted in staffing shortages of between 40-60 percent in some sections and have placed the OCD in a near crisis situation from a programmatic standpoint. At present, the OCD has insufficient staff available to manage critical aspects of a Class II UIC program such as witnessing of Mechanical Integrity Tests (MITs) and casing installation and cementing, conducting periodic file reviews and implementing inspection frequencies at levels that would guarantee protection of Underground Sources of Drinking Water (USDWs). Even if staffing were filled at the current fully authorized levels the program would still be unable to meet all of the needs for [drinking water] protection contemplated in the states’ primacy agreement with the [EPA].¹¹⁷

The report goes on to state, “OCD has been unable to increase its budget to provide for elevated staffing levels and has also been unable to reclassify positions to make state service more attractive to those with the qualifications needed to implement a Class II UIC regulatory program.”¹¹⁸ These concerns are reflected in OCD’s enforcement efforts today,¹¹⁹ as it continues to cite a lack of capacity in its struggle to prevent spills and enforce remediation from Class II injection wells. [Closing sentence].

Third, BLM reports 3,247 wells in Eddy and Lea Counties injecting produced-water or being used for saltwater disposal as of November 2025.¹²⁰ But a well count is not a capacity or

¹¹⁶ *Supra*, n.19, **Exhibit 1**, at 86-87 & n.372 presenting evidence linking injection well disposal of produced water to seismic events.

¹¹⁷ **Exhibit 59**, Ground Water Prot. Council, “State of New Mexico Class II UIC Program Peer Review” (Jan. 8, 2020), at 4, https://www.gwpc.org/wp-content/uploads/2019/09/New_Mexico_Peer_Review_1_8_2020.pdf.

¹¹⁸ *Id.*

¹¹⁹ For example, OCD’s online spills database shows that one operator - OXY USA - reported 33 spills from salt water disposal injection well facilities, four of which are from 2026 alone.

¹²⁰ FEIS at B-127.

impact analysis. BLM does not calculate existing disposal capacity, remaining capacity, utilization rates, the number of additional disposal wells that would be required, or whether projected disposal demand would exceed available capacity.

ii. BLM was required to supplement its environmental analyses to consider substantial new information and changed circumstances related to impacts from past, present, and reasonably foreseeable oil and gas extraction-related spills in the project area

BLM issued the DEIS for public comment in 2018; however, the DEIS is based on data that pre-dates 2018 by several years or more. Conditions in the Permian Basin and in the Carlsbad Planning Area have changed dramatically since the mid-2010s, creating substantially changed circumstances from those which BLM originally considered in its DEIS. In addition and as discussed above, substantial new data, scientific literature, and technical reports have emerged which bear on toxic oil and gas waste and pollution from oil and gas spills in the Planning Area, including many studies that document significant environmental impacts from these spills. This significant new information on spills associated with oil and gas extraction, along with changed circumstances relating to the pace and scale of oil and gas extraction in the Planning Area, require BLM to conduct supplemental NEPA analysis.

A. New information requiring supplemental analysis - oil and gas waste

BLM must analyze the environmental impacts of produced water and other fracking waste disposal, including transportation and storage of produced water, treatment for proposed reuse including associated air emissions, the potential for induced seismicity, potential for spills and leaks of produced water and concomitant hazardous substances, and ultimate disposal methods. BLM must also analyze not only routine produced water management and disposal, but also the reasonably foreseeable consequences of system failures. As discussed above, spills, leaks, tank failures, pipeline releases, disposal incidents, and other oilfield waste failures are recurring features of oil and gas operations, not speculative accidents. Because produced water and associated wastes are transported, stored, treated, injected, and sometimes reused through complex infrastructure systems, BLM must analyze the cumulative risks of failure across the life of the leases authorized by the RMP, including impacts to groundwater, surface water, and air quality.

B. Increased oil and gas extraction and associated cumulative impacts from produced water and other fracking waste spills constitute changed circumstances requiring supplemental analysis

Oil and gas extraction in the planning area and surrounding Permian Basin tripled between 2018-2024, according to NMOCD, with corresponding growth in activities such as drilling and production that generally increased spills, particularly spill volumes.¹²¹ These changes are significant and are directly relevant to the intensity and nature of extraction-related spill impacts. BLM must reassess impacts to water resources and air quality using current spill

¹²¹ See *supra*, n.5, **Exhibit 5**, at 11 for figures showing growth in oil and gas extraction in New Mexico's Permian Basin from 2018 through 2024.

data and projected spill magnitude from the scale of future extraction rather than the stale baseline reflected in the draft FEIS.

BLM must also reassess its reliance on state standards and regulations governing oil and gas extraction activities as the mechanism to ensure prevention and remediation of spills. As discussed above, publicly-available records show that NMOCD has a history of failing to prevent and remediate the majority of spills (tens of thousands) associated with oil and gas extraction throughout the state. Given such an extensive record showing that state standards and regulations are not preventing or remediating spills, BLM must do a supplemental analysis of spill impacts and appropriate measures to mitigate those impacts.

8. BLM's analysis of the proposed RMP's effects on special-status species is deficient

BLM's environmental review with respect to special-status species falls short of NEPA's hard look requirement, arbitrarily concludes that the proposed plan meets the plan's goals and objectives to "ensure" and "enhance" population viability special-status species, and fails to demonstrate that the proposed RMP complies with FLPMA's substantive mandates and BLM's policies to conserve special-status species.

The proposed RMP purports "to define planning policies and goals that will be maintained and achieved over time."¹²² Specifically, with respect to special-status aquatic, plant, and wildlife species, BLM's proposed goal is to "[c]ontinue to enhance population viability and habitats of special status species" to prevent their listing.¹²³ With respect to aquatic species, the EIS proposes the additional goal to "[m]anage public lands to contribute to the conservation and recovery of special status species and the ecosystems on which they depend."¹²⁴ The EIS defines more specific objectives to achieve these goals (further detailed below).

These conservation goals appear to inform BLM's proposed management prescriptions and selection of alternatives. The final EIS states that the proposed RMP "best meets the purpose and need of the RMP/EIS by addressing the key planning issues, including providing for mineral development to benefit the local economy, while still ensuring for long-term resource viability."¹²⁵ But the final EIS fails to take the required hard look at the proposed RMP's effects on local populations of special-status aquatic species, special-status plants, and imperiled lesser prairie chicken (LPC) and dunes sagebrush lizard (DSL), much less demonstrate that the RMP "ensure[s]" the long-term viability of these species within the planning area or throughout their range, or will "enhance" these species' "population viability and habitats." As a result, the EIS cannot possibly conclude that the proposed RMP complies with FLPMA's "multiple use" mandate that BLM manage the public lands "without permanent impairment" of its wildlife resources, 43 U.S.C. § 1732(a); prevents unnecessary or undue degradation (UUD), *id.* § 1732(b); and carries out BLM's policies to "conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species," and "to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA,"¹²⁶ as required by BLM's Manual on Special Status Species. Special status species include "all Federal candidate species, proposed species, and delisted species in the 5 years following delisting," including those species addressed below.¹²⁷

a. BLM fails to take a hard look at impacts to aquatic species¹²⁸

¹²² FEIS Vol. 1, p. 1-9.

¹²³ FEIS, Vol. 1, p. 2-12, 2-13.

¹²⁴ FEIS, Vol. 1, p. 2-12.

¹²⁵ FEIS, Vol. 1, p. ES-4.

¹²⁶ BLM, Manual 6840 Rel. 6-121, Special Status Species Management (2025) ("SSSM Manual"), § 6840.01 https://www.blm.gov/sites/default/files/docs/2025-12/MS%206840%20Rel.%206-125_0.pdf.

¹²⁷ SSSM Manual § 6840.01.

¹²⁸ Prior comments raised these issues. *See, e.g.*, FEIS Vol. 2, pp. U-293, U-324.

The RMP planning area hosts 12 special status aquatic species, including Pecos bluntnose shiner, Pecos gambusia and Texas hornshell, which are listed under the ESA¹²⁹, and Pecos pupfish, which was proposed for listing in 2024. The proposed RMP's proposed objectives for aquatic special status species include:

1. Identify, maintain, protect, and enhance federally endangered and threatened species' and sensitive species' habitats in order to maintain or enhance populations within the planning area. Enhance, restore, and/or maintain habitat conditions and availability for special status species and prevent all avoidable loss of habitat.
...
3. Manage non-listed sensitive species and the aquatic and associated habitats upon which they depend in such a manner as to preclude the need to list them as either threatened or endangered under the ESA. The guidance for this management is put forth in BLM Manual 6840 Rel. 6-121 (BLM 2008b and subsequent updates).
4. Implement the specific goals and objectives of recovery plans, species-specific monitoring plans, conservation agreements and strategies, and approved activity-level plans to the extent practicable given budgetary constraints. . . .¹³⁰

The Final EIS, however, fails to demonstrate that the proposed RMP satisfies any of these objectives or BLM's broader goal to "enhance" population viability.

In discussing the impacts of the proposed RMP on these species, the Final RMP and EIS concedes that¹³¹:

Past and present actions that affect and have affected non-special [*sic*] status fish include surface- and subsurface-disturbing activities such as leasable mineral development on BLM-administered and non-BLM administered lands in the planning area. There is an estimated 317,000 acres of past and present surface-disturbing activities within the planning area, which includes activities such as construction of gas plants, potash mines, oil and gas well pads, access roads, transmission lines, and other linear features. Chapter 3 Section 3.2.5 provides greater details on the effect of past and present actions on special status fish, but in general, these actions have all had combined adverse impacts on special status fish by increasing the amount of off-site movement of soils which increases sediment loading and turbidity in nearby waterbodies. In addition, such activities provide opportunities for noxious/non-native species to become established in compromised waterbodies. The development of oil and gas wells also require a large amount of water. The combined surface disturbance and water depletions resulting from leasable mineral development could be detrimental to fish, especially when the activities are close to the Pecos, Delaware, and Black Rivers, where known populations of special status species occur.

¹²⁹ FEIS Vol. 1 p. 3-78

¹³⁰ FEIS Vol. 2, p. 2-12.

¹³¹ FEIS Vol. 2, p. W-13. Note: the reference to "non-special" status fish is assumed to be a typographical error given the section's focus on special status species. See also the Draft RMP and EIS Vol. 1, p. 4-504: "Past and present actions that have impacted special status fish include leasable mineral development on BLM and non-BLM-administered lands in the planning area".

The FEIS then notes how the RMP is predicted to result in an additional 132,849 to 227,214 acres of disturbance¹³². Further,

RFFAs that could impact special status fish include oil and gas on non-federal lands and potash development on both federal and non-federal lands. The RFD estimates 592 new wells per year would be drilled on non-federal lands over the next 20 years. Thus, an estimated 7,104 wells on non-federal land are projected...The RFD scenario (Engler et al. 2023) predicts 12,496 federal wells and estimates upper-end water use at 60 acre-feet per well for a total predicted use of 749,759 acre-feet over the life of the plan (37,487 acre-feet annually)...Approximately 30% of the water pumped to supply the oil and gas industry is from Eddy County, where direct connections to the Pecos, Delaware, and Black Rivers occur. Freshwater wells to supply this water are under the jurisdiction of the New Mexico Office of the State Engineer. As new wells are drilled and existing wells are pumped at a higher rate, adverse impacts to fish species could occur if the pumping results in drawdown of the surface water levels. For example, the groundwater wells used to supply Intercontinental Potash's Ochoa Potash Mine are estimated to change the base flow of the Pecos River by approximately 28 acre-feet annually (BLM 2014a). The predicted impacts of these uses could lead to a lower population of fish in the future.¹³³

However, rather than analyzing impacts to special status aquatic species in more detail, and meet NEPA's hard look requirements, BLM concludes "protections provided by the Endangered Species Act would minimize the potential adverse impacts to listed species" and "Under all alternatives and the Proposed RMP, special status fish would benefit from management prescriptions in accordance with the stipulations provided in Appendix C and general management objectives in Appendix L. Adherence to these standards would reduce many of the adverse impacts from future actions"¹³⁴. In their response to comments on the Draft RMP and EIS, BLM also argues "as stated in the DRMP/EIS, water drawdowns could impact special status species fish (as noted in the Special Status Species section – see Section 3.2.5); while it is a fact that reduced surface water resources could impact fish and their habitats, the scale of those impacts could not be determined in the RMP/EIS".

Similarly, in the section titled "Special Status Aquatic Species Analysis Methods", BLM writes¹³⁵:

In general, all protective stipulations that limit water pumping and ground-disturbing activities, particularly those associated with oil and gas development, would minimize impacts on special status aquatic species. The indicator used to assess impacts between alternatives in this analysis is acres of riparian habitat

¹³² FEIS Vol. 2, p. W-13

¹³³ FEIS Vol. 2, p. W-13

¹³⁴ FEIS Vol. 2, p. W-14

¹³⁵ FEIS Vol. 2, p. P-53

directly impacted. An additional indicator is the known acreage of Pecos bluntnose shiner critical habitat overlapping areas subject to management actions.

To take a *hard look*, BLM ought to thoroughly consider the scale of current and proposed mineral development, and associated water use, within and around special status species' occupied and potential habitat. BLM has at its disposal estimates of water use per well and could use this information to more rigorously conceptualize potential effects to groundwater-dependent ecosystems. This effects analysis should also consider, where available, local and regional aquifer characteristics, as well as current water level trends in the region ("Overall, the current trend in surface water quantity is a slight reduction in flow resulting primarily from drought cycles common to the southwestern United States."¹³⁶ "Over the region, groundwater elevations have declined with use as a result of urban population growth, industrial uses, and increased groundwater use for irrigation. Water use from the aquifers exceeds recharge rates, which is leading to groundwater-level declines"¹³⁷).

Another important factor to consider is the cumulative impact of climate change and industrial water use in the planning area. In its discussion of the "affected environment", BLM concedes that the Southwest is projected to become warmer and drier¹³⁸, and identifies water, vegetation and wildlife as some of the resources most susceptible to impacts from these trends in the planning area¹³⁹. BLM then describes how many BLM land uses "will likely stress these resources even further and impact their resiliency...Common land uses in the planning area include those associated with leasable, salable, and locatable minerals (such as oil well pads, potash mines, and caliche pits), as well as...right-of-way [ROW] power lines and pipelines...grazing, off-highway vehicle (OHV) use, and other recreation uses"¹⁴⁰. In yet another section, BLM states that "riparian areas are expected to be impacted significantly by predicted warming and reduced precipitation trends" and that increased water demand due to human population growth and increased municipal, agricultural, and industrial use can exacerbate temperature and precipitation-driven scarcity¹⁴¹. Yet, BLM fails to adequately articulate the role of the RMP in driving these cumulative impacts, and the implications for aquatic species such as the Pecos bluntnose shiner, Texas hornshell and Pecos gambusia.

BLM must specifically address its apparent downplaying of the potential impact of hydraulic fracturing ("fracking") in a climatically-stressed environment: "Later research has shown that water use has increased in the Permian Basin based on an increased use of hydraulic fracturing (Kondash et al. 2018)... Additional land uses, such as hydraulic fracturing, could create impacts that would make groundwater recharge volumes less resilient under an already extreme altered temperature and precipitation scenario. *However, the oil and gas industry's reliance on recycling of fracturing fluids and/or produced water rather than the use of fresh groundwater resources would cause little predicted impact on groundwater availability* [emphasis added]¹⁴². The assertion of minimal impact is unsupported, as is the industry's

¹³⁶ FEIS Vol. 2, p. B-13

¹³⁷ FEIS Vol. 2, p. B-14

¹³⁸ FEIS Vol. 2, p. B-2

¹³⁹ FEIS Vol. 2, p. B-2

¹⁴⁰ FEIS Vol. 2, p. B-2

¹⁴¹ FEIS Vol. 2, p. B-15

¹⁴² FEIS Vol. 2, p. B-15

reliance on recycled fluids and/or produced water. According to BLM, produced water has comprised between 40% and 90% of total water used for stimulation since 2020¹⁴³. However, this is a huge range of estimates, and as conceded in the EIS, future trends are uncertain: “if more water-intensive stimulation methods (e.g., slickwater fracturing) are implemented or if laterals become longer, water use could increase from this estimate. Alternatively, water use estimates could be lower if produced water is reused or recycled for use in hydraulic fracturing”¹⁴⁴.

As part of its hard-look analysis, BLM must, furthermore, thoroughly consider available evidence on species’ distribution and viability (redundancy, resiliency and representation), and pre-existing threats. In the section titled “Special Status Aquatic Species Analysis Methods”, BLM writes “This analysis is qualitative due to limited habitat data and information on special status aquatic species, with the exception of the Pecos bluntnose shiner (*Notropis simus pecosensis*), for which known acres of critical habitat are available. Habitat locations for aquatic species consist of BLM lakes, rivers, and streams”¹⁴⁵ and “Because areas of habitat are not known for Pecos gambusia and Texas hornshell, the same impacts described for Pecos bluntnose in this analysis are assumed applicable to all special status aquatic species, in the event that these species or their habitats are present”¹⁴⁶. Yet, information about habitat locations is available in the 5-year reviews for Texas hornshell and Pecos gambusia, as well as the Texas hornshell’s (2018) listing rule¹⁴⁷. BLM also describes the distribution of Pecos gambusia in the CFO planning area on p. B-74 of the FEIS. Species’ distribution, viability and pre-existing threats all play a role in determining the level of impact from the RMP management actions.

