CENTER *for* BIOLOGICAL DIVERSITY *Because life is good.*

working through science, law and creative media to secure a future for all species, great or small, hovering on the brink of extinction.

October 30, 2018

Via Overnight Delivery

Attention: State Director
BLM New Mexico State Office
301 Dinosaur Trail
Santa Fe, New Mexico 87508

Re: Protest of the New Mexico State Office's December 5-6, 2018 Competitive Oil and Gas Lease Sale

Dear State Director:

The Center for Biological Diversity, Clean Water Action, Environment Texas, and Sierra Club hereby file this protest of Bureau of Land Management's (BLM) proposed December 5-6, 2018 Competitive Oil and Gas Lease Sale, and Environmental Assessment (EA) DOI-BLM-NM-040-2018-0060-EA, pursuant to 43 C.F.R. § 3120.1-3. We formally protest the inclusion of each of the following parcels, including approximately 4,200 acres underlying Choke Canyon Reservoir in McMullen and Live Oak counties in Texas, and over 400 acres in Oklahoma's Alfalfa, Custer, Dewey, Ellis, Harper, and Woods counties:

Texas	**Oklahoma**
NM-201812-123	NM-201812-115
NM-201812-124	NM-201812-116
NM-201812-125	NM-201812-117
NM-201812-126	NM-201812-118
NM-201812-127	NM-201812-119
NM-201812-128	NM-201812-120
NM-201812-129	NM-201812-121
NM-201812-130	NM-201812-122
NM-201812-131	
NM-201812-132	

For the reasons set forth in this letter and our July 27, 2018 scoping comment letter (Scoping Comments, attached hereto), we urge BLM to: (1) cease all new leasing of fossil fuels in the planning area, including oil and natural gas; or, at a minimum (2) withdraw the proposed December 2018 Sale pending a programmatic review of all federal fossil fuel leasing in the planning areas, which must consider a "no leasing" and "no fracking" plan amendments. Should

My-Linh Le • Legal Fellow • 1212 Broadway, Ste. 800 • Oakland, CA 94612
Phone: 510-844-7115 • *Fax:* (415) 436.9683 • *MLLe@biologicaldiversity.org*

BLM proceed with the sale, BLM must prepare a full EIS for the proposed lease sale in consideration of significant unexamined impacts from the consequences of leasing. Any such EIS must consider a full range of alternatives, including an alternative that bans new hydraulic fracturing and other unconventional well stimulation activities, and require strict controls on natural gas emissions and leakage.

PROTEST

I. Protesting Party: Contact Information and Interests

This Protest is filed on behalf of:

Wendy Park
Senior Attorney
Center for Biological Diversity
1212 Broadway #800
Oakland, CA 94612
510-844-7138
wpark@biologicaldiversity.org

David Foster
Texas Director
Clean Water Action / Clean Water Fund
600 W. 28th Street, Suite 202
Austin, TX 78705

Cyrus Reed
Conservation Director
Lone Star Chapter, Sierra Club
6406 North Interstate 35, Ste. 1805
Austin, TX 78752

Luke Metzger
Executive Director
Environment Texas
200 E. 30th Street
Austin, TX 78705
512-479-0388

The Center is a non-profit environmental organization with over 68,000 members, many of whom live and recreate in Oklahoma, and Texas. The Center uses science, policy and law to advocate for the conservation and recovery of species on the brink of extinction and the habitats they need to survive. The Center has and continues to actively advocate for increased protections for species and their habitats in Texas and Oklahoma. The lands that will be affected by the proposed lease sale include habitat for listed, rare, and imperiled species that the Center has worked to protect including the lesser-prairie chicken, interior least tern, golden orb, and

whooping crane. The Center's board, staff, and members use the public lands in Texas and Oklahoma, including the lands and waters that would be affected by actions under the lease sale, for quiet recreation (including hiking and camping), scientific research, aesthetic pursuits, and spiritual renewal. Many of the Center's members also live and work near the areas for lease and rely on the public water reservoirs with parcels for lease for their drinking water, which could be adversely affected if these parcels were leased for new oil and gas development.

Clean Water Action has more than 44,000 members in cities and counties in Texas. Its goals include clean, safe and affordable water and prevention of health threatening pollution. Its members who live in Corpus Christi rely on the water supplies adjacent to the parcels for lease for drinking water. Clean Water Action and its members are concerned about the negative impacts that could result to the quality of surface water and drinking water, the possible impact to the dam infrastructures near which parcels could be leased, and the natural areas where our members recreate.

The Sierra Club is a national nonprofit organization of approximately 695,000 members dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Sierra Club has members that live in and use the affected areas affected by this proposed lease sale for recreation such as hiking, backpacking, camping, fishing, and wildlife viewing, as well as for business, scientific, spiritual, aesthetic, and environmental purposes.

The Sierra Club's Lone Star Chapter has over 24,000 members and 100,000 supporters in Texas. Its members and supporters, and its paid staff, use the public lands in Texas, including the lands and waters that would be affected by actions under the lease sale, for quiet recreation (including hiking and camping), scientific research, aesthetic pursuits, and spiritual renewal. Many of the Chapter's members live in areas like Corpus Christi whose water sources could be impacted if care is not taken in the development of oil and gas in the proposed parcels, since they impact water resources relied upon by those cities.

The Oklahoma Chapter of the Sierra Club has more than 3,500 members throughout the state. Many of these individuals live and work in areas where they experience earthquake tremors caused by induced seismicity triggered by underground oil and gas wastewater disposal. New oil and gas leasing will likely result in increased wastewater injection and increased earthquake activity, which could damage these members' homes and property and threaten their physical safety. Oklahoma's Sierra Club members enjoy viewing wildlife such as the least tern, lesser prairie-chicken, whooping crane, red knot and piping plover in their natural habitats. These species and their habitats would be threatened by increased oil and gas development that could result from the proposed lease auction.

Environment Texas is a non-profit, citizen-funded advocate for clean air, clean water and open spaces. The organization has over 30,000 members and activists across the state of Texas, including members in Live Oak and McMullen counties. Environment Texas researches the challenges confronting our environment and educates the public about what's at stake. The

organization has worked to limit the negative environmental impacts of drilling for over a decade. Environment Texas' staff and members use the Texas public lands that would be affected by actions under the lease sale for drinking water and recreation.

II. Statement of Reasons as to Why the Proposed Lease Sale Is Unlawful:

BLM's proposed decision to lease the parcels listed above is substantively and procedurally flawed for the reasons discussed below.

A. BLM and Bureau of Reclamation Failed to Provide Public Adequate Notice of the Proposed Auction and Solicit Public Comment

BLM and Bureau of Reclamation failed to adequately notify the public of the leasing auction, in violation of NEPA. Because the public was denied a fair opportunity to participate in these agencies' decisions to allow new oil and gas leasing, BLM should cancel the auction, or at minimum, postpone the auction and properly reinitiate scoping to allow the public to voice their concerns and have their questions addressed.

NEPA regulations require that "[t]here shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed scoping." 40 C.F.R. § 1501.7. This requirement to provide "an early and open process" cannot be met when the people and communities most immediately affected by the proposed federal action receive no reasonable notice of the action. Effective analysis of "significant issues" requires that those who will feel the impacts of the action be notified and given the opportunity to identify the issues that will affect them. We strongly urge BLM to postpone the auction, reinitiate scoping and provide notice to "those persons…who may be interested or affected" and "solicit appropriate information from the public," in compliance with NEPA. *See* 40 C.F.R. § 1506.6.

The only means that BLM used to publicize the sale were (1) its website for the New Mexico State Office, which oversees oil and gas leasing in BLM's New Mexico, Texas, Oklahoma, and Kansas Field Offices, and (2) a press release emailed to reporters in Texas, Oklahoma, and New Mexico. No public notice was disseminated in any of the communities near the areas for lease, or via the local offices of the surface management agencies for the Texas parcels at Choke Canyon Reservoir—Bureau of Reclamation, City of Corpus Christi, and Texas Parks and Wildlife Department. BLM's pro forma notice violated NEPA's mandate for agencies to "invite the participation of… interested persons" and "make diligent efforts to involve the public" in considering the environmental consequences of its actions. 40 C.F.R. §§ 1501.7(a)(1), 1506.6(a).

