



April 27, 2015

Ruth Welch, Colorado State Director
Bureau of Land Management
2850 Youngfield Street
Lakewood, Colorado 80215-7093

Kent Walter, Field Manager
White River Field Office
Bureau of Land Management
220 East Market Street
Meeker, Colorado 81641

Submitted Electronically: protest@blm.gov

Re: White River Field Office Oil & Gas Resource Management Plan Amendment/Final Environmental Impact Statement

Dear Ms. Welch,

National Parks Conservation Association (NPCA) wishes to express its interest and concern with the Bureau of Land Management (BLM)'s White River Field Office Oil & Gas Resource Management Plan Amendment and Final Environmental Impact Statement (RMPA FEIS), released March 27, 2015. Accordingly, NPCA hereby protests the RMPA FEIS.

The mission of the National Parks Conservation Association (NPCA) is to "protect and enhance America's National Park System for present and future generations." Founded in 1919, NPCA has become the leading citizen's voice for the parks, monuments, and other properties managed by the National Park Service. It is a national non-profit with headquarters in Washington, DC, and 24 regional and field offices, including our Southwest Regional office in Salt Lake City and Colorado Field Office in Boulder. NPCA represents over 1 million members and supporters nationwide, including more than 22,000 in the state of Colorado, who care deeply about America's shared natural and cultural heritage preserved by the National Park System.

In regards to our protest on the RMPA FEIS, we would like to offer two clarifications:

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1. NPCA Supports the Dinosaur Trails MLP and Would Not Protest The MLP if it Stood Alone

NPCA commends the Colorado BLM and the White River Field Office for its decision and significant effort to include the Dinosaur Trails Master Leasing Plan (MLP) within the broader RMPA. The MLP process as defined by IM 2010-117 provides an important opportunity for the BLM to deeply consider the conditions for appropriate oil and gas development in areas affecting critical natural and cultural resources, in close collaboration with other land management agencies, citizen groups, and communities as stakeholders.

In this case, we believe that, as proposed, the stipulations described as part of the Dinosaur Trails MLP will help to: preserve natural sounds and dark night skies; reduce surface disturbance; and protect against visual impairments, and direct impacts to many natural and cultural features inside of -- and immediately surrounding -- Dinosaur National Monument, located adjacent to the planning area.

NPCA recognizes that among the potential benefits of MLPs are increased certainty for industry and fewer delays and protests. We understand that, in this case, because the MLP is included in the RMPA, a protest of other sections of the RMPA is a, regrettably, *de facto* slowdown of the provisions included in the MLP. We want to be clear that had the Dinosaur Trails MLP stood alone, we would have supported its stipulations without protest. Our concerns addressed below relate to projected developments occurring outside the MLP boundary, but our options are constrained by the makeup of this plan.

2. Mitigation of Air Quality Impacts Must be Adequate, Enforceable and Integrated into the White River Field Office RMPA

Federal oil and gas development in the planning area outside of the MLP boundary is projected to adversely affect air quality (AQ) and air quality related values (AQRVs) within federally protected public lands.

Impacted areas include Dinosaur National Monument, a sensitive Class II area, as well as federally mandated Class I areas, such as Flat Tops Wilderness, Arches, Canyonlands, Black Canyon of the Gunnison, and Capitol Reef national parks. Class I areas are afforded special protections under the CAA in order to minimize pollutants contributing to their treasured resources, including visibility,, whereas the sensitive Class II areas are identified by the lead agency as having air quality related values that are particularly vulnerable to air quality conditions. According to the AQ MOU, the signatory agencies agreed to “strive to ensure that federal oil and gas decisions do not cause or contribute to exceedances of the National Ambient Air Quality Standards (NAAQS) nor adversely impact AQRVs in Class I or sensitive Class II areas.

The lands within and around the WRFO planning area have experienced extensive energy development dating back to the late 1940’s, when the Uinta Basin across the border in Utah, saw its first oil production “boom”. Over the next six decades, four new coal-fired power plants

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would come online within 30 each miles of the WRFO boundary, and ebb-and-flow oil and gas production would occur throughout all adjacent BLM planning areas. This development has contributed significantly to the air quality “context” in which this amendment is being created.

The analysis provided by the WRFO RMPA, as well as other BLM data and numerous independent sources, indicate already concerning levels of existing and projected NAAQS, atmospheric deposition, and ozone in the region. These factors pose risks to human health for those who live in, work in, and visit the area; as well as visibility impairments, threats to ecosystem function, soil and water quality, and wildlife within the WRFO impacted area. These existing levels, compounded by future industrial energy development activities in WRFO, produce a highly disturbing future scenario.

For these reasons NPCA submitted comments in response to the draft RMPA in 2013 urging for restrained levels of future oil and gas development, and that the strongest mitigation measures possible be applied within the WRFO planning area, in order to prevent further degradation to air quality and AQRVs within Dinosaur NM and other impacted Class I and sensitive Class II areas.¹

It is NPCA’s assessment that many of the issues related to air quality and AQRVs impacts raised in these comments, as well several relevant concerns surfaced by other federal and state agencies, including the EPA, NPS and CDPHE, were not sufficiently addressed or accounted for in the March 27, 2015 RMPA/FEIS, leaving air quality and AQRVs within the WRFO impacted area – especially within adjacent Dinosaur National Park -- vulnerable to the effects of unmitigated emissions from oil and gas development proposed in the WRFO planning area.

