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Western Environmental Law Center

October 22, 2015

Sent via Electronic Mail and Certified Mail

Maribeth Gustafson, Reviewing Officer
U.S.D.A. Forest Service
Rocky Mountain Region
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Email: r02admin-review@fs.fed.us

Re: Objection to Approval of Surface Use Plans of Operations (SUPOs) Analyzed in Dual Operator Proposal: Development of 25 Federal Natural Gas Wells and Associated Infrastructure on 5 Multi-Well Pads Environmental Assessment (EA), DOI-BLM-CO-S050-2015-0029-EA

Dear Ms. Gustafson:

The Western Environmental Law Center ("WELC"), along with Citizens for a Healthy Community ("CHC") and High Country Conservation Advocates ("HCCA") (together "Citizen Groups"), submit the following objection to the U.S. Forest Service's approval of Surface Use Plans of Operations ("SUPOs") analyzed in "Dual Operator Proposal: Development of 25 Federal Natural Gas Wells and Associated Infrastructure on 5 Multi-Well Pads Environmental Assessment," DOI-BLM-CO-S050-2015-0029-EA. The underlying development proposal includes a variety of surface ownership, including lands within the Grand Mesa, Uncompahgre and Gunnison National Forests ("GMUG") with a mineral estate managed by the Bureau of Land Management's ("BLM") Uncompahgre Field Office ("UFO"), split-estate lands, and fee lands and minerals. BLM prepared a joint EA on behalf of both the BLM and the Forest Service (collectively referred to as "agencies"). In a decision signed by Forest Supervisor Scott Armentrout, the Forest Service has now approved SUPOs for up to 16 wells on Forest Service lands. This decision will allow the BLM to approve or deny Applications for Permit to Drill ("APD") on Forest Service lands with approved SUPOs.

As required by 36 C.F.R. § 218.8, the names, physical addresses, and telephone numbers for the organizations filing this objection are listed below. As required by 36 C.F.R. § 218.2, we identify WELC as the "lead" objector representing the other objectors for the purposes of communication regarding the objection.

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I. INTERESTS AND PARTICIPATION OF OBJECTING PARTIES

The **Western Environmental Law Center** (“WELC”) uses the power of the law to defend and protect the American West’s treasured landscapes, iconic wildlife, and rural communities. WELC combines legal skills with sound conservation biology and environmental science to address major environmental issues in the West in the most strategic and effective manner. WELC works at the national, regional, state, and local levels; and in all three branches of government. WELC integrates national policies and regional perspective with the local knowledge of our 100+ partner groups to implement smart and appropriate place-based actions.

Citizens for a Healthy Community (“CHC”) is a grass-roots organization with more than 375 members formed in 2010 for the purpose of protecting people and their environment from irresponsible oil and gas development in the Delta County, Colorado region. CHC’s members and supporters include organic farmers, ranchers, vineyard and winery owners, sportsmen, realtors, and other concerned citizens impacted by oil and gas development. CHC members have been actively involved in commenting on BLM’s oil and gas activities.

High Country Conservation Advocates (“HCCA”) is located in Crested Butte, Colorado with over 800 members. HCCA was founded in 1977 to protect the health and natural beauty of the land, rivers, and wildlife in and around Gunnison County now and for future generations. HCCA has engaged on oil, natural gas, and coal bed methane development in Gunnison County for over a decade to prevent irreparable harm to its members’ interests. HCCA’s members and supporters live in, use, and enjoy the communities and landscapes that the proposed development would affect.

The Citizen Groups have participated throughout the NEPA process for this proposal and hereby incorporate by reference, pursuant to 36 C.F.R. § 218.8(b), their April 24, 2015 Scoping Comments (“Scoping Comments”) and August 4, 2015 Comments on the Draft Environmental Assessment (“Draft EA Comments”). The issues presented in this objection have been raised in these previous comments.

II. ISSUES PRESENTED

As described in detail in Section III, Citizen Groups believe the agencies' decision-making, including the Final EA and FONSI, violates law, regulation, or policy in numerous ways, including:

- The agencies unlawfully authorize oil and gas development in the Uncompahgre area while the UFO RMP revision remains uncompleted. 40 C.F.R. §§ 1502.2(f); *Conner v. Burford*, 848 F.2d 1441, 1446 (9th Cir. 1986); *Pacific Rivers Council v. Thomas*, 30 F.3d 1050, 1056-57 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 1793 (1995).
- The agencies inappropriately tiered the Final EA to the 1989 BLM RMP and the 1991 USFS RMP; these documents are outdated and fail to include the site-specific statements or analysis the agencies are attempting to rely on. 40 C.F.R. §§ 1502.20, 1508.28; *Pennaco Energy, Inc. v. U.S. Dep't of Interior*, 377 F.3d 1147, 1151 (10th Cir. 2004).
- The agencies failed to prepare an environmental impact statement, even though this project is a major federal action significantly affecting the quality of the human environment. 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.4; 40 C.F.R. § 1508.3.
- The agencies failed to put forth a “convincing statement of reasons” that explains why the project will impact the environment no more than insignificantly. *Ocean Advoc. v. U.S. Army Corps of Engrs.*, 402 F.3d 846, 864 (9th Cir. 2005).
- The agencies failed to take a hard look at the direct, indirect, and cumulative impacts of oil and gas development on air quality; on climate change and in light of climate change (including by failing to use the social cost of carbon protocol, and by failing to analyze and take meaningful action to address methane waste); on community and ecosystem resiliency; on farmlands; on water resources, including in light of the use of hydraulic fracturing; on wildlife; and on human health, again including in light of the use of hydraulic fracturing. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); 40 C.F.R. §§ 1502.16, 1508.7, 1508.8, 1508.27.
- The agencies failed to analyze all reasonable alternatives. 40 C.F.R. § 1502.14.
- The agencies failed to take sufficient measures to prevent degradation unnecessary to, or undue in proportion to, the development the proposed action permits, as required by the Federal Land Policy and Management Act. 43 U.S.C. § 1732(b); 43 C.F.R. § 1702(c).

III. PARTS OF THE PLAN UNDER OBJECTION, STATEMENT OF REASONS IN SUPPORT OF CITIZEN GROUPS' OBJECTION, AND SUGGESTED REMEDIES

A. A moratorium on all oil and gas development in the Uncompahgre area is required for as long as the UFO RMP remains uncompleted.

As described in Citizen Groups' Draft EA Comments at 2-3, a moratorium on all oil and gas development within the UFO is required, pending revision to the UFO Resource Management Plan (“RMP”) and environmental impact statement (“EIS”). Proceeding with oil and gas development while the RMP revision is pending will prejudice the ultimate decision and limit the choice of alternatives considered in the RMP/EIS. 40 C.F.R. § 1506.1. Moreover, the

existing UFO RMP is completely out-of-date and can no longer serve as the foundation for decisions on oil and gas development within the UFO.

Again, NEPA requires that, until an agency issues a Record of Decision for a pending NEPA document, “no action concerning the proposal shall be taken which would: (1) have an adverse environmental impact; or (2) limit the choice of reasonable alternatives.” 40 C.F.R. § 1506.1(a)(1), (2). NEPA prohibits agencies from making an “irreversible and irretrievable commitment of resources.” 40 C.F.R. §§ 1502.2(f); *Conner v. Burford*, 848 F.2d 1441, 1446 (9th Cir. 1986); *see also Pacific Rivers Council v. Thomas*, 30 F.3d 1050, 1056-57 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 1793 (1995) (interpreting identical language in ESA). “The purpose of an EIS is to apprise decisionmakers of the disruptive environmental effects that may flow from their decisions at a time when they ‘retain[] a maximum range of options.’” *Conner*, 848 F.2d at 1446. Taking actions in the interim which could limit those options undermines the purpose and effectiveness of the NEPA process.

BLM states that it is tiering to the current 1989 RMP to support its decisionmaking regarding the 25-well project. Final EA at 13. By law, BLM may only tier a site-specific NEPA analysis to a programmatic EIS when the site-specific action and its impacts are addressed in the earlier EIS. 40 C.F.R. §§ 1502.20, 1508.28; *Pennaco Energy, Inc. v. U.S. Dep’t of Interior*, 377 F.3d 1147, 1151 (10th Cir. 2004). Tiering allows agencies “to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review.” 40 C.F.R. § 1502.20. However, when a plan level EIS, such as the 1989 RMP, fails to include the site-specific statement or analysis the agency is attempting to rely on, such tiering is unlawful. 40 C.F.R. § 1508.28. Both the scope of potential oil and gas development, as well as the specific technologies relied upon by the oil and gas industry have dramatically changed in the past 25 years, and therefore any consideration or analysis provided in the 1989 RMP is stale and inoperative. Accordingly, the agencies cannot rely on tiering to this document to support its decisionmaking on this project.

The agencies reply that, with completion of the updated Reasonable Foreseeable Development (RFD) scenario for UFO in 2012, information is now available to adequately evaluate the proposal. However, the 2012 RFD is not a NEPA document that the agencies can tier to. Moreover, the existence of a 2012 RFD does not provide a bandage for the RMP’s numerous shortcomings. These shortcomings still must be addressed before oil and gas development in the UFO can proceed. As we noted previously, Draft EA Comments at 3, the 1989 RMP fails to address numerous current challenges facing the North Fork Valley, including “[i]ncreased oil, gas, and uranium activity, recreation demands, impacts from a growing population and urban interface, and pressures on wildlife and land health.” BLM UFO, *Analysis of the Management Situation: for the BLM Uncompahgre Planning Area*. In addition to changing resource conditions, there are new issues of national significance and new federal policies that must be addressed in the UFO RMP revision. *Id.*; BLM UFO, *Uncompahgre RMP Newsletter*. BLM cannot allow oil and gas development in the UFO without prejudicing the ultimate mineral management decisions to be made, and the alternatives considered, in the revised RMP.

Likewise, the Final EA inappropriately tiers to the outdated 1991 Grand Mesa Uncompahgre and Gunnison National Forests Amended Land and Resource Management Plan.

Like the BLM's 1989 UFO RMP, the USFS's 1991 RMP and 1993 Oil and Gas Leasing Plan Amendments are woefully outdated.

B. An Environmental Impact Statement must be prepared.

As discussed in Citizen Groups' Draft EA Comments at 3-4, an environmental impact statement ("EIS") must be prepared for the 25-well project. An EIS is required when a major federal action "significantly affects the quality of the human environment." 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.4. A federal action "affects" the environment when it "will or *may* have an effect" on the environment. 40 C.F.R. § 1508.3 (emphasis added); *Airport Neighbors Alliance v. U.S.*, 90 F.3d 426, 429 (10th Cir. 1996) ("If the agency determines that its proposed action *may* 'significantly affect' the environment, the agency must prepare a detailed statement on the environmental impact of the proposed action in the form of an EIS.") (emphasis added). Similarly, according to the Ninth Circuit:

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

Idaho Sporting Cong. v. Thomas, 137 F.3d 1146, 1149-50 (9th Cir. 1998) (citations omitted) (emphasis original). Given the magnitude of the proposed action and impacts to the communities of the North Fork Valley that this project threatens to create, the Forest Service's Finding of No Significant Impact ("FONSI") is unsupportable.

Many courts have held that the issuance of a federal oil and gas lease may require an EIS simply because of the effects on surface lands. *See WildEarth Guardians v. U.S. Forest Service*, 828 F.Supp.2d 1223, 1241 (D.Colo. 2011) (citing *Sierra Club v. United States Dep't of Energy*, 255 F.Supp.2d 1177, 1186 (D.Colo. 2002)) (the government's actions in granting access to a federally-owned surface estate for the purpose of exploiting the mineral estate is a federal action under NEPA); *see also Sierra Club v. Peterson*, 717 F.2d 1409, 1413-15 (D.C. Cir. 1983) (concluding that the agency was required to conduct a site-specific analysis through an EIS before it could authorize the issuance of oil and gas leases within two national forests). The circumstances of this 25-well project require the agencies to prepare an EIS.

Moreover, in the absence of an EIS, the agencies "'must put forth a convincing statement of reasons' that explains why the project will impact the environment no more than insignificantly. This account proves crucial to evaluating whether the [agency] took the requisite 'hard look.'" *Ocean Advoc. v. U.S. Army Corps of Engrs.*, 402 F.3d 846, 864 (9th Cir. 2005). The Forest Service fails to provide a convincing statement explaining the insignificance of impacts from this development. Instead, the Forest Service provides only conclusory and cursory statements addressing each NEPA significance factor, 40 C.F.R. § 1508.27, with no detailed accounting or convincing statement of reasons explaining why the project will impact the environment no more than insignificantly. FONSI at 7-9. The evasive manner in which the

Forest Service has addressed these significance factors is insufficient to meet the agency's NEPA mandate.

C. The Agencies Have Failed to Take a Hard Look at the Direct, Indirect and Cumulative Impacts of Oil and Gas Development on Certain Resource Values in the Planning Area.

NEPA imposes “action forcing procedures ... requir[ing] that agencies take a *hard look* at environmental consequences.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) (citations omitted) (emphasis added). These “environmental consequences” may be direct, indirect, or cumulative. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. A cumulative impact—particularly important here—is defined as:

the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. § 1508.7.

Federal agencies determine whether direct, indirect, or cumulative impacts are significant by accounting for both the “context” and “intensity” of those impacts. 40 C.F.R. § 1508.27. Context “means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality” and “varies with the setting of the proposed action.” 40 C.F.R. § 1508.27(a). Intensity “refers to the severity of the impact” and is evaluated according to several additional elements, including, for example: unique characteristics of the geographic area such as ecologically critical areas; the degree to which the effects are likely to be highly controversial; the degree to which the possible effects are highly uncertain or involve unique or unknown risks; and whether the action has cumulatively significant impacts. *Id.* §§ 1508.27(b).

Furthermore, the Federal Land Policy and Management Act (“FLPMA”), 43 U.S.C. § 1701 *et seq.*, directs that “the public lands be managed in a manner that will protect the quality of [critical resource] values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use.” 43 U.S.C. § 1701(a)(8).

The Forest Service must also manage lands under its jurisdiction for “multiple use,” 16 U.S.C.A. § 528, meaning the “management of all various renewable surface resources of the national forest so that they are utilized in the combination that will best meet the needs of the American people . . . some land will be used for less than all of the resources . . . harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various

resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.” 16 U.S.C. 531.

1. The Agencies Failed to Take a “Hard Look” at Cumulative Impacts.

A cumulative impact is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.” *Ocean Advoc. v. U.S. Army Corps of Engrs.*, 402 F.3d 846, 868 (9th Cir. 2005); 40 C.F.R. § 1508.7. The Agencies’ cumulative impacts analysis “must be more than perfunctory; it must provide a ‘useful analysis of the cumulative impacts of past, present, and future projects.’” *Ocean Advoc.*, 402 F.3d at 868. The Agencies must, therefore, “give a realistic evaluation of the total impacts [of the action] and cannot isolate the proposed project, viewing it in a vacuum.” *Grand Canyon Trust v. FAA*, 290 F.3d 339, 342 (D.C. Cir. 2002).