NEPA regulations repeatedly emphasize the need for early and effective public notice and involvement. NEPA procedures must ensure "environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. § 1500.1(b). "[P]ublic scrutiny [is] essential to implementing NEPA." *Id*. Accordingly, "agencies *shall to the fullest extent possible*…encourage and facilitate public involvement in decisions." *Id*. § 1500.2(d) (emphasis added). Specifically, agencies "shall…make *diligent* efforts to involve the

public in preparing and implementing their NEPA procedures[,]…provide public notice of…the availability of environmental documents *so as to inform those persons…who may be interested or affected[,]* [and]…solicit appropriate information from the public." *Id*. § 1506.6(a), (b), (d); *see also id.* § 1501.4(b) ("The agency shall involve environmental agencies, applicants, and the public, to the extent practicable, in preparing [environmental] assessments."). Moreover, as part of the scoping process, the lead agency must "[i]nvite the participation of affected Federal, State, and local agencies, any affected Indian tribe, the proponent of the action, and other interested persons." 40 C.F.R. § 1501.7(a)(1). "In all cases the agency shall mail notice to those who have requested it on an individual action." *Id*. § 1506.6(b)(1).

BLM's efforts here fell far short of "diligent" efforts and public notice "so as to inform those persons… who may be interested or affected" by its leasing decision. BLM failed to notify communities neighboring Choke Canyon Reservoir and the various municipalities and water districts that rely on the lake for drinking water, about the potential for fracking beneath or near these lakes. Even the press release it emailed to reporters was so generic, it failed to mention the specific areas for lease, such as Choke Canyon Reservoir, and failed to generate any news stories. Further, despite that Bureau of Reclamation approved BLM's offer of the Texas parcels and necessary leasing stipulations, this agency neither made any efforts to notify the public, or local governments and officials.

We also object to BLM's significant curtailment of public involvement in oil and gas leasing decisions, including the instant lease sale, by eliminating the 30-day comment period for NEPA documents and reducing protest periods from 30 days to 10 days, pursuant to Permanent Instruction Memorandum 2018-034. As outlined in our October 2 letter to your office, a recent court order preliminarily enjoined Permanent IM 2018-034 in certain western-state planning areas at issue in the case, finding plaintiffs were likely to succeed in their claims that the policy (1) violated NEPA's and FLPMA's public participation requirements, and (2) ran afoul of the APA, having been adopted without public notice and comment. The court ordered BLM to conduct a 30-day NEPA comment period and a 30-day protest period for all lease sales in the relevant planning areas, starting with BLM's December 2018 lease auctions.

The court's reasoning equally applies to the lease auction at issue here—the public has had only a 10-day period to review the Draft EA, which has run concurrently with a limited 10-day protest period. Accordingly, BLM should postpone the Oklahoma-Texas December 2018 lease auction until the public has had a full and fair opportunity to weigh in, including a minimum 30-day period to comment on the draft EA and a 30-day protest period to object to the lease auction. Relatedly, we also object to BLM's further curtailing public involvement by now requiring protests to be submitted to the New Mexico State Office via hand delivery or mail, and eliminating the option of submitting protests by fax. This new policy effectively limits the public's time for submitting a protest to nine days--members of the public can no longer fax their protests on the day of the deadline, but will have to overnight protests the day before to ensure timely delivery by BLM's receipt deadline.

Given BLM's and Bureau of Reclamation's failure to notify and involve the public in its leasing decisions, the importance of public review and participation, and the high level of public interest in the lease sale, BLM should postpone the lease sale, provide adequate notice of the

lease auction, allow 30 days for comment on the Draft EA, and extend the protest deadline to 30 days to allow the public adequate time to review BLM's auction proposal.

B. The Draft EA and Finding of No Significant Impact ("FONSI") do not Satisfy the National Environmental Policy Act's ("NEPA") "Hard Look" Requirement

The EA as prepared is unlawfully deficient. Relying on the RMPs as the basis for BLM's FONSI was improper: the broad-brush analysis contained in the land use planning stage omits several significant environmental consequences specific to the proposed lease sale, and fails to consider new information that has arisen over the last two decades, which we discussed in the attached scoping comment, and EA comment.

NEPA requires agencies to undertake thorough, site-specific environmental analysis at the earliest possible time and prior to any "irretrievable commitment of resources" so that the action can be shaped to account for environmental values. *Pennaco Energy, Inc. v. United States DOI*, 377 F.3d 1147, 1160 (10th Cir. 2004). Oil and gas leasing is an irretrievable commitment of resources. *S. Utah Wilderness All. v. Norton*, 457 F. Supp. 2d 1253, 1256 (D. Utah 2006). Thus, NEPA establishes "action-forcing" procedures that require agencies to take a "hard look," at "all foreseeable impacts of leasing" before leasing can proceed. *Center for Biological Diversity v. United States DOI*, 623 F.3d 633, 642 (9th Cir. 2010); *N.M. ex rel. Richardson v. BLM*, 565 F.3d 683, 717 (10th Cir. 2009). Chief among these procedures is the preparation of an environmental impact statement ("EIS"). *Id.*

BLM, however, did not prepare an EIS; nor did BLM even prepare a sufficient analysis of the lease sale's impacts in the EA for the proposed lease sale. In our July 27 Scoping Comments, incorporated here by reference, we pointed out numerous foreseeable, significant impacts likely to be caused by the exploration and development of these parcels. However, BLM did not take a hard look at these impacts in its draft EA and arbitrarily declined to prepare an Environmental Impact Statement ("EIS") despite the likelihood of significant impacts. Instead, BLM claims that these impacts were already analyzed in severely outdated RMPs that were signed into record more than two decades ago. The EA tiers to the Oklahoma Resources Management Plan (RMP) (1994) and the Texas RMP (1996) for the required analysis, and relies on several lease stipulations to mitigate the impacts of future development on these parcels. However, BLM never looked at, or made any determination as to, whether such stipulations will actually reduce impacts to less than significant levels; nor does BLM provide any scientific evidence or data, or conduct any analysis of site-specific impacts, to support any such determination. Without any analysis of site-specific impacts at the parcel level, there is no basis for concluding that such measures would reduce impacts to less than significant levels, or that lease stipulations attached to a lease are adequate to address site-specific concerns.

To the extent that BLM defers site-specific analysis because site-specific plans or Applications for Permits to Drill (APD) have not been proposed, oil and gas development is reasonably foreseeable and ample information exists to inform site-specific analysis. All of the

parcels are within the booming Eagle Ford Shale Play,[1] in which horizontal drilling and fracking are the prevalent means of extraction.[2] The Austin Chalk (which overlies the Eagle Ford formation) is also an emerging play that has become economically feasible to develop given new horizontal drilling and multi-stage fracking technologies.

A recent draft Bureau of Reclamation study addressing the effects of oil and gas development proposed around Choke Canyon Reservoir and best management practices to mitigate those effects, provides detailed figures as to typical well pad size, surface disturbance, horizontal well bore lengths and orientation, water use, unique soil properties and associated air and water pollution hazards, abandoned wells, and other risk factors and effects of fracking in the Eagle Ford Shale.[3] The much more detailed analysis provided in this study is a stark contrast to BLM's cursory EA. In addition, the Texas Railroad Commission tracks production levels and target formations for individual counties and oil and gas fields, such that reasonable projections of oil and gas production levels, transportation impacts, air emissions, and other impacts are feasible.[4]

Even at the programmatic level, the meager analysis BLM has provided thus far is unlawfully deficient. Relying on the RMPs as the basis for BLM's FONSI is improper; the RMPs preceded the rise of fracking and its numerous harmful effects. Moreover, the broad-brush analysis contained in the programmatic EA omits numerous significant environmental consequences specific to the proposed lease sale, which we discuss in detail below:

1. The EA's Reasonably Foreseeable Development Scenario is Flawed

The EA projects that 53 wells could be developed around Choke Canyon Reservoir by assuming that 8 horizontal wells would be developed for every 640 acres of minerals leased, or 1 well for every 80 acres. The EA then calculates the number of wells that could be developed on a parcel by applying this ratio to the acreage for each lease parcel. For example, it assumes a 70 acre parcel would result in the development of 0.885125 wells, or that a 260.10 acre parcel would result in the development of 3.25125 wells on the parcel. These projections are nonsensical and do not reflect reality.