Our specific concerns as they relate to the March 27 WRFO RMPA FEIS issued by the BLM are detailed in the attached Air Quality Review of the Final Environmental Impact Statement for the Final White River Field Office Resource Management Plan Amendment (RMPA), produced on behalf of NPCA by air quality specialist, Megan Williams. At the root of our concern is that the RMPA FEIS fails to protect against adverse impacts to air quality and air quality related values. Where feasible, cost effective emission control technologies or management practices would result in reduced emissions from oil and gas development and would serve to safeguard public health, limit ecosystem and climate disrupting pollution. Such reduction strategies must be made enforceable. Below we summarize some of our concerns:

Air Quality

Particulate matter (PM), NOx (nitrogen oxides), SO₂ (sulfur dioxide) and volatile organic compounds (VOCs) are haze-causing pollutants that obscure scenic vistas in national park units by impairing a viewer’s ability to see long distances, color and geologic formation. Visitors to national parks and wilderness areas consistently rate visibility and clear scenic vistas as one of the most important aspects of their experience. Impacts on air quality at NPS units are a major concern for NPCA. We are particularly concerned about the cumulative impacts of oil and

¹ Comments on the White River Draft Resource Management Plan Amendment and EIS for Oil and Gas Development, jointly submitted by The Wilderness Society, Conservation Colorado, Rocky Mountain Wild and National Parks Conservation Association, January 28, 2013.

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gas development at Dinosaur NM as well as other NPS units, particularly Class I areas, within the airshed of the WRFO planning area.

Air Quality Related Values

Deposition of air pollutants, notably nitrogen, in soil and water can cause damage to vegetation and wildlife, and can ultimately reduce species diversity within by allowing non-native species to flourish. This ecosystem alteration, along with increasing temperatures and drought owing to climate change, can also exacerbate conditions for extreme wild and brush fires.

Air pollutants can also affect cultural and paleontological resources inside Dinosaur NM, as well as other sites in the region, by altering the pH and acidity of precipitation that falls, eroding ancient structures, petroglyphs, pictographs and fossils. In addition to containing world-class dinosaur fossils at several locations within the park, Dinosaur NM houses numerous Fremont Indian artifacts, dating back 800-1,200 years, as well as Ute, Shoshone, and post-colonial European cultural sites.

A few of the specific grievances outlined associated with these concerns in the attached include:

Ozone

The proposed FEIS of the WRFO RMPA does not sufficiently account for or address the high levels of ozone – particularly in winter months -- that have been observed and are projected in future emissions scenarios, within the WRFO. Especially considering that modeling predictability for wintertime ozone is challenging (and thus, actual results could be even higher than predictions), BLM should take the most conservative approach available in mitigating emissions from industrial activities to prevent further ozone accumulation. Instead, the planning document cites uncertainty in ozone modeling predictions -- and industrial activity in neighboring Uinta Basin -- as rationale to largely dismiss WRFO's contribution to ozone accumulation.

Lack of Predictable, Enforceable Mitigation Measures

The proposed WRFO RMPA FEIS does not sufficiently detail the conditions under which additional analysis would be required at the project level or under which specific mitigation measures would be required. As fully detailed in the attached, guidance in the Comprehensive Air Protection Protocol, or CARPP, on which the WRFO RMPA would rely, leaves considerable room for discretion, and does not provide clear, predictable, or reliable assurances that further degradation to AQ or AQRVs would not occur as a result of industrial oil and gas activities in the planning area.

Use of Most Recent Available Data

The proposed WRFO does not account for results from several independent studies as well as the 2014 Colorado BLM's Colorado Air Resources Management Modeling Study (CARMMS), the

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latter of which provides compelling new evidence about impacts to Class I and sensitive Class II areas attributable to federal oil and gas development activities in WRFO. NPCA requests that these study results as they pertain to WRFO be examined and accounted for in the RMPA prior to issuing the ROD.

Clarification of BLM Responsibilities to Comply with State and Federal AQ Laws

The WRFO RMPA FEIS does not sufficiently address BLM's responsibilities to implement the state of Colorado's more stringent air quality regulations, for instance, on methane emissions. Instead, compliance with state regulations is presumed to be devolved to oil and gas operators at the permitting stage, although this is also not stated explicitly. Prior to issuing the ROD NPCA requests that the BLM explain how BLM actions under this RMPA will comply with and, perhaps more importantly, not present any conflict to, state and federal air quality regulations.

Finally, a concern that is not addressed in the attached, but is referenced in both the NPCA comments NPCA as well as comments submitted by National Park Service to the previous draft:

Clarification of Application of AQ MOU

While the Federal Air Quality MOU is cited in this final EIS, there is significant room for interpretation about how the BLM plans to adhere to the AQ MOU under the WRFO RMPA. The BLM should explicitly describe what it understands its responsibilities to be in implementing the MOU in regards to AQRVs on NPS managed lands or lands other, non-BLM management.

NPCA further strongly encourages that BLM establish a technical work group, as provided by the AQ MOU, to bring clarification to the above concern and to facilitate stronger, more consistent communication across the board between BLM and other agencies whose resources are likely to be affected under the WRFO RMPA.

NPCA kindly requests that these and the other concerns (and suggested remedies) surfaced in the attached memorandum be considered and addressed prior to issuing the ROD.

Sincerely,



Vanessa Mazal
Colorado Program Manager
National Parks Conservation Association
vmazal@npca.org

CC: Heather Sauls, Planning & Environmental Coordinator, WRFO

**TO: Vanessa Mazal
National Parks Conservation Association**

**FROM: Megan Williams
Air Quality Consultant**

DATE: April 27, 2015

**RE: Air Quality Review of the Final Environmental Impact
Statement for the Final White River Field Office
Resource Management Plan Amendment (RMPA/FEIS)**

Following is a review of the air quality portions of the Final Environmental Impact Statement for the Final White River Field Office Resource Management Plan Amendment (RMPA/FEIS), dated March 27, 2015.