Finally, the effectiveness of the RMP’s proposed mitigation strategies must be analyzed in detail, going beyond broad statements about their presumed effectiveness. According to BLM, “Pecos bluntnose shiner critical habitat would not be open to any surface-disturbing mineral development activities, as all alternatives and the Proposed RMP would either be closed or NSO for leasable mineral development...thereby protecting the species from both direct and indirect impacts from mineral development”¹⁴⁸. As far as we can tell, NSO (no surface occupancy), rather than no leasing, would apply in the case of the proposed RMP. However, under Alternative A, the Pecos Bluntnose Shiner Habitat ACEC (201 acres) would be designated and closed to leasing¹⁴⁹. Yet, BLM does not appear to distinguish between the Preferred Alternative and Alternative A in terms of impacts, nor discuss the suitability of the avoidance area for Pecos

¹⁴³ FEIS Vol. 2, p. B-14

¹⁴⁴ FEIS Vol. 2, p. W-7

¹⁴⁵ FEIS Vol. 2, p. P-53

¹⁴⁶ FEIS Vol. 2, p. P-53

¹⁴⁷ **Exhibit 68**, USFWS, Pecos gambusia (*Gambusia nobilis*) 5-Year Status Review: Summary and Evaluation. U.S. Fish and Wildlife Service Austin Ecological Services Field Office. Austin, Texas (July 24, 2025) (*entire*), https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/25884.pdf (hereinafter “Pecos gambusia Status Review”); **Exhibit 69**, USFWS, Pecos Gambusia (*Gambusia nobilis*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Austin Ecological Services Field Office Austin, Texas (2018), https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2563.pdf; **Exhibit 70**, USFWS, Endangered and Threatened Wildlife and Plants; Endangered Species Status for Texas Hornshell, 83 Fed. Reg. 5720 (Feb. 9, 2018).

¹⁴⁸ FEIS Vol. 1, p. 3-97

¹⁴⁹ FEIS Vol. 2, p. 154.

bluntnose shiner with regard to the potential area of effect for existing and projected well sites in the planning area.

In another example, BLM discusses leasable mineral mitigation strategies for Pecos gambusia and Texas hornshell, including the allocation of subsurface mineral development as open with major constraints (NSO) on private lands at Blue Springs¹⁵⁰). BLM argues that these strategies will protect both species and their habitats, while conceding that “soil disturbance from surface development outside of riparian areas, seeps, and springs within the connected watershed could have indirect impacts to habitat for both species including increased erosion and run-off, leading to sedimentation and changes in water quality and water contamination through leaks or spills”¹⁵¹. Yet, the analysis fails to analyze these impacts, or those associated with groundwater depletion, in any detail, such as by considering the potential scale of mineral development¹⁵² in the general vicinity of Blue Spring, Black River and Delaware River, or the likelihood of spills. In their most recent 5-year status review for Pecos gambusia, the Fish and Wildlife Service (“USFWS”) wrote: “A total of 24 new wells have been drilled within 5.0 km (3.1 mi) of the [Blue Springs] habitat since the last five-year status review was prepared in 2018... We used New Mexico Oil Conservation Division spills data to evaluate spills from oil and gas production operation in Eddy County for the period 2013–2024...we queried the dataset for the spills that occurred within 5.0 km (3.1 mi) of Blue Springs. Spills are reported to the Oil Conservation Division continuously; since 2003, this value has ranged from 1 to 18 spill events per year...Spills have been higher in the last five years, and most spills are of produced water.”¹⁵³ The EIS fails to analyze the potential for produced water spill rates to dramatically increase, the resulting effects on aquatic species populations and their viability, and whether NSO stipulations will effectively preserve populations and their viability.

i. BLM fails to take a hard look at Pecos Pupfish

The Proposed RMP/FEIS states that the Pecos pupfish (*Cyprinodon pecosensis*) is “currently under review for listing under the ESA” and identifies its status only as “BLM-S,” without disclosing its proposed federal listing and critical habitat.¹⁵⁴ FWS, however, proposed the pupfish for threatened listing under the ESA and proposed the designation of approximately 136 miles of critical habitat on November 22, 2024.¹⁵⁵ BLM’s omission is especially significant because the FEIS states that it was updated to add newly threatened, endangered, proposed, and candidate species and critical habitat.¹⁵⁶

The BLM broadly acknowledges that resource use decisions will cause significant aquatic impacts, stating that “[t]he majority of impacts to special status aquatic species from

¹⁵⁰ FEIS Vol. 1, p. 3-97.

¹⁵¹ FEIS Vol. 1, p. 3-97.

¹⁵² See distribution of lands open to leasing with standard terms or conditions, or moderate constraints under Alternative C (FEIS Vol. 2, p. A-16).

¹⁵³ Pecos gambusia Status Review, p. 55.

¹⁵⁴ FEIS, Vol. 1, tbl. 3.2.5.1.2, p. 3-78.

¹⁵⁵ U.S. Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Pecos Pupfish and Designation of Critical Habitat, 89 Fed. Reg. 226 (Nov. 22, 2024) at 92744 (hereinafter “2024 Proposed Rule”).

¹⁵⁶ FEIS, *supra* note 1 at 1-14.

resource use management decisions would result in habitat removal and fragmentation from ground-disturbing activities, as well as increased sedimentation and decreased water quality and quantity, which indirectly impacts special status aquatic species and habitat.”¹⁵⁷

Furthermore, the BLM notes that ground disturbance “may directly impact special status aquatic species and their habitats through habitat removal and fragmentation and indirectly affect them via impacts from sedimentation, runoff, and changes in water quality and quantity.”¹⁵⁸

Despite these admissions, the BLM fails to take a hard look at how intensive oil and gas development, extensive groundwater withdrawals, produced water management, potential spills, and industrial pollution will specifically interact with ongoing threats to the Pecos pupfish in the FEIS.¹⁵⁹ The 2024 Proposed Rule emphasizes that Pecos pupfish is imperiled by the loss of surface and ground waters, water quality degradation, and habitat fragmentation, adding that, “[a]s anthropogenic uses of water increase from urban, agricultural, and industrial development, water management will become more important to maintain adequate water for the Pecos pupfish.”¹⁶⁰

FWS identifies measurable habitat requirements for the Pecos pupfish in the 2024 Proposed Rule, including sufficiently uncontaminated water, salinity below 35,000 milligrams per liter, temperature below 42.7°C, dissolved oxygen above 2.5 milligrams per liter, and silt-free underwater features such as crevices and aquatic plants used for egg deposition.¹⁶¹ The FWS also notes that the pupfish depends on sufficient water quantity year-round for survival and breeding, and that changes in water quantity in small, ephemeral streams have already led directly to pupfish mortality events in both Bitter Creek and Salt Creek, NM.¹⁶² The FEIS states that contaminants remaining after unrecovered spills are remediated under federal and state standards, but provides no analysis of remediation timing, completeness, effectiveness, residual contamination, or whether contaminants could reach pupfish habitat before remediation occurs.¹⁶³ By failing to evaluate how industrial water demands and oil and gas operations will deplete or contaminate Pecos pupfish habitats, BLM's analysis is deficient.

While certain alternatives in the FEIS include specific restrictions and surface-disturbance buffers for other vulnerable aquatic species, such as No Surface Occupancy stipulations for the Pecos bluntnose shiner and Pecos gambusia,¹⁶⁴ the FEIS does not consider similar robust safeguards to the Pecos pupfish.

¹⁵⁷ *Id.* at 3-96.

¹⁵⁸ *Id.* at 3-97.

¹⁵⁹ Compare 2024 Proposed Rule at 92769 with FEIS at 3-7 and 3-96 to 3-97. The cited BLM sections disclose projected activity and discuss aquatic impacts on special status aquatic species generally but do not apply FWS's pupfish-specific criteria.

¹⁶⁰ 2024 Proposed Rule, *supra* note 2 at 92750.

¹⁶¹ *Id.* at 92769.

¹⁶² 2024 Proposed Rule, *supra* note 2 at 92749.

¹⁶³ Bureau of Land Management, U.S. Dep't of the Interior, Carlsbad Field Office, Carlsbad Proposed Resource Management Plan and Final Environmental Impact Statement, Vol. 2 (Sept. 2026) at B-12.

¹⁶⁴ FEIS, *supra* note 1 at 3-93.

BLM should not issue the Record of Decision until it corrects the FEIS's outdated treatment of the Pecos pupfish as merely "under review" and incorporates the Fish and Wildlife Service's November 2024 proposed rule into its affected-environment, effects, and mitigation analyses. BLM also should determine and document whether the RMP is likely to jeopardize the proposed species or destroy or adversely modify its proposed critical habitat and, if either threshold is met, confer with FWS under section 7(a)(4) of the Endangered Species Act before issuing the Record of Decision.

b. BLM fails to take a hard look at impacts to plants¹⁶⁵

The RMP planning area hosts 17¹⁶⁶ special status plants, including Kuenzler's hedgehog cactus, Lee's pincushion cactus, Wright's marsh thistle, Pecos sunflower and Guadalupe fescue, which are listed under the ESA, and Gypsum wild-buckwheat, which is also listed but has been proposed for delisting. The list of sensitive species additionally includes Tharp's blue-star, which received a positive 90-day finding in 2009, and Allred's flax (*Linum allredii*), which was petitioned for listing in 2025¹⁶⁷. Among BLM's proposed objectives for special-status plants are: "[i]dentify, maintain, protect, and enhance federally endangered and threatened species' and sensitive species' habitats in order to maintain or enhance populations within the planning and preclude the need to list them as either threatened or endangered under the ESA" and "[m]itigate or reduce long-term habitat fragmentation through avoidance, mitigation, rectification, site-specific reclamation, and reducing or eliminating impacts over time and remaining residual effects to return areas to productive levels."¹⁶⁸ Again, the FEIS fails to demonstrate that the proposed RMP will meet these objectives.

According to BLM, special status plants are directly impacted by, inter alia, mineral and intermittent energy development and land uses, livestock grazing and travel and transportation: "Subtle increases or decreases in weeds, shrubs, forbs, water availability, and undisturbed areas can greatly affect the...survival of sensitive plant species. The greater the amount of surface disturbance...the greater potential impacts on these species"¹⁶⁹. Indirect impacts to the plants are listed as loss of pollinator habitat, increased alterations to hydrological flows, soil compaction, increased erosion potential, habitat fragmentation, and increased fugitive dust¹⁷⁰. BLM further suggests that "most significant impacts to plants and habitats in arid and semi-arid (water-limited) ecosystems result from the direct, indirect, and combined alterations to or contamination of hydrological flows"¹⁷¹, and that "gypsum soils are highly sensitive to disturbance and difficult to reclaim if impacted"¹⁷². Special status species described as being directly dependent on the

¹⁶⁵ See FEIS, Vol. 2, p. U-294, U-282, U-279 (raising these issues).

¹⁶⁶ Table 3.2.5-1 in the FEIS is in error as it omits Pecos sunflower, Guadalupe fescue and glass mountain coralroot

¹⁶⁷ See **Exhibit 71**, Center for Biological Diversity, Petition to list Allred's flax (*Linum allredii*) under the Endangered Species Act (Dec. 4, 2025), https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/petition/32385.pdf (accessed October 2026) (hereinafter "Allred's flax Petition")

¹⁶⁸ FEIS Vol. 1, p. 2-12.

¹⁶⁹ FEIS Vol. 1 p. 3-80

¹⁷⁰ FEIS Vol. 1 p. 3-80

¹⁷¹ FEIS Vol. 2, p. T-6

¹⁷² FEIS Vol. 2, p. B-5

health of gypsum soils for their survival include: Allred's flax, gypsum milkvetch, gypsum wild-buckwheat, Scheer's beehive cactus, Sneed's pincushion cactus and Tharp's blue-star¹⁷³.

Despite describing many of the mechanisms through which mineral development and other resource uses in the CFO planning area can impact special status plant species, BLM fails to articulate how these mechanisms scale spatially and temporally due to the proposed land use allocations. For fluid leasable mineral resources, the RMP proposes to categorize as open, or open with moderate constraints, the vast majority of special status plant species modeled suitable habitat: 88% for Allred's flax, 89% for gypsum milkvetch, 83% for gypsum wild-buckwheat, 85% for Lee's pincushion cactus, 100% for Kuenzler's hedgehog cactus, 93% for Scheer's beehive cactus, 93% for Tharp's bluestar and 93% for Wright's waterwillow¹⁷⁴. For salable and locatable minerals, the percentages open to development are similar.¹⁷⁵ More than 90% of each species' modelled suitable habitat is also open to grazing¹⁷⁶, and between 37 and 85% is open to land use authorizations (e.g. access roads, transmission lines)¹⁷⁷. The implications of this level of surface disturbance for special status plant survival, local population viability, *and recovery*, need to be analyzed and presented more explicitly, including for both potential and occupied¹⁷⁸ habitat. The entire known population of gypsum wild-buckwheat¹⁷⁹, and 5 out of 6 Tharp's blue-star populations¹⁸⁰ are located within the planning area. BLM must also clarify why only ~18% of the gypsum wild-buckwheat habitat is being designated as closed or open with major constraints in the FEIS¹⁸¹, whereas 100% was designated in DEIS¹⁸².

To take a *hard look*, BLM must, furthermore, thoroughly consider the cumulative impact of climate change and resource uses in the planning area. For example, BLM should assess the impact of the proposed resource use allocations on the resiliency of special status plants, as well as their ability to move to potential future suitable habitat.

BLM's hard-look analysis must, additionally, consider available evidence on species' viability and pre-existing threats. BLM's account of the "current condition" of special status plants does not include any information on threats, except for small teasel lichen.¹⁸³

Finally, BLM must set clear mitigation measures and provide information on their effectiveness. Management common to all action alternatives currently includes "Avoid surface disturbance within a minimum of 100 meters (328 feet) of BLM sensitive species' occupied habitats...to the extent practicable" and "Design site- and circumstance-specific mitigation measures into COAs to reduce any unavoidable indirect or direct impacts to BLM sensitive

¹⁷³ FEIS Vol. 2, p. B-5

¹⁷⁴ FEIS Vol. 2, p. P-42 to P-44

¹⁷⁵ FEIS Vol. 2, p. P-45 to P-46

¹⁷⁶ FEIS Vol. 2, p. P-51

¹⁷⁷ FEIS Vol. 2, p. P-49 to P-50

¹⁷⁸ See FEIS Vol. 2, p. B-220

¹⁷⁹ FEIS Vol. 2, p. B-69

¹⁸⁰ FEIS Vol. 2, p. B-72

¹⁸¹ FEIS Vol. 2, p. P-43

¹⁸² DEIS Vol. 1, p. 4-138

¹⁸³ FEIS Vol. 2, p. B-69 to B-73

species.”¹⁸⁴ As currently worded, the circumstances under which the buffer zone will be implemented, and what impact this and the other unspecified mitigation measures will have on special status plants is unknown. Similarly, while project proponents of surface-disturbing or other potentially impacting activities must survey for special status plant species within their modeled suitable habitat (potential habitat), the extent to which impacts will be avoided through project relocation or mitigation is unknown.¹⁸⁵

BLM should additionally clarify whether the avoidance buffer for sensitive species is indeed 100 meters or 200 meters,¹⁸⁶ and explain why a buffer zone in excess of 200 meters (or 100 meters) is not necessary for sensitive species¹⁸⁷. Based on a recent review¹⁸⁸ of “effect distances”¹⁸⁹, the impact of BLM’s proposed management activities could extend well beyond 200 meters, and these estimates do not account for all activities or effects, such as air pollution. Further, BLM uses “within up to” in describing avoidance buffers for designated critical habitat and occupied habitat for federally listed, proposed, and candidate plant species: “For federally threatened, endangered, proposed, or candidate plant species, designated critical habitats and all areas within up to 300 meters (984 feet) of occupied habitats would close, exclude, avoid, or be recommended for withdrawal for leasable (including geothermal), salable, locatable minerals, intermittent energy, and land use authorizations”¹⁹⁰. A buffer of “within up to” 200 m and 100 m also applies to off-road motorized vehicle travel for oil and gas activities (including pre-construction survey work) for suitable habitat for federally listed, proposed, or candidate species, and occupied habitat for sensitive species respectively¹⁹¹. This means surface disturbances could occur within the buffer zone, and no buffer seemingly applies to sensitive species’ potential habitat. In the DEIS, BLM noted regarding karst features: “The 1997 Carlsbad RMP Amendment included a management prescription stating “surface disturbance will not be allowed within up to 656 feet of known cave entrances, passages or aspects of significant caves, or significant karst features...This wording left room for interpretation that was not consistent with the original intent and, therefore resulted in surface disturbances inside the 656-foot buffer around some karst features across the planning area”¹⁹².