CEQ regulations require agencies to consider three types of related actions: “connected actions,” “similar actions,” and “cumulative actions.” 40 C.F.R. § 1508.25(a). Cumulative actions are actions that when viewed with other proposed actions have cumulatively significant impacts. 40 C.F.R. § 1508.25(a)(2). An agency’s consideration of cumulative impacts must contain “some quantified or detailed information; . . . general statements about ‘possible’ effects and ‘some risk’ do not constitute a ‘hard look’ absent a justification regarding why more definitive information could not be provided.” *Neighbors of Cuddy Mountain*, 137 F.3d 1372, 1379-80 (9th Cir. 1998). The Supreme Court has held that an agency not only has a duty to consider cumulative impacts in a single NEPA process: “proposals for . . . related actions that will have cumulative or synergistic environmental impact upon a region concurrently pending before an agency must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate the different courses of action.” *Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976).

The agencies have failed to adequately consider the cumulative effects of this project in light of the following other projects: the 150-Well Bull Mountain Unit Master Development Plan; 67 Active Gas Wells in Delta and Gunnison Counties; the Huntsman Unit Proposal; the Petrox 50-Well Proposal at Pilot Knob; the Fram 108-Well Proposal; the Gunnison Energy 60 to 600-Well Master Plan; the Spadafora Waste Disposal Pits; the 16-well development in the North Fork/Muddy Creek Planning Unit; and the 30,000-Acre Lease Sale; two active underground coal mines near the project area, the Bowie No. 2 Mine and the West Elk Mine; and the development of 18 leases held by SG Interests in the proximately located Thompson Divide area.

Although the agencies recognize many of these projects, most projects were not analyzed. Final EA at 70-74, Table 3-3. More is required from BLM than simply listing projects. For example, the agencies’ discussion of cumulative surface water impacts, Final EA at 174, identifies a subsection of these projects, but notably absent from consideration are many of the currently producing wells, as well as the two active coal mines in the area.

The agencies also failed consider the impact of the project in light of the additive impacts caused by global warming. While the Final EA recognizes many of the impacts of climate

change, Final EA at 173, the agencies fail to actually apply those impacts to consideration of the effects on other resource values. *See* CEQ Climate Guidance at 11-12¹ (providing “agencies need to consider whether the reasonably foreseeable incremental addition of emissions from the proposed action, when added to the emissions of other relevant actions, is significant when determining whether GHG emissions are a basis for requiring preparation of an EIS.”). For example, the agencies recognize the possibility of more frequent, severe, and longer-lasting drought, but fail to apply those impacts to analysis of surface and groundwater resources, impacts to water quantity, or associated impacts on wildlife or downstream communities. Final EA at 173. It is useless to identify the likely effects of climate change on the planning area without actually applying those effects to the agencies’ consideration of and decisionmaking relative to other resource values. The agencies also fail to quantify the contribution of these projects to the cumulative climate impacts recognized to occur in the Final EA. *See* CEQ Climate Guidance at 8 (“Federal agencies, to remain consistent with NEPA, should consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through GHG emissions and take into account the ways in which a changing climate over the life of the proposed project may alter the overall environmental implications of such actions.”); 40 C.F.R. § 1508.18.

2. The Agencies Failed to Take a “Hard Look” at Impacts to Air Quality.

The Agencies failed to take a hard look at the air quality impacts from oil and gas development in the planning area. Much of air pollution from oil and gas development and operations, which is specifically discussed below, also degrades visibility. As discussed in Citizen Groups’ Draft EA Comments at 8, Section 169A of the Clean Air Act (“CAA”), 42, U.S.C. § 7401 *et seq.* (1970) sets forth a national goal for visibility, which is the “prevention of any future, and the remedying of any existing, impairment of visibility in Class I areas which impairment results from manmade air pollution.”

Here, there are at least 10 Class I areas near the 25 well project area that may be impacted by the proposed development, including: Maroon Bells-Snowmass Wilderness Area; Arches National Park; Black Canyon of the Gunnison National Park; Eagles Nest Wilderness Area; Flat Tops Wilderness Area; La Garita Wilderness Area; Mount Zirkel Wilderness Area; Rocky Mountain National Park; Weminuche Wilderness Area; and West Elk Wilderness Area. Visibility in nearby Class I areas is already impaired. As recognized by the agencies: “each of the Class I areas presented can expect to have decreasing visibility impacts for both the best and worst days.” Final EA at 172. Although cumulative pollutant concentrations are below PSD Class I increments, this conclusion cannot be used to avoid the necessary hard look or analysis of visibility degradation that is caused by the project.

Moreover, EPA finds the visibility protection provisions of the CAA to be quite broad.

¹ Council on Environmental Quality, *Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts* (December 18, 2014) available at: <http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance> (included as Scoping Exhibit 201) (hereinafter “CEQ Climate Guidance”).

Although EPA is addressing visibility protection in phases, the national visibility goal in section 169A calls for addressing visibility impairment generally, including regional haze. *See e.g., State of Maine v. Thomas*, 874 F.2d 883, 885 (1st Cir. 1989) (“EPA’s mandate to control the vexing problem of regional haze emanates directly from the Clean Air Act, which ‘declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas which impairment results from manmade air pollution.’”) (citation omitted).

In addition to impacts from the proposed development, cumulative air quality impacts from sources in and around the proposed development area may result in serious impairments to air quality standards. For example, there is a tremendous concentration of oil and gas development taking place in the region, including in Utah’s Uinta Basin and Colorado’s Piceance Basin, which already has elevated ozone and PM concentrations, impacted visibility, and seriously degraded air quality in the region. Of particular concern, background concentrations of ozone in the area are already at or exceed the National Ambient Air Quality Standards (“NAAQS”), leaving virtually no room for growth in emissions as contemplated by the subject APDs. *See* Megan Williams, Air Quality Review of the Bull Mountain Unit (included as an attachment to Scoping Comments as Exhibit B) at 4-14. For example, the agencies recognize that regional ozone exceeds the NAAQS in both Denver and Salt Lake City, with a maximum concentration of 81.5 ppb. Final EA at 167.

There is no room for growth in emissions that contribute to these harmful levels of ozone pollution in the area—namely, nitrogen oxides (“NO_x”) and volatile organic compounds (“VOCs”). Any increase in emissions of ozone precursors will exacerbate the negative health effects of ozone in the region, as discussed below, and is almost certain to threaten the area’s compliance with EPA’s ozone standard. Yet, the agencies also admit: “ozone increases in the Piceance Basin” and “contribution from the UFO planning area oil and gas sources is 0.8 ppb.” Final EA at 167.

Critically, the agencies failed to include an alternative that considers the stricter EPA ozone standards that were recently finalized, relying instead on the conclusion that “[t]his project will conform to the appropriate standard in place at the time of development.” Final EA at 63. However, by court order, EPA’s new ozone standard was required to be finalized by October 1, 2015.² Therefore, EPA’s new NAAQS standard for ozone was sufficiently foreseeable that it should have been included in the agency’s analysis of alternatives and should have guided consideration of the proposed project.

On schedule, on October 1, 2015, EPA published a final rule to revise NAAQS for ozone to 70 parts per billion (ppb) from the current 75 ppb. National Ambient Air Quality Standards for Ozone, EPA-HQ-OAR-2008-0699 (Oct. 1, 2015), “Internet version” available at <http://www3.epa.gov/ozonepollution/pdfs/20151001fr.pdf>. This decision was driven by significant recent scientific evidence that the current standard of 75 ppb does not adequately protect public health. *Id.* at 136. In fact, recent studies have documented decreased lung

² *See* <http://www.epa.gov/groundlevelozone/pdfs/20141125fs-requirements.pdf>; *see also, Sierra Club v. EPA*, No. 13-2809 (N.D. Cal., Apr. 30, 2014).

functioning and airway inflammation in young, healthy adults at ozone concentrations as low as 60 ppb. *Id.* at 146. Studies have documented “significant associations with respiratory emergency department visits with children and adults” in places that met the current standard of 75 ppb, but would not have met the level of 70 ppb. *Id.* at 247. The existing standard is plainly insufficient to protect children with asthma and members of other sensitive groups. *Id.* at 146-47. These impacts will be exacerbated by the worsening impacts of climate change. *Id.* at 33. Specifically, climate change may lead to future increases in summer ozone concentrations across the United States. *Id.*

Notably, even if current air quality monitoring data suggested that impacts to the NAAQS would not be significant, the fact that current monitoring does not indicate the region is violating any NAAQS does not mean that the NAAQS will never be violated. The U.S. District Court for the District of Colorado in fact rejected a similar analysis prepared by the BLM in support of an oil and gas drilling plan in the Roan Plateau area of western Colorado. In that case, the BLM asserted that the lack of ozone violations indicated that future impacts would not be significant. In her ruling, Judge Krieger stated: “The mere fact that the area has not exceeded ozone limits in the past is of no significance when the purpose of the EIS is to attempt to predict what environmental effects are likely to occur in the future[.]” *Colo. Envtl. Coal. v. Salazar*, 875 F. Supp. 2d 1233, 1257 (D. Colo. 2012).

Additionally, particulate matter (PM₁₀ and PM_{2.5}) is another potential source of major health impacts in the area. As recognized by the agencies, the 25-well project will contribute an additional 10 tons of PM₁₀ per year, and 11 tpy of PM_{2.5}. Final EA at 166. Particulate matter can become lodged deep in the lungs or can enter the bloodstream, worsening the health of asthmatics and even causing premature death in people with heart and lung disease. Even particulate matter concentrations lower than the current NAAQS are a concern for human health. Background PM₁₀ values are near the level of the NAAQS, while background PM_{2.5} values are at or above the level of the NAAQS. *See Williams, Air Quality Review of the Bull Mountain Unit at 10-11* (included as an attachment to Scoping as Exhibit B).

Nevertheless, the agencies fail to take a hard look at the impacts of these air pollutant contributions, and critically fail to apply these concentrations to impacts such as human health. Logically, adherence to NAAQS would have a positive relationship to human health. However, the agency cannot rely on these standards or other indicators such as the Air Quality Index (“AQI”) or National Air Toxics Assessment (“NATA”) and assume that this alone would satisfy the UFO’s hard look NEPA obligations—in particular given the poor baseline air quality conditions due to prevailing impacts in the planning area.

Oil and gas development is one of the largest sources of VOCs, ozone, and sulfur dioxide emissions in the United States. The relationship between air quality and human health must be analyzed in the agency’s NEPA analysis, which, here, the agencies failed to do. “The agency must examine the relevant data and articulate a satisfactory explanation for its action including a ‘rational connection between the facts found and the choice made.’” *Motor Vehicle Mfrs.*, 463 U.S. at 43 (1983).

3. The Agencies Failed to Take a “Hard Look” at Climate Change.

If we are to stem the impacts of climate change and manage for sustainable ecosystems, not only must the agencies take a hard look at greenhouse gas (“GHG”) emissions stemming from the development it authorizes, but the agencies’ decision must be reflective of the challenges we face. Here, the agencies provide important recognition both of the scientific consensus on climate change, Final EA at 83, as well as the associated impacts that climate change will have on the planning area, Final EA at 173. Remarkably, however, the agencies fail to apply these recognized impacts to their analysis of other resource values in the planning area. See CEQ Climate Guidance at 8 (“Federal agencies, to remain consistent with NEPA, should consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through GHG emissions and take into account the ways in which a changing climate over the life of the proposed project may alter the overall environmental implications of such actions.”). This type of dismissive approach fails to satisfy the guidance outlined in Department of Interior Secretarial Order 3226, discussed below, or the requirements of NEPA. “Reasonable forecasting and speculation is . . . implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labelling any and all discussion of future environmental effects as ‘crystal ball inquiry.’” *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1246 n.9 (9th Cir. 1984 (quoting *Scientists’ Inst. for Pub. Info., Inc. v. Atomic Energy Comm.*, 481 F.2d 1079, 1092 (D.C. Cir. 1973))).

As noted above, NEPA imposes “action forcing procedures . . . requir[ing] that agencies take a *hard look* at environmental consequences.” *Methow Valley*, 490 U.S. at 350 (citations omitted) (emphasis added). These “environmental consequences” may be direct, indirect, or cumulative. 40 C.F.R. §§ 1502.16, 1508.7, 1508.8. BLM is required to take a hard look at those impacts as they relate to the agency action. “Energy-related activities contribute 70% of global GHG emissions; oil and gas together represent 60% of those energy-related emissions through their extraction, processing and subsequent combustion.”³ Even if science cannot isolate each additional oil or gas well’s contribution to these overall emissions, this does not obviate BLM’s responsibility to consider oil and gas development in the action area from the cumulative impacts of the oil and gas sector. In other words, the BLM cannot ignore the larger relationship that oil and gas management decisions have to the broader climate crisis that we face. Here, the agency’s analysis must include the full scope of GHG emissions. See *Neighbors of Cuddy Mountain v. U.S. Forest Service*, 137 F.3d 1372, 1379 (9th Cir. 1998) (“To ‘consider’ cumulative effects, some quantified or detailed information is required. Without such information, neither the courts nor the public, in reviewing the [agency’s] decisions, can be assured that the [agency] provided the hard look that it is required to provide.”). If we are to stem climate disaster—the impacts of which we are already experiencing—the agency’s decisionmaking must be reflective of this reality and plan accordingly.

As recognized by CEQ’s Climate Guidance at 5-6: “It is essential, however, that Federal agencies not rely on boilerplate text to avoid meaningful analysis, including consideration of

³ International Investors Group on Climate Change, *Global Climate Disclosure Framework for Oil and Gas Companies* (included as Scoping Exhibit 38).

alternatives or mitigation.” (citing 40 C.F.R. §§ 1500.2, 1502.2). Not only do the agencies rely on boilerplate text, but they offer only the kind of dismissive comparison to state GHG emissions that CEQ warns against: “Given the relative magnitude of greenhouse gas emissions associated with the development of the proposed project 25 wells as compared to the state’s GHG emission levels, the GHG contribution associated with the wells is extremely small.” Final EA at 86; *see also* CEQ Climate Guidance at 6 n.11 (“For example, providing a paragraph that simply asserts, without qualitative or quantitative assessment, that the emissions for a particular proposed action represent only a small fraction of local, national, or international emissions or are otherwise immaterial is not helpful to the decisionmaker or the public.”).