The EA should perform a more realistic projection of the total number of wells by determining whether leasing a parcel could open up other surrounding minerals (either federal or private oil and gas minerals that have already been leased) for horizontal well development, given that horizontal well development requires large blocks of minerals to be economically feasible. The EA should then estimate the number of wells (using whole numbers) that would be

[1] *See* Texas Railroad Commission, Eagle Ford Shale Play Map (Feb. 2017) (map showing Eagle Ford Shale Play spans Washington, Live Oak, Lee, and Burleson counties, in which proposed lease parcels are located). A flashdrive of all references and exhibits cited in this letter has been delivered to your office.
[2] Texas Railroad Commission, Eagle Ford Shale Task Force Report, 3-6 (2013) (noting enormous development potential of Eagle Ford unlocked by improved horizontal drilling and fracking techniques).
[3] U.S. Bureau of Reclamation, [Draft Final] Best Management Practices: Hydrocarbon Exploration, Development, and Production at Nueces River Project, Choke Canyon Reservoir, Texas, Chapter 1 (Aug. 2015) ("BoR Study").
[4] Eagle Ford Shale Task Force Report at 4-5 (showing total barrels of oil, condensate, and gas, produced per day in Eagle Ford Shale, number of wells, and "windows" for oil, wet gas, and dry gas extraction).

needed to develop the federal acreage proposed for lease plus the surrounding acreage that would be unlocked for development.

2. The EA Fails to Take a Hard Look at the Risks of Induced Seismicity or Other Geological Hazards

As detailed extensively in our Scoping Comments at 8-18, the EA must analyze the potential for damage to Choke Canyon dam from fracking, drilling, and wastewater injection, including seismic activity triggered by these activities. The EA fails to analyze these potential impacts, and instead simply relies on Stipulation #13 of BOR's "Interim Stipulation" for the Nueces River Project. However, as we have explained in our Scoping Comments, no reasoned analysis supports the adequacy of this stipulation in avoiding harm to the dam infrastructure, and a number of recent studies strongly suggest that a 2,000 foot setback is inadequate for protecting dam facilities. Indeed, one 2017 study recommends a setback of 5 km away from sensitive infrastructure for drilling and fracking activities, and 10 km for wastewater injection activities.

Further, the EA's discussion of seismicity largely focuses on induced seismicity in Oklahoma with very little analysis of seismic hazards in the Eagle Ford Shale, including potential fault lines underlying Choke Canyon Reservoir. It also fails to address existing regulatory mechanisms that would mitigate these risks in Texas or at Choke Canyon.

Incidentally, the stipulations for Choke Canyon listed in Appendix 1 of the EA are not consistent with the stipulations in the Sale Notice. Appendix 1 refers to the GP-135 "Special Stipulation," while the Sale Notice refers to the BOR "Interim Stipulation." These stipulations are markedly different. It is therefore unclear which stipulations would apply to the Choke Canyon lease parcels.

3. The EA Fails to Analyze the Impacts of Private Surface Development and Mitigation for These Effects

It is unclear from the EA what oversight BLM would have over private surface operations used for the production of federal minerals or federal minerals pooled with private minerals, accessed via horizontal wells in a location different from the lease parcel.[5] Many of the areas for lease are adjacent to or near non-federal land from which horizontal wells and other operations could be sited,[6] and horizontal bores may reach nearly two miles.[7]

---

[5] *See, e.g.*, Draft EA at 11 ("The BLM approves and regulates all drilling and completion operations, and related surface disturbance on *Federal* public lands…" [emphasis added]); *see also* BLM, Texas RMP Record of Decision and Plan, iv (1996) ("The Texas RMP/EIS is not a land use plan for private, state or other Federal SMA [surface management agency] resources. BLM has no surface jurisdiction over split-estate Federal minerals administrated by the agency, nor does the BLM have surface land use authority concerning Federal SMA lands. Under the various Federal mineral leasing laws, regulations and programs, the Federal SMA must grant consent to mineral *leasing* and subsequent minerals development prior to the BLM offering the tract(s) for lease. The SMA retains all authority to manage their programs and surface resources while management of the mineral estate is vested with the BLM.").
[6] *See, e.g.*, Draft EA at 55.
[7] BoR Study at 1-10.

While BLM has authority over federal oil and gas extraction, it is unclear whether it regulates activities on nonfederal surface that it does not own or manage, including areas not overlying the leased minerals. It is unclear whether federal leasing stipulations attached to the lease parcels cited in the EA would apply to oil and gas activities on private surface accessing federal minerals. This includes stipulations for the protection of wetlands and floodplains, cultural resources, sensitive and listed species, and a host of other resources. Potentially, the siting of well pads and pipelines, reclamation activities, noise levels from construction and other equipment, and many other effects of oil and gas development could be out of BLM's regulatory reach if they are not governed by BLM lease stipulations or conditions of approval, but the EA does not address this issue. Likewise, it is unclear the extent to which lease stipulations required by Bureau of Reclamation govern surface activities not occurring on their properties.

To the extent that only state regulators would have authority over surface activities on non-federal surface, and federal lease stipulations would not apply to these activities, the EA does not properly disclose this fact, or fully disclose the environmental impacts of new leasing. While several lease stipulations require setbacks to protect water resources, neither Texas nor Oklahoma appear to have regulations requiring setbacks from water sources, according to a 2013 review of state regulations.[8] It is similarly unclear whether state or local regulations would require mitigation for effects on vegetation, environmental justice, noise, recreation, scenic resources, cultural resources, wildlife, and other resources.

Further, significant impacts could result from new leasing involving activities out of the reach of federal oversight, in light of the Texas Railroad Commission's weak enforcement and oversight of oil and gas activities. A recent report by the Sunset Commission criticizes the Texas Railroad Commission for its unwillingness to pursue enforcement actions and poor recordkeeping of violations. The report highlights persistent problems in the Commission's "limited enforcement action against violators and failure to track information related to the severity of violations, enforcement actions taken against violators, and repeat violations."[9] The Commission has admitted that it lacks adequate systems for tracking past violations by well owners.[10]

4. The EA Fails to Take a Hard Look at the Impacts on Water Resources

The EA fails to adequately analyze the effects of the proposed leasing on water resources despite that significant water resources overlap the parcels, including Choke Canyon Reservoir. The EA fails to adequately address the increased potential for surface runoff, spills and leaks (including the potential for flooding to worsen the risk of spills contamination[11]), underground

[8] Richardson, Nathan et al., The State of State Shale Gas Regulation, Resources for the Future ("State of the State Regs Report"), Appendices, 39, 43 (June 2013).
[9] Sunset Advisory Commission, Staff Report, Railroad Commission of Texas, 2016-2017 85th Legislature (April 2016), available at https://www.sunset.texas.gov/public/uploads/files/reports/Railroad%20Commission%20of%20Texas%20Staff%20Report_4-29-16.pdf.
[10] *See* E&ENews, Texas faces shortage of oil and gas well inspectors (Feb. 9, 2017), available at http://www.eenews.net/energywire/stories/1060049755/.
[11] These risks will become worse with climate change, as more extreme storms occur in the region. *See* Shafer et al., Ch. 19: Great Plains, Climate Change Impacts in the United States: The Third National Climate Assessment, 446

methane or fracking fluid migration, and water depletions from fracking. It also fails to analyze the consequences of water contamination to site-specific resources, including toxic poisoning of fish within Choke Canyon Reservoir, potential threats to the drinking water supply for Corpus Christi, and harm to wildlife exposed to spills (e.g., migratory birds).