The RMPA/FEIS does not fully and accurately evaluate the air quality impacts from the proposed plan and does not include adequate enforceable mitigation measures to assure no adverse impacts on air quality will occur in the area impacted by the proposed development. Very few changes were made to the air quality analysis for the RMPA/FEIS in direct response to the air quality comments received by the Bureau of Land Management on the DEIS, including substantive air quality comments from the National Park Service (NPS), the Environmental Protection Agency (EPA), the Colorado Department of Public Health and Environment (CDPHE) and public lands advocacy groups. Of primary concern is the fact that the BLM did not implement a comprehensive and enforceable set of air quality mitigation measures that would ensure no significant impacts to air quality and air quality related values in the RMPA/FEIS. Without further analysis of the mitigation measures needed to sufficiently address potential air quality impacts for this RMPA/FEIS, the BLM is failing to satisfy its most fundamental obligations under NEPA.

The RMPA/FEIS does include some important air resource protection tools to address impacts to air quality but does not go far enough in its analysis and commitments. Following are more detailed comments on the air quality portions of the WRFO RMPA/FEIS.

Mitigation Measures

Numerous comments were submitted to the BLM on the need for more stringent mitigation measures to address air quality impacts yet the BLM failed to adequately respond to very specific comments from the NPS, EPA and CDPHE on the need for sufficient mitigation measures to prevent significant impacts.

EPA recommended specific fugitive dust mitigation measures to include in the RMPA/FEIS:

EPA-Recommended Mitigation Measure:

The Air Resource Technical Support Document (ARTSD) identifies that the fugitive dust percent reduction assumed for collector, local, and resource roads (84%, 84% and 80%, respectively) used in the air quality modeling were assumed for the entire planning area. However, the Draft RMPA/EIS identifies that these percentages for fugitive dust control would only be included as management actions inside the MPA (Table 2-1). The document identifies that collector, local and resource roads outside the MPA would be required to achieve 50% fugitive dust control effectiveness. Since the higher percentages of fugitive dust control were assumed when BLM modeled the impacts for this NEPA document, the EPA believes the higher control levels must be required for all collector, local and resource roads in the planning area. Otherwise, the predicted impacts are understated.¹

The BLM failed to respond to EPA's comment nor did it include the higher control levels for fugitive dust in the RMPA/FEIS as enforceable mitigation measures. In the RMPA/FEIS, the BLM states that "[i]n the MPA, proper road design, construction, and surfacing on collector and local roads [as well as resource roads] (see BLM Manual Section 9113) would be required to achieve at least 80 percent reduction from uncontrolled fugitive dust emissions (using a combination of gravel, chemical suppression, watering, or other control measures). Collector and local [and resource] roads in planning units other than the MPA would be required to achieve at least 50 percent fugitive dust control effectiveness."² And, further, the BLM added qualifiers to these records stating that, "[t]his record or portion of record is considered to be an assumption used for impact analysis; is not a decision."³

And in fact, the following additional management actions in the RMPA/FEIS for the Proposed Alternative (E) are similarly identified as "assumptions" for the impact analysis and not "decisions":

Management Actions in the RMPA/FEIS that are assumptions for modeling (not "decisions")

At least 80 percent reduction from uncontrolled fugitive dust emissions in MPA (collector, local and resource roads)

At least 50 percent of gas compression at compressor stations would be powered by electric motors

¹ EPA, January 25, 2013 letter Re: White River Field Office Draft Resource Management Plan Amendment and Environmental Impact Statement CEQ # 20120296 at 3.

² See BLM WRFO RMP/FEIS Table 2-1-3, Records 7 and 8

³ BLM WRFO RMP/FEIS Table 2-1-10

The VOC emissions from glycol dehydrators would be reduced by at least 90 percent from uncontrolled emission levels, while VOC emissions from condensate tanks and produced water tanks would be reduced by at least 95 percent from uncontrolled emission levels

Produced water evaporation ponds at gas plants would achieve at least 90 percent VOC control effectiveness through the use of VOC removal prior to water discharge to the pond, oil/water separation, air stripping/sparging combined with carbon adsorption and thermal oxidation, or other VOC control strategies⁴

Specific management actions in the RMPA/FEIS that are not identified as assumptions and therefore presumably would be considered a decision item include the following:

Management Actions in the RMPA/FEIS

Well completions and recompletions would require use of green completion technology unless the need for an exemption could be documented. During well completions that do not use green completion technology, flaring of natural gas would be required. Venting of natural gas would not be allowed, except during emergency situations. Requirements would be consistent with NSPS OOOO Regulations

In addition to fugitive dust control plan implementation, construction sites and resource roads would be treated with water and/or a chemical dust suppressant during construction and drilling activities so that no dust plume is visible from construction sites or behind vehicles. All vehicles would abide by company or public speed restrictions. At construction sites, interim reclamation would be required within two years

Emission controls would be required for glycol dehydrators, condensate tanks, and produced water tanks, without regard to the location of the equipment or the quantity of uncontrolled VOC emissions from the equipment

Drill rig engines and fracturing (frac) pump engines would meet EPA requirements

Engines at field compression facilities would be required to meet applicable CDPHE, AQCC regulations and EPA emission standards⁵

Any exceptions, such as for venting during well completions and recompletions in

⁴ BLM WRFO RMP/FEIS Table 2-1

⁵ BLM WRFO RMP/FEIS Table 2-1

emergency situations, must be clearly defined. Regarding BLM's reference to management actions that require emissions sources meet CDPHE, AQCC regulations and EPA performance standards, the BLM should include a more comprehensive list of specific applicable requirements. Fundamentally, the definition of 'Significantly' in NEPA requires consideration of: "Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment." 40 C.F.R. §1508.27(b)(10). In order to ensure coordination and to avoid any potential inconsistencies between state and federal action, the BLM should disclose the relevant applicable CDPHE and EPA standards. This is especially the case for any such control requirements that were used as assumptions in the modeling analysis for the EIS. In doing so, the BLM would also ensure there will be no inconsistencies with the objectives of federal and state policies and regulations. See 40 C.F.R. §1502.16(c) and 40 C.F.R. §1506.2(d) addressing integration with state and local procedures: "To better integrate environmental impact statements into State or local planning processes, statements shall discuss any inconsistency of a proposed action with any approved State or local plan and laws (whether or not federally sanctioned). Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law."