BLM is responsible for the management of 700 million acres of federal onshore subsurface minerals. Indeed, “the ultimate downstream GHG emissions from fossil fuel extraction from federal lands and waters by private leaseholders could have accounted for approximately 23% of total U.S. GHG emissions and 27% of all energy-related GHG emissions.”⁴ This suggests that “ultimate GHG emissions from fossil fuels extracted from federal lands and waters by private leaseholders in 2010 could be more than 20-times larger than the estimate reported in the CEQ inventory, [which estimates total federal emissions from agencies’ operations to be 66.4 million metric tons]. Overall, ultimate downstream GHG emissions resulting from fossil fuel extraction from federal lands and waters by private leaseholders in 2010 are estimated to total 1,551 [million metric tons of CO₂ equivalent (“MMTCO₂e”)].” *Id.* In 2010, the GAO estimated that BLM could eliminate up to 40% of methane emissions from federally authorized oil and natural gas development, the equivalent of eliminating 126 Bcf or 46.3 MMTCO₂e of GHG pollution annually and equivalent to roughly 13 coal-fired power plants.⁵ To suggest that the agencies do not, here, have to account for GHG pollution from oil and gas development, would be to suggest that the collective 700 million acres of subsurface mineral estate is not relevant to protecting against climate change. This sort of flawed, reductive thinking would be problematic, and contradicted by the agency’s very management framework that provides a place-based lens to account for specific pollution sources to ensure that the broader public interest is protected.

In discussing the project’s climate change impacts, it is insufficient for the BLM to only frame the problem in broader global or state terms:

CEQ recognizes that many agency NEPA analyses to date have concluded that GHG emissions from an individual agency action will have small, if any, potential

⁴ Stratus Consulting, prepared for: The Wilderness Society, *Greenhouse Gas Emissions from Fossil Energy Extracted from Federal Lands and Waters*, Feb. 1, 2012 (attached to Scoping Comments as Exhibit 39).

⁵ GAO, *Federal Oil & Gas Leases: Opportunities Exist to Capture Vented and Flared Natural Gas, Which Would Increase Royalty Payments and Reduce Greenhouse Gases*, GAO-11-34 at 12 (Table 1)(October 2010) (attached to Draft EA Comments as Exhibit 46). This GHG equivalence assumes a CH₄ warming potential of 72 (20-year warming period) as per the Intergovernmental Panel on Climate Change’s Fourth Assessment Report and using EPA’s GHG equivalencies calculator.

climate change effects. Government action occurs incrementally, program-by-program and step-by-step, and climate impacts are not attributable to any single action, but are exacerbated by a series of smaller decisions, including decisions made by the government. Therefore, the statement that emissions from a government action or approval represent only a small fraction of global emissions is more a statement about the nature of the climate change challenge, and is not an appropriate basis for deciding whether to consider climate impacts under NEPA. Moreover, these comparisons are not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations. This approach does not reveal anything beyond the nature of the climate challenge itself: the fact that diverse individual sources of emissions each make relatively small additions to global atmospheric GHG concentrations that collectively have huge impact.

CEQ Climate Guidance at 9. Therefore, even though climate change emissions from these 25 wells look minor when viewed on the scale of the global climate crisis we face, when considered cumulatively with all of the other GHG emissions from BLM-managed land, they become significant and cannot be ignored.

Here, the agencies recognize that production emissions from the 25-well project total 25,448 tpy,⁶ Final EA at 166, yet fail to provide any quantitative analysis of these emissions. *See* CEQ Climate Guidance at 18 (providing a reference point of 25,000 MTCO₂e as the point when such quantitative analysis of emissions should be provided). Critically, the agencies only provide estimated emissions for production, but fail to include the indirect—downstream—emissions of the project. *See* 40 C.F.R. §§ 1508.7, 1508.8. In fact, nowhere in the Final EA does the agency even provide the estimated oil and gas production estimates for these wells—a significant omission. The public is left to glean any information it can regarding production from vague statements provided in the Final EA. *See* Final EA at 181 (“Over the last decade exploratory and development activities in and surrounding the proposed action have focused on exploring for and developing coalbed methane natural gas resources.”); *id.* at 152 (providing drilling estimates for coalbed methane and horizontal shale wells). Assuming that these 25 wells will target coalbed methane (“CBM”), and relying on historical production figures provided by the *Reasonable Foreseeable Development Scenario for the Uncompahgre Field Office, Colorado: Final Report* (Feb. 16, 2012), at Table 2, of 4.80 bcf from 24 wells (resulting in an average of 200,140,750 cf of CBM per well), this results in an estimated 5.00 bcf of gas from these 25 wells per year. This results in an estimate 250,176 MTCO₂e of emissions per year that are not accounted for in the Final EA. As recognized by CEQ Climate Guidance at 11:

When assessing direct and indirect climate change effects, agencies should take account of the proposed action—including “connected actions”... [E]missions

⁶ As detailed below, this estimate is likely low given that BLM typically uses a global warming potential of 21 for methane (although, here, the agencies fail to identify which GWP was used in its calculations). By applying the appropriate 20-year GWP of 87 for methane, total production emissions increase to 3,074 tpy.

from activities that have a reasonably close causal relationship to the Federal action, such as those that may occur as a predicate for the agency action (often referred to as upstream emissions) and as a consequence of the agency action (often referred to as downstream emissions) should be accounted for in the NEPA analysis. (citing 40 C.F.R. § 1508.8).

Here, the agencies' failure to account for both production and combustion emissions is a fatal deficiency.

i. Social Cost of Carbon

In refusing to consider the social cost of carbon in the agencies' analysis, the Final EA provides:

There is no requirement to include SCC calculation in a project specific NEPA analysis. The BLM and FS are presenting a qualitative discussion of the environmental effects of climate change as well as a discussion of socioeconomic impacts in this analysis. The analysis also discusses the potential contribution of this action relative to state and national greenhouse gas emissions.

Final EA at 18. However, as detailed above, the agencies failed to provide the type of qualitative analysis promised, and the combined production and combustion emissions totaling 275,624 MTCO₂e, are well above the reference point that CEQ provides for disclosure and analysis of quantitative GHG emissions. CEQ Climate Guidance at 18. In refusing to perform this analysis, the agencies state that “no readily available tools exist to predict impacts a project’s emissions would have on the global, regional, or local climate” Final EA at 86. This statement is misguided. As provided by CEQ, “[a]n agency’s determination regarding the type of analysis—quantitative or qualitative—to be prepared for any proposed action should also be informed by the tools and information available to conduct the analysis.” CEQ Climate Guidance at 15. The social cost of carbon is one such tool.

The Ninth Circuit has ruled that agencies must include the climate costs and benefits of a significant regulatory action in federal cost-benefit analyses to comply with EO 12866:

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

Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin., 538 F.3d 1172, 1217 (9th Cir. 2008) (quotations and citations omitted); *see also Border Power Plant Working Grp. v. U.S. Dep’t of Energy*, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (finding agency failure to disclose project’s indirect carbon dioxide emissions violates NEPA). As detailed above, climate change is the preeminent threat to human health and welfare today, the overwhelming cause of which is human emissions of greenhouse gases. *See* 74 Fed. Reg. 66,496 (Dec. 15, 2009), Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act. Indeed, a recent study has concluded that “globally, a third of oil reserves,

half of gas reserves and over 80 percent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C⁷—the point after which the “worst impacts” of climate change cannot be avoided.

An Interagency Working Group (“IWG”), consisting of eleven federal agencies, was formed to develop a consistent and defensible dollar estimate of the social cost of carbon (“SCC”) – allowing agencies to “incorporate the social benefits of reducing carbon dioxide (CO₂) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions.”⁸ Leading economic models all point in the same direction: that climate change causes substantial net economic harm, justifying immediate action to reduce emissions.⁹

These models are intended to quantify damages, including health impacts, economic dislocation, agricultural changes, and other effects that climate change can impose on humanity. While these values involve a degree of uncertainty, a recent GAO report has confirmed the soundness of the methodology in which the IWG’s SCC estimates were developed, therefore further underscoring the importance of integrating SCC analysis into the agency’s decisionmaking process.¹⁰

In July 2015, the IWG issued some minor technical revisions to the SCC, and published a revised TSD to explain those changes.¹¹ By way of comparison, the 2013 updated interagency SCC estimates for 2020 are \$12, \$43, \$64, and \$128 (in 2007\$), whereas the July 2015 revised

⁷ Christophe McGlade and Paul Ekins, The geographical distribution of fossil fuels unused when limiting global warming to 2°C, *NATURE* (Jan. 8, 2015) (included as Scoping Exhibit 203).

⁸ Interagency Working Group on the Social Cost of Carbon, United States Government, Technical Support Document: Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis—Under Executive Order 12866, at 2 (May 2013) (hereinafter 2013 TSD) (included as Scoping Exhibit 204); Interagency Working Group on the Social Cost of Carbon, United States Government, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis—Under Executive Order 12866 (February 2010) (hereinafter 2010 TSD) (included as Scoping Exhibit 205).

⁹ Richard Revesz, et al., *Global Warming: Improve Economic Models of Climate Change*, 508 *NATURE* at 174 (April 10, 2014) (included as Scoping Exhibit 207).

¹⁰ GAO-14-663, *Social Cost of Carbon* (July 24, 2014).

¹¹ Interagency Working Group on the Social Cost of Carbon, United States Government, Technical Support Document: Technical Update on the Social Cost of Carbon for Regulatory Impact Analysis—Under Executive Order 12866 (Revised July 2015) (attached as Exhibit 1); see also Office of Management and Budget, *Estimating the Benefits from Carbon Dioxide Emissions Reductions*, available at: <https://www.whitehouse.gov/blog/2015/07/02/estimating-benefits-carbon-dioxide-emissions-reductions>.

SCC estimates for 2020 are \$12, \$42, \$62, and \$123.¹² The IWG does not instruct federal agencies which discount rate to use, suggesting the revised 3 percent discount rate (\$42 per ton of CO₂) as the “central value,” but further emphasizing “the importance and value of including all four SCC values.”¹³

In defending their refusal to use the SCC protocol, the agencies argue that “The SCC was developed to assist agencies in meeting Executive Order (EO) 12866’s requirement to assess costs and benefits during the development of regulations . . . not for use in making land management decisions.” Final EA at 333. However, while the protocol was designed to assist agencies in cost benefit analyses associated with rulemakings, the EPA has expressed support for its use in other contexts. *High Country Conservation Advocates v. U.S. Forest Service*, 52 F. Supp. 3d 1174, 1190 (D.Colo. 2014) (noting that the EPA advised the State Department to assess GHG impacts from the Keystone XL pipeline using the SCC protocol (citing Sarah E. Light, *NEPA’s Footprint: Information Disclosure as a Quasi-Carbon Tax on Agencies*, 87 Tul. L.Rev. 511, 545–46 & n.160 (Feb.2013))).

In *High Country*, the court directly affirmed the agencies’ obligation to analyze the costs associated with GHG emissions through NEPA. In his decision, Judge Jackson identified the IWG’s SCC protocol as a tool to “quantify a project’s contribution to costs associated with global climate change.” *Id.* at 1190. “The critical importance of [climate change] . . . tells me that a ‘hard look’ has to include a ‘hard look’ at whether this tool, however imprecise it might be, would contribute to a more informed assessment of the impacts than if it were simply ignored.” *Id.* at 1192. To fulfill this mandate, they agency must disclose the “ecological[,] . . . economic, [and] social” impacts of the proposed action. 40 C.F.R. § 1508.8(b).

Here, the agencies refused to provide such analysis, despite the fact that appropriate data is readily available. Final EA at 18. According to BLM, total combined production emissions in the planning area is 25,448 MTCO₂e, Final EA at 166—this alone results in a social cost of carbon of **\$1,068,816** per year. However, and as detailed in Scoping Comments, this figure is likely depressed based on BLM’s historic reliance on the outdated global warming potential (“GWP”) for methane of 21 (the agency fails to identify what GWP was used). Applying the IPCC’s 20-year GWP for methane of 87 results in total combined production emissions of 27,780 MTCO₂e, or a social cost of carbon of **\$1,166,760**.

Critically, this figure fails to consider the downstream combustion emissions of fossil fuel production in the planning area, as discussed above. *See* CEQ Guidance at 11 (“emissions

¹² *See* 2015 Revised TSD at 3 (including a table of revised SCC estimates from 2010-2050). To put these figures in perspective, in 2009 the British government used a range of \$41-\$124 per ton of CO₂, with a central value of \$85 (during the same period, the 2010 TSD used a central value of \$21). WRI Report (included as Scoping Exhibit 206). The UK analysis used very different assumptions on damages, including a much lower discount rate of 1.4%. Their central value supports regulation four times as stringent as the U.S. central value. *Id.*

¹³ 2015 Revised TSD at 12.

from activities that have a reasonably close causal relationship to the Federal action, such as those that may occur as a predicate from the agency action (often referred to as upstream emissions) and as a consequence of the agency action (often referred to as downstream emissions) should be accounted for in the NEPA analysis.”) (citing 40 C.F.R. § 1508.8). As detailed above, the agencies failed to quantify the estimated production potential of these 25 wells. However, assuming historical production of CBM wells in the area, this results in an estimated 5.00 bcf of gas and an estimated 250,176 MTCO₂e of combustion emissions per year. This results in a social cost of carbon from downstream CMB combustion of **\$10,507,392**. Thus, the combined social cost of emissions from production and downstream combustion for these 25 wells is **\$11,674,152**, each year.

BLM’s failure to consider the over \$11.6 million in annual costs of GHG emissions from this project effectively assumes a price of carbon that is \$0. *High Country*, 52 F. Supp. 3d at 1192 (holding that although there is a “wide range of estimates about the social cost of GHG emissions[,] neither the BLM’s economist nor anyone else in the record appears to suggest the cost is as low as \$0 per unit. Yet by deciding not to quantify the costs as all, the agencies effectively zeroed out the cost in its quantitative analysis.”).

An agency must “consider every significant aspect of the environmental impact of a proposed action.” *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 107 (1983) (quotations and citation omitted). This includes the disclosure of direct, indirect, and cumulative impacts of its actions, including climate change impacts and emissions. 40 C.F.R. § 1508.25(c). The need to evaluate such impacts is bolstered by the fact that “[t]he harms associated with climate change are serious and well recognized,” and environmental changes caused by climate change “have already inflicted significant harms” to many resources around the globe. *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007); *see also id.* at 525 (recognizing “the enormity of the potential consequences associated with manmade climate change.”). Among other things, the agency’s analysis must disclose “the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity[,]” including the “energy requirements and conservation potential of various alternatives and mitigation measures.” 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.16(e). And the agency must “insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical consideration.” 42 U.S.C. § 4332(2)(B). As explained by CEQ, this requires agencies to “analyze total energy costs, including possible hidden or indirect costs, and total energy benefits of proposed actions.” 43 Fed. Red. 55,978, 55,984 (Nov. 29, 2978); *see also* Executive Order 13514, 74 Fed. Reg. 52,117 (Oct. 5, 2009) (requiring government agencies to disclose emissions information annually from direct and indirect activities). Failing to perform such analysis undermines the agencies’ decisionmaking process and the assumptions made.