Water Quality

The EA admits the potential for "frac hits" to cause contamination of groundwater and surface water and other contamination events, without mentioning the potential for contamination of the Choke Canyon Reservoir, a municipal drinking water source. It further fails to acknowledge increased risks of frac hits in Choke Canyon due to the presence of numerous old abandoned wells, the locations of many of which are unknown, as discussed in our Scoping Comments. The EA, however, fails to analyze and discuss specific mitigation measures that would avoid or completely mitigate contamination risks, which would support a finding of no significant impact to this major drinking water source. While the EA seems to rely on the "risk analysis" required by the BOR interim stipulation to mitigate water quality impacts at Choke Canyon Reservoir,[12] reliance on a future analysis is improper when the problem of surface water contamination is readily apparent and can be addressed at the leasing stage. Further, it is unclear that this future risk analysis would encompass an analysis of impacts to water quality. BOR's existing documentation of this risk analysis suggests it is only limited to analyzing risks to dam safety, and not water contamination risks.

In addition, new studies show that horizontal drilling and fracking in the Eagle Ford Shale Play and Permian Basin may be causing water contamination of groundwater resources. A recent study focused on the southern Eagle Ford Shale region found evidence of "episodic contamination events potentially attributed to unconventional oil and gas development or other anthropogenic activities."[13] Elevated levels of bromide were detected in groundwater, along with multiple volatile organic compounds and dissolved gas effervescence, suggesting contamination by unconventional oil and gas activities. In another study of groundwater in the Permian Basin, researchers monitored water quality in 42 private water wells over a 13-month period in three contiguous counties as unconventional oil and gas activities increased within the area.[14] Over time, the researchers found significant changes in total organic carbon and pH and ephemeral detections of ethanol, bromide, dichloromethane, and multiple volatile organic compounds after the initial sample phase. Detections of metal ions including barium, iron, selenium, and strontium also fluctuated over the 13-month period.[15] The paper noted a potential link between the contamination and unconventional oil and gas development, and that the most likely mechanism would be physical degradation of the protective casing in the vertical segments of

---

(2014) ("Changing extremes in precipitation are projected across all seasons, including higher likelihoods of both increasing heavy rain and snow events and more intense droughts….") ("Shafer 2014").

[12] Draft EA at 19.

[13] Hildenbrand, Z.L., et al., A reconnaissance analysis of groundwater quality in the Eagle Ford shale region reveals two distinct bromide/chloride populations, Science of the Total Environment, 575 (2017) 672-680.

[14] Hildenbrand, Z.L., et al. Temporal variation in groundwater quality in the Permian Basin of Texas, a region of increasing unconventional oil and gas development, Science of the Total Environment, 562 (2016) 906-913.

[15] *Id*. at 912.

fracked wells—a phenomenon observed in the Barnett and Marcellus shales.[16] Additionally, the accumulation of bromide and alcohol species "indicates that there may be longer standing residual changes in groundwater chemistry that can persist in regions engaged in unconventional oil and gas development."[17] The, EA, however, downplays the risk to water supplies, noting that "[f]ailure of the cement or casing surrounding the wellbore is unlikely but a possible risk to water supplies."[18]

Water Quantity

The EA's discussion of impacts to water quantity relies on arbitrary assumptions and analysis without reasoned explanation. First, it irrationally assumes that water for a projected 53 wells to be developed on the Choke Canyon leases would be depleted over a period of 20 years at the rate of 2.65 wells developed per year. The EA does not disclose why a 20-year development timeframe was used. This timeframe is highly unreasonable given that federal leases must be developed into producing leases within ten years before the lease expires, and the bulk of any water use would occur during the development phase of the well (i.e., construction, drilling, and completion), and not during the longer-term production stage. Further, given that up to 8 horizontal wells could be sited at one location, it is highly likely that all 8 wells would be developed successively one after another to minimize development costs, within the span of several months to a year, rather than over the course of three or four years.

Further, the assumption of 4.5-4.7 million gallons per well is likely too low. In the Eagle Ford shale region, average water use grew from 4 million gallons to over 7 million gallons in 2014.[19] Further, a recent Duke University study (published in August) concluded that the water footprint for fracked wells is almost twice as much as originally understood.[20] This is not just due to an increase in lateral length but due to an increase in water use per unit of energy extracted, or increasing water intensity. The study projects increasing water use and flowback and produced water production over time in the Eagle Ford region.

Such high levels of water use are unsustainable, especially as climate change-driven water scarcity threatens and stresses surface and groundwater sources across Texas. Water used in large quantities may lead to several kinds of harmful environmental impacts. The extraction of water for fracking can, for example, lower the water table, harm biodiversity and ecosystems, and reduce water available to communities.[21]

The EA, however, fails to analyze the site-specific impact of increasing water extraction for fracking activities. Instead of analyzing the impact on local water resources, such as the amount of flow reductions to be expected in a local stream or Choke Canyon Reservoir, it compares the projected amount of water that could be depleted to the amount of water depletions for the total water use for the county in 2010 (it is unclear why 2010 is the baseline), and

---

[16] *Id*.
[17] *Id*.
[18] *See* Final EA at 18 (only mentioning improper sealing of annulus).
[19] CERES, An Investor Guide to Hydraulic Fracturing and Water Stress (2016) at 1, 5 ("CERES 2016").
[20] Kondash, Lauer and Vengosh, The Intensification of the Water Footprint of Hydraulic Fracturing, Science Advances, DOI: 10.1126/sciadv.aar5982, 1-8 (Published August 15, 2018).
[21] International Energy Agency, Golden Rules for the Golden Age of Gas (2012) at 31–32.

suggests the impact is not significant based on the small percentage of total water use.[22] The EA even lumps together water depletions in Texas and Oklahoma to project an average annual water use of 41.10 acre-feet per year, but this is not a meaningful projection, as water for the development of the Texas and Oklahoma leases would come from different basins. The EA also performs an analysis in Table 6, the purpose of which is entirely unclear—the EA should explain the purpose of this analysis. Later, the EA suggests it is to show whether water for mining activities (including oil and gas) is being sourced from groundwater or surface waters, but how the EA arrives at this conclusion is not explained. The EA further fails to analyze the cumulative impact that increased water use for fracking is having on local water resources, including Choke Canyon Reservoir and its tributaries, in light of increasing water stress in the region.

Other Risk Factors for Drinking Water Resources BLM Should Study

The EPA recently completed its study on the impacts of fracking on drinking water resources, which found scientific evidence that hydraulic fracturing activities can and has impacted drinking water resources.[23] The report identifies certain conditions under which impacts from hydraulic fracturing activities can be more frequent or severe.[24] The EPA identified a number of risk factors that may increase the risks of drinking water depletion and contamination, all of which are present with respect to the proposed leasing:

- **Risk factor 1:** Water withdrawals for hydraulic fracturing in times or areas of low water availability, particularly in areas with limited or declining groundwater resources.

  Fracking requires enormous water depletions, which could result in severe impacts on local water resources in the arid and drought-prone environments of Texas and Oklahoma. Water consumption from groundwater wells for oil and gas activities in McMullen County totaled over 8,400 acre-feet in 2014, while an individual groundwater well depleted well over 280 acre-feet of water in McMullen County, according to reports to the county's water conservation district, though these records are incomplete.[25] These reports seem to contradict the EA's findings that groundwater is not likely to be sourced for oil and gas activities.[26] The EA must analyze water depletion impacts to local aquifers. 89% of water used in the Eagle Ford Shale Play was taken from regions of high and extremely high water stress, including McMullen County, where Choke Canyon parcels are located.[27]

[22] *See* Draft EA at 17.
[23] USEPA, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States, 6-1, available at https://www.epa.gov/hfstudy (2016).
[24] *See id*. at ES-3.
[25] McMullen and Live Oak Water Conservation District Spreadsheets of Oil and Gas Groundwater Use; Stewart, Lonnie, Email to Wendy Park (Feb. 9, 2017) (noting districts' water use records are incomplete).
[26] *See* Draft EA at 17 ("Groundwater is not expected to be impacted as the source of mine water for the counties of McMullen and Live Oak are surface waters.").
[27] CERES 2016 at 3.

In Texas, groundwater use is not regulated, unless a local groundwater conservation district exists for the county.[28] In the Eagle Ford Shale Play, operators used nearly 18 billion gallons of water in 2013, roughly 16 percent of the area's total water consumption.[29]

In Oklahoma, average water use per well has exceeded three million gallons per well.[30] Oklahoma is also a region of high water stress, in part due to climate change.[31]

- **Risk factor 2:** Spills during the handling of hydraulic fracturing fluids and chemicals or produced water that result in large volumes or high concentrations of chemicals reaching groundwater resources.