¹⁸⁴ FEIS Vol. 1, p. 2-13

¹⁸⁵ See FEIS Vol. 2, p. L-12

¹⁸⁶ Compare FEIS Vol. 1, p. 3-81: “For other species listed as BLM sensitive species, including Allred’s flax, gypsum milkvetch, Scheer’s beehive cactus, and Tharp’s blue-star, a 100-meter (328-foot) avoidance buffer would be established to avoid direct and indirect impacts on occupied habitat” with FEIS Vol. 2, p. P-41: “For other species listed as sensitive species, including Allred’s flax, gypsum milkvetch, Scheer’s beehive cactus, and Tharp’s blue-star, 200-meter (656-foot) avoidance buffers have been established to avoid direct and indirect impacts on modeled suitable habitat.”

¹⁸⁷ See response to comments on DEIS in FEIS Vol. 2, p. U-282

¹⁸⁸ **Exhibit 72**, USFWS, Recommendations for Endangered Species Act Section 7 Consultations Involving Plants in New Mexico. Version 1.0. U.S. Fish & Wildlife Service New Mexico Ecological Services Field Office (May 2024), p. 24-26, https://www.fws.gov/sites/default/files/documents/2024-06/nmesfosc7recommendationsforplants_v1.0_20240500.pdf.

¹⁸⁹ *Id.*, p. 24: “Effects distances represent the perpendicular, planar ground distance extending outward from the direct footprint of an action where biologically relevant effects can occur but do not necessarily incorporate the full scope of influences to broader, connected ecosystems such as contiguous aquatic habitats”

¹⁹⁰ FEIS Vol. 2, p. L-11. This “within up to” language was introduced in response to comments from the New Mexico Oil and Gas Association. FEIS, vol. 2, p. U-99.

¹⁹¹ FEIS Vol. 2, p. L-12

¹⁹² DEIS Vol. 1, p. 4-34

BLM's analysis of mitigation measures should include, for each special status plant, a thorough evaluation of the implications of reducing from 8 to 1 (Seven Rivers Hills), the number of proposed Areas of Critical Environmental Concerns ("ACEC") with special status plant relevant and important values¹⁹³, or changing the prescriptions associated with the corresponding areas. For example, the Tres Rios ACEC, which includes core habitat for the recently petitioned Allred's flax¹⁹⁴, would preclude (or be NSO for) leasable mineral development in 57% of the ACEC area compared to just 5% under the proposed RMP¹⁹⁵. However, implications for the survival of Allred's flax, which is heavily threatened by oil and gas development¹⁹⁶, are not adequately addressed, despite the BLM's proposed goal of preventing the listing of special status plants. The Tres Rios ACEC also hosts gypsum wild-buckwheat, whose ability to persist in the wild post-delisting depends on the RMP and the protections it includes.

c. BLM fails to take a hard look at the plan's impacts on Lesser Prairie Chicken and how the proposed RMP comports with the plan's objectives, FLPMA, and BLM's sensitive species policies¹⁹⁷

The EIS fails to take a hard look at how the Proposed RMP will affect LPC population viability and habitat. The EIS's analysis amounts to a mere comparison among the several alternatives' habitat protections (i.e., which ones are more or less protective of habitat relative to each other), which says nothing about the Proposed RMP's actual effectiveness in preventing population declines or losses.¹⁹⁸ The EIS's conclusion that the Proposed RMP will "ensur[e] for long-term resource viability," including LPC population viability, is unsupported.¹⁹⁹

Although the EIS's response to comments suggests that BLM's biological assessment (BA) and biological opinion (BiOp) for the Proposed RMP may address these issues,²⁰⁰ these documents were not made available with the final EIS, so the public cannot evaluate whether adequate environmental analysis backs BLM's conclusions concerning the Proposed RMP's effects on special-status wildlife. On September 30, 2026, the Center for Biological Diversity requested that BLM make the BA and BiOp available, but the Center did not receive a response, and BLM has so far not posted them to ePlanning. Without the BA and BiOp (or incorporating the missing analysis into the final EIS), the public does not have an adequate opportunity to participate in BLM's formulation of the Proposed RMP, as required by FLPMA, nor an adequate opportunity to protest. *See* 43 U.S.C. § 1739(e) (BLM "shall . . . give the Federal, State, and local governments and the public adequate notice and an opportunity to comment upon the formulation of standards and criteria for, and to participate in, the preparation and execution of

¹⁹³ FEIS Vol. 1, p. 3-91

¹⁹⁴ *See* Allred's flax Petition, p. 9 and FEIS Vol. 1 p. A-67

¹⁹⁵ FEIS, Vol. 1, p. 3-272, Vol. 2, p. P-164

¹⁹⁶ Allred's flax Petition.

¹⁹⁷ Issues raised in this section were raised in prior comments. *See, e.g.*, FEIS, Vol. 2, p. U-293 (requesting BLM not authorize any alternative that authorizes further habitat loss for listed and sensitive species); U-294 (failure to take a hard look at population-level impacts); p. U-88 (requesting more stringent restrictions on development in Habitat Areas).

¹⁹⁸ FEIS, Vol. 1, p. 3-69 (merely comparing acreage of "land available and unavailable to minerals extraction" as "the best indicator of risk to wildlife").

¹⁹⁹ FEIS, Vol. 1, p. ES-4.

²⁰⁰ *See, e.g.*, FEIS, Vol. 2, pp. U-294-95.

plans and programs for, and the management of, the public lands.”); 43 C.F.R. § 1610.2(f) (requiring “[p]ublic notice and opportunity for participation in [RMP] preparation” at the time of “[p]ublication of the proposed [RMP] and final [EIS] which triggers the opportunity for protest”). *id.* § 1610.4-8 (“After supervisory review of the proposed [RMP], the State Director shall publish the plan and file the related [EIS].”). Once the BA and BiOp are made publicly available, BLM should restart a new protest period to allow the public an adequate opportunity to protest.

In any event, BLM’s abandonment of one of its longstanding strategies for conserving and recovering sage-grouse through the protection and restoration of relatively undisturbed blocks of habitat strongly suggests that the Proposed RMP will not effectively meet its proposed goals and objectives in recovering and ensuring long-term viability of LPC. In 2008, BLM amended its RMP to require the evaluation of 17 “Habitat Evaluation Areas” to determine whether they met minimum criteria to receive increased management as habitat “building blocks,” known as “Habitat Areas” (HA), as defined in the Carlsbad Field Office’s 2008 Special Status Species RMPA (2008 RMPA).²⁰¹ Habitat Areas “were established to serve as potential habitat building blocks for expansion of the [LPC].”²⁰² HAs are thus “high priority for expanded surveys, habitat improvement, and reserve site establishment,” and “any areas where LPC populations face imminent threats of habitat conversion or fragmentation by development would be considered *highest priority* for strategies aimed at preventing habitat loss or minimizing developmental impacts.”²⁰³

In 2018, BLM completed the evaluation of Habitat Evaluation Areas identified in the 2008 RMPA and converted 16 of 17 Habitat Evaluation Areas to HAs.²⁰⁴ Each area is located within the designated Isolated Population Area, where populations “are extirpated or nearly so and where a large portion of the habitat has already been fragmented beyond the species-specific thresholds for non-breeding purposes, and almost all of the habitat has been fragmented beyond the species-specific threshold for breeding purposes on both BLM-administered lands and non-BLM lands.”²⁰⁵

²⁰¹ BLM, Special Status Species Record of Decision and Approved Resource Management Plan Amendment, pp. 12, AP2-6, AP3-1 (April 2008), <https://eplanning.blm.gov/documents/?id=c752f38d-a7f2-f011-8407-001dd803d067&spid=cf8bdf55-a8f2-f011-8406-001dd8008d46>.

²⁰² 2008 RMPA, p. AP3-1; FEIS, Vol. 2, p. J-1.

²⁰³ FEIS, Vol. 2, p. J-1 (emphasis added).

²⁰⁴ See **Exhibit 73**, BLM, EA, DOI-BLM-NM-P020-2018-0204-EA, Converting Lesser Prairie-Chicken Habitat Evaluation Areas (HEAs) to Habitat Areas (HAs) (April 2018) (“2018 HA EA”), p. 5, <https://eplanning.blm.gov/documents/?id=8ca98fa5-a7f2-f011-8407-001dd80c29f3&spid=5c64565a-a8f2-f011-8407-001dd803d067> (describing proposed action); **Exhibit 74**, BLM, Decision Record for Converting Lesser Prairie-Chicken Habitat Evaluation Areas (HEAs) to Habitat Areas (HAs) (April 20, 2018) (adopting proposed action), <https://eplanning.blm.gov/documents/?id=8ca98fa5-a7f2-f011-8407-001dd80c29f3&spid=5c64565a-a8f2-f011-8407-001dd803d067>.

²⁰⁵ FEIS, Vol. 1, p. Glossary-7.

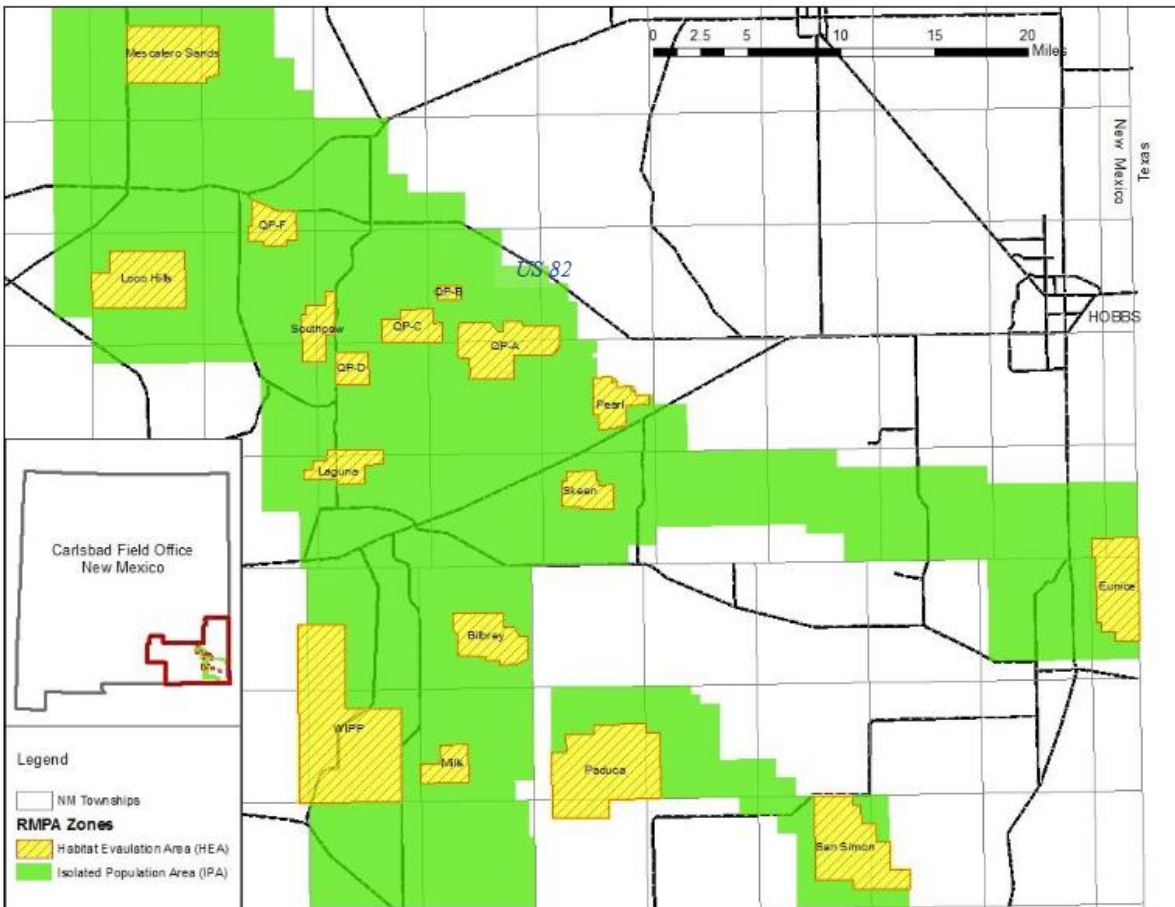


Figure 1 from 2018 HA EA (p. 2) showing Map of the Habitat Evaluation Areas within the Isolated Population Area

Under current management direction as set forth in the 2008 RMPA, HAs, which by definition “contain 320 acres or more and contain 40% or more of suitable habitat (factoring in impact radii)” are closed to leasing, or must be leased with a no surface occupancy stipulation.”²⁰⁶ The 2008 RMPA further directed that “[l]easing with the no surface occupancy requirement would mean there are acceptable drilling locations outside the lease that would not adversely impact lesser prairie chicken habitat. Reclamation on adjacent areas should receive high priority due to the size and level of influence these blocks have on habitat connectivity.”²⁰⁷ A primary purpose of these protected areas is to serve as potential LPC reserves and reintroduction areas: “New areas or combinations of areas that can function as lesser prairie-chicken reserves and sites for reintroduction will be established in the [Isolated Population Area]. These should be located within predominantly suitable habitat areas large enough to support viable lesser prairie-chicken populations and meet [HA] criteria. . . .”²⁰⁸

²⁰⁶ FEIS, Vol. 2, p. J-1;

²⁰⁷ 2018 HA EA, p. 34 (citing 2008 RMPA, p. AP3-1).

²⁰⁸ 2008 RMPA, p. 25.

Accordingly, BLM’s 2018 Habitat Area decision closed nine HAs to future leasing and restricted seven HAs to leasing with a NSO stipulation.²⁰⁹

Despite these longstanding HA management prescriptions, under the Proposed RMP, virtually all HA acreage would be open to mineral and/or surface development. For leasable minerals, LPC HAs (86,379 acres) “would be open with moderate constraints (CSU)”²¹⁰; for salable minerals, HAs (84,072 acres) “would be open with special terms and conditions; and for ROWs, HAs (68,917 acres) would be “avoidance areas,”²¹⁰ meaning that “rights-of-way would be granted . . . where there is a prevailing need and no practical alternative location exists.”²¹¹ Although a small portion of HAs would be either closed to leasing, or open with an NSO stipulation,²¹² it is unclear how BLM determined that certain areas would be off limits to development, while the vast majority would be open.

These proposed changes are a sharp departure from BLM’s 2008 decision to entirely close HAs to subsurface and/or surface fluid mineral development, and BLM’s 2018 decision to close the specific HAs at issue here. The EIS, however, fails to justify this shift in BLM’s primary strategy for recovering LPC, including why HAs no longer should have the “*highest priority* for strategies aimed at preventing habitat loss or minimizing developmental impacts.”²¹³ Instead, they appear to be treated like the vast majority of LPC habitat—subject only to “moderate constraints.”²¹⁴ Nor does the EIS explain how these changes square with BLM’s goals to enhance LPC population viability and habitat, when LPC in these areas are already extirpated or nearly extirpated owing to extreme habitat fragmentation.

If anything, the EIS strongly suggests that populations will continue to decline under the Proposed RMP. As the EIS recognizes, oil and gas development is a driving factor in the LPC’s population declines throughout the planning area: “The USFWS indicated the future of LPC habitat in this ecoregion will be most influenced by habitat loss and fragmentation from ongoing energy development and encroachment of mesquite.”²¹⁵ And as we noted in prior comments, LPC “requires continuous areas of habitat that are at least 25,000 acres, and that are connected to other large areas of habitat. Without large enough tracts of land, and sufficient corridors connecting this land to other large tracts of land, the LPC population is likely to significantly decrease.”²¹⁶ Allowing subsurface and surface development in HAs would precipitate further habitat fragmentation and population declines. The EIS also makes note of Fish and Wildlife Service’s 2022 determination that “expected conservation efforts are inadequate to prevent continued declines in total habitat availability, much less restore some of what has been lost, and

²⁰⁹ 2018 HA EA, p. 5.

²¹⁰ FEIS, Vol. 1, p. ES-4, 2-15.

²¹¹ FEIS, Vol. 1, p. Glossary-2.

²¹² FEIS, Vol. 1, p. 2-15.

²¹³ 2018 HA EA, p. 33.

²¹⁴ See FEIS, Vol. 1, pp. 2-14 - 2-15.

²¹⁵ FEIS, Vol. 2, p. B-84. See also *id.* (“Habitat fragmentation and increased density of development risk reducing habitat viability further past the above-described thresholds.”).