Nor can the agency tout the benefits of oil and gas development without similarly disclosing the costs. *See* 40 C.F.R. § 1502.23. Here, BLM cites the economic benefits of a project—such as job creation or federal royalties, and even uses the IMPLAN model to the quantify broader economic benefits of this project on the regional economy—while at the same time failing to discuss the costs. Final EA at 141. This type of misleading and one-sided analysis is expressly forbidden. *See Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437,

446-47 (4th Cir. 1996) (“it is essential that the EIS not be based on misleading economic assumptions); *Sierra Club v. Sigler*, 695 F.2d 957, 979 (5th Cir. 1983) (agency choosing to “trumpet” an action’s benefits has a duty to disclose its costs). “If a cost-benefit analysis is relevant to the choice among different alternatives being considered, it must be incorporated by reference or appended to the statement as an aid in evaluating the environmental consequences.” CEQ Guidance at 16 (citing 40 C.F.R. § 1502.21).

The failure to address the externalities and market role of climate change displays the BLM’s disregard for the CEQ Guidance’s recommendation to conduct quantitative analysis for the planning area, which, no matter how you quantify it, includes annual emissions over the 25,000 metric tons of CO₂e threshold. CEQ Guidance at 18.¹⁴ Part of quantitative analysis is monetizing the costs and benefits of agency action. *Id.* at 16. Here, along with failing to adhere to the CEQ Guidance, the agencies neglected to comply with Executive Order 12866, which directs federal agencies to assess and quantify the costs and benefits of regulatory action, including the effects on the economy, environment, and public health. Exec. Order No. 12866, 58 Fed. Reg. 51,735 (Sept. 30, 1993). The Ninth Circuit teaches that the inclusion of federal cost-benefit analysis is fundamental to the NEPA process. *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008); *see also Border Power Plant Working Grp. v. U.S. Dep’t of Energy*, 260 F. Supp. 2d 997, 1028-29 (S.D. Cal. 2003) (finding agency failure to disclose project’s indirect carbon dioxide emissions violates NEPA). By not including the SCC analysis, the agencies ignore the necessary quantitative analysis, and display a lack of concern for the impacts of climate change.

ii. Methane Emissions and Waste

The Agencies must take a hard look, and meaningful action, to address the serious issue of methane (“CH₄”) emissions and waste in the oil and gas production process. Such action must include an estimate of the projected methane emission rates from drilling and production activities authorized by the proposed action, as well as detailed analysis of measures employed to mitigate such emissions.

Even setting aside the issue of climate change, every ton of methane emitted to the atmosphere from oil and gas development is a ton of natural gas *lost*. Every ton of methane lost to the atmosphere is therefore a ton of natural gas that cannot be used by consumers. Methane lost from federal leases may also not yield royalties otherwise shared between federal, state, and

¹⁴ CEQ’s threshold for quantifying GHG emissions should be structured to acknowledge that it is not simply a function of projected *emissions*, but *emission reduction opportunities*. At present, the revised draft guidance provides that, if a federal action does not exceed the 25,000 metric tons of CO₂e threshold, a quantitative analysis is warranted only if that analysis “is easily accomplished based on the availability of quantification tools and appropriate input data.” 77 Fed. Reg. 77802, 77810. BLM should expand this language to provide that a quantitative analysis is warranted where it is: (1) “easily accomplished”; or (2) is useful to inform the design, consideration, and choice of alternatives (including the no action alternative) and mitigation measures. Here, of course, the project exceeds the 25,000 MTCO₂e threshold.

local governments.

This lost gas reflects serious inefficiencies in how BLM oil and gas leases are developed. Energy lost from oil and gas production—whether avoidable or unavoidable—reduces the ability of a lease to supply energy, increasing the pressure to drill other lands to supply energy to satisfy demand. 40 C.F.R. §§ 1502.16(e)-(f). In so doing, inefficiencies create indirect and cumulative environmental impacts by increasing the pressure to satisfy demand with new drilling. 40 C.F.R. §§ 1508.7, 1508.8(b).

Notably, both BLM and the EPA are currently undertaking federal rulemaking pertaining to methane waste. In refusing to consider technologies to address venting and flaring of gas, or to analyze the impacts of methane waste more broadly, the agencies offer:

Federal regulations provide the operator with specific guidance on venting and flaring of natural gas during operations. EPA rule OOOO (Quad O) provides the requirements by which approved operations must comply. Federal actions associated with this proposed action must comply with this rule, and therefore as an alternative would result in redundancy of analysis with current Federal regulations.

Final EA at 62.

This summer, the EPA proposed to amend its new source performance standards (“NSPS”) by setting standards for both methane and VOCs for new and modified sources in the oil and gas industry. Oil and Natural Gas Sector: Emission Standards for New and Modified Sources, 80 Fed. Reg. 56593 (proposed August 18, 2015) (to be codified at 40 C.F.R. pt. 60). If finalized, this rule would be the first direct regulation of methane pollution from the oil and gas industry. While EPA’s rule represents an important first step in the federal government’s regulation of methane waste, it also contains significant gaps. Of significant concern, the rule only covers new and modified sources, and fails to regulate existing sources and equipment, such as compressors, valves, storage tanks, and distribution pipelines. Even if EPA and the states did directly regulate methane emissions from such sources, this would not preclude or even suggest that BLM should not, also, impose its own requirements that are more stringent given the distinctive nature of the agency’s authorities and responsibilities, and seize site-specific opportunities to prevent waste above-and-beyond what may be required by EPA rule. Thus, contrary to the agencies assertion, a BLM analysis of venting and flaring, as well as consideration of BLM’s forthcoming rule on methane waste, would not be redundant with other state and federal regulations.

Citizen Groups, and in particular WELC, have been urging field offices throughout the West to adopt common sense and economical measures to address the issue of fugitive methane waste. The agencies have expansive authority—and, indeed, the responsibility and opportunity—to prevent the waste of oil and gas resources, in particular methane, which is the primary constituent of natural gas. The Mineral Leasing Act of 1920 (“MLA”) provides that “[a]ll leases of lands containing oil or gas . . . shall be subject to the condition that the lessee will, in conducting his explorations and mining operations, use all reasonable precautions to prevent

waste of oil or gas developed in the land....” 30 U.S.C. § 225; *see also* 30 U.S.C. § 187 (“Each lease shall contain . . . a provision . . . for the prevention of undue waste . . .”) As the MLA’s legislative history teaches, “conservation through control was the dominant theme of the debates.” *Boesche v. Udall*, 373 U.S. 472, 481 (1963) (citing H.R.Rep. No. 398, 66th Cong., 1st Sess. 12-13; H.R.Rep. No. 1138, 65th Cong., 3d Sess. 19 (“The legislation provided for herein... will [help] prevent waste and other lax methods....”)).

BLM’s implementing regulations, reflecting these provisions, currently provide that “[t]he objective” of its MLA regulations in 43 C.F.R. Subpart 3160 “is to promote the orderly and efficient exploration, development and production of oil and gas.” 43 C.F.R. § 3160.0-4. In part, “orderly and efficient” operations are ensured through unitization or communitization agreements. 43 C.F.R. §§ 3161.2, 3162.2-4(b) (BLM authority to require lessees unitization or communitization agreements); 43 C.F.R. Subpart 3180 (general rules pertaining to drilling unit agreements). Such unit agreements, because they may limit BLM authority in subsequent stages, are therefore important tools for preventing waste. *See William P. Maycock et al.*, 177 IBLA 1, 20-21 (Dec. Int. 2008) (“BLM is not required to analyze an alternative that is [n]ot feasible because it is inconsistent with the basic presumption of the Unit Agreement and BLM cannot legally compel the operator to adopt that alternative under the terms of the Unit Agreement”).

Critically, subpart 3160 specifically requires BLM officials to ensure “that all [oil and gas] operations be conducted in a manner which protects other natural resources and the environmental quality, protects life and property and results in the maximum ultimate recovery of oil and gas with minimum waste and with minimum adverse effect on the ultimate recovery of other mineral resources.” 43 C.F.R. § 3161.2 (emphasis added). The lease owner and/or operator is, similarly, charged with “conducting all operations in a manner which ensures the proper handling, measurement, disposition, and site security of leasehold production; which protects other natural resources and environmental quality; which protects life and property; and which results in maximum ultimate economic recovery of oil and gas with minimum waste and with minimum adverse effect on ultimate recovery of other mineral resources.” 43 C.F.R. § 3162.1(a) (emph. added). Waste is defined as “(1) A reduction in the quantity or quality of oil and gas ultimately producible from a reservoir under prudent and proper operations; or (2) avoidable surface loss of oil or gas.” 43 C.F.R. § 3160.0-5. Avoidable losses of oil or gas are currently defined as including venting or flaring without authorization, operator negligence, failure of the operator to take “all reasonable measures to prevent and/or control the loss,” and an operator’s failure to comply with lease terms and regulations, order, notices, and the like. *Id.*

Complementing the MLA’s duties to prevent methane waste and to promote the orderly and efficient development of oil and gas resources is FLPMA. FLPMA provides that BLM must manage the public lands to “protect the quality of...air and atmospheric...values,” to “best meet the present and future needs of the American people,” and to “account [for] the long-term needs of future generations for...non-renewable resources, including...minerals.” 43 C.F.R. § 1702(c). To do this, BLM “shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.” 43 U.S.C. § 1732(b). These duties manifest themselves in a sequential planning process for oil and gas that is rooted in comprehensive land use management plans, called resource management plans (RMPs). Once developed, RMPs are implemented through oil and gas lease sales, drilling permits, and other actions.

Also complementing the MLA’s duties to prevent methane waste and to promote the orderly and efficient development of oil and gas resources is NEPA. NEPA imposes three basic obligations on BLM. First, it obligates the agency to take a hard look at impacts—including impacts to the oil and gas resource and to the climate. Second, it requires consideration of alternatives—including alternative means of preventing or reducing methane pollution and waste. And, third, it demands that the agency involve the public as a means to make better decisions and to promote transparent and accountable government action.

Three key design elements the agencies should consider are:

- **BLM Planning & Management:** Citizen Groups have proposed that BLM control the timing, pace, and location of development to identify economies of scale to facilitate methane emission reduction action and to overcome barriers that impede that action. We have also proposed that BLM synchronize upstream oil and gas production operations with midstream oil and gas gathering pipelines, compressor power, and processing capacity. Synchronizing operations helps incentivize and improve the efficacy of methane capture technologies and practices (described below) to prevent vented and fugitive methane leaks and to ensure that captured gas is not flared due to a lack of linked midstream processing and transmission capacity. This element is, in whole, designed to change agency behavior such that BLM “looks before it leaps” to approve oil and gas infrastructure and to instill an ethic of innovation whereby BLM seeks ever deeper methane pollution and waste cuts as technologies, thinking, and practices evolve.
- **Technology & Practices:** We have proposed that BLM mandate the use of proven, cost-effective technologies and practices, like green completions, zero- and low-bleed pneumatic valves, and Leak Detection and Repair, to reduce methane emissions from drilling equipment and practices. These technologies and practices are intended to prevent methane venting, to help phase out flaring, and to capture fugitive methane leaks. Notably, we anticipate that BLM may offer individual field offices a menu of methane reduction technologies and practices to choose from as it plans for and manages oil and gas development, underscoring the importance of the agency planning and management element described above as well as industry planning element described below.
- **Industry Gas Capture & Marketing Plans:** We have proposed that BLM require that oil and gas lessees and operators complete “gas capture and marketing plans” in advance of receiving drilling approvals to demonstrate precisely how they will comply with BLM’s methane waste reduction policies. This builds off policy advancements in North Dakota and is an important complement to the agency-focused planning and management, and technology and practices, elements described above. Put differently, this element helps change industry behavior, forcing it to think and act to reduce methane pollution and waste.

There are several widely recognized best management practices (“BMPs”) for mitigating methane emissions that, as discussed above and raised in Scoping and Draft EA Comments, must

be considered by the agencies in their analysis of the proposed action. We believe that most, if not all of these measures should be considered and adopted, both because they can reduce methane emissions from significant emissions sources and because they have also been shown to have very quick paybacks from the sale of captured methane, even at today's low gas prices. The most important of these measures include:

- Centralized Liquid Gathering Systems and Liquid Transport Pipelines
- Reduced Emission Completions/Recompletions (green completions)
- Low-Bleed/No-Bleed Pneumatic Devices on all New Wells
- Dehydrator Emissions Controls
- Replace High-bleed Pneumatics with Low-Bleed/No-Bleed or Air-Driven Pneumatic Devices on all Existing Wells
- Electric Compression
- Liquids Unloading (using plunger lifts or other deliquification technologies)
- Improved Compressor Wet Seal Maintenance/Replacement with Dry Seals
- Vapor Recovery Units on Storage Vessels
- Pipeline Best Management Practices; and
- Leak Detection and Repair

These and other mitigation measures are included among BMPs that have been identified by BLM, EPA, the State of Colorado, and other organizations, as detailed below. Moreover, Colorado's Comprehensive Air Resources Protection Protocol ("CARPP") is a tool that can provide an important state-of-the-art resource to guide the agency's analysis of GHG mitigation measures applicable to the 25 wells proposed here. In particular, Table V-I identifies Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development, and displays some emission reduction measures, their potential environmental benefits and liabilities, and feasibility.

At the APD stage, the BLM can determine conditions of approval ("COA") and mitigation measures that must be met prior to proceeding with drilling. Notably, 43 C.F.R. § 3101.1-2 permits BLM to use "reasonable measures" to minimize adverse impacts to public resources, thereby reserving to BLM the authority to impose COAs on oil and gas leases. The regulation cites various measures that are per se reasonable, but the BLM can implement stricter measures at its discretion, which fall under the agency's "reserved rights" inherent in all modern oil and gas leases. *See Yates Petroleum Corp.*, 176 IBLA 144, 156 (2008). A party challenging a COA, such as a leaseholder, must show "by a preponderance of the evidence that such a

requirement is excessive.” *Grynberg Petroleum Co.*, 152 IBLA 300, 307 (2000). Thus, so long as the COAs can be characterized as reasonable measures to minimize adverse environmental impacts—such as necessary mitigation measures to reduce methane pollution—the BLM has the authority and, indeed, responsibility, to require these additional measures under 43 C.F.R. § 3101.1-2.