  Large volumes of chemicals and wastewater are used and produced in the completion of horizontal wells in the Eagle Ford Shale.[32] In 2015 2,700 spills occurred at oil and gas sites in Texas, though this figure may vastly underestimate spills, as the state does not track wastewater spills.[33] Spills affecting groundwater or surface water in 2015 totaled 124 and 92 spills in Texas and Oklahoma, respectively.[34] Texas officials found 50 cases of groundwater contamination caused by oil and gas operations throughout the state that year.[35] Spills occurred at oil and gas wells, waste disposal sites, and gas plants, and along pipelines.

  The number of groundwater contamination cases could be much larger in Texas, as hundreds of thousands of Texas' oil and gas wells have not been inspected for five years due to a severe shortage of inspectors, increasing the risk of leaks and spills.[36] Just 158 inspectors are currently responsible for monitoring 435,000 wells, according to the Texas Railroad Commission.[37]

- **Risk factor 3:** Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity, allowing gases or liquids to move to groundwater resources.

---

[28] TCEQ, Groundwater Regulation for Private Well Owners, available at https://www.tceq.texas.gov/response/drought/groundwater_regulation.html.
[29] Environment America, Fracking By the Numbers, 13 (2016), available at http://www.environmentamerica.org/sites/environment/files/reports/Fracking%20by%20the%20Numbers%20vUS.pdf ("Environment America Report").
[30] *Id*. at 24.
[31] CERES 2016 at 1; Shafer 2014 at 445, 447.
[32] BoR Study at 2-8 – 2-9.
[33] Soraghan, Mike, In Texas wastewater spills get less scrutiny, E&ENews (Aug. 2, 2016), available at http://www.eenews.net/energywire/stories/1060041056.
[34] Soraghan, Mike & Pamela King, Driling mishaps damage water in hundreds of cases, E&ENews (Aug. 8, 2016), available at http://www.eenews.net/energywire/stories/1060041279/.
[35] Soraghan, Mike, Texas officials found 50 cases of groundwater contamination in 2015, E&ENews (Sept. 6, 2016), available at http://www.eenews.net/energywire/stories/1060042314/; TCEQ, Joint Groundwater Monitoring and Contamination Report—2015 (June 2016), available at https://www.tceq.texas.gov/assets/public/comm_exec/pubs/sfr/056-15.pdf.
[36] *See* n.10 above.
[37] *Id*.

Studies show that well casing failures are a chronic problem regardless of whether wells are old or new, fracked or not fracked.[38] For example:

> A ProPublica review of well records, case histories and government summaries of more than 220,000 well inspections found that structural failures inside injection wells are routine. From late 2007 to late 2010, one well integrity violation was issued for every six deep injection wells examined — more than 17,000 violations nationally. More than 7,000 wells showed signs that their walls were leaking. Records also show wells are frequently operated in violation of safety regulations and under conditions that greatly increase the risk of fluid leakage and the threat of water contamination.[39]

In a study of 18 wells drilled in south Texas between 1990 and 2011, 61 percent had well integrity or barrier failures mainly in shale zones.[40] The EA provides no assurance that BLM and/or the state would perform regular inspections of wells to detect well failures.

Leaky wells can have severe and life-threatening consequences. In 2014, a water well exploded in Palo Pinto County, Texas due to the presence of thermogenic gas originating from deep layers targeted by oil and gas operators.[41] The explosion injured a rancher, his father, and his daughter.

In addition, the presence of unknown old and abandoned wells around Choke Canyon Reservoir increases the risk of groundwater contamination. Fractures from new wells may intersect with old and unplugged wells with failed casings:

> According to RRC data, Live Oak and McMullen counties have dozens of old, orphaned, and unplugged wells. When applying for a permit, hydrocarbon producers must survey (and plug, if necessary) all old and

---

[38] Johnson, R. et al., The Environmental Costs and Benefits of Fracking, Annu. Rev. Environ. Resour. 2014. 39:7.1-7.36 (see pp. 7.11-7.14 for discussion of well failure rates); Johnson, Robert B., The integrity of oil and gas wells, 111 Proceedings of the National Academy of Science 1092 (2014), available at http://www.pnas.org/content/111/30/10902; Ingraffea, A., Fluid Migration Mechanisms Due to Faulty Well Desgin and/or Construction: An Overview and Recent Experiences in the Pennsylvania Marcellus Play, Physicians Scientists & Engineers for Healthy Energy (Oct. 2012) (noting casing failures are "not rare" in the oil and gas industry"); Environment America Report at 11 (noting data from fracking wells in Pennsylvania from 2010 to 2012 show a 6 to 7 percent rate of well failure due to compromised structural integrity).

[39] Lustgarten, Alexander, Are Fracking Wastewater Wells Poisoning Groundwater Beneath Our Feet?, Scientific American (June 2012), available at https://www.scientificamerican.com/article/are-fracking-wastewater-wells-poisoning-ground-beneath-our-feeth/.

[40] Davies, Richard, Oil and gas wells and their integrity: Implications for shale and unconventional resource exploitation, Marine and Petroleum Geology, vol. 58 available at http://www.sciencedirect.com/science/article/pii/S0264817214000609.

[41] Soraghan, Mike, A flash fire, third-degree burns and an investigation without end, E&ENews (June 1, 2016), available at http://www.eenews.net/stories/1060038097; Soraghan, Mike, Experts link gas well to explosion that injured family, E&ENews (Feb. 14, 2017), available at http://www.eenews.net/energywire/2017/02/14/stories/1060049835.

abandoned wells within a quarter mile of the injection site. The locations of older oil wells not in the RRC databases remain unknown. TCEQ Bulletin 6520, "Ground-Water Resources of La Salle and McMullen Counties, Texas" (TWC, August 1965) identified a potential threat of contamination of the water in the Carrizo Sand by the movement of brines from underlying saltwaterbearing sands through improperly cased oil wells, or from improperly plugged oil wells. Several of the oldest oil fields in McMullen County, such as the Callahan Field discovered in 1918 and the Jacob Field in 1936, are among those in the Choke Canyon area.[42]

- **Risk factor 4:** Injection of hydraulic fracturing fluids directly into groundwater resources.

  While Texas and Oklahoma require the disclosure of chemicals used in fracking fluids, exceptions are allowed if the disclosure would reveal confidential business information, but the EA does not disclose this fact. Nor does it disclose the many chemicals used in fracking activities and their properties, and the fact that the properties of many fracking chemicals are unknown and may have synergistic effects with other chemicals. For example, the EA does not disclose that hydrochloric acid is often used for fracking in Texas, and its detrimental and corrosive effects if released into the environment.[43]

  Injection of wastewater into protected aquifers is also highly problematic in Texas. The Texas Railroad Commission does not have any handle on which aquifers in Texas are a protected drinking water sources under the Safe Drinking Water Act, and has never issued a single aquifer exemption for oil and gas wastewater injection into a protected aquifer. This has likely resulted in injection of wastewaters into protected drinking water sources and contamination of those aquifers. This is illegal activity that is likely to result from the proposed lease auction, and per se significant under NEPA.[44]

- **Risk factor 5:** Discharge of inadequately treated hydraulic fracturing wastewater to surface water.

  Texas allows discharge of wastewaters into surface waters, and there have been incidents of intentional dumping of wastewaters in Texas and Oklahoma.[45] Oklahoma allows land

---

[42] BoR Study at 2-10.
[43] *See* Environment America Report at 29 (noting over 2 billion pounds of hydrochloric acid used in Texas and 455 million pounds in Oklahoma since 2005).
[44] Clean Water Action, Texas Aquifer Exemptions: Ignoring Federal Law to Fast Track Oil & Gas Drilling (2016), available at https://www.cleanwateraction.org/sites/default/files/docs/publications/Texas%20Aquifer%20Exemptions%20-%20Clean%20Water%20Action%20August%202016.pdf.
[45] State of State Regs Report at 55; Reuters, Illegal dumping of fracking fluids in Texas highlights risk (May, 21 2014), available at https://www.rt.com/usa/160604-texas-fracking-wastewater-dumping/; Mulder, Brandon, Painter: Illegal wastewater dumping continues throughout county (July 12, 2015), available at http://www.mrt.com/business/energy/article/Painter-Illegal-wastewater-dumping-continues-7410735.php; Terry-Cobo, Sarah, Wastewater Watching in Oklahoma: Illegal Dumping Poses Problems for Oil Companies, Public, The

application of drill fluids and cuttings, which could result in contaminated runoff discharging to surface waters.[46]

- **Risk factor 6:** Disposal or storage of hydraulic fracturing wastewater in unlined pits resulting in contamination of groundwater resources.