²¹⁶ WildEarth Guardians et al., Comments on the Carlsbad Field Office’s Draft RMP and EIS (Nov. 5, 2018), p. 94 (attached as Exhibit 1); see also **Exhibit 75**, Vhay, Megan P. et al., Broad-scale changes in lesser-prairie-chicken habitat, PLoS One, 2024 May 31;19(5):e0304452. doi: [10.1371/journal.pone.0304452](https://doi.org/10.1371/journal.pone.0304452).

species viability for this species will continue to decline (USFWS 2022c).”²¹⁷ But the EIS stops short of recognizing that evisceration of BLM’s HA strategy for recovery of LPC would only worsen the situation for LPC.

Beyond stripping HAs of protections without any reasoned explanation, the EIS gives no consideration to the minimum size areas that LPC would need to maintain and enhance existing populations and/or reestablish viable LPC populations, and whether any of the proposed alternatives conserve large enough tracts or would lead to the conservation of large enough tracts for the maintenance and/or reestablishment of viable populations.²¹⁸ At least 25,000 acres of contiguous high-quality habitat may be required to maintain self-sustaining populations.²¹⁹

BLM also fails to consider an alternative that closes all LPC habitat to oil and gas leasing, which is needed to preserve this unique and biologically significant population.²²⁰ Oil and gas development poses unavoidable threats to this fragile population, including habitat fragmentation from well pads, roads, pipelines, and power lines, noise pollution, hazardous pollutants, vehicle collision risks, invasive species introduction, and increased perches for predators. CSU stipulations requiring the “least surface impacts possible”²²¹ do not necessarily translate to leaving habitat intact to support viable LPC populations.

BLM fails to consider an alternative that would increase lek buffers. “Active leks are only found, in general, at least 3,000 to 5,000 meters away from anthropogenic features like roads, power lines, and oil and gas wells.”²²² LPC nests are most likely to occur within 1.25 miles of a lek (where 90% of nests are found).²²³ An “up to” 200-meter buffer around historic leks would not “allow for future potential use,” contrary to the EIS’s claim.²²⁴ We cannot find any support for LPC returning to historic leks so long as leks are not disturbed within up to 200 meters of the lek, which is not even a minimum buffer. The 3-mile buffer proposed for active leks should also apply to historic leks, consistent with the plan’s goal to enhance population viability and recovery.²²⁵

BLM also fails to consider an alternative to extend the March 1-June 15 noise prohibition on oil and gas activities by 15 days “on each end” (a total of 30 days), as requested by the New

²¹⁷ FEIS, Vol. 2, p. B-84 (note that “USFWS 2022c” is not listed in the Literature Cited, so it is unclear what that refers to).

²¹⁸ See FEIS, Vol. 1, p. 3-65.

²¹⁹ **Exhibit 76**, LPC Conservation LLC, Oil and Gas Habitat Conservation Plan for the Lesser Prairie-chicken, Colorado, Kansas, New Mexico, Oklahoma, and Texas (Aug. 4, 2021, revised May 11, 2022), https://www.fws.gov/sites/default/files/documents/508%20Compliant%20Final%20LEPC%20OG%20HCP_05.9.2022_0.pdf.

²²⁰ FEIS, Vol. 2, p. U-294.

²²¹ FEIS, Vol. 1, p. 3-105.

²²² FEIS, Vol. 2, p. U-295 (citing **Exhibit 77**, Anne M. Bartuszevige and Alex Daniels, *Impacts of energy development, anthropogenic structures, and land-use change on lesser prairie-chickens*, 48 Stud. Avian Biol. 205, 212 (2016)).

²²³ **Exhibit 78**, Western Association of Fish & Wildlife Agencies, LPC Active Leks (updated March 12, 2026), <https://www.arcgis.com/home/item.html?id=c1f7405057e64485bd62ec03dfd18f73#overview>.

²²⁴ FEIS, Vol. 2, pp. T-4, C-13.

²²⁵ See FEIS, Vol. 2, p. T-4.

Mexico Department of Game and Fish.²²⁶ Extended timing limitations are warranted because LPC have been returning to lekking sites in mid-February and using brood-rearing sites through the end of June.²²⁷ BLM's response to this comment does not address why such an alternative is unreasonable or infeasible.²²⁸

Accordingly, the Proposed RMP will not carry out the Proposed RMP's goal and objectives. As earlier noted, BLM's proposed goal with respect to special status species, including LPC is to "[c]ontinue to enhance population viability and habitats of special status species in order to minimize the likelihood of and need for listing,"²²⁹ while its objectives are to:

1. Identify, maintain, protect, and enhance federal endangered and threatened species' and BLM sensitive species' habitats in order to maintain or enhance populations within the planning area and to preclude the need to list them as either threatened or endangered under the ESA. Enhance, restore, and/or maintain habitat conditions and availability for special status species, and prevent all avoidable loss of habitat.
2. Mitigate or reduce long-term habitat fragmentation through avoidance and site-specific reclamation to return areas to improved ecological integrity (i.e., heterogeneity, lack of invasive species, improve connectivity of habitat, improve pollinator habitat, reduce soil erosion, etc.).²³⁰

These objectives reflect the policies in BLM's Special Status Species Manual.²³¹ BLM's analysis falls short in demonstrating that the Proposed RMP will achieve these objectives and BLM's Special Status Species policies.

Indeed, with continued oil and gas leasing in LPC habitat and abandonment of HA protections, the Proposed RMP is highly likely to lead to the loss of LPC populations on the brink of extirpation.²³² The EIS does not support that the Proposed RMP would comply with BLM's multiple use mandate to manage public lands "without permanent impairment" of wildlife resources. *Id.* § 1732(a) ("The Secretary shall manage the public lands under principles of multiple use and sustained yield"); *id.* § 1702(c) (defining "multiple use" to include "harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment"); *id.* ("wildlife and fish" within the scope of "resources" that "shall be managed without permanent impairment of the productivity of the land").

Additionally, because the Proposed RMP would abandon BLM's long-held policy to close HAs to leasing and/or surface disturbance, BLM's adoption of the Proposed RMP would

²²⁶ FEIS, Vol. 2, p. U-280.

²²⁷ FEIS, Vol. 2, p. U-280.

²²⁸ *See* FEIS, Vol. 2, p. U-280.

²²⁹ FEIS, Vol. 2, p. 2-13.

²³⁰ FEIS, Vol. 1, p. 2-13.

²³¹ SSSM Manual § 6840.02.

²³² FEIS, Vol. 2, p. B-84 ("Projections in sand shinnery suggest an elevated probability of extirpation because the current population size and trajectory makes it challenging for the LPC population to withstand unanticipated events (USFWS 2022b).").

violate its duty under FLPMA to “take any action necessary to prevent unnecessary or undue degradation.” 43 U.S.C. § 1732(b). The EIS reasons that doing away with current management direction is needed to boost oil and gas production: “The Proposed RMP could result in fewer short-term adverse impacts to resource extraction industry and increased long-term economic benefits.”²³³ But the EIS fails to address whether NSO stipulations could achieve the same objectives with less harm to LPC populations. For example, the widespread use of horizontal drilling has allowed drillers to frack minerals from several miles away such that surface occupancy of a lease is no longer necessary.²³⁴ And where wells can be located on existing pads or clustered in already disturbed areas, additional disturbance or habitat fragmentation could be entirely avoided or minimized.

Nor does the EIS address whether *any* additional disturbance in not just HAs but LPC habitat more broadly, to the detriment of the state’s few remaining LPC populations for the sake of extracting more oil in one of the most heavily drilled regions in North America, would be “undue” or “excessive.” *See Mineral Policy Ctr. v. Norton*, 292 F. Supp. 2d 30, 43 (D.D.C. 2003) (Under FLPMA, “Interior is to prevent, not only unnecessary degradation, but also degradation that, while necessary to mining, is undue or excessive.”). The EIS’s disparate treatment of “intermittent energy,” or solar and wind energy, further suggests that such degradation would be undue. Under the Proposed RMP, solar is excluded from HAs, while wind is almost entirely excluded (72,863 acres, with only 35 acres “open” and 85 acres “avoided”).²³⁵ The EIS fails to explain why fluid mineral development need not be excluded from HAs unlike wind and solar.

d. BLM fails to take a hard look at the plan’s impacts on Dunes Sagebrush Lizard²³⁶

The EIS’s analysis of impacts on dunes sagebrush lizard (DSL) exhibits the same deficiencies in the EIS’s analysis of the Proposed RMP’s effects on LPC—the EIS is devoid of any analysis addressing the Proposed RMP’s effects on DSL population viability throughout the planning area. Like with the EIS on LPC, the EIS fails to demonstrate the Proposed RMP comports with FLPMA, BLM’s Special-Status Species policies, and the Proposed RMP’s goals and objectives with respect to DSL. Reliance on the BA and/or BiOp to address these issues and fulfill BLM’s duties under NEPA is improper,²³⁷ because the public has not had an opportunity to review the BiOp or BA during the protest period.

²³³ FEIS, Vol. 1, p. ES-8.

²³⁴ **Exhibit 79**, U.S. EIA, Longer wells boost Permian crude oil and natural gas production (Aug. 19, 2026), <https://www.eia.gov/todayinenergy/detail.php?id=67984> (noting wells with “superlaterals” exceeding 3 miles long made up 15% of all new Permian well completions in 2025; mid-length laterals between about 1 to 3-miles long made up 81% of all new Permian well completions in 2025).

²³⁵ FEIS, Vol. 1, p. 2-15.

²³⁶ Issues raised in this section were raised in prior comments. *See* FEIS, Vol. 2, p. U-281, U-294 (pointing out insufficient analysis of DSL impacts, including population level impacts); p. U-299-301 (same, plus requesting closure of all DSL occupied and potential habitat to leasing).

²³⁷ *See, e.g.*, FEIS, Vol. 2, p. U-299 (noting information about threats to DSL have been “integrated into the [BA] (and ultimately the [BiOp])”).

Under the Proposed RMP vast areas of potential habitat would be open to oil and gas leasing and other development. Out of 304,807 acres of DSL potential habitat, 241,638 acres would be “open with moderate constraints,” 45,595 acres would be “open with major constraints,” and only 12,815 acres would be closed to leasing.²³⁸ Notably, while the Proposed RMP also largely opens DSL potential habitat to mineral and other development, solar and wind are largely “excluded” or “avoided” from DSL habitat. That disparity goes unexplained.

- **Geothermal:** Open (230,608 acres), closed (74,199 acres)
- **Salables:** Open (63,455 acres), open with special terms and conditions (235,033 acres), closed (43,923 acres)
- **Locatables:** Open (288,870 acres), recommended for withdrawal (15,937 acres)
- **Intermittent energy:**
 - **Solar:** Available (28,410 acres), excluded (209,052 acres)
 - **Wind:** Avoided (192,173 acres), excluded (41,945 acres), open (3,348 acres)
- **ROWS:** Open (185,687 acres), exclude (38,486 acres), avoid (13,292 acres)²³⁹

Only Alternative B would close more than 20% of all potential habitat (roughly 80%) to oil and gas leasing. No alternative would require complete closure of, or 100% NSO on, all potential habitat. As explained in our prior comments, complete closure of potential habitat is necessary to ensure the species’ viability. The EIS itself recognizes that “fragmentation from surface occupancy of energy industry poses a significant threat to the viability of this species population within the BLM CFO and has been the “largest contributing factor” for DSL decline.²⁴⁰ At least one population model shows a possibility of extinction under current conditions over the next 50 years.²⁴¹ But the EIS fails to explain how keeping the vast majority of DSL potential habitat open to oil and gas leasing will ensure the continued viability of local populations of DSL. Moreover, under the Proposed RMP, oil and gas development would be displaced onto shinnery oak flats important for DSL dispersal.²⁴² The EIS fails to consider the loss of this crucial dispersal and connectivity habitat in its analysis of the Proposed RMP’s effects on DSL population viability.²⁴³ As a 2020 DSL study noted:

Recent ongoing fragmentation due to human activities (e.g. highways and caliche roads built for oil field development and sand mining) decreases connectivity among populations and interrupts metapopulation dynamics leading to extinction of local populations [18,19,30,32]. . . . Recent and extensive ecological research (e.g. [18,19,25,30,32]) make clear that *S. arenicolus* requires contiguous shinnery oak-sand dune complexes for population persistence and that individuals do not disperse across areas that are not shinnery oak-sand dune.²⁴⁴

²³⁸ FEIS, Vol. 1, p. 2-16.

²³⁹ FEIS, Vol. 1, p. 2-16.

²⁴⁰ FEIS, Vol. 2, p. B-82.

²⁴¹ FEIS, Vol. 2, p. B-82.

²⁴² FEIS, Vol. 2, p. L-15 (noting that “[s]hinnery oak (*Quercus havardii*) flats adjacent to dune complexes are the preferred location for proposed well sites.”). See also FEIS, Vol. 1, p. U-302 (declining to make changes in response to comment requesting that RMP prohibit surface activities in shinnery oak flats).

²⁴³ See FEIS, Vol. 1, p. 3-65 (failing to mention shinnery oak flat habitat impacts).

²⁴⁴ **Exhibit 80**, Chan, Lauren M., et al., Phylogeographic structure of the dunes sagebrush lizard, an endemic habitat specialist, PLoS ONE 15(9): e0238194, <https://doi.org/10.1371/journal.pone.0238194>.

In addition, the EIS fails to consider the potential loss of distinct populations of DSL, which are in areas prone to development, as shown by new research published in 2020.²⁴⁵ This is new information that has emerged since the 2018 draft EIS.

The EIS further acknowledges that the Candidate Conservation Agreement (CCA) and Candidate Conservation Agreement with Assurances (CCAA) for special status species cannot be quantified and counted on for future benefits “because participation is voluntary and partner participation could end at any time.”²⁴⁶ The CCA and CCAS are also inadequate for the reasons explained in our prior draft EIS comments, which we incorporate by reference.²⁴⁷

Even so-called CSU “management prescriptions” under the Proposed RMP appear to be optional and within BLM’s discretion. “Surface occupancy or use *may be subject* to the following requirements,”²⁴⁸ including:

- surveys for DSL which “*may be* required to determine habitat suitability and occurrence of DSL”;
- the relocation of surface activities, which “*may be* limited to areas outside of suitable or occupied habitat, if the proposed action is found to adversely impact suitable or occupied habitat”;
- a prohibition on surface disturbance in dune complexes, occupied DSL habitat, and within 200 meters of suitable DSL habitat;
- a Plan of Development (POD), which “*may be* required for the lease”; and
- a “spill prevention and leak detection plan and appropriate equipment,” which “*may be* required for all new hydrocarbon and saltwater pipelines, wells, and facilities.”²⁴⁹

The conditions under which any of these measures “may be” imposed are not specified and thus appear to be entirely subject to the whim of the agency official. Further, “an exception to this [CSU] restriction may be considered when on-site evaluation of habitat extent, available species occurrence data, the proposed surface use, and proposed mitigations indicate the proposal will not adversely affect the local DSL population.”²⁵⁰ Given the paucity of DSL occurrence data and the challenges of detecting DSL, this exception is a wide open loophole that would allow BLM to forego considering any of the foregoing CSU measures, including on-the-ground surveys that would allow the BLM to determine whether DSL are present.

Despite objections from New Mexico Department of Game and Fish (NMDGF), the Proposed RMP appears to permit sand mining in dune complexes.²⁵¹ The Proposed RMP would leave open the vast majority of potential DSL habitat to “salable” extraction (63,455 acres “open” and 253,033 acres “open with special terms and conditions”), which would appear to

²⁴⁵ *Id.*; see also **Exhibit 81**, Baker, Carrie, Researchers identify unique populations of dunes sagebrush lizard, Texas A&M Natural Resources Institute (Oct. 3, 2020), <https://agrifetoday.tamu.edu/2020/10/02/researchers-identify-unique-populations-of-dunes-sagebrush-lizard/>.

²⁴⁶ FEIS, Vol. 2, p. B-82.

²⁴⁷ FEIS, Vol. 2, p. U-301.

²⁴⁸ FEIS, Vol. 2, p. C-15.

²⁴⁹ FEIS, Vol. 2, p. C-15-C-16.

²⁵⁰ FEIS, Vol. 2, p. C-15.

²⁵¹ FEIS, Vol. 2, p. U-216.

include sand mining.²⁵² Although BLM's response to NMDGF's comments claims that only surface activities that can be shown to "not adversely affect DSL habitat" would be permitted in dune complexes, the EIS should expressly state that sand mining is not permitted, given that sand mining is a "major threat" to DSL.²⁵³

Finally, the Proposed RMP fails to include any monitoring requirement for DSL populations and habitat to ensure long-term species viability. As explained in our prior comments, it is currently unknown whether existing conservation efforts are effectively conserving DSL populations.²⁵⁴ Although the EIS notes that adaptive management will be used,²⁵⁵ it is unclear how adaptive management could be effectively carried out without any monitoring component.

²⁵² FEIS, Vol. 1, p. 2-16.

²⁵³ FEIS, Vol. 2, p. U-216.

²⁵⁴ FEIS, Vol. 2, pp. U-301-302.