In fact, CDPHE submitted comments on the RMPA/DEIS regarding how and whether certain specific state requirements under Regulation 7 would apply to sources under the action alternatives. Specifically, CDPHE had the following comments:

1. Regulation 7 exempts engines subject to EPA federal regulations from compliance with the emission standards in Regulation 7; it is unclear what standards some engines would be required to comply with based on the lack of definitions for new, existing, and relocated under Alternative C. 2. Current experience indicates that existing and relocated engines will not be able to meet 1 g/hp-hr NO_x on a consistent basis. 3. The Division is unclear as to what requirements apply to gas processing plants, if they are indeed different. The Division recommends the implementation of the most stringent standard to the applicable engine (new/existing/relocated) that is physically possible to ensure maximum emission reductions.⁶

We agree with the above noted comments. Moreover, the BLM should include a discussion of, "[p]ossible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." 40 C.F.R. §1502.16(c)

In addition to the management actions discussed above, the following specific discretionary measures are included in the RMPA/FEIS.

⁶ See BLM WRFO RMPA/FEIS Appendix K – Response to Comments at K-81.

Discretionary Management Actions in the RMPA/FEIS:

The BLM might require all new and existing drill rig engines to meet EPA generator set Tier 4 (or more stringent) emission standards at the Project-level stage by year 2015

Where feasible, promote the use of three-phase gathering systems to transport natural gas, condensate, and produced water to consolidated facilities where dehydration, temporary tank storage, and truck loading would occur⁷

Important air quality mitigation measures that were recommended by EPA and NPS but not incorporated in the RMPA/FEIS are listed below.

Important Mitigation Measures Recommended by EPA and NPS That Were Not Included in the RMPA/FEIS:

Field electrification to reduce NO_x emissions⁸

Electrification of compressor engines to reduce NO_x emissions⁹

84% control of fugitive dust from collector roads throughout the entire planning area to reduce PM emissions¹⁰

84% control of fugitive dust from local roads throughout the entire planning area to reduce PM emissions¹¹

80% control of fugitive dust from resource roads throughout the entire planning area to reduce PM emissions¹²

In addition to the specific measures discussed above, the NPS requested that the BLM evaluate a consistent application of mitigation measures across all Alternatives and, specifically, that, “the most stringent suite of mitigation measures proposed under any alternative [be] applied to the final decision,

⁷ BLM WRFO RMP/FEIS Table 2-1

⁸ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment at 5.

⁹ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment at 5.

¹⁰ EPA, January 25, 2013 letter Re: White River Field Office Draft Resource Management Plan Amendment and Environmental Impact Statement CEQ # 20120296 at 3.

¹¹ EPA, January 25, 2013 letter Re: White River Field Office Draft Resource Management Plan Amendment and Environmental Impact Statement CEQ # 20120296 at 3.

¹² EPA, January 25, 2013 letter Re: White River Field Office Draft Resource Management Plan Amendment and Environmental Impact Statement CEQ # 20120296 at 3.

regardless of which alternative is selected.”¹³ NPS requested further discussion with the BLM of additional NO_x mitigation options that may be feasible in the area. The BLM also received comments from public lands advocacy groups stating that, “BLM should collaborate with NPS to identify the pace of development and the most stringent control strategies and mitigation measures to ensure ambient air quality standards are met.”¹⁴ The BLM has not finalized sufficient, specific and enforceable management actions that will ensure no significant impacts to air quality and air quality related values in the RMPA/FEIS.

Comprehensive Air Resources Protection Protocol

The WRFO RMPA/FEIS relies on BLM’s Comprehensive Air Resource Protection Protocol (CARPP) as the primary management tool to protect air resources from adverse impacts. In general, the CARPP is a reactive management tool, as opposed to a proactive one. There is very little required action in the CARPP unless or until an exceedance of a National Ambient Air Quality Standard (NAAQS) is recorded, making it ineffective as a tool to ensure air quality protection. And even when an air quality exceedance of the NAAQS is recorded, the BLM has established many opportunities for non-action. The discretionary nature of the CARPP is concerning since it is relied upon as the means for protecting air resources instead of proposing specific, enforceable mitigations in the WRFO RMPA/FEIS to address significant air quality impacts shown in the RMPA/DEIS. In BLM’s response to comments for the CRVFO Proposed RMPA/FEIS – which also relies on the CARPP – the Agency indicates that, “[a]n adaptive management plan has been added to the Proposed RMP/Final EIS to establish criteria and commitments for *ensuring compliance with air quality regulations* and annual review of air resource impacts associated with BLM activities” *[emphasis added]*.¹⁵ Further, BLM states that, “[a]daptive management is used to modify mitigation requirements, through BLM’s regulatory authority, when measures are shown to be inadequate to achieve an appropriate level of protection and to comply with federal environmental regulations such as the CAA [Clean Air Act] and CWA [Clean Water Act].”¹⁶ *BLM should establish a comprehensive set of mitigation measures for the RMPA/FEIS that ensures no significant air quality impacts from the proposed development would occur based on the best currently-available analysis tools prior to issuance of a ROD and should then use the CARPP as a means to improve upon and update those measures, as needed, based on periodic and specific monitoring and modeling commitments that the agency agrees to implement, such as the Colorado Air*

¹³ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment at 5.

¹⁴ The Wilderness Society, Conservation Colorado, Rocky Mountain Wild and National Parks Conservation Association, January 28, 2013 letter Re: Comments on the White River Draft Resource Management Plan Amendment and EIS for Oil and Gas Development at 42.