  It is unclear the extent to which liners would be required for pits used in oil and gas operations. BLM Onshore Order No. 7 allows unlined produced water pits under certain circumstances, and it is unclear whether unlined pits would be allowed even if naturally occurring radioactive materials were present in the produced waters to be disposed .[47] If surface activities occurred on private surface rather than federal surface, it is unclear the extent to which liners for pits would be required. In Texas, unlined pits are allowed.[48]

5. The EA Fails to Take a Hard Look at Impacts on Vegetation and Soil Resources

The EA lacks a full accounting of impacts to vegetation and soil resources, including the total amount of land that could be cleared around Choke Canyon Reservoir, how much erosion and sedimentation could result, and the resulting impact to soil, air, and water quality.[49] Large amounts of acreage could be cleared for well pads, pipelines, power lines, access roads, and compressor stations, but the EA makes no effort to detail how much vegetation and soil could be lost for the development of 53 wells and associated infrastructure. The EA also describes mitigation and reclamation measures that could be implemented at a well site without indicating whether these measures are enforceable or required by law. To the extent that such measures are purely voluntary, BLM cannot rely on such measures in support of a finding of no significant impact.

6. BLM Failed to Adequately Disclose or Analyze the Leasing Decision's Harm to Air Quality.

Oil and gas operations emit numerous air pollutants, including volatile organic compounds (VOCs), NOX, particulate matter, hydrogen sulfide, and methane. Hydraulic fracturing ("fracking") operations are particularly harmful, emitting especially large amounts of pollution, including air toxic air pollutants. Permitting fracking and other well stimulation techniques will greatly increase the release of harmful air emissions in these and other regions. The EA fails to analyze air quality impacts from new development in conjunction with the existing air quality landscape for the lease parcels. BLM must analyze increased emissions from foreseeable oil and gas development for these lease parcels in order to prevent further degradation of local air quality, respiratory illnesses, premature deaths, hospital visits, as well as missed school and work days.

Journal Record (July 27, 2012), available at https://www.questia.com/newspaper/1P2-33557408/waste-watching-in-oklahoma-illegal-dumping-poses.

[46] State of the State Regs Report at 60.

[47] *See* BLM, Onshore Order No. 7, § III.D.2.a, available at https://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/docs/onshore_order_7.html.

[48] Texas RRC, Eagle Ford FAQs, available at http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-eagle-ford/.

[49] Draft EA at 4-5.

Forecasting cumulative air quality impacts from the leasing and resource management of fossil fuel development is required by well-established law. *WildEarth Guardians v. United States Office of Surface Mining Reclamation & Enforcement*, 104 F. Supp. 3d 1208, 1227-1228 (D.Colo. 2015). BLM can readily identify oil and gas volume estimates for lease parcels by utilizing their own EPCA Phase III spatial data and overlaying the lease parcel boundary map provided in the lease sale notice. Estimating emissions from production of oil and gas wells per volume produced can be readily calculated using a number of EPA emissions inventory calculation tools.

The type, quantity and future impact of additional air emissions from this new potential development can and must be analyzed in conjunction with the existing air quality landscape in the region. Failure to do so renders BLM's EA inadequate for purposes of NEPA review.

BLM need look no further than a recent interagency guidance for future actions dealing with air quality analysis and modeling in lease sale decisions. In 2011, the Environmental Protection Agency (EPA), the Department of Interior, and the Department of Agriculture entered into a Memorandum of Understanding (MOU) to establish a "a clearly defined, efficient approach to compliance with [NEPA] regarding air quality . . . in connection with oil and gas development on Federal lands."[50] The MOU "provides for early interagency consultation throughout the NEPA process; common procedures for determining what type of air quality analyses are appropriate and when air modeling is necessary; specific provisions for analyzing and discussing impacts to air quality and for mitigating such impacts; and a dispute resolution process to facilitate timely resolution of differences among agencies."[51] The goal of this process is to ensure that "[F]ederal oil and gas decisions do not cause or contribute to exceedances of the National Ambient Air Quality Standards (NAAQS)."[52] The MOU outlines recommended procedures to follow, which include identifying the reasonably foreseeable number of oil and gas wells and conducting an emissions inventory of criteria pollutants. Further air quality modeling is required if certain criteria are met, based on the level of emissions impact and the geographic location of the action.[53] The MOU indicates that "[e]xisting reasonably foreseeable development scenarios can be used to identify the number of wells."[54]

Given the likelihood that fracking and other similarly harmful techniques would be employed in the exploration and development of the parcels, BLM has an obligation to analyze and disclose the potential impacts resulting from such frequently used practices. The purpose of an environmental assessment is for BLM to look at the impacts in total, and to take a hard look at all "reasonably foreseeable" impacts now, before leasing the land. NEPA regulations and case law clearly establish that uncertainty about the precise extent and nature of environmental

[50] Memorandum of Understanding Among the U.S. Dept. of Agriculture, U.S. Dept. of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process, Preamble (2011), available at: https://www.epa.gov/sites/production/files/2014-08/documents/air-quality-analyses-mou-2011.pdf
[51] *Id*. at 4.
[52] *Id*. at 1, 2.
[53] *Id.* § V.E.1., pg. 9.
[54] *Id*.

impacts does not relieve an agency of the obligation to disclose and analyze those impacts utilizing the best information available. *See* 40 C.F.R. § 1502.22(a),(b).

BLM's analysis is further lacking because the agency also failed to identify environmental impact mitigation methods for controlling air pollution emissions, which violates NEPA's requirement that the agency identify mitigation measures, 40 C.F.R. § 1508.25, and consider all reasonable alternatives. *Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008) (citing 40 C.F.R. § 1502.14(a)).

Additional information on the specific types, sources, and human health impacts of oil and gas emissions, and existing local air quality problems in the region, is detailed in our Scoping Comments at 25-39. This information must also be incorporated into the EA.

7. The EA Fails to Take a Hard Look at the Impacts of Climate Change

BLM's analysis of climate change impacts lacks a clear explanation of the methodology and the assumptions used in projecting total greenhouse gas emissions. The EA concludes that a total of 13,654 metric tons of emissions of CO2e could be expected from production activities on the lease parcels (or 231 metric tons per well), but without any explanation of the methodology or how it derived these numbers.[55] These totals fail to account for nitrous oxide emissions, another potent greenhouse gas, claiming without evidentiary support that such emissions are "not a significant contribution in field production activities."[56]

The EA also appears to underestimate the global warming potential of methane, referring to a warming potential 21-28 times that of carbon dioxide.[57] However, the best available science indicates that methane's global warming potential is approximately 34 times that of carbon dioxide over a 100 year time frame and at least 86 times that of carbon dioxide over a 20 year time frame, as further explained in Exhibit D to our Scoping Comments (p. 16). BLM must revise the EA to clarify its assumptions and methodology, and provide an accurate analysis of the total lifecycle GHG emissions from production and combustion of the end-product.

The EA also dismisses the significance of the total lifecycle greenhouse gas emissions by downplaying them as a "very small increase in GHG emissions" that "would not produce climate change impacts that differ from the No Action Alternative."[58] It further notes that the "incremental contribution to global GHGs from the proposed action cannot be translated into effects on climate change globally or in the area of this site-specific action."[59] However, as explained in our Scoping Comments, BLM has tools to evaluate the significance of GHG emissions, which are further detailed in Exhibit K to the Scoping Comments (pp. 29-54, 78-83). Indeed, any opening up of new fossil fuels for extraction and burning is significant, given the reality of rapidly diminishing carbon budgets, the fact that existing producing oil and gas fields

[55] Draft EA at 23-24.
[56] Draft EA at 22.
[57] Draft EA at 22.
[58] Draft EA at 26.
[59] Draft EA at 26.

will take us over the 1.5 degree temperature target, and that phasing out of already producing fields is necessary to avoid the worst effects of climate change.