²⁵⁵ FEIS, Vol. 1, pp. 2-12.

IV. FEDERAL LAND POLICY AND MANAGEMENT ACT (FLPMA)

FLPMA directs BLM to develop and implement land use plans to manage public lands according to “the principles of multiple use and sustained yield,”²⁵⁶ which requires the BLM to manage these lands in a manner that “takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land[.]”²⁵⁷ Among other values, BLM must manage the public lands to protect the quality of ecological, environmental, air and atmospheric, and water resource values.²⁵⁸ Resource extraction and other nonrenewable uses of the public lands are possible uses, not mandated uses. *New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 710 (10th Cir. 2009).

Under these authorities, BLM is required not only to evaluate the impacts that federal fossil fuel leasing has on public lands, water, and wildlife resources, but to avoid harm to those resources whenever possible. Moreover, BLM “shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.”²⁵⁹ As such, leasing and drilling activities under the Proposed RMP/FEIS may only go forward as long as unnecessary or undue environmental degradation (UUD) does not occur. This is a substantive requirement, and one that BLM must define and apply in the context of oil and gas development authorized through the Proposed RMP/FEIS. In other words, BLM must define and apply the substantive UUD requirements in the context of the specific resource values at stake.

A. Effect of the 2025 Budget Reconciliation Act on the Proposed RMP/FEIS and BLM’s corresponding FLPMA obligations

1. BLM fails to disclose how it interprets and applies the 2025 Budget Reconciliation Act in the Proposed RMP/FEIS in light of its FLPMA obligations

As we explained in Section II above, significant changes to law, policy, on the ground conditions, and the environmental baseline have occurred in the eight years since BLM released the Draft Carlsbad RMP/EIS in 2018. Among them, the 2025 Budget Reconciliation Act amended statutes governing BLM’s management of oil and gas development, which, as we describe further below, implicate how BLM must satisfy its statutory burdens under FLPMA. *See* Pub. L. No. 119-21, § 50101, 139 Stat. 72, 137-39 (2025). The 2025 Budget Reconciliation Act amendments include:

- Replacing language in the MLA providing that lands subject to disposition which are known or believed to contain oil or gas deposits “*may* be leased,” 30 U.S.C. § 226(a) (2024) (emphasis added), with a provision stating that such lands “*shall* be made available for leasing...not later than 18 months after the date of receipt...of an expression of interest in leasing the applicable parcel.” 30 U.S.C. § 226(a) (2025) (emphasis added);

²⁵⁶ 43 U.S.C. § 1712(c)(1).

²⁵⁷ *Id.* at § 1702(3).

²⁵⁸ *Id.* at § 1701(a)(8).

²⁵⁹ *Id.* at § 1732(b).

- Amending the provision of the MLA providing for quarterly lease sales “where eligible lands are available” to define “eligible lands” as those “not excluded from leasing by a statutory prohibition” and “available” lands as those designated as open for leasing under a RMP and “that have been nominated for leasing through the submission of an expression of interest, are subject to drainage in the absence of leasing, or are otherwise designated as available pursuant to regulations adopted by the Secretary.” *Id.* § 226(b)(1)(A);
- Adding that BLM “shall offer not less than 50 percent of available parcels nominated for oil and gas development under the applicable resource management plan.” Pub. L. No. 119-21 § 50101(c)(2)(A), 139 Stat. at 138;
- Reinstating the requirement that BLM lease any unsold parcels noncompetitively. Pub. L. No. 119-21 § 50101(c)(2)(A), 139 Stat. at 137; 30 U.S.C. § 226(b)(3)(C); and
- Adding that any oil and gas leases issued “may not require any stipulations or mitigation requirements not included in the approved resource management plan.” *Id.* § 226(a)(2)(A)(ii).

Remarkably, nowhere in the Proposed RMP/FEIS does BLM identify an awareness or explanation of the impact of these amendments to BLM’s development of the Proposed RMP or to BLM’s analysis of oil and gas impacts in the FEIS.

BLM has not yet issued formal guidance explaining how it interprets and will implement the 2025 Budget Reconciliation Act amendments to the MLA, but the agency has taken various, sometimes conflicting, positions since the Act’s passage.²⁶⁰ BLM must disclose to the public how it interprets the 2025 Budget Reconciliation Act and applies it in the Proposed RMP and in the impacts analysis of oil and gas in the FEIS. Recent BLM applications of the 2025 Budget Reconciliation Act in other contexts, limiting the agency’s authority to prohibit leasing particular lease parcels for development and authority to add protective stipulations beyond those included in the approved RMP indicates that issuance of the RMP is an irreversible, irretrievable commitment of resources. Historically, BLM had claimed that, rather than during the RMP planning stage, it could only satisfy various FLPMA requirements as they pertain to oil and gas development during subsequent stages of analysis, i.e. during the leasing and permitting

²⁶⁰ See, e.g., BLM Farmington Field Office, Competitive Oil and Gas Lease Sale Environmental Assessment, New Mexico 2026 DOI-BLM-NM-F010-2026-0001-EA, D-29 (Mar. 20, 2026) (concluding BLM AO retains the discretion to lease none, some, or all the nominated lease parcels, despite 30 U.S.C. § 226(a); *but see* 91 Fed. Reg. 38084, 38103 (June 24, 2026) (proposing Oil and Gas Leasing rule that explains that 2025 Budget Reconciliation Act “requires the BLM to offer a parcel within 18 months of receipt of the lands within an [expression of interest].” See also, e.g., BLM Carlsbad Field Office, Oil and Gas Lease Sale Environmental Assessment, Eddy and Lea Counties, New Mexico Quarter 4 2026 DOI-BLM-NM-P020-2026-1065-EA (concluding that based on the amendments to the MLA BLM cannot attach new or modified versions of stipulations that are not set forth in the applicable approved RMP). BLM has also interpreted the 2025 Budget Reconciliation Act as requiring the agency to apply stipulations to oil and gas leases from the approved RMP at the time of the EOI submission. See, e.g., Carlsbad Field Office, Oil and Gas Lease Sale Environmental Assessment, New Mexico Quarter 3 2026, DOI-BLM-NM-P020-2026-0484-EA, 2 (Apr. 15, 2026). But this interpretation leads to absurd results, where, for example, an oil and gas lease issued pursuant to the Proposed RMP/FEIS would only incorporate stipulations from the 1988 Carlsbad RMP and 1997 Carlsbad RMPA, if the expression of interest for that lease had been made prior to the approval of the Proposed RMP/FEIS.

stages.²⁶¹ BLM's Proposed RMP/FEIS appears to similarly defer its analysis of potential impacts from and responses to oil and gas development to the leasing and permitting stages.²⁶² To the extent that BLM now interprets and applies the 2025 Budget Reconciliation Act in the Proposed RMP/FEIS to restrict the agency's discretion over oil and gas leasing and authority to add protective stipulations to leases not already included in an approved RMP, the agency must demonstrate that designations in the Proposed RMP/FEIS opening lands to leasing, as well as proposed lease stipulations and other mitigations in the Proposed RMP/FEIS, comply with FLPMA's multiple use and sustained yield and unnecessary and undue degradation requirements.

2. BLM fails to ensure compliance with its substantive obligations under FLPMA, including taking actions necessary to prevent UUD

Based on BLM's position that it can no longer cure UUD through responsive stipulations developed subsequent to the approval of the Proposed RMP/FEIS, the burden of ensuring that oil and gas development will not cause UUD, among BLM's other substantive obligations under FLPMA including its sustained yield and permanent impairment requirements, falls entirely on BLM's analysis and development of the Proposed RMP/FEIS. Accordingly, BLM must ensure that the Proposed RMP/FEIS affirmatively incorporates the full suite of protective stipulations and mitigation measures that BLM may no longer be able to impose on a lease-by-lease or permit-by-permit basis. The trouble is BLM fails to conduct that analysis for purposes of the Proposed RMP/FEIS and fails to explain how the Proposed RMP/FEIS ensures compliance with its FLPMA obligations, including prevention of UUD.

BLM's precious few statements about UUD in the Proposed RMP/FEIS are unsatisfactory and fail to show BLM has taken any action necessary to prevent UUD in the Proposed RMP/FEIS. For example, BLM defines and evaluates FLPMA's UUD prevention mandate in the context of locatable minerals mining but without explanation fails to define and evaluate UUD with respect to oil and gas development.²⁶³ Furthermore, in a response to comment, BLM claims that "[t]he range of alternatives analyzed in the Draft EIS addresses the

²⁶¹ See, e.g., *Dakota Res. Council v. DOI*, 2024 WL 1239698, at *22 (D.D.C. 2024) (accepting BLM's argument that it could avoid unnecessary and undue degradation at the APD stage by "impos[ing] more specific lease requirements tailored to the projects and tracts at issue"); *Bd. Of Cnty. Comm'rs of San Miguel Cnty. v. BLM*, 584 F. Supp. 3d 949, 978 (D. Colo. 2022) (same); see also *Roosevelt Conservation P'ship v. Salazar*, 661 F.3d 66, 78 (D.C. Cir. 2011) (holding that BLM could reasonably conclude that the implementation of post-leasing mitigation measures would prevent unnecessary and undue degradation). In other cases prior to passage of the 2025 Budget Reconciliation Act, federal courts rejected BLM's arguments that oil and gas leasing did not constitute an irreversible, irretrievable commitment of resources. See, e.g., *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1078-79 (9th Cir. 2011); *Conner v. Burford*, 848 F.2d 1441, 1450 (9th Cir. 1988); *W. Watersheds Project v. Bernhardt*, 543 F. Supp. 3d 958, 992 (D. Idaho 2021); *WildEarth Guardians v. BLM*, 457 F. Supp. 3d 880, 888 (D. Mont. 2020); *Wilderness Soc'y v. U.S. Dep't of Interior*, No. 22-CV-1871 (CRC) 2024 WL 1241906, at *17 (D.D.C. Mar. 22, 2024).

²⁶² See, e.g., Proposed RMP/FEIS at 3-21 (potential impacts associated with hydraulic fracturing would be analyzed in more site-specific detail at the application for permit to drill (APD) stage; *id.* at 3-219 (potential impacts associated with traffic would be analyzed in site-specific detail at the APD stage); *id.* at B-13 (prior to approving an application for permit to drill (APD), a BLM geologist would identify all potential subsurface formations that would be penetrated by the wellbore, including groundwater aquifers and any zones that would present potential safety or health risks that would need special protection measures during drilling, or that could require protective well construction measures).

²⁶³ See, e.g., Proposed RMP/FEIS at 2-31, B-122, L-27, O-26, P-104.

potential for unnecessary or undue degradation.”²⁶⁴ BLM fails to explain this statement and how the range of alternatives in the 2018 Carlsbad Draft EIS addresses the potential for unnecessary or undue degradation in the 2026 Proposed FEIS. Besides, analyzing a reasonable range of alternatives pursuant to NEPA does not satisfy the distinct requirement to prevent UUD pursuant to FLPMA.²⁶⁵

To satisfy BLM’s distinct obligation under FLPMA to prevent UUD BLM must define what constitutes “unnecessary or undue degradation,” with respect to oil and gas development and with particular consideration of GHG emissions and resulting climate impacts. This definition should be informed by an analysis of the reasonably foreseeable impacts and UUD identified in Section III above, as well as in prior comments on the 2018 Carlsbad Draft RMP/EIS. Following this, BLM must develop and incorporate appropriate mitigation necessary to prevent UUD, including but not limited to:

- Protective stipulations and mitigation measures identified and requested in prior comments on the 2018 Carlsbad Draft RMP/EIS;
- The no surface occupancy and other stipulations included in the revised 2024 Eastern Colorado RMP/FEIS, which reflect new information and changed circumstances that had accumulated since 1986, when the last RMP for that planning area had been approved;²⁶⁶
- A requirement that oil and gas operators plug and abandon or produce a well that has been idle for eight consecutive years or more;²⁶⁷
- A requirement that each oil and gas leaseholder offset the reasonably foreseeable GHG emissions of the respective leases developed, using an accredited carbon offset market; and
- A requirement that oil and gas operators use only produced water (and prohibits the use of potable water) for all drilling and development operations.

Given the 2025 Budget Reconciliation Act amendments to the MLA, BLM may not defer this analysis and determination, as the Proposed RMP/FEIS is the last opportunity for BLM to incorporate protective stipulations necessary to prevent UUD and is, thus, an irreversible and irretrievable commitment of resources. To defer this analysis and determination following the approval of the Proposed RMP/FEIS would require BLM to incorporate a stipulation that attaches to all lands open to leasing, which preserves broad authority for BLM to designate areas closed to leasing and to incorporate new stipulations (including no surface occupancy) necessary where UUD is identified in future scenarios following approval of the Proposed RMP/FEIS.

B. BLM fails to provide for compliance with pollution control laws, including ozone NAAQS, in violation of FLPMA

²⁶⁴ *Id.* at U-59.

²⁶⁵ “A finding that there will not be significant impact [under NEPA] does not mean either that the project has been reviewed for unnecessary and undue degradation or that unnecessary or undue degradation will not occur.” Ct. for Biological Diversity, 623 F.3d at 645 (quoting Kendall’s Concerned Area Residents, 129 I.B.L.A. 130, 140 (1994)).

²⁶⁶ Exhibit 59, BLM, Record of Decision and Approved Eastern Colorado Resource Management Plan, Royal Gorge Field Office (2024) at Appendix F.

²⁶⁷ See Exhibit 60, Applicants’ Exhibit 13, Length of Time Before Deactivated Well Returns to Activity, OCC Case No. 24683; see also Exhibit 61, Applicants’ Exhibit 57, Direct Testimony of Adam Peltz, OCC Case No. 24683.

BLM violates its independent obligation to provide for compliance with NAAQS under FLPMA.

FLPMA requires that, in the “development and revision of land use plans, [BLM] shall...provide for compliance with applicable pollution control laws,” including the ozone NAAQS.²⁶⁸ Likewise, FLPMA’s implementing regulations provide that “each land use authorization shall contain terms and conditions which shall...require compliance with air...quality standards established pursuant to applicable Federal or State law.”²⁶⁹ Congress, tasked BLM with the responsibility of managing public lands to protect the quality of “air and atmospheric” resources under FLPMA.²⁷⁰

As discussed above, ozone monitors in the planning area have consistently violated the ozone NAAQS, with the fourth highest maximum ozone levels and number of exceedance days recorded at the following monitors.

Table 1²⁷¹

AQS Site ID	County	2018 4 th Highest Daily Maximum Value (ppb)	2019 4 th Highest Daily Maximum Value (ppb)	2020 4 th Highest Daily Maximum Value (ppb)	2021 4 th Highest Daily Maximum Value (ppb)	2022 4 th Highest Daily Maximum Value (ppb)	2023 4 th Highest Daily Maximum Value (ppb)	2024 4 th Highest Daily Maximum Value (ppb)	2025 4 th Highest Daily Maximum Value (ppb)
350150010	Eddy	-	74	72	77	83	76	82	79
350151005	Eddy	83	80	73	80	79	76	84	76
350250008	Lea	76	70	60	68	72	74	72	62

Table 2²⁷²

AQS Site ID	County	Number of Exceedance Days in 2018	Number of Exceedance Days in 2019	Number of Exceedance Days in 2020	Number of Exceedance Days in 2021	Number of Exceedance Days in 2022	Number of Exceedance Days in 2023	Number of Exceedance Days in 2024
350150010	Eddy	-	6	9	15	21	11	28
350151005	Eddy	18	19	5	23	23	18	22
350250008	Lea	6	3	0	3	4	6	5

Source apportionment modeling confirms that oil and gas development is the largest contributor to ozone formation in Chaves, Eddy, and Lea counties, accounting for 67.2% of NO_x emissions and 83.9% of VOC emissions, the two primary pollutants that cause ozone formation,

²⁶⁸ 43 U.S.C. § 1712(c)(8).

²⁶⁹ 43 C.F.R. § 2920.7(b)(3).

²⁷⁰ 43 U.S.C. § 1701(a)(8).

²⁷¹ See Exhibit 62, U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2025. Updated on June 8, 2026. Available at: <https://www.epa.gov/air-trends/air-quality-design-values>; Exhibit 63, U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2024. Updated on May 29, 2025. Available at: <https://www.epa.gov/air-trends/air-quality-design-values>; Exhibit 64, U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2021. Updated on May 25, 2022. Available at: <https://www.epa.gov/air-trends/air-quality-design-values>; Exhibit 65, U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2020. Updated on May 11, 2021. Available at: <https://www.epa.gov/air-trends/air-quality-design-values>.

²⁷² *Id.*

as of the 2020 National Emission Inventory.²⁷³ As a result, ozone pollution from BLM-permitted development will necessarily cause or contribute to continued NAAQS violations in the planning area.