¹⁵ BLM CRVFO RMP/FEIS Appendix V at V-4.

¹⁶ BLM CRVFO RMP/FEIS Appendix V at V-64.

*Resource Management Modeling Study (CARMMS).*¹⁷

Evaluation of the overarching purpose, scope and responsibilities under the CARPP requires a legal analysis, including how the CARPP relates to the RMP/EIS and the BLM's authority under NEPA, which is beyond the scope of this technical review. Of concern is the fact that the CARPP can be modified "without maintaining or amending any specific Field Office RMP".¹⁸ Any modifications to the CARPP should include adequate public participation opportunities. Important public notification and participation provisions of the CARPP include: (1) the commitment to continue to make the Colorado Air Resources Management Modeling Study (CARMMS) analysis and results and any future updates available to the public (Section 3.3.3); and (2) the commitment to complete an annual summary report that is made available to public (Section 5). The periodic review of the reasonably foreseeable development projections to be conducted every three to five years should also be made available to the public (Section 4.5). See 40 C.F.R. §1506.6(a) requiring the BLM to "make diligent efforts to involve the public in preparing *and implementing* their NEPA procedures" [emphasis added], where the CARPP is considered an implementation tool.

Quality and Availability of Monitoring Data

It is important to ensure that monitoring data collected as part of the CARPP is also made available to the public. Under the Monitoring Data Transparency provision of the CARPP, BLM states that, "the BLM will ensure that ambient air monitoring data collected as a COA for any BLM authorized activity will be made publicly available within the body or our annual report required under Section V of this protocol".¹⁹ BLM should work with the State of Colorado and EPA to establish a more comprehensive monitoring network in the western Colorado planning areas. Further, it is vitally important that the data collected from monitoring efforts throughout these planning areas are quality assured and made publicly available through the State and/or EPA websites.

In fact, EPA commented on the need for the BLM to make a firm commitment in the DEIS funding the continued operation of the Meeker and Rangely air quality monitors throughout the life of the RMPA/EIS. According to EPA, "doing so is a key component to effectively understanding air quality impacts in the area."²⁰ In addition, the State of Colorado commented on the need for more comprehensive monitoring in comments on the draft CRVFO RMPA/DEIS. Specifically, the State

¹⁷ Colorado Air Resource Management Modeling Study 2021 Modeling Results for the High, Low and Medium Oil and Gas Development Scenarios, 06-35841A, January 2015 at 205, available online at

http://www.blm.gov/style/medialib/blm/co/information/nepa/air_quality.Par.97516.File.dat/CARMM_S_Final_Report_w-appendices_012015.pdf

¹⁸ CARPP Section 1.1

¹⁹ CARPP Section 3.1.4

²⁰ EPA, January 25, 2013 letter Re: White River Field Office Draft Resource Management Plan Amendment and Environmental Impact Statement CEQ # 20120296 at 3.

made the following statements and recommendation regarding monitoring in the CRVFO planning area:

CDPHE commends BLM for installing air quality monitors at Meeker and Rangely, which are in the White River resource management planning area. These monitors have provided valuable new data and improved the understanding of existing air quality levels. Given the magnitude of development proposed by this and other NEPA actions, a more robust State regulatory air quality monitoring network is needed in affected areas of the West Slope to improve the year-round characterization of existing air quality levels, improve the accuracy of modeling, and to improve the ability of CDPHE to issue air quality advisories to the general public if warranted by monitored conditions. It is recommended that BLM work with the State of Colorado to establish an air quality monitoring fund (or another method) to expand the existing air quality monitoring networks as deemed appropriate by CDPHE to gather meteorological and air quality data at micro, local, and regional scales. Funding levels should be sufficient to include AQRV/visibility monitoring at potentially affected mandatory federal Class I areas such as the Flat Tops Wilderness Area. It is recommended that the private sector proponents of oil and gas development fund the regulatory monitoring network enhancements. CDPHE also recommends that such a funding source be flexible enough to allow for future monitoring to include HAPS (such as carbonyl compounds), speciated VOCs (especially BTEX) and greenhouse gases (especially methane). Monitoring of these types of emissions are notably absent in the oil and gas development area of the CRVO.²¹

The CARPP states that BLM will participate in a cooperative effort to establish a comprehensive monitoring network in the planning area and share collected data with other agencies and the public, “as appropriate” and “contingent upon available funding” (Section 3.1.1). Peer-reviewed scientific studies further reinforce the need for more comprehensive monitoring in oil and gas development areas to ensure accuracy of monitoring and emission inventory data.^{22,23} This is an important provision of the CARPP and BLM should work with the State and EPA to expand monitoring in these areas as outlined by the EPA and State in their comments on the WRFO and CRVFO RMP amendments.

Establishment of a more comprehensive monitoring network will help serve as a

²¹ Letter from Colorado Department of Public Health and Environment Air Pollution Control Division to BLM, Re: Colorado River Valley Draft Resource Management Plan (RMP) Revision and Draft Environmental Impact Statement (EIS), January 17, 2012.

²² Annmarie G. Carlton, Eleana Little, Michael Moeller, Stella Odoyo, and Paul B. Shepson (2014), The Data Gap: Can a Lack of Monitors Obscure Loss of Clean Air Act Benefits in Fracking Areas?, *Environmental Science & Technology* **2014** 48 (2), 893-894, doi: 10.1021/es405672t

²³ Pétron, G., et al. (2012), Hydrocarbon emissions characterization in the Colorado Front Range: A pilot study, *J. Geophys. Res.*, 117, D04304, doi:[10.1029/2011JD016360](https://doi.org/10.1029/2011JD016360).

backstop to track and ensure air quality protection throughout the planning area, and to help identify areas of concern with regard to air impacts. But the adaptive management process should require frequent and specific actions are taken in order to *prevent* significant impacts throughout the planning area (as opposed to taking corrective action after a significant impact is identified).