BLM, as the agency charged with oversight of onshore oil and gas development, therefore has an opportunity to improve our knowledge base regarding GHG emissions from oil and gas production, providing some measure of clarity to this important issue by taking the requisite “hard look” NEPA analysis as part of its decisionmaking here. Convincing evidence also exists to support the consideration of alternatives that would attach meaningful stipulations to oil and gas development. As a prime contributor to short-term climate change over the next few decades, methane is a prime target for near-term GHG reductions. Indeed, reducing methane emissions is important not only to better protect the climate, but also to prevent waste of the oil and gas resource itself and the potential loss of economic value, including royalties. The Agencies should evaluate these technologies, analyzing the benefits of technological implementation versus current agency requirements.

iii. The Agencies Have Failed to Take a “Hard Look” at Community and Ecosystem Resiliency.

Re-sil-i-ence is “an ability to recover from or adjust easily to misfortune or change.” MERRIAM-WEBSTER COLLEGIATE DICTIONARY (11th ed. 2008). In the context of climate change and the many resultant impacts, such as the alteration to the biosphere and impairments to human health, the resiliency of our landscapes and a community’s ability to respond and adapt to these changes takes on a new magnitude.

As noted above, according to the GAO, federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. In fact, the agencies recognized a list of predicted impacts to the planning area as a result of climate change associated with cumulative GHG emissions. Final EA at 173. Nevertheless, the agencies failed take a hard look at these growing impacts and analyze, as an alternative, employing climate mitigation measures to enable landscape and human resiliency and their ability to adapt and respond to climate change impacts, and failed to apply these recognized impacts to the agencies’ consideration of other resource values.

However, beyond simply mitigating climate change impacts by reducing contributions of GHG pollution to the atmosphere, the agencies can also help promote ecological resiliency and adaptability by reducing external anthropogenic environmental stresses—like oil and gas development—as a way of best positioning public lands and the communities that rely on those public lands to withstand what is acknowledged ongoing and intensifying climate change degradation. In other words, in order to satisfy the agencies’ multiple use mandate and protect the broadest range of public resources, both now and for future generations, it might be necessary to forego additional oil and gas development on public lands altogether—an action that should be considered in the agencies’ alternatives analysis, but which the agencies failed to provide here. It is crucial for the agencies to close the gap in their decisionmaking regarding the

cumulative contribution of oil and gas development authorized in the proposed action in combination with other oil and gas development in the region, particularly given the conflict between such authorization and the agency's responsibility to manage for healthy, resilient ecosystems. Quite simply, continuing to manage our public lands in a manner that allows for the virtually unabated extraction of mineral resources is incompatible with principals of ecosystem resilience. Agency decision-making must be reflective of the climate challenges we now face.

As noted above, the agencies must consider the resilience of our communities and their ability to adapt and respond to climate change in its NEPA analysis. Any action taken that undermines a community's welfare and capacity to provide for itself in the face of recognized changes to climate—such as the largely unabated development of oil and gas resources—fails to realize the BLM's and the Forest Service's multiple use mandates and, further, is indefensible pursuant to BLM's mandate to act as stewards of our public lands.

The myriad impacts that will result from the agencies' decisionmaking must be considered within the context of resiliency. Although the agencies may recognize the threat of climate change, the agencies' decisionmaking must also be reflective of this harm and take the many necessary and meaningful steps to ameliorate the impacts to communities, landscapes, species, and our atmosphere. As discussed above, climate change is dramatically altering the relationship between human kind and the environment in which we live. It is incumbent on the agencies to not only takes steps to stem the pace of climate change through the practical implementation of mitigation technologies but, also, to position communities in a way that allows them to adjust and recover from the climate change impacts that they are already experiencing. Such critical consideration of agency decisionmaking is required if we are to meaningfully respond to the vast scale of impacts that we face.

4. The Agencies Failed to Take a “Hard Look” at Farmlands.

The agencies failed to consider impacts to farmland, including both direct effects, e.g., direct surface-disturbance from roads and well pads, and indirect or cumulative effects, e.g., the effects of air pollution, water shortages, or climate change. The agencies have refused to consider prime and unique farmlands in their NEPA analysis, as urged in a U.S. Department of the Interior (“DOI”) Environmental Statement Memorandum, which provides: “Bureaus and offices will analyze impacts on prime or unique farmlands as an integral part of the NEPA process.” DOI Memorandum No. ESM94-7 (August 17, 1994) (Exhibit F). In response to this concern, the agencies provided:

Farmland classification is conducted by the Natural Resources Conservation Service (NRCS) for the purposes of identifying the location and extent of the most suitable land for producing food, feed, fiber, forage and oil seed crops. Classifications range from Prime, Unique, or of Statewide Importance to Not Prime Farmland. All 5 of the well pads are located on soils classified as Not Prime Farmlands.

Final EA at 18. However, the agencies' consideration must not be limited to the direct effects of well pad disturbance, but also must encompass the indirect consequences that such development

can have on the Prime Farmlands in the Valley. *See* 40 C.F.R. § 1508.8(b) (providing that indirect effects are caused by the action and are later in time or farther removed in distance, but are still foreseeable).

Congress has also specifically recognized the value that farmlands play in the welfare of people and our communities. The Farmland Protection Policy Act (“FPPA”), 7 U.S.C. §§ 4201-09, instructs all agencies to “minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses.” 7 U.S.C. §4201(b). The FPPA, much like NEPA, requires agencies to evaluate their programs and consider alternatives, but with a specific focus on preventing adverse effects on farmland. *Id.* § 4202; 7 C.F.R. § 658. Indeed, regulations provide that “each Federal agency shall use the criteria provided in § 658.5 to identify and take into account the adverse effects of Federal programs on the protection of farmland.” 7 C.F.R. § 658.4. While the FPPA does not create a private cause of action, agencies still have the duty under NEPA to evaluate the environmental impact of actions on agricultural lands. *See Town of Norfolk v. U.S. EPA*, 761 F.Supp. 867, 890 (D.Mass. 1991). Notably, this duty extends to all farmlands, not just farmlands classified as prime or unique.

5. The Agencies Have Failed to Take a “Hard Look” at Hydraulic Fracturing.

Although advances in oil and gas extraction techniques—namely hydraulic fracturing, or “fracking”—have undoubtedly resulted in a growth of domestic production, the wisdom of these advances with regard to other resource values and human health is still very much in question. There is a wealth of information and reports stressing the dangers of fracking that the agency’s NEPA analysis failed to evaluate, as detailed in Citizen Groups’ Scoping and Draft EA Comments. Here, of the six well pads where wells will be drilled, one well pad will use vertical drilling to target one coalbed methane well, while the other five well pads will use horizontal drilling and multi-stage fracturing to target 24 Mancos Shale wells. Final EA at 43, 142. As detailed above, the agencies are relying on analysis contained in the stale and outdated 1989 RMP to support their decisionmaking for these 25 wells, despite BLM’s ongoing RMP revision. Approval of these wells is impermissible given the prejudice and limitation of alternatives it will cause the pending RMP/EIS. 40 C.F.R. § 1506.1.

Critically, to support the site-specific analysis contained in the Final EA, the agencies tier to both the 1989 RMP and the 1991 GMUG Land and Resource Management Plan (“LRMP”). Final EA at 13. By law, BLM may only tier a site-specific NEPA analysis to a programmatic EIS when the site-specific action and its impacts are addressed in the earlier EIS. 40 C.F.R. §§ 1502.20, 1508.28; *Pennaco Energy, Inc. v. U.S. Dep’t of Interior*, 377 F.3d 1147, 1151 (10th Cir. 2004). Tiering allows agencies “to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review.” 40 C.F.R. § 1502.20. However, because the specific impacts of fracking, and in particular horizontal drilling and multi-stage fracturing, were not addressed in earlier environmental reviews, there is no prior analysis to which BLM could tier.

Horizontal drilling and multi-stage fracturing in the Mancos Shale is different from conventional, vertical drilling using a single hydraulic fracturing treatment. The 1989 RMP did

not include any detailed analysis of fracking, let alone the type of horizontal drilling and multi-stage fracking that will be used to develop 24 of the 25 wells being approved here. The 1989 RMP contains very little analysis of oil and gas drilling in the Uncompahgre area generally, much less any analysis of the impacts that could be caused by drilling in this particular area. 1989 RMP at 28, 31. The 1989 RMP, accompanying EIS, and technical report for oil and gas simply did not analyze the landscape-level impacts of oil and gas development for the planning area, including the specific area targeted by these 25 wells. The documents did little more than describe the process under which oil and gas development can take place, and provided a far too general and conclusory a basis for justifying the execution of oil and gas leases and ultimate development of mineral resources. Additionally, these documents did not foresee the extent of gas development that is currently taking place elsewhere in the region, nor did these documents analyze the effects of fracking on the North Fork Valley landscape.

Oil and gas development involves several stages of decisionmaking that are subject to NEPA. *See New Mexico ex rel Richardson*, 565 F.3d at 716-18; *Pennaco Energy, Inc. v. USDO*, 377 F.3d 1147, 1151-52 (10th Cir. 2004). The APD stage is the third and final stage of the process where BLM authorizes the drilling of specific wells only after the agency conducts a site-specific NEPA analysis of drilling's reasonably foreseeable environmental impacts. *Pennaco*, 377 F.3d at 1151-52, 1160; 43 C.F.R. § 3162.3-1. The Tenth Circuit addressed this issue in *Pennaco*. There, BLM issued three leases for coalbed methane ("CBM") extraction and relied on an existing programmatic EIS that did not directly address CBM extraction, as well as a project-level draft EIS that addressed CBM extraction but not in the geographic area of two of the challenged parcels. *Pennaco*, 377 F.3d at 1152. Environmental groups argued that because CBM extraction differed from conventional oil and gas extraction, and the former was not analyzed in the programmatic EIS, BLM was legally obligated to assess CBM's environmental impacts before issuing the leases. *Id.* at 1153. BLM argued, as it does here, that it had properly relied on existing NEPA documents because neither CBM production nor its impacts differed from conventional methane production. *Id.* There, the record also included both an affidavit stating that CBM extraction was no different from conventional methane extraction¹⁵ and a prior statement by BLM that existing NEPA analyses did not address the impacts of CBM extraction because the boom in CBM extraction was not anticipated at the time BLM issued the programmatic EIS. *Id.* at 1157-58. The Tenth Circuit rejected these arguments, holding that the record showed CBM was different from conventional methane extraction and that because the programmatic EIS did not analyze those specific impacts, BLM's reliance on the EIS in lieu of doing an independent CBM analysis violated NEPA. *Id.* at 1158-59; *see also, Ctr. for Biological Diversity v. Bureau of Land Mgmt.*, 937 F.Supp.2d 1140, 1157 (N.D. Cal. 2013) (holding that tiering to an EIS was inadequate to fulfill the requirements of NEPA because "the scale of fracking in shale-area drilling today involves risks and concerns that were not addressed" by the previous EIS). The facts of this case demand a similar conclusion. The 1989 RMP and 1991 LRMP simply did not analyze or anticipate the widespread use of hydraulic fracturing, much less the horizontal drilling and multi-stage fracturing that will be used for all but one of the 25 wells.

¹⁵ The Tenth Circuit found this affidavit did not demonstrate NEPA compliance because "no such conclusion was recorded in any NEPA document prior to the issuance of the leases[.]" and further held this was "a post hoc analysis" that did not satisfy NEPA's requirements. *Id.* at 1159.

Accordingly, the agencies cannot tie to these documents to support site-specific decisionmaking.

This type of technology and development is vastly different from the limited drilling that has taken place historically in the area. As recognized in the agencies, the drilling process for a horizontal Mancos Shale well can take up to 50 days, and an additional 36 or more days for multi-stage fracturing (which requires up to 27 separate stages of hydraulic fracturing to extract the fluid mineral resources from these wells). Final EA at 43, 44. For the 25 wells contemplated in this EA, that is 1,223 days of drilling and 878 days of fracking. The water for this development will be obtained directly from Little Henderson Creek, and at times trucked to the well pad. Final EA at 45-46. In total, over 95.9 million gallons of fresh water will be consumed to accommodate development of these 25 wells. Final EA at 50 (Table 2-14). Moreover, construction-related traffic for these 25 wells will involve an estimated 26,352 round trips. Final EA at 141.

While the Final EA identifies many potential significant impacts from this development, it fails to provide a necessary hard look at these impacts, and thus does not cure the programmatic deficiency that exists in the 1989 RMP and 1991 LRMP. In particular, the agencies identify the following potential impacts and hazards:

- Air, water, soil, and biological resources may potentially be affected by an accidental release of hazardous materials during transportation to and from the well pad locations, storage of, use in construction, drilling up to 25 natural gas wells, and operations on each of the well pad locations.
- The following are possible impacts that could affect human health and safety:
 - Vehicular accidents resulting in spills or leaks
 - Tanker or refueling spills that result in surface contaminations, and could contaminate groundwater
 - Spills while removing fluids from wellbore
 - Well casing breach that could introduce methane and drilling fluid into local shallow aquifers and could result in health and safety risks for residents
 - Contamination of water or soil during the drilling and hydraulic fracturing processes
 - Accidents from improper disposal of wastewater
 - Leaks from abandoned wells, water disposal wells, or pipes
 - Natural gas upwelling
- Produced waters contain potentially harmful pollutants.
- The process of hydraulic fracturing creates new fractures in the deep geologic structures, potentially creating connectivity between injection zones and shallow drinking water aquifers.
- Hydraulic fracturing creates fractures in geologic formations, which may make it possible for fluids and gases to move between geologic zones.
- Increased seismic activity is potentially being caused by hydraulic fracturing and wastewater injection.
- Toxins may also leak into shallow drinking waters through failed well casings.

- Spills do happen during oil and gas operations. In Colorado, reported spills increased by 33 percent between 2012 and 2013.
- Natural gas drilling would also result in impacts on various environmental resources, and would have consequences to human health.

Final EA at 136-37. Despite all these potentially significant impacts and risks to land, air, and water, as well as human health, the agencies fail to provide any actual analysis, and instead rely on the conclusion that “[t]he application of Best Management Practices, Conditions of Approval and compliance requirements of law, regulation and policy . . . serve to minimize impacts [from fracking] to the extent practicable.” FONSI at 5. The decision to rely on mitigation measures and compliance with regulations in the absence of a hard look analysis fails to satisfy NEPA and does not support the FONSI.