Similarly, the Final EIS also projects serious exceedances of EPA’s health-based one-hour SO₂ air quality standard under each of the considered alternatives. *See* FEIS at 3-173, tbl. 3.2-11.2. BLM recognizes that reducing federal oil and gas development will substantially improve air quality but fails to consider any alternatives or stipulations that would actually bring SO₂ pollution levels into compliance with the NAAQS. BLM’s Proposed RMP does not advance progress towards meeting the NAAQS, but will lead to worsening air pollution in the region in demonstrable violation of Clean Air Act standards.

BLM states that it will manage air resources to comply with all applicable local, state, tribal and federal laws, regulations, standards, and implementation plans, yet identifies no specific stipulations, mitigation measures, or otherwise to ensure compliance with the NAAQS.²⁷⁴ BLM’s FLPMA obligations to ensure compliance are separate and apart from any obligations that it, the State, or EPA may have under the Clean Air Act. Otherwise, FLPMA’s requirement to provide for compliance with federal and state air quality laws would be superfluous. Moreover, BLM’s suggestion that design features *may* be built into projects and conditions of approval and/or other mitigation and monitoring may be established based on project proposals and their associated impacts²⁷⁵ ignores Congress specifically required BLM to provide for compliance at the “development and revision of land use plan[.]” stage.²⁷⁶ Indeed, waiting until the leasing or permitting stages would preclude BLM from both evaluating and addressing the cumulative impact of emissions authorized by the Proposed RMP/FEIS, as well as precluding BLM from identifying and adding stipulations beyond those in the approved RMP that are necessary to ensure compliance with air quality laws. Accordingly, BLM has not met its legal requirement to provide for compliance with the NAAQS, violating FLPMA.

C. BLM fails to appropriately eliminate/minimize natural gas waste and methane emissions from mineral extraction on federal lands, in violation of FLPMA and the MLA

As discussed in comments on the 2018 Carlsbad Draft RMP/EIS, DOI has legal authority and mandated responsibility to prevent or reduce natural gas waste and methane emissions under the MLA.²⁷⁷ Under FLPMA this authority and duty extends to the planning process.²⁷⁸ Methane reduction and mitigation measures are critical given that New Mexico is the state with the

²⁷³ Proposed RMP/FEIS at E-4. Note that the COVID Pandemic occurred in 2020, and the 2020 NEI likely underrepresents the quantity of emissions from oil and gas development.

²⁷⁴ *See, e.g.*, Proposed RMP/FEIS at U-13.

²⁷⁵ *See, e.g.*, Proposed RMP/FEIS at U-14.

²⁷⁶ 43 U.S.C. § 1712(c)(8).

²⁷⁷ TWS et al., Comments on the Carlsbad Draft Resource Management Plan and Environmental Impact Statement 2 (Nov. 5, 2018).

²⁷⁸ *See* 43 U.S.C. § 1701(a)(8), requiring BLM to protect “air and atmospheric” values; 43 U.S.C. § 1702(c), requiring BLM to account for “the long-term needs of future generations” and to prevent “permanent impairment of the productivity of the land and quality of the environment”; 43 U.S.C. § 1732(b) requiring BLM to “take any action necessary to prevent unnecessary or undue degradation of the lands.”

highest volume of wasted gas from federal and tribal lands, predominantly due to flaring and leaks.²⁷⁹

Additionally, the MLA provides for BLM to manage lands for conservation and development of oil and gas, among other minerals and resources. BLM, under the MLA, is the only federal agency with a waste prevention mandate. The MLA directs DOI to require “all reasonable precautions to prevent waste of oil or gas developed in the land.”²⁸⁰ It also requires each oil and gas lease to provide for the “reasonable diligence, skill, and care” in the operation of the lease, provides rules for the “prevention of undue waste,” and provisions for the “protection of the interest of the United States” and “safeguarding of the public welfare.”²⁸¹

Further, the MLA’s use of “all” to modify the term “reasonable precautions” shows that Congress intended BLM to aggressively control waste.²⁸² The agency may not forego reasonable and effective measures limiting venting, flaring, and leaks for the sake of administrative convenience or to enhance the bottom line of operators.²⁸³ BLM claims that the Proposed RMP/FEIS complies with its FLPMA and MLA statutory burdens to prevent waste by describing BLM’s Waste Prevention, Production Subject to Royalties, and Resource Conservation Rule that became effective on June 10, 2024.²⁸⁴ The 2024 Rule identifies flaring of federally and Tribally owned minerals as the largest source of waste on BLM-managed leases, yet takes an approach that only increases royalties on flaring, rather than prohibiting flaring; an approach that BLM conceded will not necessarily lead to any reduction in wasteful flaring.²⁸⁵ Indeed, BLM assumed no increased capture due to increased royalties.²⁸⁶

Despite the 2024 Rule’s violation of the MLA’s mandate that BLM require “all reasonable precautions to prevent waste, that rule will be moot for purposes of the Proposed RMP/FEIS, following BLM’s promulgation of revisions to the 2024 Rule proposed June 24, 2026.²⁸⁷ Here too, BLM’s 2026 Rule violate its statutory obligations to require all reasonable precaution to prevent waste. The many errors associated with those regulatory revisions—and the process used to promulgate them—are laid out in the attached comment letter jointly submitted by a coalition of conservation and community groups, including many of the protesters

²⁷⁹ Exhibit 39, Olivia Griot et al., Onshore Natural Gas Operations on Federal and Tribal Lands in the United State: Analysis of Emissions and Lost Revenue, Synapse Energy Economics Inc., 3 (Jan. 20, 2023), https://blogs.edf.org/energyexchange/files/2023/01/EMBARGOED_EDF-TCS_Public_Lands_Analysis.pdf.

²⁸⁰ 30 U.S.C. § 225.

²⁸¹ *Id.* at § 187.

²⁸² *Cf. Halliburton, Inc. v. Admin. Review Bd.*, 771 F.3d 254, 266 (5th Cir. 2014) (ruling that statutory term “all relief necessary” authorized broad remedies against defendant because “we think Congress meant what it said. All means all.” (internal quotation omitted)); *Cty. of Oakland v. Fed. Housing Fin. Agency*, 716 F.3d 935, 940 (6th Cir. 2013) (“a straightforward reading of the statute leads to the unremarkable conclusion that when Congress said ‘all taxation,’ it meant all taxation” (emphasis in original)).

²⁸³ *Id.*

²⁸⁴ 89 Fed. Reg. 25378 (Apr. 10, 2024) (“2024 Rule”).

²⁸⁵ *See, e.g.*, Bureau of Land Management, Regulatory Impact Analysis for: Revision to 43 C.F.R 3160 (Onshore Oil and Gas Operations) & Addition of 43 C.F.R. 3179 (Waste Prevention and Resource Conservation) (Nov. 2022) at 31. Attempts at BLM’s Carlsbad Field Office to increase royalties on flared gas also proved unsuccessful at reducing flaring. United States Government Accountability Office. (2016). OIL AND GAS—Interior Could Do More To Account for and Manage Natural Gas Emissions. (GAO-16-607).

²⁸⁶ *Id.*

²⁸⁷ *See* 91 Fed. Reg. 37906 (Jun. 24, 2026) (“2026 Rule”).

here.²⁸⁸ This comment letter describes numerous violations of the MLA, APA, NEPA, and other laws. The issues raised in the comment letter are adopted here in full with respect to the pending finalization of the regulations and with respect to the Proposed RMP/FEIS.

Setting aside BLM's regulations on waste, BLM is nevertheless required not only to analyze alternatives that address waste and methane pollution, a highly potent short-term GHG, BLM also has substantive mandates under FLPMA to prevent, reduce, or mitigate methane emissions, independent of the agency's MLA duty to prevent waste. These statutory directives enable BLM to take action before development pursuant to an RMP occurs, and to incorporate land use plan-level prohibitions against development that results in excessive waste or unnecessary or undue methane pollution, lease stipulations, or drilling-stage conditions of approval, or a combination of these tools that will eliminate methane emissions and otherwise protect public lands.²⁸⁹ Such action must be provided for by the RMP itself. BLM has a duty to leverage its considerable authority under FLPMA to the fullest extent permitted by law, including by identifying stipulations and conditions of approval for any development to occur under the RMPs to minimize, reduce, and mitigate methane impacts to the greatest extent possible.

FLPMA's and the MLA's statutory directives make clear DOI and BLM must address waste in the Proposed RMP/FEIS and ensure adequate standards are in place to minimize natural gas waste and methane pollution at the planning stage. BLM has not satisfied these obligations by failing to 1) take concrete measures to reduce the incidence of venting and particularly flaring, and 2) attach methane and other harmful emission reduction stipulations to oil and gas development under the Proposed RMP/FEIS to protect air and atmospheric resources and to mitigate climate impacts to public lands. Comments submitted on the 2018 Carlsbad Draft RMP/EIS identified such stipulations that BLM failed to evaluate and incorporate into the Proposed RMP/FEIS, including:

- Prohibiting the venting of natural gas.
- Mandating operators meet monthly capture gas percentage targets and establishing restrictions on flaring.
- Requiring operators to report volumes of gas vented, flared, and leaked.
- Requiring capture of emissions associated with well drilling, completion, and testing operations.
- Establishing waste minimization requirements for pneumatic controllers and diaphragm pumps.
- Establishing a comprehensive LDAR inspection and reporting protocol for all well production facilities.
- Requiring operators to use best available methane reduction technologies.

²⁸⁸ Exhibit 66, Conservation and Community Groups' Comments on the Bureau of Land Management's Proposed Royalty for Oil and Gas Lost from Onshore Federal and Indian Leases Rule (Docket ID No. BLM-2025-0235; RIN 1004-AF33) (Aug. 24, 2026).

²⁸⁹ 30 U.S.C. §§ 187, 225; 43 U.S.C. §§ 1701(a)(8), 1702(c), 1732(b).

Other measures BLM failed to evaluate include phased leasing and phased development, which are described in detail in comments on the 2018 Carlsbad Draft RMP/EIS.²⁹⁰

BLM is required to quantify potential methane pollution associated with projected oil and gas development in the planning area, analyze the impacts of that pollution, evaluate alternatives based on the impacts and identify mitigation options. BLM fails to do so in the Proposed RMP/FEIS despite recent research has demonstrated that the use of technically proven and commercially available methane emissions reduction technologies can together capture more than 80 percent of the methane currently going to waste in the oil and gas sector's operations.²⁹¹ BLM's omission of waste minimization and methane reduction stipulations and conditions of approval in the Proposed RMP/FEIS violates the agencies statutory duties to under FLPMA and the MLA.

V. CONCLUSION

For the reasons stated above, BLM's Proposed RMP/FEIS fails to comply with its statutory obligations, including obligations under NEPA, ESA, FLPMA, the CAA, and the APA. Accordingly, Conservation Groups' protest BLM's decision to issue the Proposed RMP/FEIS in its entirety. Thank you for your time and consideration. Please use the contact information below if you have any questions about this protest.

Sincerely,



Matt Nykiel
Western Environmental Law Center
224 W Rainbow Blvd #247
Salida, CO 81201
720.778.1902
nykiel@westernlaw.org

Samantha Ruscavage-Barz
WildEarth Guardians
301 N. Guadalupe, Ste. 201
Santa Fe, NM 87501
505.988.9126
sruscavagebarz@wildearthguardians.org

On behalf of:

Haley Jones
Citizens Caring for the Future
PO Box 27162
Albuquerque, NM 87125
575.243.8807
haley@ccffnm.org

Wendy Park
Center for Biological Diversity
PO Box 710
Tucson, AZ 85702
520.623.5252
wpark@biologicaldiversity.org

²⁹⁰ TWS et al., Comments on the Carlsbad Draft Resource Management Plan and Environmental Impact Statement 28-29 (Nov. 5, 2018).

²⁹¹ Exhibit 67, Leaking Profits, The U.S. Oil and Gas Industry Can Reduce Pollution, Conserve Resources, and Make Money by Preventing Methane Waste, Harvey, et al. (2012), available at <https://www.nrdc.org/sites/default/files/Leaking-Profits-Report.pdf>.

Andrew Forkes-Goodmundson
Earthworks
1612 K St., NW, Suite 904
Washington, D.C. 20006
507.421.9021
andrewfg@earthworksaction.org

Antoinette Reyes
Sierra Club Rio Grande Chapter
2501 Yale Blvd SE, Suite 104
Albuquerque, NM 87106
575.342.1727
antoinette.reyes@sierraclub.org

Exhibit Index to Conservation Groups’ Protest of Proposed Resource Management Plan and Final Environmental Impact Statement, Carlsbad Field Office, Pecos District, New Mexico, DOI-BLM-NM-P020-2010-0001-RMP-EIS

<u>Exhibit No.</u>	<u>Title/Description</u>
1	WildEarth Guardians et al., Comments on the Carlsbad Field Office’s Draft Resource Management Plan and Environmental Impact Statement (Nov. 5, 2018)
2	TWS et al., Comments on the Carlsbad Draft Resource Management Plan and Environmental Impact Statement (Nov. 5, 2018)
3	WildEarth Guardians et al., Supplemental Comments on Draft Carlsbad Field Office Resource Management Plan and Environmental Impact Statement, Request for Supplemental Environmental Impact Statement (Mar. 7, 2019)
4	TWS et al., Carlsbad Field Office Final Resource Management Plan (Jun. 8, 2026)
5	WildEarth Guardians’ Supplemental Comments on the Carlsbad Field Office’s 2018 Draft Resource Management Plan and Environmental Impact Statement (June 17, 2026)
6	WildEarth Guardians’ Exhibits to Supplemental Comments on the Carlsbad Field Office’s 2018 Draft Resource Management Plan and Environmental Impact Statement (June 17, 2026)
7	N. Ratledge et al., <i>Emissions from Fossil Fuels Produced on US Federal Lands and Water Present Opportunities for Climate Mitigation</i> , 171 Climatic Change, no. 11, Mar. 14, 2022
8	Peter Erickson and Michael Lazarus, Stockholm Environmental Institute, <i>How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO2 Emissions and 2°C Goals?</i> (2016)
9	<i>Mapping Orphan Wells in New Mexico</i> , Environmental Defense Fund, https://www.edf.org/sites/default/files/2021-10/Orphan%20Well%20FactSheet%20NM.pdf (accessed May 26, 2026)
10	U.S. Gov’t Accountability Off., <i>GAO-19-615</i> , Oil and Gas: Bureau of Land Management Should Address Risks from Insufficient Bonds to Reclaim Wells (2019)
11	Applicants’ Prehearing Statement at 0283, In the Matter of Proposed Amendments to 19.15.2, 19.15.5, 19.15.8, 19.15.9, and 19.15.25 NMAC, Case No. 24683, New Mexico Oil Conservation Commission
12	Trey Cowan, <i>Plugging the Gap</i> , Institute for Energy Economics and Financial Analysis (Sept. 2025), https://ieefa.org/sites/default/files/2026-09/Plugging%20the%20Gap_September%202026.pdf .
17	IPCC 2023: <i>Synthesis Report of the IPCC Sixth Assessment Report</i> [Paola Arias et al. (eds.)], Cambridge University Press
18	Welsby, D., Price, J., Pye, S. <i>et al</i> Unextractable fossil fuels in a 1.5 °C world. <i>Nature</i> 597, 230–234 (2021)
19	Achakulwisut, Ploy and Peter Erickson, Trends in fossil fuel extraction: Implications for a shared effort to align global fossil fuel production with climate limits, Stockholm Environment Institute (April 2021)