Adaptive NAAQS Mitigation

For the BLM's Greater Natural Buttes adaptive management plan, the National Park Service advocated the establishment of specific monitored ozone "trigger points" set at levels *below* the NAAQS and tied to immediate implementation of enhanced mitigation measures, including phased development.²⁴ Similarly, for the Gasco adaptive management plan, EPA provided the following input to BLM to ensure the adaptive management strategy would help prevent significant adverse impacts to air quality:

First, the draft EIS does not make clear what would constitute a "significant increase" in the emissions inventory, triggering the need for a new modeling analysis. Second, the strategy should include monitoring that conforms to 40 CFR Parts 50 and 58, with an emphasis on obtaining measurements that contribute to the formation of secondarily formed pollutants such as PM_{2.5} and ozone. The EIS should identify how monitoring results may trigger a need for additional modeling. Finally, the adaptive management strategy should address how BLM and Gasco will address the proposed lowering of the ozone standard.²⁵

BLM should establish specific triggers, as outlined by NPS and EPA. Without these specific triggers for further specific action, the CARPP cannot function as an adaptive tool to ensure mitigation measures are appropriate to prevent significant impacts to air quality.

Enforceability of Protection Measures

Section 3 of the CARPP is titled "Actions to Analyze & Protect Air Quality" yet is almost entirely made up of discretionary and non-specific actions (e.g., BLM *may* require pre-construction monitoring, *may* require life-of-project monitoring, *may* require project-specific modeling, *may* participate in future regional modeling studies, *may* require mitigation measures and best management practices, etc.). In order to prevent degradation of air quality, BLM must establish a specific definition for what is meant by "a substantial increase in emissions" in Section 3.3.1 and must establish specific, numeric criteria for the permitting factors in Section 3.4. (*I.e.*, what specific magnitude, duration, proximity, conditions, intensity and issues would trigger what, specific, corresponding levels of analysis, monitoring, and reporting). *More generally, BLM should also establish*

²⁴ See BLM Greater Natural Buttes FEIS p. P-68.

²⁵ Letter from EPA to BLM, Re: Comments on the Gasco Uinta Basin Natural Gas Development Project Draft EIS CEQ # 20100386, January 7, 2011.

more definitive requirements for monitoring, modeling, permitting and mitigations in Section 3 of the CARPP. As written, this section of the CARPP only offers analysis and protection of air resources through discretionary means and therefore cannot be relied on to ensure adequate air resource protection.

Section 4 of the CARPP includes the adaptive management processes but fails to include enforceable measures that will ensure protection of air resources. Even the enforcement and contingency planning for responding to exceedances of the NAAQS are discretionary and provide no assurances for action. As with Section 3, the adaptive management process should incorporate specific, numeric thresholds that trigger further specific actions. Noted below are examples of the nonspecific, noncommittal language included in the CARPP:

If during the course of our annual analysis it is determined that the model has not demonstrated a reasonable correlation of predicted impacts (for modeled emissions inventory levels) compared against the actual emissions recorded for a planning area, the BLM will investigate the potential sources of the discrepancy to determine a potential cause, such as meteorological factors (ex: winter time ozone, which cannot be modeled at this time), or fee mineral development (i.e. non-BLM authorized actions). If a probable cause for the discrepancy cannot be established, then the BLM will initiate interagency coordination with our regulatory partners to determine if a new modeling analysis is potentially warranted.²⁶

BLM should clearly define what it would consider to be “a reasonable correlation” and specify what would trigger the need for a new modeling analysis. In the provision for evaluating projected future development BLM says it will, “use the projected development/emissions data to determine whether the modeling analysis remains appropriate as a reference for any subsequent project analyses”.²⁷ Again, BLM should establish a threshold that defines what specific measure of difference in the inventory data would trigger a subsequent analysis. Without these specific thresholds that trigger further action, the CARPP cannot function as an adaptive tool to ensure mitigation measures are appropriate to prevent significant impacts to air quality.

Ozone Impacts

The NPS provided extensive comments to the BLM on existing background ozone concentrations and on the photochemical dispersion modeling analysis performed for the WRFO RMPA/DEIS. Monitoring data summarized by the NPS from monitors in Rangely, Meeker and Dinosaur National Monument show extremely high ozone concentrations at these locations with many recently

²⁶ CARPP Section 4.3

²⁷ CARPP Section 4.5.

recorded exceedances of the health-based standards.²⁸ Specifically, the NPS highlighted wintertime ozone values that exceeded the current NAAQS in 2010 and 2013 in Dinosaur NM and stated that, “[w]intertime ozone episodes, including those monitored at Dinosaur NM, should be discussed in the document.”²⁹ The RMPA/FEIS does include a brief discussion of wintertime ozone in the Uinta Basin in Utah and in the Upper Green River Basin in Wyoming, but does not account for some of the most recent research available, and is dismissive of potential remedies.³⁰

There is increasing precedence for wintertime ozone problems where oil and gas development occurs in the West. The atmospheric chemistry leading to ozone formation is complex and is highly sensitive to a wide range of factors, including the intensity of sunlight, air temperature and the quantity and chemical composition of the volatile organic compounds (VOC) and nitrogen oxide (NO_x) pollutants that combine in the presence of sunlight to form ozone. Traditionally, elevated ozone levels are thought to be a summertime problem that plagues large urban areas. But recent ongoing events that have occurred in rural southwest Wyoming and northeast Utah in wintertime demonstrate this is not always the case. This raises a concern with respect to potential wintertime ozone formation in the WRFO planning area.