8. The EA's Cumulative Impacts Analyses' Are Deficient

The EA fails to perform any meaningful cumulative effects analysis, by neglecting to study the impacts of the proposed lease sale in connection with past, present, and reasonably foreseeable future projects within the Choke Canyon area. The EA fails to identify any past or existing drilling project within the Choke Canyon area and surrounding region (although there are many), or provide a reasonably foreseeable development scenario of private and federal wells within the region. An accounting of such projects could inform a quantitative analysis of the cumulative impacts of Eagle Ford shale development at Choke Canyon, and the extent to which the proposed leasing would compound those effects, including effects on seismicity, water resources, air quality, climate change, traffic, hazardous waste disposal, soil resources, recreation, visual resources, and dam integrity.

For example, BLM must analyze the cumulative impacts of leasing at Choke Canyon in connection with private mineral drilling activities beneath the lake which BOR has little or no ability to control. *See* EA at 11 ("There is currently no statute or regulation which clearly provides BOR with authority to prevent exploration and drilling activities in those locations in close proximity to major structures where the United States has no real property interest."). BLM must analyze how extraction of federal minerals beneath the lake could worsen existing risks to dam safety caused by private mineral extraction activities. Instead, the EA offers only three sentences on this topic without mentioning seismicity risks at Choke Canyon: "Even though [seismicity] rates declined over the past three years, the short-term hazard for damaging ground shaking across much of Oklahoma remains at high levels due to continuing high rates of smaller earthquakes that are still hundreds of times higher than at any time in the State's history. These short-term hazard levels are similar to active regions in California."[60] This passage provides no actual sense of cumulative seismicity risks, and how oil and gas leasing could worsen those risks.

Similarly, the discussion of cumulative impacts on hazardous wastes is two sentences and devoid of any meaningful analysis. Rather than speaking in quantitative terms, it uses vague qualitative terms that provide no concrete sense of the degree or severity of impact from hazardous waste disposal: "Leasing the subject tracts would have no direct effect on hazardous or solid wastes. RFD could result in a project that has the potential for *either short or long-term* impacts to *all* resources *in some manner or degree*, by pollution from *un-managed hazardous* and non-hazardous waste streams."[61] Pollution from "un-managed hazardous" waste causing a "short-term" or "long-term" impact to "all" resources in "some manner or degree" could perhaps range from minor or negligible impacts to significant or severe impacts. Either way, this cursory and vague discussion fails to support a finding of no significant impact.

9. The EA Fails to Take a Hard Look at the Impacts to Recreational Activities, Visual Resources, and Truck Traffic Around Choke Canyon

[60] Draft EA at 12.
[61] Draft EA at 21.

The EA lacks an adequate analysis of potential impacts of oil and gas development on recreational opportunities around Choke Canyon, which are more fully detailed in our Scoping Comments at 40-41.[62] It assumes that a BOR stipulation that applies to lease parcels would mitigate and minimize recreational impacts without any analysis. But impacts occurring on non-BOR lands near the reservoir or state wildlife management area could also impact recreation by creating noise, disturbing wildlife, despoiling views of the natural landscape, emitting noxious fumes, and/or polluting waterways. Further, if these activities were to occur on nonfederal surface, it is unclear whether BLM could require listed measures in the EA to minimize these effects, or how such impacts would be mitigated. The EA does not discuss the different mitigations or conditions that would apply on private surface whatsoever.

Along similar lines, the EA suggests that it need not analyze impacts to visual resources occurring from private surface because it "does not have designated Visual Resource Management categories for private surface as private surface is not BLM lands."[63] But this ignores the potential for private land activities to affect surrounding views at Choke Canyon Reservoir or the James E. Wildlife Management Area that encompasses and surrounds the reservoir. While it suggests that impacts to the visual landscape "would be mitigated through the implementation of BMPs at the APD stage," this statement does not identify specific BMPs that could accomplish mitigation of visual impacts, or address the potential for private-land development impacts to impact the reservoir's or wildlife management area's viewshed.

Finally, the EA lacks any analysis of truck traffic impacts, and fails to address why such an analysis using the information we provided in our Scoping Comments cannot be performed.

C. BLM Must Prepare an EIS

BLM's failure to prepare an EIS for the proposed auction does not comport with NEPA. Factors bearing on the significance of the proposed action that compel the preparation of an EIS are:

- the geological risks of drilling and fracking beneath dams as described above and in our Scoping Comments, and the potential risk of dam failure and threat to public safety;
- the risk of induced seismicity, including the cumulative effects of new leasing, fracking, and wastewater injection, within Oklahoma and Texas, in connection with existing seismic risks; and
- the risk of contamination of water resources with fracking chemicals and toxic wastewaters, including contamination of major public water supplies for hundreds of thousands of people.

All of the above factors indicate that significant impacts will result from the proposed auction, and therefore BLM should prepare an EIS.

[62] *See* Draft EA at 6.
[63] *Id*.

D. BLM Failed to Request the Bureau of Reclamation's Participation as a Cooperating Agency, and the Bureau of Reclamation Has Not Complied with NEPA

The Bureau of Reclamation's approval is required for the proposed leasing, but BLM failed to involve these agencies as cooperating agencies in the preparation of the EA. Moreover, Bureau of Reclamation failed to independently comply with NEPA before authorizing the proposed leasing, as described in our Scoping Comments at 5-8.

First, BLM failed to request the Bureau of Reclamation's participation as cooperating agencies in the preparation of the EA, in violation of the CEQ regulations. *See* 40 C.F.R. § 1501.6. A lead agency "shall…request the participation of each cooperating agency in the NEPA process at the earliest possible time." *Id*. The purpose of this requirement is "to emphasize agency cooperation early in the NEPA process." *Id*. A lead agency must therefore "[u]se the environmental analysis and proposals of cooperating agencies…to the maximum extent possible consistent with its responsibility as lead agency." *Id*. at §1501.6(a). Cooperating agencies, in turn, must participate in the NEPA process "at the earliest possible time" and participate in the scoping process," and "[m]ake available staff support at the lead agency's request to enhance the latter's interdisciplinary capability." *Id*. at § 1501.6(b)(1), (2), (4).

The Bureau of Reclamation is a cooperating agency, because eit has "jurisdiction by law" over the lease sale and "special expertise" with respect to various impacts resulting from the lease sale. *See* 40 C.F.R. § 1508.5 ("Cooperating agency means any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal…."). A "Federal agency which has jurisdiction by law shall be a cooperating agency." 40 C.F.R. § 1501.6. "Jurisdiction by law" means "agency authority to approve, veto, or finance all or part of the proposal." 40 C.F.R. § 1508.15.

Pursuant to an Interagency Agreement, the Bureau of Reclamation's consent is required before BLM may lease acquired lands under the Bureau's jurisdiction.[64] Because its consent is required by statute, the Bureau of Reclamation has "jurisdiction by law," and therefore "shall be a cooperating agency" under NEPA. 40 C.F.R. § 1501.6(a). The Bureau of Reclamation also has "special expertise" with respect to Choke Canyon Reservoir and Dam.

There is no indication that BLM requested Bureau of Reclamation's participation in the preparation of the EA for the lease auction.