Although it is possible that “some or all of the environmental consequences of oil and gas development may be mitigated through lease stipulations, it is equally true that the purpose of NEPA is to examine the foreseeable environmental consequences of a range of alternatives *prior* to taking an action that cannot be undone.” *Montana Wilderness Ass’n v. Fry*, 310 F.Supp.2d 1127, 1145 (D.Mont., 2004) (citation omitted) (emphasis added); 40 C.F.R. § 1501.2. “[M]itigation measures, while necessary, are not alone sufficient to meet the [agencies’] NEPA obligations to determine the projected extent of the environmental harm to enumerated resources *before* a project is approved.” *Northern Plains Resource Council*, 668 F.3d at 1085 (emphasis in original). In *Northern Plains*, the Ninth Circuit warned: “In a way, reliance on mitigation measures presupposes approval. It assumes that—regardless of what effects construction may have on resources—there are mitigation measures that might counteract the effect without first understanding the extent of the problem. This is inconsistent with what NEPA requires.” *Northern Plains*, 668 F.3d at 1084-85. The agencies cannot rely of existing laws and mitigation measures to avoid performing the required NEPA hard look.

6. The Agencies Failed To Take a “Hard Look” at Impacts to Water Resources.

The oil and gas development authorized through the 6 APDs could result in significant potential to contaminate surface and groundwater resources in the planning area. Such contamination may result during the following processes: (1) the state of chemical mixing due to spills, leaks, and transportation accidents; (2) during the fracking process due to well malfunctions, migration of fracking fluids or fluids from the fractured formation to aquifers, and mobilization of subsurface materials to aquifers; (3) during flowback due to releases, leakage of on-site storage, and spills from pits (caused by improper construction, maintenance, or closure); and (4) during wastewater disposal due to discharges of wastewater into groundwater, incomplete treatment, and transportation accidents.¹⁶

¹⁶ See U.S. Environmental Protection Agency, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources* (Feb. 2011) (included as Scoping Exhibit 110).

Groundwater contamination is among the most serious and consequential impacts of the oil and gas drilling industry. Indeed, the agencies recognize the threat of such contamination from the development of these 25 wells, including:

- The fracking process would introduce chemicals into the wellbore and surrounding fractured zones that could affect ground-water quality.
- Impacts could occur if hydraulic fracturing of wells intercepts deep fractures that are naturally unsealed due to the presence of migrating groundwater from deep within the Wasatch Formation. These impacts could result in increased methane present in nearby surface water or groundwater wells.

Final EA at 131. Not only does this risk occur from developing these 25 wells, but, in fact, “baseline monitoring ... shows the presence of methane and BTEX at low concentrations in some surface water and well water.” Final EA at 175. In response, the agencies rely on design features and COAs to “reduce impacts to groundwater by preventing spills and ensuring casing integrity.” *Id.* With specific regard to these 25 wells, “[b]aseline monitoring would help ensure any changes in the production of methane or BTEX and its source is well understood.” *Id.* Of course, after-the-fact research that demonstrates contamination from these wells will be of little consolation. The agencies are required to analyze the direct, indirect, and cumulative impacts of the proposed development *before* development is actually approved. 42 U.S.C. § 4332(2)(C)(i).

Likewise, the BLM must quantify and address the risk of potentially catastrophic spills and blowouts at well sites, which could impact and degrade surface waters. Again, the agencies recognize the potential of surface water contamination, including:

- Long-term impacts would occur if a spill was large enough to reach a surface water body and propagate downstream.
- Direct impacts to Little Henderson Creek, Aspen Leaf Reservoir, West Muddy Creek, and Sheep Creek would occur if a spill or pipeline rupture of produced water, fracking fluids, diesel fuel, oil, etc. were spilled and reached surface waters in the channel.

Final EA at 125-26. However, the agencies again rely on the same misguided conclusion that design features and regulations would minimize the potential for an accidental release. Final EA at 127-28; *see also* 175 (“surface water management and spill prevention plans in place would reduce the potential impacts of the additional wells.”). Yet, just a few pages later the agencies recognize that spills do occur with some frequency—534 reported in 2013 in Colorado—and are actually increasing at an alarming rate. Final EA at 137. The agencies’ blind and misguided reliance on design features and regulations cannot support a FONSI. FONSI at 5.

In addition to impacts on water quality, oil and gas development processes, and particularly fracking, will result in significant impacts on water quantity. As noted above, 95.9 million gallons of fresh water will be consumed to accommodate development of these 25 wells. Final EA at 50. This freshwater will largely be drawn from Little Henderson Creek. Final EA at 45-46. Yet, nowhere in the Draft EA do the agencies actually analyze the impact that this and other oil and gas development will have on the local hydrologic system. Because this water is mixed with fracking fluids, it can no longer be used and is treated as hazardous waste. This

massive use of water is of particular concern in states in the interior West, like Colorado, where water supplies are scarce and already stretched.¹⁷ Removing water for fracking can stress existing water supplies by lowering water tables and dewatering aquifers, decreasing stream flows, and reducing water in surface reservoirs. This can result in changes to water quality, alter the hydrology of water systems, and increase concentrations of pollutants in the water.

Here, the agencies' NEPA analysis of water resources fails to sufficiently assess the direct, indirect, and cumulative impacts of oil and gas development on water supplies. 40 C.F.R. §§ 1508.7, 1508.8.

7. The Agencies Failed To Take a “Hard Look” at Impacts to Wildlife

The BLM and Forest Service's analysis of wildlife impacts fails to determine the significance of the proposal's environmental effects and fails to look at alternative means of reaching the proposal's objectives. First, by relying on only two alternatives, the Proposed Action and the No Action, the agency has neglected to consider a reasonable middle-ground approach that could afford the abundant and diverse wildlife of the area greater protections and safeguards from natural gas operations, while still allowing access to the mineral resource. Second, the EA's analysis of impacts to elk, mule deer, Canada lynx, greenback cutthroat trout, bald eagles and other wildlife is lacking in both breadth and depth. Conclusions are reached without adequate analysis and important species are completely unacknowledged in the document (mule deer and bald eagles are not mentioned, and greenback cutthroat trout is given only a passing mention). Third, the EA's discussion of impacts to wildlife and wildlife habitat fails to adequately analyze cumulative impacts, despite a deluge of energy development both active and proposed in the immediate area. Fourth, the EA fails to consider mitigation as a way of reducing the severity of impacts, repeating a familiar and unacceptable pattern of minimizing the severity of potential impacts by relying on untested mitigation measures.

i. Elk and Mule Deer

We are troubled that the EA makes no reference to mule deer. Mule deer numbers are declining across Colorado and the West,¹⁸ and mule deer have been significantly affected by road construction and well development associated with mineral extraction.¹⁹ The direct loss or

¹⁷ See WORC, *Gone for Good*, at 7-8 (noting water scarcity in west and significant water demands of fracking) (included as Scoping Exhibit 111)

¹⁸ See http://www.denverpost.com/outdoors/ci_26326126/colorado-hunt-mule-deer-population-declining-wildlife-officials-dow, and http://www.denverpost.com/environment/ci_26143275/deer-declining-across-colorado-and-west.

¹⁹ See H. Sawyer and R. Nielson, *Mule Deer Monitoring in the Pinedale Anticline Project Area 2013 Annual Report*, Prepared for Pinedale Anticline Project Office (August 2013) available at <http://www.wy.blm.gov/jio-papo/papo/wildlife/reports/muledeer/2013annual-rpt.pdf>.

alteration of mule deer habitat is always a concern. While the collective area of disturbance may encompass just 5 to 10 percent of the land, the influence of each piece of development (road, pad, pipelines, etc.) extends to a larger surrounding area where the proximity of disturbance causes stress and avoidance by wildlife. For mule deer, alert and flight reactions have been detected up to 0.29 miles from the source of disturbance, whereas habitat avoidance responses may extend to distances of over a mile.²⁰ We are troubled by the failure of the EA to acknowledge mule deer and mule deer habitat in and around the project area, especially considering the importance of big game hunting to the economies of Gunnison and Delta Counties.

The EA does take a cursory look at impacts to elk, but the analysis is incomplete and reaches questionable conclusions. Despite the abundance of big game in the area, the EA acknowledges that “Map modeling of new pad and road locations was not conducted for this analysis.” Final EA at 119. The EA glosses over impacts at the proposed sites, and even dismisses analysis at the Aspen location because “The Aspen Leaf pad already exists and its footprint effects already occur.” *Id.* The EA should examine the direct, indirect and cumulative impacts for each pad site.

The direct impacts of this aggregation of APDs are not insignificant: “Project activities will result in the direct short-term conversion of 37 acres of various habitat types usable as forage and cover by elk into non-vegetated road, pad, and pipeline routes. Some of this will be revegetated in the short term to grass/forb and low shrub types, usable as forage by elk. However, pad and road footprints will be effectively lost as a forage base for the life of the well sites.” Final EA at 118. To reiterate a point that is skimmed over in the EA, the impacts to wildlife from oil and gas development extend significantly beyond its physical footprint. Reduction of effective habitat near roads for deer and elk is well documented.²¹ The effects on terrestrial and aquatic wildlife include mortality from collisions, modifications of animal behavior, disruption of the physical environment, alteration of the chemical environment, fragmentation of connected habitats, spread of exotic species, and changes in human use of lands and water.²² As densities of wells, roads, and facilities increase, the effectiveness of adjacent habitats can decrease until most animals no longer use the habitat. Although vegetation and other natural features may remain unaltered within areas of development, wildlife make proportionately less use of these areas than their availability. Animals attempting to forage inside

²⁰ Wyoming Game and Fish Department, *Recommendations for development of oil and gas resources within important wildlife habitats: version 6.0* (April 2010), available at: https://wgfd.wyo.gov/web2011/Departments/Wildlife/pdfs/HABITAT_OILGASRECOMMENDATIONS0000333.pdf.

²¹ See M. Watson, *Habitat fragmentation and the effects of roads on wildlife and habitats: background and literature review* (January 2005).

²² J. Thomson, Janice L., et al., The Wilderness Society, *Wildlife at a Crossroads: Energy Development in Western Wyoming, Effects of Roads on Habitat in the Upper Green River Valley*, 15 (Feb. 2005).

the affected zones are also subjected to increased physiological stress. The avoidance/stress effect impairs function by reducing the capability of wildlife to use the habitat effectively. In addition, physical or psychological barriers lead to fragmentation of habitats and further reduce the availability of effective habitat. These impacts can be especially problematic when they occur within limiting habitat components such as reproductive habitats.²³

The EA states that “[t]he area of analysis for determining direct and indirect impacts of this project to most species listed herein is the footprint of disturbance of the project buffered by approximately ¼ mile, as well as the locations of the surface poly pipeline, and any proposed surface road use accessing the project area.” Final EA at 114. But direct and indirect impacts to wildlife can occur at much greater distances than ¼ mile. Thus, the BLM and Forest Service underestimated the direct, indirect, and cumulative impacts analysis on elk and mule deer in the EA.

We are very concerned with an error in the EA stating that four of the five pad locations fall within mapped elk winter range. In fact, as pointed out by Colorado Parks and Wildlife, four of the five pad locations fall within or adjacent to *elk winter concentration areas*.²⁴ “Winter concentration areas are a distinct subset of much broader mapped winter range for this species. Winter concentration areas experience higher densities of wintering animals”²⁵ We agree with CPW that the EA fails to properly evaluate elk winter concentration area disturbance given its isolated location with significant levels of wintering animals that cannot easily shift their distribution. We ask that the EA analysis consider the critical importance of this elk winter concentration area and focus on impacts and mitigation. The error in the EA instead results in an incomplete analysis that does not reflect the heightened importance of this area.

The EA acknowledges that pad and road use in winter and early spring, when elk are at their most vulnerable state, is expected to result in changes to distribution and habitat use of elk in the project vicinity. While construction activities are generally restricted on elk winter range by lease stipulations, some activities are allowed by law during winter, and the effectiveness of lease stipulations has not been tested. This proposal, in conjunction with the numerous other energy development projects across the Upper North Fork, has the real possibility of pushing elk and mule deer out of traditional winter range.

Citizen Groups wish to highlight again something that is ignored in the Final EA: the very close proximity between pad 12-90-7#1 (Allen) and the Pilot Knob Roadless Area. The

²³ Wyoming Game and Fish Department, *Recommendations for development of oil and gas resources within important wildlife habitats* 5 (December 2004), available at: <http://www.oilandgasbmps.org/docs/WY001-og.pdf>.

²⁴ Colorado Parks and Wildlife, *DOI-BLM-CO-2015-0029 Environmental Assessment for Dual Operator Proposal 25 Federal Natural Gas Wells and Associated Infrastructure on 5 Multi-Well Pad Project* (July 17, 2015), at 1.

²⁵ *Id.*

agencies should consider in particular moving well pad 12-90-7#1 to the west so that it is further away from the Pilot Knob area, which has significant big game habitat and is important for recreation and hunting. The Pilot Knob Roadless Area serves as a vital refuge for wildlife in the Upper North Fork. Any development within the Area will affect the Bull Mountain Unit wildlife, and vice versa. The USFS notes: “this area provides summer range for mule deer, black bear, mountain lion, and elk. It also provides calving areas and winter range for elk. Moose overall habitat also exists in this area. Lynx habitat has been mapped in this area. Bald eagle winter range extends into this area from the North Fork of the Gunnison River drainage. Aspen dependent species such as the Northern goshawk, purple martin, flammulated owl, and the American marten have suitable habitat within this Roadless Area.”²⁶

New pads, roads, pipelines, infrastructure and human presence will likely impact mule deer and elk. The proximity of at least one potential pad site to known high-quality big game habitat is troubling, as is the direct and residual impact of a checkerboard pattern of development in the area. As discussed below, this proposal has not been considered in conjunction with the Bull Mountain Unit, planned coal mining, and other activities, and both the public and wildlife are negatively affected by the lack of complete information. We are extremely concerned about the level of mineral development in the greater area and the potential for landscape level impacts to mule deer, elk and other wildlife.

ii. Canada Lynx

The EA dismisses impacts to Canada lynx, summarizing: “As there are no direct or indirect effects to Canada lynx as a result of this project, this project cannot contribute to cumulative impacts to the lynx or any other T&E and sensitive species from project implementation.” Final EA at 176. In addition to possible direct and indirect effects, the EA ignores the impacts that climate change will have on the continued vitality of this species in Colorado.

The EA acknowledges that prior analysis for three of the five pad sites have been analyzed for impacts to lynx, but “[t]he Spadafora and Allen portions of this project have not been analyzed by the USFS prior to this date.” Final EA at 105. It then states that “[t]he Allen pad and all of the proposed access road, with the exception of the last 20-30 feet adjacent to NFSR 704.4A, lie on private lands outside of the mapped LAUs and are not considered suitable lynx habitat . . .” and “[The] . . . Spadafora . . . and associated pipeline and road construction lie outside of any LAUs and are not considered suitable lynx habitat.” Final EA at 106. The EA then concludes:

Disturbance to denning or foraging is highly unlikely. This is not anticipated to be a measurable impact as the project area is at much lower elevation than denning has occurred in Colorado, there is abundant lynx habitat outside of the project area, at higher elevations and in higher quality (dense spruce-fir) habitat. Therefore,

²⁶ USDA Forest Service, Rocky Mountain Region, *Profiles of Grand Mesa, Uncompahgre and Gunnison National Forest Roadless Areas*, July 23, 2008.

there will be no direct impacts to lynx as a result of these portions of the project. Traffic is not anticipated to be a substantial impact.