In July 2012, the EPA designated all of Sublette County and portions of Lincoln and Sweetwater counties in Wyoming as an ozone nonattainment area. The Uinta Basin in Utah has been experiencing a similar situation of wintertime ozone exceedances together with increasing oil and gas development. While the Uinta Basin is still officially in attainment of the ozone standard, elevated ozone levels over recent years and tighter ozone standards proposed by EPA point to a nonattainment designation by the EPA. Failing to consider the potential impact from additional development in the region on wintertime ozone formation has the potential to contribute to continued ozone standard exceedances and potential nonattainment designation, similar to that facing Wyoming and Utah.

And regardless of the WRFO planning area’s current attainment status with regard to the current and recently-proposed revisions to the ozone NAAQS, any monitored concentrations that exceed the ozone NAAQS must be considered significant. Significant impacts as determined under NEPA do not depend on three years worth of monitoring data, as with an attainment demonstration. See 40 C.F.R. § 1508.27. Monitoring data do not capture the maximum potential emissions from sources impacting ozone levels and are therefore already less conservative than a modeling analysis that accounts for all existing and proposed sources during maximum operating scenarios. *For this reason, monitored*

²⁸ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment at 7.

²⁹ *Id.*

³⁰ BLM WRFO RMPA/FEIS at 3-10

concentrations that already are exceeding health-based standards indicate that there is no room for growth in emissions that contribute to ozone levels in the affected area.

Health and Environment Effects of Ozone Pollution

The importance of protecting the air quality for those people who live and work in the impacted area, most importantly for sensitive populations, including children, the elderly and those with respiratory conditions is huge. Exposure to ozone is a serious concern as it can cause or exacerbate respiratory health problems, including shortness of breath, asthma, chest pain and coughing, decreased lung function and even long-term lung damage.³¹ According to a recent report by the National Research Council “short-term exposure to current levels of ozone in many areas is likely to contribute to premature deaths”.³²

EPA revised the 8-hour ozone standard from 80 parts per billion (ppb) to 75 ppb back in 2008 and in December 2014 proposed even stricter standards, between 65 and 70 ppb.³³ The Clean Air Scientific Advisory Committee’s (CASAC) — appointed by the Administrator to recommend revisions to the existing standards, per section 109(d)(2) of the Clean Air Act—recommended in 2008 that EPA substantially lower the 8-hour standard. At that time the EPA did not abide by the committee’s recommendations. Specifically, the CASAC put forth a unanimous recommendation to lower the 8-hour standard from 80 ppb to somewhere between 60-70 ppb.³⁴ The committee concluded that there is no scientific justification for retaining the current 8-hour standard and that the EPA needs to substantially reduce the primary 8-hour standard to protect human health, especially in sensitive populations. So, even ozone concentrations at levels as low as 60 ppb can be considered harmful to human health. The BLM should consider this more conservative level when evaluating the air impacts in the WRFO planning area, since BLM has a duty, independent of the CAA, to protect public health and the environment from significant adverse impacts. See 40 C.F.R. §§ 1502.1 and 1508.27.

In addition to the human health effects, ozone pollution can cause adverse effects to the physical environment. Ozone is absorbed by plants and can cause leaf discoloration, reduced photosynthesis, and reduced growth as well as make plants more susceptible to disease, pests and environmental stresses.³⁵ Ozone effects on trees are thought to accumulate over time such that whole forests or ecosystems can be affected. According to the NPS, ozone sensitive vegetation is

³¹ See EPA’s National Ambient Air Quality Standards for Particulates and Ozone, 62 FR 38,856 (July 18, 1997).

³² <http://www.nationalacademies.org/morenews/20080422.html>

³³ See 79 FR 75234, December 17, 2014.

³⁴ EPA-CASAC-LTR-07-001, Clean Air Scientific Advisory Committee’s (CASAC) Peer Review of the Agency’s 2nd Draft Ozone Staff Paper, October 24, 2006.

³⁵ As discussed in U.S. National Park Service, Air Quality in Our National Parks, 2002, Chapter 2.

found in many of the Class I and sensitive Class II areas impacted by WRFO development. For example, NPS identifies the following ozone sensitive plant species in Dinosaur NM: *Amelanchier alnifolia* (Saskatoon serviceberry), *Oenothera elata* (Evening primrose), *Pinus ponderosa* (Ponderosa pine), *Populus tremuloides* (Quaking aspen), *Rhus trilobata* (Skunkbush), *Salix scouleriana* (Scouler's willow).³⁶

Ozone Modeling

The NPS raised several issues with the way in which BLM conducted the modeling for the DEIS.³⁷ Specifically, the NPS provided detailed comments on specific model limitations, including concerns with the modeling domain and seasonal issues. The NPS concluded that the most representative potential impacts could only be considered from the modeled July episodes (not from April). In addition, the NPS inquired about source apportionment data from the modeling runs. The Response to Comments for the RMPA/FEIS did not address any of the NPS's specific comments on the CAMx ozone modeling analysis. The BLM did not include any additional information (e.g., source apportionment data) in the RMPA/FEIS.

The BLM also failed to respond to the following comments by public lands advocacy groups regarding the ozone impact analysis:

The Draft White River RMPA models air quality impacts from increased oil and gas development for April and July, not taking into account that the highest ozone levels in Dinosaur and the surrounding region are in the winter months. Therefore, the modeling results do not reflect the greatest potential impact to ozone levels in Dinosaur and the surrounding region or account for how BLM's preferred alternative could hinder the ability of both Utah and Colorado to meet ozone NAAQs in the future.³⁸

While the ozone modeling results for the RMPA/DEIS don't show any concentrations above the current NAAQS of 75 ppb in July, results show concentrations in the 65-75 ppb range in July and these impacts should be considered significant based on EPA's proposed revisions to the NAAQS and the CASAC recommendations.³⁹

³⁶ See NPS, Northern Colorado Plateau Network Ozone Injury Risk Assessment, available online at <http://www.nature.nps.gov/air/permits/aris/networks/ncpn.cfm>

³⁷ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment pp. 9-10.