20	Trout, Kelly, and Lorne Stockman, <i>Drilling Toward Disaster</i> , Oil Change International (Jan. 2019).
21	LeQuéré, Corinne et al., <i>Global Carbon Budget 2018</i> , 10 Earth System Science Data 2141 (2018)
22	Piggot, Georgia et al., <i>Realizing a Just and Equitable Transition Away from Fossil Fuels</i> , Discussion brief, Stockholm Environment Institute (Jan. 2019)
23	Ecoshift Consulting, et al., <i>The Potential Greenhouse Gas Emissions of U.S. Federal Fossil Fuels</i> , prepared for Center for Biological Diversity & Friends of the Earth (2015)
24	Dustin Mulvaney, et al. Over-Leased: How Production Horizons of Already Leased Federal Fossil Fuels Outlast Global Carbon Budgets (2016)
25	Merrill, Matthew D. et al., <i>Federal Lands Greenhouse Gas Emissions and Sequestration in the United States—Estimates for 2005–14</i> , U.S. Geological Survey Scientific Investigations Report 2018–5131 (2018)
26	Stéphanie Bouckaert et al., International Energy Agency, Net Zero by 2050: A Roadmap for the Global Energy Sector (2021)
27	SEI, IISD, ODI, E3G, and UNEP. 2020. <i>The Production Gap Report: 2020 Special Report</i>
27.1	2025 BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends (2026)
27.2	U.S. Global Change Research Program, Fifth National Climate Assessment: Report-in-Brief
28	WELC et al., <i>Comments on Proposed Fluid Mineral Leases and Leasing Process Rule – RIN 1004-AE80</i> (Sept. 22, 2023)
29	Physicians for Social Responsibility and Concerned Health Professionals of NY, Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking, 9 th Edition (2023)
30	Orenstein, Carmi et al., <i>Public Health Effects of Fracking: An Update</i> , Concerned Health Professionals of New York and the Science and Environmental Health Network (Sept. 2026), https://concernedhealthny.org/wp-content/uploads/2026/08/9th-ed-Public-Health-Effects-Update-2026_Final.pdf
31	U.S. EPA, <i>Climate and Social Vulnerability Report</i> , 2021
32	Center for Biological Diversity et al., <i>Petition to Designate Permian Basin of Southeast New Mexico a Nonattainment Area Due to Ongoing Violations of Ozone Health Standards; Petition to Find New Mexico’s State Implementation Plan is Failing to Attain and Maintain Ambient Air Quality Standards</i> (April 29, 2026), https://biologicaldiversity.org/programs/climate_law_institute/pdfs/26-04-29_Permian-Nonattainment-Petition-Final.pdf
33	Andrey Marsavin, Da Pan, Ilana B. Pollack, Yong Zhou, Amy P. Sullivan, Lillian E. Naimie, Katherine B. Benedict, Julieta F. Juncosa Calahoranno, Emily V. Fischer, Anthony J. Prenni, Bret A. Schichtel, Barkley C. Sive, Jeffrey L. Collett, <i>Summertime Ozone Production at Carlsbad Caverns National Park, New Mexico: Influence of Oil and Natural Gas Development</i> . Journal of Geophysical Research: Atmospheres, 2024
34	Jerry Redfern, <i>The EPA stalled and then a fix for New Mexico oil and gas pollution evaporated</i> , SourceNM (Nov. 15, 2024) https://sourcenm.com/2024/11/15/the-epa-stalled-and-then-a-fix-for-new-mexico-oil-and-gas-pollution-evaporated/

35	Ames, Alexander, and Brad Racino, <i>America's air monitors are disappearing. So is your power to expose polluters.</i> , Grist (Sept. 13, 2026), https://grist.org/accountability/americas-air-monitors-are-disappearing-so-is-your-power-to-expose-polluters/
36	Ali Mohammad Latifi, Fatemeh Abdi, Mohammad Miri, Sara Ashtari, Seyedeh Noushin Ghalandarpour-attar, Milad Mohamadzadeh, Abbas Ali Imani Fooladi, Shahab Uddin and Amir Vahedian-azimi, <i>Association between maternal exposure to oil and gas extraction process with adverse birth outcomes: a systematic review and meta-analysis</i> , BMC Pregnancy and Childbirth, 25:126 (2025)
37	IEA (2021) Michaels, K.C., de Oliveira, Tomás, <i>Curtailing Methane Emissions from Fossil Fuel Operations, Pathways to a 75% cut by 2030</i> , International Energy Agency
38	<i>The Imperative of Cutting Methane from Fossil Fuels</i> , International Energy Agency (Oct. 11, 2023)
39	Olivia Griot et al., <i>Onshore Natural Gas Operations on Federal and Tribal Lands in the United States: Analysis of Emissions and Lost Revenue</i> , Synapse Energy Economics Inc., 3 (Jan. 20, 2023)
40	Jerry Redfern, <i>In This Tiny New Mexico Town, the Air Quality Is Worse Than in Downtown L.A.</i> , Capital and Main (August 20, 2024)
41	Jeremy Proville et al., <i>The demographic characteristics of populations living near oil and gas wells in the USA</i> , 44 Population and Environment (2022)
42	Cushing et al., <i>Up in Smoke: Characterizing the Population Exposed to Flaring From Unconventional Oil and Gas Development in the Contiguous U.S.</i> , 16 Environmental Research Letters 1, 1 (2021)
43	Caron-Beaudoin, <i>VOCs in indoor air and tap water samples</i>
44	Jill Johnston et al., <i>Environmental Justice Dimensions of Oil and Gas Flaring in South Texas: Disproportionate Exposure among Hispanic Communities</i> , Environ. Sci. Technol. (2020)
45	Lara J. Cushing et al., <i>Flaring from Unconventional Oil and Gas Development and Birth Outcomes in the Eagle Ford Shale in South Texas</i> , 128 Environmental Health Perspectives , 077003 (2020)
46	Clean Air Task Force, <i>Tribal Communities at Risk: The Disproportionate Impacts of Oil and Gas Air Pollution on Tribal Air Quality</i> 3, 2–5 (2018)
47	Wesley Blundell & Anatolii Kokoza, <i>Natural gas flaring, respiratory health, and distributional effect</i> , 208 Journal of Public Economics 104601, at 4, 10 (2022)
48	EDF, <i>Flaring Aerial Survey Results</i> (2021)
49	Gvakharia et al., <i>Methane, Black Carbon, and Ethane Emissions from Natural Gas Flares in the Bakken Shale, North Dakota</i> , Environmental Science & Technology 5317, 5317 (2017)
50	Melissa Troutman and Rebecca Sobel, WildEarth Guardians, <i>The 2025 New Mexico Oil & Gas Spill Report: Land, Air & Water Pollution from Oil and Gas</i> (2026)
51	Cloelle Danforth et al., <i>An Integrated Method for Identification and Prioritization of Constituents of Concern and Produced Water from Onshore Oil and Gas Extraction</i> , Environment International (2020)
52	Dusty Horwitt, J.D. and Barbara Gottlieb, <i>Physicians for Social Responsibility, Fracking with Forever Chemicals in New Mexico</i> (2023)

53	U.S. Environmental Protection Agency, Summary of Input on Oil and Gas Extraction Wastewater Management Practices Under the Clean Water Act, EPA-821-S19-001, May 2020
54	WildEarth Guardians, <i>Oil & Gas Waste Watch Report, Spill Data 2018- 2025, with January-June 2026 Update</i> (October 2026)
55	U.S. EIA, Natural Gas Monthly
56	WildEarth Guardians, Oil & Gas Waste Watch Reports, Q1–Q3 2025
57	EPA UIC program. https://www.epa.gov/sites/default/files/2020-04/documents/uic_fact_sheet.pdf
58	Ground Water Prot. Council, “State of New Mexico Class II UIC Program Peer Review” (Jan. 8, 2020)
59	BLM, Record of Decision and Approved Eastern Colorado Resource Management Plan, Royal Gorge Field Office (2024)
60	Applicants’ Exhibit 13, Length of Time Before Deactivated Well Returns to Activity, OCC Case No. 24683
61	Applicants’ Exhibit 57, Direct Testimony of Adam Peltz, OCC Case No. 24683
62	U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2025. Updated on June 8, 2026
63	U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2024. Updated on May 29, 2025
64	U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2021. Updated on May 25, 2022
65	U.S. Environmental Protection Agency (EPA). Air Quality Design Value, 2020. Updated on May 11, 2021
66	Conservation and Community Groups’ Comments on the Bureau of Land Management’s Proposed Royalty for Oil and Gas Lost from Onshore Federal and Indian Leases Rule (Docket ID No. BLM-2025-0235; RIN 1004-AF33) (Aug. 24, 2026)
67	Leaking Profits, The U.S. Oil and Gas Industry Can Reduce Pollution, Conserver Resources, and Make Money by Preventing Methane Waste, Harvey, et al. (2012)
68	USFWS, Pecos gambusia (<i>Gambusia nobilis</i>) 5-Year Status Review: Summary and Evaluation. U.S. Fish and Wildlife Service Austin Ecological Services Field Office. Austin, Texas (July 24, 2025) (<i>entire</i>), https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/25884.pdf ;
69	USFWS, Pecos Gambusia (<i>Gambusia nobilis</i>) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Austin Ecological Services Field Office Austin, Texas (2018), https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/2563.pdf ;
70	USFWS, Endangered and Threatened Wildlife and Plants; Endangered Species Status for Texas Hornshell, 83 Fed. Reg. 5720 (Feb. 9, 2018)
71	Center for Biological Diversity, Petition to list Allred’s flax (<i>Linum allredii</i>) under the Endangered Species Act (December 4, 2025), https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/petition/32385.pdf (accessed October 2026)
72	USFWS, Recommendations for Endangered Species Act Section 7 Consultations Involving Plants in New Mexico. Version 1.0. U.S. Fish & Wildlife Service New Mexico Ecological Services Field Office (May 2024),

	https://www.fws.gov/sites/default/files/documents/2024-06/nmesfosec7recommendationsforplants_v1.0_20240500.pdf
73	BLM, EA, DOI-BLM-NM-P020-2018-0204-EA, Converting Lesser Prairie-Chicken Habitat Evaluation Areas (HEAs) to Habitat Areas (HAs) (April 2018) (“2018 HA EA”) https://eplanning.blm.gov/documents/?id=8ca98fa5-a7f2-f011-8407-001dd80c29f3&spid=5c64565a-a8f2-f011-8407-001dd803d067
74	BLM, Decision Record for the Converting Lesser Prairie Chicken Habitat Evaluation Areas (HEAs) to Habitat Areas (HAs) (April 20, 2018), https://eplanning.blm.gov/documents/?id=8ca98fa5-a7f2-f011-8407-001dd80c29f3&spid=5c64565a-a8f2-f011-8407-001dd803d067
75	Vhay, Megan P. et al., Broad-scale changes in lesser-prairie-chicken habitat, PLoS One, 2024 May 31;19(5):e0304452. doi: 10.1371/journal.pone.0304452
76	LPC Conservation LLC, Oil and Gas Habitat Conservation Plan for the Lesser Prairie-chicken, Colorado, Kansas, New Mexico, Oklahoma, and Texas (Aug. 4, 2021, revised May 11, 2022), https://www.fws.gov/sites/default/files/documents/508%20Compliant%20Final%20LEPC%20OG%20HCP_05.9.2022_0.pdf
77	Anne M. Bartuszevige and Alex Daniels, <i>Impacts of energy development, anthropogenic structures, and land-use change on lesser prairie-chickens</i> , 48 Stud. Avian Biol. 205, 212 (2016)
78	Western Association of Fish & Wildlife Agencies, LPC Active Leks (updated March 12, 2026), https://www.arcgis.com/home/item.html?id=c1f7405057e64485bd62ec03dfd18f73#overview
79	U.S. EIA, Longer wells boost Permian crude oil and natural gas production (Aug. 19, 2026), https://www.eia.gov/todayinenergy/detail.php?id=67984
80	Chan, Lauren M., et al., Phylogeographic structure of the dunes sagebrush lizard, an endemic habitat specialist, PLoS ONE 15(9): e0238194, https://doi.org/10.1371/journal.pone.0238194
81	Baker, Carrie, Researchers identify unique populations of dunes sagebrush lizard, Texas A&M Natural Resources Institute (Oct. 3, 2020), https://agrifetoday.tamu.edu/2020/10/02/researchers-identify-unique-populations-of-dunes-sagebrush-lizard/

Exhibit Index to TWS et al. Carlsbad Field Office Final Resource Management Plan (June 8, 2026)

<u>Appx</u>	<u>Exh. No.</u>	<u>Title/Description</u>
A	1	Andrey Marsavin, Da Pan, Ilana B. Pollack, Yong Zhou, Amy P. Sullivan, Lillian E. Naimie, Katherine B. Benedict, Julieta F. Juncosa Calahoranno, Emily V. Fischer, Anthony J. Prenni, Bret A. Schichtel, Barkley C. Sive, Jeffrey L. Collett, <i>Summertime Ozone Production at Carlsbad Caverns National Park, New Mexico: Influence of Oil and Natural Gas Development</i> . Journal of Geophysical Research: Atmospheres, 2024; 129 (14) DOI: Study at 10.1029/2024JD040877 . Article at https://www.sciencedaily.com/releases/2024/07/240716122718.htm# .
A	2	Dr. Gunnar W. Schade, <i>Air Quality Assessment in the NM Permian basin: Oil & Gas production impacts</i> , Presented to Water and Natural Resources Interim Committee (Oct. 29, 2029), https://www.nmlegis.gov/handouts/WNR%20102925%20Item%204%20TAMU%20Schade%20Air%20Quality%20in%20Permian%20Basin.pdf
A	3	American Lung Association, State of the Air 2026 Report at 122 – 123. https://www.lung.org/getmedia/32f0646d-c5de-4501-b0ac-07cd63c974d4/State-of-the-Air-2026-Report.pdf
A	4	Andrew L. Goodkind, Benjamin A. Jones, Casey L. Leek, <i>PM2.5 Pollution from Oil and Gas Activity in the Permian Basin: An Economic Analysis of its Human Health Impacts and Damages</i> , University of New Mexico Department of Economics (August 14, 2023), https://econ.unm.edu/common/documents/2023nm-research_goodkind-et-al-v2.pdf
A	5	Franklin, M., Schade, G., Helmig D., Cushing, L., Johnston, J., <i>Assessing Source Contributions to Air Quality and Noise in Unconventional Oil Shale Plays</i> , Health Effects Institute (December 2025), https://www.healtheffects.org/publication/assessing-source-contributions-air-quality-and-noise-unconventional-oil-shale-plays

A	6	<i>Permian Basin of Southeast New Mexico a Nonattainment Area Due to Ongoing Violations of Ozone Health Standards; Petition to Find New Mexico's State Implementation Plan is Failing to Attain and Maintain Ambient Air Quality Standards</i> , Center for Biological Diversity, Oilfield Witness, Citizens Caring for the Future, New Mexico Interfaith Power and Light, New Mexico Voices for Children, Youth United for Climate Crisis Action, and WildEarth Guardians (April 29, 2026), https://biologicaldiversity.org/programs/climate_law_institute/pdfs/26-04-29_Permian-Nonattainment-Petition-Final.pdf .
A	7	J. P. Veefkind, R. Serrano-Calvo, J. de Gouw, B. Di, O. Schneising, M. Buchwitz, J. Barré, R. J. van der A, M. Liu, and P. F. Levelt, <i>Widespread Frequent Methane Emissions From the Oil and Gas Industry in the Permian Basin</i> (2023), https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2022JD037479
A	8	Holly Elser, Sidra Goldman-Mellor, Rachel Morello-Frosch, Nicole C. Deziel, Kelsey Ranjbar, Joan A. Casey, <i>Petro-riskscape and environmental distress in West Texas: Community perceptions of environmental degradation, threats, and loss</i> , Energy Research & Social Science, Volume 70 (2020), https://www.sciencedirect.com/science/article/abs/pii/S221462962030373X
B	9	Ali Mohammad Latifi, Fatemeh Abdi, Mohammad Miri, Sara Ashtari, Seyedeh Noushin Ghalandarpour-attar, Milad Mohamadzadeh, Abbas Ali Imani Fooladi, Shahab Uddin and Amir Vahedian-azimi, <i>Association between maternal exposure to oil and gas extraction process with adverse birth outcomes: a systematic review and meta-analysis</i> , BMC Pregnancy and Childbirth, 25:126 (2025), https://pmc.ncbi.nlm.nih.gov/articles/PMC12645784/
B	10	Molly Montgomery, "The boots on Buck Jackson Road: New Mexico's Permian Basin relies on a workforce subject to harrowing conditions," Searchlight New Mexico (May 23, 2025), https://searchlightnm.org/new-mexico-permian-basin-oil-gas-men-workers-death-injury-disease-family-mental-health/
B	11	Shannon Sanchez Youngman, Ph.D., Gabriel R. Sanchez, Ph.D., Yoselin Cordova, MA, Melanie Dominguez, MA, Gabriel E. Martinez, MA, <i>Southeastern New Mexico Oil & Gas Workforce Study</i> (2024), University of New Mexico Center for Social Policy
B	12	Karanam, V., Lu, Zhong, <i>Hydrocarbon production induced land deformation over Permian Basin; analysis using persistent scatterer interferometry and numerical modeling</i> . <i>International Journal of Applied Earth Observation and Geoinformation</i> , International Journal of Applied Earth Observation and Geoinformation (2023). https://nmpoliticalreport.com/2023/08/30/researchers-