Final EA at 106.

The importance of this linkage area and surrounding landscapes for lynx cannot be discounted, yet the EA focuses only on the surface impacts of the wells and on traffic, and not the potential for the location to serve as an area for lynx movement. The BLM and Forest Service discount the importance of the area's biota for lynx. High elevation mountain shrub communities found adjacent to or intermixed with forested communities afford potentially important alternative prey resources and habitat connectivity. Studies show that lynx use shrub-steppe habitat, especially where it is near primary habitat or when prey populations are high.²⁷ In addition, connectivity of lynx habitat has been identified as an important consideration for the southern Rockies, because of the extreme topographic relief juxtaposed with human developments such as highways and residential communities.²⁸

The Lynx Conservation Assessment and Strategy (LCAS) recommends actions that the Federal land management agencies should take to ensure the viability of lynx, including: “[e]valuate the potential importance of shrub-steppe habitats in providing landscape connectivity between blocks of lynx habitat.”²⁹ The BLM and Forest Service failed to take the opportunity to adhere to these recommendations, which are especially pertinent given the anticipated impacts of climate change on lynx.³⁰ Given that the location bisects large areas of suitable lynx habitat and could serve as a linkage area, the agencies should have looked at additional impacts to the species, not just the single metric of traffic volume.

²⁷ Ruediger, Bill, Jim Claar, Steve Gniadek, Bryon Holt, Lyle Lewis, Steve Mighton, Bob Naney, Gary Patton, Tony Rinaldi, Joel Trick, Anne Vandehey, Fred Wahl, Nancy Warren, Dick Wenger and Al Williamson. *Canada lynx conservation assessment and strategy*. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service, Missoula, MT (2000).

²⁸ USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service *Canada lynx conservation assessment and strategy*. 3rd edition (2013), at 54.

²⁹ Ruediger, Bill, Jim Claar, Steve Gniadek, Bryon Holt, Lyle Lewis, Steve Mighton, Bob Naney, Gary Patton, Tony Rinaldi, Joel Trick, Anne Vandehey, Fred Wahl, Nancy Warren, Dick Wenger and Al Williamson. *Canada lynx conservation assessment and strategy*. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service, Missoula, MT (2000), at 88 (emphasis added).

³⁰ See USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service *Canada lynx conservation assessment and strategy*. 3rd edition (2013), at 69.

iii. Greenback Cutthroat Trout

The EA fails to consider direct, indirect and cumulative impacts on greenback cutthroat trout. In fact, the EA does not mention the species in its analysis except to reference a website containing information for the fish. However, recent analysis has concluded the possible presence of this species in the Upper North Fork drainage. The recently released DEIS for the Bull Mountain Unit addresses greenback cutthroat trout and determines their presence in the area: “Fish surveys by CPW have documented the presence of greenback cutthroat trout (*Onchorhynchus clarkia stomias*) lineage fish, a federally listed threatened subspecies, in upper reaches of Roberts and Henderson Creeks located north of the Unit (Figure 3-11). Other creeks in the Unit may have suitable greenback cutthroat trout habitat, including Lee Creek, Drift Creek, and Ault Creek”³¹

Specifically, the 11-90-9 and Henderson well pads are proposed for a location near Little Henderson Creek, just west of Henderson Creek, where CPW has determined the presence of greenback cutthroat trout. With this species likely sharing the same relatively small watershed, it is unclear why the agencies have ignored potential impacts. To reiterate our scoping comments, oil and gas developments affect aquatic ecosystems. The overall health of an aquatic habitat derives from the condition of the entire watershed including the uplands, riparian corridor and the stream channel. The decline of native trout is caused primarily by habitat damage (much of it associated with roads), and the effects of introduced, non-native fish.

Oil and gas activities have been shown to degrade soils, contribute to erosion potential, and increase sedimentation loads to watersheds. In addition to roads development facilitated by oil and gas expansion, lack of connectivity to other populations renders greenback cutthroat trout vulnerable in the short term to extirpation from natural disturbances such as fire, post-fire debris torrents, or floods and in the long term to loss of genetic variability and the potential for evolving in response to changing environmental conditions. This lack of connectivity also contributes to the greatest future threat to the persistence of this subspecies—climate change—because model projections suggest some suitable habitats may shift to higher elevations and precipitation patterns imply there may be large declines in late summer flows.³²

iv. Bald Eagle

The EA does not mention bald eagles or recognize the potential for their presence in the project area. In Citizen Groups’ Scoping and Draft EA comments, we requested that bald eagle winter forage areas and winter range be mapped in the project area, and that the agencies require mitigation measures to protect eagles, including nesting surveys, avoidance of surface disturbing activities within one mile of nests or winter foraging areas, documentation of take of bald eagle habitat associated with the action, and prohibition of loud noises within one mile of active bald

³¹ Bureau of Land Management, *Draft Environmental Impact Statement for the Bull Mountain Unit Master Development Plan, DOI-BLM-CO-S050-2013-0022-EIS* (January 2015), at 3-61.

³² Young, Michael K. *Greenback cutthroat trout: a technical conservation assessment*. USDA Forest Service, Rocky Mountain Region (February 2009), at 3.

eagle nests. In the Final EA, the agencies rely on observation alone to conclude that “eagles were discounted with other species not occurring in the area and/or not impacted by the project.” Final EA at 326. This thinly supported dismissal of eagle presence does not satisfy the agencies’ NEPA obligations.

v. Cumulative Impacts to Wildlife

The cumulative impacts analysis as it relates to wildlife is noticeably skimpy in the EA. For example, the entirety of the cumulative impacts analysis as related to elk is limited to the following, boilerplate text in the EA:

The cumulative effects analysis area for this species is the CIAA buffer area surrounding the proposed treatments and activities. HABCAP modeling was not used to determine the impacts of this habitat alteration within the cumulative effects area. Due to the scale and type of this project, with limited habitat alteration and the low mileage of new road construction, effects of the project at this scale are negligible and would not show in the model unless taken to unreasonable levels of precision (beyond that of the data used). Because elk are very adaptable, and use a wide variety of habitats, the conversion of habitat to unsuitable condition should not have any substantial long-term effects at the population level. Similar actions within the cumulative impacts area, specifically the proposed gas development in the Bull Mountain Unit and other future energy development, will also result in an incremental reduction in habitat suitability and availability for elk and expected changes to distribution. However, at the scale of the watershed and the data analysis unit used to monitor elk populations, this project, even when considered with all other projects in the area, is not likely to result in significant changes to elk populations. In addition, elk populations in this and other areas on the forest are much more likely to be directly influenced through management of hunting seasons by the Division of Parks and Wildlife than from habitat changes at minor scales.

Final EA at 178. The EA dismisses cumulative impacts out of hand, despite the rapidly growing proliferation of natural gas and coal development across the Upper North Fork. A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. § 1508.7. In taking a hard look at direct, indirect, and cumulative impacts, the EA should have analyzed all impacts that are “reasonably foreseeable.” 40 C.F.R. § 1508.8.

In 2010, the Ninth Circuit rejected a BLM NEPA review for mineral exploration that had failed to include detailed analysis of impacts from nearby proposed mining operations, stating:

In a cumulative impact analysis, an agency must take a “hard look” at all actions. An...analysis of cumulative impacts must give a sufficiently detailed catalogue of

past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. . . . Without such information, neither the courts nor the public. . . can be assured that the [agency] provided the hard look that it is required to provide.

Te-Moak Tribe v. U.S. Dep't of Interior, 608 F.3d 592, 603 (9th Cir. 2010). *See also Wyoming Outdoor Council*, 351 F. Supp. 2d at 1243 (failure to adequately review all cumulative impacts is arbitrary and capricious and violates NEPA). The landscape that would be affected by these APDs are part of a larger landscape of the Upper North Fork Valley that is being heavily impacted by coal mining and natural gas development. Considering the high degree of disturbance caused by the current level of human activities to wildlife species and habitat near existing transportation routes, any incremental increase in negative impacts, short-term or long-term, such as additional roads, developments, or resource extraction, will have the cumulative effect of reducing wildlife habitat. As habitat is reduced, either directly or indirectly, populations of wildlife species become smaller and more isolated.³³ The BLM and Forest Service must consider the cumulative impacts of other past, present and reasonably foreseeable actions proximate to the proposed activities including, but not limited to, the impacts of mineral extraction on wildlife.

In scoping comments submitted by Colorado Parks and Wildlife for this project, the agency expressed concern about cumulative impacts that may compound impacts to wildlife within the project area, stating:

CPW recommends that BLM evaluate the proposed locations through a through a Master Development Plan or similar planning tool that provides a means to addresses the cumulative impacts to wildlife from all proposed oil and gas development in the area, including the Bull Mountain, Deadman Gulch, and Iron Point Units. The infrastructure in the Bull Mountain and Deadman Gulch Units and the facilities currently being developed on Federal and private lands in those areas will be used to recover the gas resources at the proposed pad locations. As such, these are connected actions under Council on Environmental Quality (CEQ) guidelines that should be addressed in a single NEPA document.”³⁴

The Final EA failed to address the projects and actions identified above for their cumulative impact on wildlife in conjunction with the APDs. Analysis of these developments cannot be segregated from the cumulative impacts analysis required by NEPA in the EA. As developments such as those listed above are built, suitable wildlife habitat becomes scarcer, and adjacent landscapes suffer. “As densities of wells, roads, and facilities increase, the effectiveness of adjacent habitats can decrease until most animals no longer use the habitat.

³³ F. Craighead, *Wildlife-related Road Impacts in the Yellowstone to Yukon Region*, Unpublished report for Yukon to Yellowstone Conservation Initiative 4 (1999).

³⁴ Colorado Parks and Wildlife, *3160 (CO-S05) 2015-029 EA, Scoping for Dual Operator 25 Well-5 Pad Project* (April 24, 2015), at 3.

Although vegetation and other natural features may remain unaltered within areas near oil and gas features, wildlife make proportionately less use of these areas than their availability.”³⁵ The interconnected landscape is being subjected to increasing development pressures, with diverse projects sharing the same infrastructure. The EA errs when it segregates wildlife impacts from the proposal at hand from the nearby related developments.

vi. Mitigation Measures

Appendix A of the Final EA contains a list of lease stipulations, Appendix B a list of operator-committed design features, and Appendix C lists additional COAs. As these are mitigation measures that are being relied upon in part by the agencies in their FONSI, the EA violates NEPA by failing to assess the effectiveness and feasibility of each of these measures. “As a general rule, the regulations contemplate that agencies should use a broad approach in defining significance and should not rely on the possibility of mitigation as an excuse to avoid the Environmental Impact Statement requirement.” *Davis*, 302 F.3d at 1125. To support the efficacy of stipulations, BMPs and the other mitigation measures, the BLM and Forest Service may not rely merely on prior experience without providing substantial data used to draw conclusions on the mitigation measures’ effectiveness.

The lease stipulations, BMPs, and potential COAs are not adequate to effectively address potentially significant impacts to wildlife resources, particularly big game resources. The agencies attempt to placate public concerns about wildlife by stating that “[a]ll impacts will be mitigated by inclusion of design features and lease stipulations related to wildlife and other issues, as described in the EA.” Final EA at 121. But by relying on generic lease stipulations the EA fails to adequately consider mitigation as a way of reducing the severity of impacts to wildlife. No analysis of the effectiveness of the stipulations is offered. The proposed timing limitations and other measures are not supported by evidence, and do nothing to placate public concern over the detrimental effects of this proposal. The agency’s unsupported reliance on these measures is faulty; while stipulations help minimize impacts to wildlife, waters and other resources, it is clear that they “reduce, but do not eliminate, the indirect impacts associated” with oil and gas development.³⁶ The BLM and Forest Service must include a thorough description and analysis of the likely effectiveness of any proposed mitigation measures and mitigating impacts, and not rely on blanket conclusions of their worth.

Federal and state agencies have commented to the BLM on the ineffectiveness of untested mitigation measures. Regarding the BLM UFO’s August 2012 Lease Sale, the U.S. Fish and Wildlife Service concluded that “the proposed stipulations do not provide specific or adequate protection . . . [and do] not identify the means to avoid or minimize effects on listed

³⁵ J. Thomson, Janice L., et al., The Wilderness Society, *Wildlife at a Crossroads: Energy Development in Western Wyoming, Effects of Roads on Habitat in the Upper Green River Valley* 15-16 (Feb. 2005).

³⁶ BP America Production Company, *San Juan Basin Colorado Wildlife Mitigation Plan* (March 2011), at 7.

species or habitat and, therefore, provides no assurances that those resources will be protected.”³⁷ In scoping comments submitted by CPW concerning said lease sale, the agency stated that “[t]here is a growing body of evidence that Timing Limitation Stipulations on oil and gas development activities are not adequate to protect crucial winter habitats and migratory corridors for big game, and that additional limitations on the density of surface facilities may be necessary to maintain big game populations in developing areas.”³⁸

On August 10, 2012 CPW submitted scoping comments to the U.S. Forest Service regarding the 11-90-9 APD, stating “[w]e are becoming increasingly concerned with the level of development in the Muddy Creek Areas and potential impacts to wildlife,” and concluded that “[m]itigation to address the impacts to wildlife from additional oil and gas development will only be effective with careful landscape-level planning that addresses improving and conserving habitat while limiting additional impacts and habitat fragmentation.”³⁹

The BLM and Forest Service cannot simply discuss mitigation measures and assert that they will protect wildlife and sensitive species. They must determine, based on sound evidence, that each measure would actually be effective. See *Wyoming Outdoor Council v. U.S. Army Corps of Eng’rs*, 351 F. Supp. 2d 1232, 1249-52 (D. Wyo. 2005); *South Fork Band Council v. U.S. Dep’t of Interior*, 588 F.3d 718, 726 (9th Cir. 2009). This is especially true here, as stipulations to purportedly protect big game have been specifically criticized as inadequate by USFWS and CPW staff. Courts have also affirmed that mitigation must be “supported by . . . substantial evidence in the record.” *Wyoming Outdoor Council*, 351 F.Supp.2d at 1249. Without that support, the agency “was arbitrary and capricious in relying on mitigation to conclude that there would be no significant impact to [environmental resources].” *Id.*

Here, there is no analysis of how effective the mitigation measures will be. Simply listing the mitigation measures, and asserting that they will be completely successful in eliminating or substantially reducing the Project’s adverse impacts, with no scientific evidence or analysis to support those claims, is the definition of an arbitrary and capricious decision. “[T]he Court [cannot] defer to the [agency’s] bald assertions that mitigation will be successful.” *Wyoming Outdoor Council*, 351 F.Supp.2d at 1252. Mitigation must be “supported by . . . substantial evidence in the record.” *Id.* Without that support, the agency “was arbitrary and capricious in relying on mitigation to conclude that there would be no significant impact to [environmental resources].” *Id.*

8. The Agencies Failed to Take a “Hard Look” at Impacts to Human Health.

³⁷ Memorandum from U.S. FWS, Comments on August 2012 Lease Sale (Feb. 8, 2012), at 5.