Moreover, Bureau of Reclamation failed to perform any environmental review of the lease auction, or independently determined as a cooperating agency that the EA (or other environmental review) performed by BLM was adequate. Here, the Bureau of Reclamation's

[64] Interagency Agreement Between the Bureau of Reclamation and the Bureau of Land Management, § 6.H (Dec 1982) ("BLM will not issue permits, leases, or licenses on acquired or withdrawn lands under Reclamation's management without Reclamation's consent and concurrence on all conditions and stipulations."); *see also* 30 U.S.C. § 352 (leasing of acquired lands subject to "consent of the head of the executive department…having jurisdiction over the lands containing such deposit…[and] such conditions as that official may prescribe to insure the adequate utilization of the lands for the primary purposes for which they have been acquired or are being administered").

failure to fulfill its independent environmental review obligations under NEPA render its consents to the auction invalid, such that the auction must be cancelled. To the extent it relies solely on BLM's judgment in BLM's adoption of the EA, this reliance is improper. "To rely entirely on the environmental judgments of other agencies is in fundamental conflict with the basic purpose of NEPA: to require federal agencies to make an informed judgment of the balance between the economic and technical benefits of an action and its environmental costs." *Anacostia Watershed Soc'y v. Babbitt*, 871 F. Supp. 475, 484 (D.D.C. 1994) (internal quotation marks and alterations omitted).

Bureau of Reclamation's failure to participate in the preparation of the EA and independently perform environmental analysis of the proposed action is not merely a formal problem, but poses serious obstacles to the ability of the agencies and the public to understand the consequences of the proposed lease auction. Without expert assessment from the Bureau of Reclamation of the potential consequences of leasing for the resources within the agency's jurisdiction, including but not limited to water supply and dam safety and integrity, BLM, Bureau of Reclamation, and the public, are deprived of a meaningful opportunity to evaluate the potential consequences of BLM's proposed action.

Conclusion

Oil and gas development not only fuels the climate crisis but entails significant public health risks and harms to the environment. Accordingly, BLM should cancel the lease sale and end new federal fossil fuel leasing on America's public lands. At minimum, BLM must prepare an EIS that thoroughly analyzes the effects of the proposed lease auction, as compared to the alternative of no new fossil fuel leasing and no fracking or other unconventional well stimulation methods within the proposed planning area. Thank you for your consideration of these comments.

Sincerely,

Wendy Park, Senior Attorney
Center for Biological Diversity

David Foster, Texas Director
Clean Water Action

Cyrus Reed, Conservation Director
Lone Star Chapter, Sierra Club

Luke Metzger, Executive Director
Environment Texas

Louisa Eberle, Associate Attorney
Sierra Club

List of References

CERES, An Investor Guide to Hydraulic Fracturing and Water Stress (2016)

Clean Water Action, Texas Aquifer Exemptions: Ignoring Federal Law to Fast Track Oil & Gas Drilling (2016)

Davies, Richard, Oil and gas wells and their integrity: Implications for shale and unconventional resource exploitation, Marine and Petroleum Geology, vol. 58 *available at:* http://www.sciencedirect.com/science/article/pii/S0264817214000609

E&ENews, Texas faces shortage of oil and gas well inspectors (Feb. 9, 2017), *available at:* http://www.eenews.net/energywire/stories/1060049755/

Environment America, Fracking By the Numbers, 13 (2016), *available at:* http://www.environmentamerica.org/sites/environment/files/reports/Fracking%20by%20the%20Numbers%20vUS.pdf

Hildenbrand, Z.L., et al., A reconnaissance analysis of groundwater quality in the Eagle Ford shale region reveals two distinct bromide/chloride populations, Science of the Total Environment, 575 (2017)

Hildenbrand, Z.L., et al. Temporal variation in groundwater quality in the Permian Basin of Texas, a region of increasing unconventional oil and gas development, Science of the Total Environment, 562 (2016)

Ingraffea, A., Fluid Migration Mechanisms Due to Faulty Well Design and/or Construction: An Overview and Recent Experiences in the Pennsylvania Marcellus Play, Physicians Scientists & Engineers for Healthy Energy (Oct. 2012)

International Energy Agency, Golden Rules for the Golden Age of Gas (2012)

Johnson, R. et al., The Environmental Costs and Benefits of Fracking, 39 Annu. Rev. Environ. Resour. 2014. 39:7.1-7.36

Johnson, Robert B., The integrity of oil and gas wells, 111 Proceedings of the National Academy of Science 1092 (2014), *available at:* http://www.pnas.org/content/111/30/10902

Kondash, Lauer and Vengosh, The Intensification of the Water Footprint of Hydraulic Fracturing, Science Advances, DOI: 10.1126/sciadv.aar5982, 1-8 (Published August 15, 2018)

Lustgarten, Alexander, Are Fracking Wastewater Wells Poisoning Groundwater Beneath Our Feet?, Scientific American (June 2012), *available at:* https://www.scientificamerican.com/article/are-fracking-wastewater-wells-poisoning-ground-beneath-our-feeth/

McMullen and Live Oak Water Conservation District Spreadsheets of Oil and Gas Groundwater Use

Mulder, Brandon, Painter: Illegal wastewater dumping continues throughout county (July 12, 2015), *available at:* http://www.mrt.com/business/energy/article/Painter-Illegal-wastewater-dumping-continues-7410735.php

Reuters, Illegal dumping of fracking fluids in Texas highlights risk (May, 21 2014), *available at:* https://www.rt.com/usa/160604-texas-fracking-wastewater-dumping/

Richardson, Nathan et al., The State of State Shale Gas Regulation, Resources for the Future, Appendices (June 2013)

Shafer et al., Ch. 19: Great Plains, Climate Change Impacts in the United States: The Third National Climate Assessment, 446 (2014)

Soraghan, Mike, A flash fire, third-degree burns and an investigation without end, E&ENews (June 1, 2016), *available at:* http://www.eenews.net/stories/1060038097

Soraghan, Mike & Pamela King, Driling mishaps damage water in hundreds of cases, E&ENews (Aug. 8, 2016), *available at:* http://www.eenews.net/energywire/stories/1060041279/

Soraghan, Mike, Experts link gas well to explosion that injured family, E&ENews (Feb. 14, 2017), *available at:* http://www.eenews.net/energywire/2017/02/14/stories/1060049835

Soraghan, Mike, In Texas wastewater spills get less scrutiny, E&ENews (Aug. 2, 2016), *available at:* http://www.eenews.net/energywire/stories/1060041056

Soraghan, Mike, Texas officials found 50 cases of groundwater contamination in 2015, E&ENews (Sept. 6, 2016), *available at:* http://www.eenews.net/energywire/stories/1060042314/

State of the State Regs Report

Stewart, Lonnie, Email to Wendy Park (Feb. 9, 2017)

Sunset Advisory Commission, Staff Report, Railroad Commission of Texas, 2016-2017 85th Legislature (April 2016), *available at:* https://www.sunset.texas.gov/public/uploads/files/reports/Railroad%20Commission%20of%20Texas%20Staff%20Report_4-29-16.pdf

TCEQ, Groundwater Regulation for Private Well Owners, *available at:* https://www.tceq.texas.gov/response/drought/groundwater_regulation.html

TCEQ, Joint Groundwater Monitoring and Contamination Report—2015 (June 2016), *available at:* https://www.tceq.texas.gov/assets/public/comm_exec/pubs/sfr/056-15.pdf

Terry-Cobo, Sarah, Wastewater Watching in Oklahoma: Illegal Dumping Poses Problems for Oil Companies, Public, The Journal Record (July 27, 2012), *available at:* https://www.questia.com/newspaper/1P2-33557408/waste-watching-in-oklahoma-illegal-dumping-poses

Texas Railroad Commission, Eagle Ford FAQs, *available at:* http://www.rrc.state.tx.us/about-us/resource-center/faqs/oil-gas-faqs/faq-eagle-ford/

Texas Railroad Commission, Eagle Ford Shale Play Map (Feb. 2017)

Texas Railroad Commission, Eagle Ford Shale Task Force Report (2013)

U.S. Bureau of Land Management, Onshore Order No. 7, § III.D.2.a, *available at:* https://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/docs/onshore_order_7.html

U.S. Bureau of Land Management, Texas RMP Record of Decision and Plan (1996)

U.S. Bureau of Reclamation, [Draft Final] Best Management Practices: Hydrocarbon Exploration, Development, and Production at Nueces River Project, Choke Canyon Reservoir, Texas, Chapter 1 (Aug. 2015)

U.S. Environmental Protection Agency, Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States, *available at:* https://www.epa.gov/hfstudy (2016)

U.S. Environmental Protection Agency, Memorandum of Understanding Among the U.S. Dept. of Agriculture, U.S. Dept. of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process, Preamble (2011)