		<u>warn-that-changes-in-the-permian-basin-surface-due-to-oil-and-gas-industry-activities-are-leading-to-increasing-number-of-geohazards/</u>
B	13	Jens-Erik Lund Snee, Mark D. Zoback, <i>State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity</i> , The Leading Edge (Feb. 2018), <u>https://www.researchgate.net/publication/322907739_State_of_stress_in_the_Permian_Basin_Texas_and_New_Mexico_Implications_for_induced_seismicity.</u>
B	14	Melissa Troutman and Rebecca Sobel, WildEarth Guardians, <i>The 2025 New Mexico Oil & Gas Spill Report: Land, Air & Water Pollution from Oil and Gas</i> (2026), <u>https://wildearthguardians.org/press-releases/record-volumes-of-oil-and-gas-spills-polluted-new-mexico-in-2025-new-report-finds/</u>
B	15	Earthworks complaint with the New Mexico Environment Department (May 2026)
B	16	Hu et al., <i>Toxicological characterization of produced water from the Permian Basin</i> , Science of the Total Environment (2022), <u>https://nmpwrc.nmsu.edu/resources/documents/2022-STOEN-PW-toxicity-analysis.pdf.</u>
C	17	Karanam, V., Lu, Z., & Kim, J.-W., <i>Investigation of oil well blowouts triggered by wastewater injection in the Permian Basin, USA</i> . (2024), Geophysical Research Letters, 51, e2024GL109435. <u>https://doi.org/10.1029/2024GL109435</u>
C	18	Valder, J.F., McShane, R.R., Thamke, J.N., McDowell, J.S., Ball, G.P., Houston, N.A., and Galanter, A.E., <i>Estimates of water use associated with continuous oil and gas development in the Permian Basin, Texas and New Mexico, 2010–19</i> (2021), U.S. Geological Survey Scientific Investigations Report 2021–5090, 27 p., <u>https://doi.org/10.3133/sir20215090.</u>
C	19	Pierre et al., <i>Projected Landscape Impacts from Oil and Gas Development Scenarios in the Permian Basin, USA</i> , Environmental Management (2020), <u>https://pubmed.ncbi.nlm.nih.gov/32591935</u>
C	20	<u>https://s3-us-west-2.amazonaws.com/s3-wagtail.biologicaldiversity.org/documents/Center-comments-LPC-listing.pdf.</u>
C	21	WildEarth Guardians, <i>Comments on Endangered and Threatened Wildlife and Plants; Status Review for the Lesser Prairie-Chicken</i> at 3, Docket No. FWS-R2-ES-2025-1661 (March 26, 2026).
C	22	<u>https://biologicaldiversity.org/w/news/press-releases/lawsuit-seeks-critical-habitat-protection-for-rare-freshwater-mussel-in-texas-new-mexico-2026-05-18/</u>

D	23	World Meteorological Organization, United in Science 2022 (Lauren Stuart et al. eds., 2022), https://public.wmo.int/en/resources/united_in_science
D	24	N. Ratledge et al., <i>Emissions from Fossil Fuels Produced on US Federal Lands and Waters Present Opportunities for Climate Mitigation</i> , 171 Climatic Change, no. 11, Mar. 14, 2022, at 2–5, https://link.springer.com/content/pdf/10.1007/s10584-021-03302-x.pdf .
D	25	IPCC 2023: <i>Synthesis Report of the IPCC Sixth Assessment Report</i> [Paola Arias et al. (eds.)], Cambridge University Press.
D	26	https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/Reporting/Production/ProductionInjectionSummaryReport.aspx ;
D	27	Mezger, et al., <i>Delaware Basin Ecological Forecasting: Identifying Vegetation Trends and Atmospheric Stressors in the Guadalupe Mountains and Carlsbad Caverns National Parks</i> (August 11, 2022), NASA DEVELOP National Program, https://ntrs.nasa.gov/citations/20220013093
D	28	<i>Mapping Orphan Wells in New Mexico</i> , Environmental Defense Fund, https://www.edf.org/sites/default/files/2021-10/Orphan%20Well%20FactSheet%20NM.pdf (accessed May 26, 2026).
D	29	U.S. Gov’t Accountability Off., <i>GAO-19-615</i> , Oil and Gas: Bureau of Land Management Should Address Risks from Insufficient Bonds to reclaim Wells (2019) at 4 (well production used as a proxy for risk)
E	30a , 30b , 30c	Applicants’ Prehearing Statement, In the Matter of Proposed Amendments to 19.15.2, 19.15.5, 19.15.8, 19.15.9, and 19.15.25 NMAC, Case No. 24683, New Mexico Oil Conservation Commission, https://ocdimage.emnrd.nm.gov/Imaging/FileStore/santafe/cf/20250811/24683_08_11_2025_10_11_12.pdf .
F	31	https://www.federalregister.gov/documents/2025/08/01/2025-14625/revision-to-regulations-regarding-oil-and-gas-leasing-stipulations-and-information-notices
F	32a , 32b	New Mexico Wilderness Alliance: four developed and submitted nominations for ACECs in the Carlsbad Planning Area (2010 and 2011)
F	33	The Wilderness Society, <i>Open for Drilling: The Outsized Influence of Oil & Gas on Public Lands</i> (March 19, 2025), https://www.wilderness.org/articles/press-release/new-report-confirms-oil-and-gas-industrys-suffocating-reign-public-lands .
F	34	TWS, New Mexico Wild, and NPCA initial comments on Draft EIS/RMP (October 12, 2018) and TWS et al. comments on Draft EIS/RMP (Nov. 5, 2018).

Exhibit Index to WildEarth Guardians et al. Comments on the Carlsbad Field Office's Draft Resource Management Plan and Environmental Impact Statement (Nov. 5, 2018)

<u>Title/Description</u>
Aerial Survey Confirm Upward Trend in Lesser Prairie-Chicken Population (07/08/2018), Gov't website https://www.wafwa.org/news/e_2104/Lesser_Prairie_Chicken_News_Releases/2018/7/Aerial_Surveys_Confirm_Upward_Trend_in_Lesser_Prairie-Chicken_Population.htm .
American Lung Ass'n, State of the Air 2018, https://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2018-full.pdf
American Lung Ass'n et al., Letter Regarding Oil and Natural Gas Sector: Reviews of New Source Performance Standards and National Emissions Standards for Hazardous Air Pollutants. Docket ID No. EPA-HQ-OAR-2010- 0505 at 8 (2011), https://www.lung.org/assets/documents/advocacy-archive/air-standards-oil-gas.pdf .
American Meteorological Society, State of the Climate in 2017, Vol. 99, No. 8 (Aug. 2018)
Andrew J. Kondash et al., The intensification of the water footprint of hydraulic fracturing, 4 Science Advances 1 (Aug. 2018), http://advances.sciencemag.org/content/4/8/eaar5982
Bidwell.T. et al., Ecology and management of the lesser prairie-chicken in Oklahoma, Stillwater, OK: Oklahoma State Cooperative Extension Service, 17 (2002).
Brad Plumer, Trump Put a Low Cost of Carbon Emissions. Here's Why It Matters, New York Times, Aug. 23, 2018, https://www.nytimes.com/2018/08/23/climate/social-cost-carbon.html
Burton, G.A., K.J. Nadelhoffer, and K. Presley, Hydraulic fracturing in the state of Michigan: Environment/ecology technical report. University of Michigan. (2013)
Center for Biological Diversity & Defenders of Wildlife, Petition to List the Dunes Sagebrush Lizard as a Threatened or Endangered Species and Designate Critical Habitat (May 8, 2018).
Clean Air Scientific Advisory Committee, CASAC Review of the EPA's Second Draft Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards at ii (June 26, 2014), http://yosemite.epa.gov/sab/sabproduct.nsf/5EFA320CCAD326E885257D030071531C/\$File/EPA-CASAC-14-004+unsigned.pdf
Clancy, S.A., F. Worrall, R.J. Davies, J.G. Gluyas. The potential for spills and leaks of contaminated liquids from shale gas developments. 626 Sci. of the Total Env't. 1463, 1464 (June 1, 2018)

Cong. Research Serv., U.S. Climate Change Regulation and Litigation: Selected Legal Issues 29 (Apr. 2017), https://crsreports.congress.gov/product/pdf/R/R44807 .
Cris Hein, Impacts of Shale Gas Development on Bat Populations in the Northeastern United States (2012), https://www.researchgate.net/publication/298349533_Impacts_of_Shale_Gas_Development_on_Bat_Populations_in_the_Northeastern_United_States
Cynthia P. Melcher, U.S. Geological Survey, Southern Great Plains Rapid Ecoregional Assessment—Pre-Assessment Report 170 (Timothy J. Assal et al. eds., 2015)
Daniel T. Birdsell et al., Hydraulic fracturing fluid migration in the subsurface: A review and expanded modeling results, AirWaterGas Publications (2015).
D.H. Wolfe, L.C. Larsson, and M.A. Patten, The lesser prairie-chicken in the Mixed-Grass Prairie Ecoregion of Oklahoma, Kansas, and Texas, 48 Stud. Avian Biol. 299, 307-08 (2016).
D.H. Wolfe, M.A. Patten, E. Shochat, C.L. Pruett, and S.K. Sherrod, Causes and patterns of mortality in lesser prairie-chickens Tympanuchus pallidicinctus and implications for management, 13 Wildl. Biol. 95, 99 (2007).
Dustin Mulvaney, et al., The Potential Greenhouse Gas Emissions from U.S. Federal Fossil Fuels, EcoShift Consulting, 16 (Aug. 2015), http://www.ecoshiftconsulting.com/wp-content/uploads/Potential-Greenhouse-Gas-Emissions-U-S-Federal-Fossil-Fuels.pdf
Earthworks & Clean Air Task Force, Country Living, Dirty Air: Oil & Gas Pollution in Rural Areas 15 (July 2018), https://earthworks.org/cms/assets/uploads/2018/07/country-living-dirty-air.pdf .
Envtl. Def. Fund et al., Riley Ridge Draft Environmental Impact Statement – DOI-BLM-WY-D040-2014-0001-EIS (May 7, 2018)
EPA Draft Report, Investigation of Ground Water Contamination Near, Pavillion, Wyoming (Dec. 2011).
EPA, Guidance on Significant Impact Levels for Ozone and Fine Particles on the Prevention of Significant Deterioration Permitting Program 15 (Apr. 17, 2018), https://www.epa.gov/sites/production/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf
EPA, Report to Congress, Management of wastes from the exploration, development, and production of crude oil, natural gas and geothermal energy. Vol. 1. (December 1987)
EWG, Cracks in the Façade: 25 Years Ago, EPA Linked “Fracking” to Water Contamination, https://static.ewg.org/reports/2011/fracking/cracks_in_the_facade.pdf

Fernie, K.J., and S.J. Reynolds, The effects of electromagnetic fields from power lines on avian reproductive biology and physiology: a review, <i>J. Toxicol. Environ. Health Part B</i> 8, 127 (2005).
Forman, R.T.T., and L.E. Alexander, Roads and their major ecological effects, <i>Ann. Rev. Ecol. Syst.</i> 29, 207 (1998).
Gelbard, J.L. and J. Belnap, Roads as conduits for exotic plant invasions in a semiarid landscape, <i>Conserv. Biol.</i> 17, 420 (2003).
Greg Muttitt, et al., The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production, Oil Change International, at 6 (Sept. 2016).
Hagen, C. A. et al., Impacts of anthropogenic features on habitat use by Lesser Prairie-Chickens, <i>Studies in Avian Biology</i> (no. 39), University of California Press, Berkeley, CA, 63 (2011).
International Energy Agency, Redrawing the Energy-Climate Map 14 (June 2013), https://www.iea.org/publications/freepublications/publication/WEO_Special_Report_2013_Reducing_the_Energy_Climate_Map.pdf
IPCC AR5, Summary for Policymakers (Mar. 2014), http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf .
IPCC SR 15, Global Warming of 1.5°: Summary for Policy Makers (Oct. 2018), http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf .
James Hansen, et al., Assessing “Dangerous Climate Change”: Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature, 8 <i>PLoS ONE</i> 8 e81648 (2013).
Jarnevich, C.S. and M.K. Laubhan, Balancing energy development and conservation: A method utilizing species distribution models, <i>Envtl. Manage.</i> 47, 926 (2011).
J.C. Pitman, C.A. Hagen, R.J. Robel, T.M. Loughin, and R.D. Applegate, Location and success of lesser prairie-chicken nests in relation to vegetation and human disturbance, 69 <i>J. Wildl. Manage.</i> 1259, 1265 (2005).
Jessie P. Bunkley et al., Anthropogenic noise alters bat activity levels and echolocation calls, 3 <i>Global Ecology and Conservation</i> 62 (2015).
J.L. Hunt & T.L. Best, Investigation into the decline of populations of the lesser prairie chicken (<i>Tympanuchus pallidicinctus</i>) on lands administered by the Bureau of Land Management, Carlsbad Field Office, New Mexico, Final Report to the Bureau of Land Management, Cooperative Agreement GDA010007 (2004).

Josh Fox, The Sky is Pink: Annotated Documents.
Katharine Ricke et. al, Country-Level Social Cost of Carbon, Nature Climate Change, Vol. 8, 895 (2018), https://www.nature.com/articles/s41558-018-0282-y
L.C. Cheadle et al., Surface Ozone in the Colorado Northern Front Range and the Influence of Oil and Gas Development During FRAPPE/DISCOVER-AQ in Summer 2014, Vol. 5, Art. 61, https://www.elementascience.org/articles/10.1525/elementa.254/ .
Lautenbach, J.M., Lesser prairie-chicken reproductive success, habitat selection, and response to trees, M.S. Thesis, Kansas State Univ., 142 (2015)
M.A. Patten, D.H. Wolfe, E. Shochat, and S.K. Sherrod, Effects of microhabitat and microclimate selection on adult survivorship of the lesser prairie-chicken, 69 J. Wildl. Manage. 1270, 1277 (2005).
Nat'l Park Serv., Park Conditions & Trends: Carlsbad Caverns National Park, https://www.nps.gov/subjects/air/park-conditions-trends.htm (last visited Oct. 30, 2018)
Natural Resources Conservation Services New Mexico Lesser Prairie Chicken Initiative (last visited October 18, 2018), Gov't website. https://www.nrcs.usda.gov/wps/portal/nrcs/detail/nm/programs/financial/equip/?cid=nrcs144p2_068635 .
N.M. Env't Dep't, 2015 Ozone NAAQS Designation Recommendation Report (Sept. 2016), https://www.env.nm.gov/wp-content/uploads/2017/05/2015OzoneDesignationRequest.pdf 57).
Owen Gaffney and Will Steffen, The Anthropocene Equation, The Anthropocene Review (2017)
Owen A. Sherwood et al., Groundwater methane in relation to oil and gas development and shallow coal seams in the Denver-Julesburg Basin of Colorado, PNAS (2016), http://www.pnas.org/content/113/30/8391.full
Peter Erickson and Michael Lazarus, Stockholm Environmental Institute, How Would Phasing Out U.S. Federal Leases for Fossil Fuel Extraction Affect CO2 Emissions and 2°C Goals? 16 (2016), https://www.sei.org/mediamanager/documents/Publications/Climate/SEI-WP-2016-02-US-fossilfuel-leases.pdf
Peter Fairley, States Are Using Social Costs of Carbon in Energy Decisions, Despite Trump's Opposition, Inside Climate News, Aug. 14, 2017, https://insideclimatenews.org/news/11082017/states-climate-change-policy-calculate-social-cost-carbon

Robel, R. J. et al., Effect of energy development and human activity on the use of sand sagebrush habitat by Lesser Prairie Chickens in southwestern Kansas, <i>Trans. N. Am. Wildl. Nat. Res. Conf.</i> 69, 251 (2004).
S.D. Fuhlendorf, A.J. Woodward, D.M. Leslie Jr., and J.S. Shackford, Multi-scale effects of habitat loss and fragmentation on lesser prairie-chicken populations of the US Southern Great Plains, <i>17 Landscape Ecol.</i> 617, 626 (2002).
Sean Kyle et al., Arizona Game and Fish Department, The Lesser Prairie-Chicken Range-wide Conservation Plan 35 (William E. Van Pelt ed., 2013).
Steenhof, K et al., Nesting by raptors and common ravens on electrical transmission towers, <i>J. Wildl. Manage.</i> 57, 271 (1993).
TEDX, Chemicals In Natural Gas Operations, https://endocrinedisruption.org/assets/media/documents/Multistate%20summary%208-3-17.pdf
Timmer, J.M., Relationship of lesser prairie-chicken density to landscape characteristics in Texas, MS Thesis, Texas Tech Univ., 131 (2012)
Timmer, J.M. et al., Spatially explicit modeling of lesser prairie-chicken lek density in Texas, <i>J. Wildl. Manage.</i> 78, 142 (2014).
Umair Irfan, Climate Change is a Global Injustice. A New Study Shows Why, <i>Vox</i> , Sept. 26, 2018, https://www.vox.com/2018/9/26/17897614/climate-change-social-cost-carbon
United Nations Climate Change, Paris Agreement, Art. II, Section 1(a), https://unfccc.int/sites/default/files/english_paris_agreement.pdf
U.S. CONGRESS, HOUSE OF REPRESENTATIVES, COMMITTEE ON ENERGY AND COMMERCE, Chemicals Used in Hydraulic Fracturing (April 2011)
WildEarth Guardians et al., Petition to List the LPC (<i>Tympanuchus pallidicinctus</i>) & Three Distinct Population Segments Under the U.S. Endangered Species Act & Emergency Listing Petition for the Shinnery Oak Prairie & Sand Sage Prairie Distinct Population Segments 9 (Sept. 8, 2016)
Williams, H.F.L., D.L. Havens, K.E. Banks, and D.J. Wachal Field-based monitoring of sediment runoff from natural gas well sites in Denton County, Texas, USA, (2008).