³⁸ Colorado Parks and Wildlife, *August 2012 Lease Sale EA Comments* (February 3, 2012), at 2.

³⁹ Colorado Parks and Wildlife, *SG Interests Federal 11-90-9 #3 APD Scoping Comments* (August 10, 2012), at 4 (emphasis added).

As introduced above, emissions from oil and gas development are not limited only to combustion, rather they occur throughout the chain of production—with some of the greatest emissions occurring at the point of extraction. These impacts are a consequence of various stages of oil and gas development—from the drilling and fracking of oil and gas wells, to air quality impacts and the release of hazardous emissions, and are detailed in Citizen Groups Scoping and Draft EA Comments. As detailed above, the EPA has proposed standards to reduce air pollution from oil and natural gas drilling operations. According to the EPA, the oil and gas industry is “the largest industrial source of emissions of volatile organic compounds (VOCs), a group of chemicals that contribute to the formation of ground-level ozone (smog).”⁴⁰ Moreover, “[e]xposure to ozone is linked to a wide range of health effects, including aggravated asthma, increased emergency room visits and hospital admissions, and premature death.”⁴¹ The oil and natural gas industry is also “a significant source of emission of methane,” as well as an emitter of “air toxics such as benzene, ethylbenzene, and n-hexane,” which are “pollutants known, or suspected of causing cancer and other serious health effects.”⁴² The agencies have failed to sufficiently address and analyze these impacts in its NEPA analysis.

Here, the agencies consistently rely on existing air quality standards to avoid the type of hard look that NEPA demands. Specifically the Final EA provides: “National Ambient Air Quality Standards (NAAQS) and Colorado Ambient Air Quality Standards (CAAQS) are health-based criteria for the maximum acceptable concentrations of air pollutants at all locations to which the public has access. Although specific air quality monitoring has not been conducted within the project area, all of Gunnison County is designated as ‘attainment’ by the CDPHE for all criteria pollutants.” Final EA at 78. By relying on the attainment designation for Gunnison County, the agencies fail to provide the necessary site-specific hard look at the project area, while also failing to consider reasonably foreseeable alternatives that air quality regulations will be strengthened, as discussed above, specifically in response to concerns with the human health effects of air pollution.

As recognized by the agencies: “Toxic air pollutants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Sources of hazardous air pollutants from the majority of oil and gas operations include well-site production emissions (benzene, toluene, ethyl benzene, xylene, n-hexane, and formaldehyde), and compressor station and gas plant combustion emissions (formaldehyde).” Final EA at 79. Yet, the agencies ultimately conclude that “[s]tate and federal regulatory requirements as well as design features (Appendix B) included by the operator to prevent drilling and production

⁴⁰ EPA, *Oil and Natural Gas Pollution Standards: Basic Information, Emissions from the Oil & Natural Gas Industry* (2011), available at: <http://www.epa.gov/airquality/oilandgas/basic.html>; see also Cally Carswell, *Cracking the ozone code – Utah’s gas fields*, HIGH COUNTRY NEWS, Sept. 4, 2012 (included as Scoping Exhibit 103).

⁴¹ See *id.*, EPA, *Pollution Standards*.

⁴² *Id.*

failures, and contamination by and exposure to hazardous materials, aim to reduce the risk of impacts on human health from natural gas drilling.” Final EA at 134. This type of dismissive approach to the human health effects of this project is patently deficient, in particular because of impacts respective to cumulative health impacts:

Additional oil and gas development is expected in the future, and when compounded with the impacts from development in the CIAA, this could result in greater impacts (examples provided below) on human health and safety if not properly mitigated.

Final EA at 180.

The agencies’ reliance on mitigation measures—particularly when dealing with questions about the impacts of a project to human health—is woefully inadequate. “[M]itigation measures, while necessary, are not alone sufficient to meet the [agency’s] NEPA obligations to determine the projected extent of the environmental harm to enumerated resources *before* a project is approved.” *Northern Plains Resource Council*, 668 F.3d at 1085 (emphasis in original). Moreover, the mitigation measures proposed by the agency must be reasonably developed, which, here, they are not. “A ‘perfunctory description,’ or ‘mere listing of mitigation measures, without supporting analytical data,’ is insufficient to support a finding of no significant impact.” *National Parks & Conservation Ass’n v. Babbitt*, 241 F.3d 722, 735 (9th Cir. 2001). The court, when determining the sufficiency of the mitigation measures, considers “whether they constitute an adequate buffer against the negative impacts that may result from the authorized activity. Specifically, [the court] examine[s] whether the mitigation measures will render such impacts so minor as to not warrant an EIS.” *Id.*; *see also, Hill v. Boy*, 144 F.3d 1446, 1451 (11th Cir.1998) (explaining that where an agency relies on an assumption to reach a FONSI, the assumption must be supported by substantial evidence). The proposed mitigation underlying the FONSI “must be more than a possibility” in that it is “imposed by statute or regulation or have been so integrated into the initial proposal that it is impossible to define the proposal without mitigation.” *Wyoming Outdoor Council v. U.S. Army Corps of Eng’rs*, 351 F.Supp.2d 1232, 1250 (D.Wyo. 2005). Similarly, with regard to cumulative impacts, the agency must provide *some* explanation of how or why compensatory mitigation will reduce the cumulative adverse impacts on the resources in question to insignificance. Bare assertions of mitigation are insufficient. *O’Reilly v. U.S. Army Corps of Eng’rs*, 477 F.3d 225, 235 (5th Cir.2007) (“[A] bare assertion is simply insufficient to explain *why* the mitigation requirements render the cumulative effects of this project less-than-significant, when considered with the past, present, and foreseeable future development in the project area.” (emphasis in the original)). In *Northern Plains* the Ninth Circuit warned: “In a way, reliance on mitigation measures presupposes approval. It assumes that—regardless of what effects construction may have on resources—there are mitigation measures that might counteract the effect without first understanding the extent of the problem. This is inconsistent with what NEPA requires.” *Northern Plains*, 668 F.3d at 1084-85.

D. The Agencies Have Failed to Sufficiently Analyze All Reasonable Alternatives.

Incumbent on the agencies in any NEPA process is a robust analysis of alternatives to the proposed action. Consideration of reasonable alternatives is necessary to ensure that the agency

has before it and takes into account all possible approaches to, and potential environmental impacts of, a particular project. NEPA's alternatives requirement, therefore, ensures that the "most intelligent, optimally beneficial decision will ultimately be made." *Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm'n*, 449 F.2d 1109, 1114 (D.C. Cir. 1971).

"[T]he heart" of an environmental analysis under NEPA is the analysis of alternatives to the proposed project, and agencies must evaluate all reasonable alternatives to a proposed action." *Colorado Environmental Coalition*, 185 F.3d at 1174 (quoting 40 C.F.R. § 1502.14). An agency must gather "information sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned." *Greater Yellowstone*, 359 F.3d at 1277 (citing *Colorado Environmental Coalition*, 185 F.3d at 1174); see also *Holy Cross Wilderness Fund v. Madigan*, 960 F.2d 1515, 1528 (10th Cir. 1992).

The ecological and economic threat posed by oil and gas development is very real. In communities where such development is occurring, the fossil fuel industry is releasing hazardous pollutants into the air and water, using hydraulic fracking extensively, and threatening the very lifeblood of our communities, as well as public health, as detailed above. Moreover, oil and gas development also threatens the planning area's abundant wildlife, and could fragment and destroy increasingly scarce habitat and wildlife corridors. Such unfettered development also threatens tourism based on wildlife viewing, fishing, and hunting.

Unfortunately, the agencies failed to meaningfully consider reasonable alternatives—as suggested in Citizen Groups Scoping Comments—to the proposed project. Here, the agencies considered only two alternatives: the proposed action and the no action alternative. Final EA at 19. In dismissing Citizen Groups proposed alternatives, the agencies provide:

There were several alternatives suggested as a result of public scoping and after further consideration they were eliminated from further analysis in this environmental assessment. The alternatives presented included:

- Eliminate venting and flaring of gas from drilling and completions.

Federal regulations provide the operator with specific guidance on venting and flaring of natural gas during operations. EPA rule OOOO (Quad O) provides the requirements by which approved operations must comply. Federal actions associated with this proposed action must comply with this rule, and therefore as an alternative would result in redundancy of analysis with current Federal regulations.

- Consider fewer pads to reduce environmental impacts by limiting pace of development.

Both the five year timeframe of development and efforts by both operators to drill multiple wells targeting adjacent resources from each of the well pads in this proposed action is consistent with the intent of Federal best management

practices to develop the Federal mineral resource in a logical and timely manner and reduce unnecessary (sic) disturbance by drilling from fewer locations on the landscape.

- Require a stricter ozone standard be adhered to. (From 75ppb down to 65ppb)

The project will conform to the appropriate standard in place at the time of development.

- Move the 12-90-7-1 pad further from Pilot Knob.

The 12-90-7-1 APD is associated with the Allen location as described in the proposed action. In this case, the proposed location is on a split-estate Federal lease keeping the majority of the project activities off FS lands and outside of the FS managed roadless areas, specifically Pilot Knob CRA.

Final EA at 62-63.

These dismissive responses fail to satisfy the agencies' NEPA alternatives obligations. CEQ regulations require agencies to “[r]igorously explore and objectively evaluate all reasonable alternatives” to a proposed action in comparative form, so as to provide a “clear basis for choice among the options.” 40 C.F.R. § 1502.14 (emphasis added). For example, and as detailed above, relying on the EPA’s Quad O to avoid consideration of methane venting and flaring reduction measures is plainly deficient, as the rule does not directly address the orderly and efficient development of oil and gas resources on Federal lands and ignores existing sources of methane waste. In addition to reducing emissions, “[m]ethane control technologies provide economic, health, safety, and environmental benefits for both operators and the public. These control technologies reduce not only greenhouse gas emissions, but also potentially explosive vapors, hazardous air pollutants, and volatile organic compounds (VOC), improving worker safety and limiting corporate liability.” See Harvey Report (included as Scoping Exhibit 47 at 5). The agencies have failed to state why consideration of such measures is not reasonable.

Moreover, while consideration of fewer well pads is, in and of itself, also reasonable—and the failure of the agencies to include it as an alternative unjustified—the agencies’ failure to even mention phased development of the project is a critical deficiency. Staged or phased development clusters drilling geographically to maintain open areas; i.e., concentrated development that proceeds in stages in smaller areas rather than all at once. Such an alternative could include limitations on the number of drilling rigs operating in the Project Area at any one time, as well as interim surface reclamation measures to restore each site “to a pastoral landscape” before drilling a new site. See *BioDiversity Conservation Alliance v. Bureau of Land Mgmt.*, 608 F.3d 709, 713 (10th Cir. 2010); *Theodore Roosevelt Conservation P’ship v. Salazar*, 661 F.3d 66, 71 (D.C. Cir. 2011). Operators would be allowed to develop production in one geographic area at a time and, when complete, be permitted to move on to another area. *W. Org. of Res. Councils v. Bureau of Land Mgmt.*, 591 F. Supp. 2d 1206, 1288 (D. Wyo. 2008). In certain instances, corridors could be left undeveloped to allow for wildlife management. *Id.*

Courts have agreed that BLM's failure to consider a phased development alternative violates NEPA, and can render an EIS inadequate. *See N. Cheyenne Tribe v. Norton*, 503 F.3d 836, 841 (9th Cir. 2007); *N. Plains Res. Council v. Bureau of Land Mgmt.*, 2005 WL 6258093 at *1 (D. Mont. 2005). Moreover, failure to consider such an alternative in the past was sufficient to warrant an injunction on development until BLM completed a revised EIS that considered a phased development alternative. *N. Cheyenne Tribe*, 503 F.3d at 841.

Here, the agencies' failure to consider a phased development alternative violates NEPA. *See Colorado Environmental Coalition*, 185 F.3d at 1174 (quoting 40 C.F.R. § 1502.14) (“agencies must evaluate all reasonable alternatives to a proposed action.”).

E. FLPMA: Unnecessary and Undue Degradation

Pursuant to the Federal Land Policy and Management Act (“FLPMA”), 43 U.S.C. § 1701 *et seq.*, “[i]n managing the public lands,” the agency “shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands.” 43 U.S.C. § 1732(b). Written in the disjunctive, BLM must prevent degradation that is “unnecessary” and degradation that is “undue.” *Mineral Policy Ctr. v. Norton*, 292 F.Supp.2d 30, 41-43 (D. D.C. 2003). This protective mandate applies to agencies planning and management decisions, and should be considered in light of its overarching mandate that the UFO employ “principles of multiple use and sustained yield.” 43 U.S.C. § 1732(a); *see also, Utah Shared Access Alliance v. Carpenter*, 463 F.3d 1125, 1136 (10th Cir. 2006) (finding that BLM's authority to prevent degradation is not limited to the RMP planning process). While these obligations are distinct, they are interrelated and highly correlated. The BLM must balance multiple uses in its management of public lands, including “recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values.” 43 U.S.C. § 1702(c). It must also plan for sustained yield—“control [of] depleting uses over time, so as to ensure a high level of valuable uses in the future.” *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 58, 124 S.Ct. 2373, 159 L.Ed.2d 137 (2004).

Here, that action is oil and gas drilling and production as authorized by the APDs. The inquiry, then, is whether the agency has taken sufficient measures to prevent degradation unnecessary to, or undue in proportion to, the development the proposed action permits. *See Theodore Roosevelt Conservation Partnership*, 661 F.3d at 76. As detailed throughout, Citizen Groups have identified multiple instances where the agencies have failed meet this non-discretionary standard. These UUD requirements are distinct from requirements under NEPA. “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.” *Ctr. for Biological Diversity*, 623 F.3d at 645 (quoting *Kendall's Concerned Area Residents*, 129 I.B.L.A. 130, 140 (1994)). In the instant case, the agencies have failed to specifically account for UUD in its NEPA analysis. Reliance on generic lease stipulations, such as those provided in Appendix A, cannot satisfy this obligation.

IV. CONCLUSION

The Citizen Groups appreciate your consideration of the information and concerns addressed herein.

Should you have any questions, please do not hesitate to contact us.

Sincerely,



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