³⁸ The Wilderness Society, Conservation Colorado, Rocky Mountain Wild and National Parks Conservation Association, January 28, 2013 letter Re: Comments on the White River Draft Resource Management Plan Amendment and EIS for Oil and Gas Development at 42.

³⁹ See BLM WRFO RMPA/DEIS ARTSD Appendix M Figures M-43, M-44 and M-45 showing daily max 8 hour ozone concentrations for July 13-15 between 65-75 ppb (based on 2006 meteorology data).

Overall, the ozone modeling analysis does not reflect a conservative assessment of ozone impacts to the region from the proposed planning area development. Therefore, ozone impacts may be even greater than what is presented. Fundamentally, CAMx ozone modeling is not designed to be conservative (*i.e.*, not tending toward worst case assumptions). But probably most significant, the ozone modeling does not account for wintertime ozone formation (modeling episodes only include April and July). The absence of a wintertime ozone analysis is a major limitation of the impact analysis for the RMPA/DEIS.

CARMMS Report Ozone Results

The recently released Colorado Air Resource Management Modeling Study (CARMMS) report concludes that, “[t]he WRFO is the individual BLM Planning Area with the largest contribution to 2021 modeled exceedances of the ozone NAAQS of 1.83 ppb for the High, 0.43 ppb for the Low and 1.66 ppb for the Medium Development Scenarios when the 2021 total ozone was 76.5, 77.0 and 76.3 ppb, respectively.”⁴⁰ These ozone impacts disclosed in the CARMMS report are important to consider since the model looked at ozone impacts throughout the year.

The CARMMS performance evaluation concludes that the “CARMMS CAMx Base Case simulation achieved EPA’s ozone model performance goals, except in the winter months (Jan, Feb, Nov and Dec) when a 60 ppb observed ozone cut-off is used.”⁴¹ Using EPA’s recommended performance goals, the “hourly ozone underestimation bias is so great during the winter months that it exceeds the ozone model performance goal.”⁴²

In addition to the model performance showing an underestimation bias in winter, ozone impacts in the CARMMS report may be underestimated due to underestimated emissions inputs. Based on findings from a recent study of VOC emissions from oil and gas sources in the Colorado Front Range, emission inventories may under-predict fugitive emissions from oil and gas sources.⁴³ The Colorado Front Range study concludes that fugitive emissions in Weld County in 2008 were likely underestimated by a factor of two.⁴⁴ It is also therefore likely that VOC emissions used in inventories during that same time period also underestimate emissions (since they are likely based on similar estimation

⁴⁰ Colorado Air Resource Management Modeling Study 2021 Modeling Results for the High, Low and Medium Oil and Gas Development Scenarios, 06-35841A, January 2015 at 205, available online at http://www.blm.gov/style/medialib/blm/co/information/nepa/air_quality.Par.97516.File.dat/CARMMS_Final_Report_w-appendices_012015.pdf

⁴¹ CARMMS at 29

⁴² CARMMS at B-11

⁴³ Pétron, G., et al. (2012), Hydrocarbon emissions characterization in the Colorado Front Range: A pilot study, *J. Geophys. Res.*, 117, D04304, doi:[10.1029/2011JD016360](https://doi.org/10.1029/2011JD016360).

⁴⁴ *Id.* at 18

techniques). The CARMMS study is based on a 2008 Base Case inventory. Therefore, the potential for underestimated fugitive VOC emissions in the analysis is possible since the ozone modeling was based on inventory data from a similar time period and, therefore, since the inventory data may significantly underestimate VOC emissions from that time period, the ozone concentrations predicted for the analysis likely also underestimate impacts.

Conclusions regarding ozone impacts presented in the CARMMS report should be evaluated with care given the fact that: (1) the model performance evaluation for CARMMS shows underestimation bias in wintertime; (2) CAMx is not fundamentally designed to be a conservative model; and (3) the model inventory may significantly underestimate fugitive VOC emissions from oil and gas sources. *Given the likelihood that modeled concentrations may underestimate ozone impacts, especially in winter, the fact that monitored ozone concentrations already consistently exceed 60 ppb in the impacted area, and the results showing WRFO emissions contribute to exceedances of the current NAAQS, the BLM must commit to stringent and enforceable VOC and NO_x mitigation measures to ensure development in the planning area will not contribute to adverse ozone impacts.* And, as discussed earlier, since concentrations below the current and soon to be lowered NAAQS are known to pose health threats, the BLM should consider lower concentrations as potentially significant impacts. BLM has a basic obligation to “provide full and fair discussion of significant environmental impacts”, where in evaluating the significance of the impact, the responsible official must consider “[t]he degree to which the proposed action affects public health or safety.” See 40 C.F.R. §§ 1502.1 and 1508.27(b)(2), (b)(10).

Impacts to Class I and Sensitive Class II Areas

The BLM does not sufficiently address comments received by the NPS on the visibility and deposition impacts to Class I and Sensitive Class II areas in the impacted area from proposed development in the planning area.

Visibility

Visibility impacts are predicted from direct project impacts at all of the Class I and Sensitive Class II areas for all Alternatives analyzed,⁴⁵ including Arches National Park, Eagles Nest Wilderness Area, Flat Tops Wilderness Area, Maroon Bells-Snowmass Wilderness Area, Mount Zirkel Wilderness Area, Colorado National Monument and Dinosaur National Monument.⁴⁶ The number of days with a

⁴⁵ With one exception: no days of visibility change greater than 0.5 dv were predicted for Alternative A at Arches NP. BLM WRFO RMPA/DEIS Appendix F Table F-17 at F-18

⁴⁶ BLM WRFO RMPA/FEIS Appendix F Table F-17 at F-18 showing days of visibility change greater than or equal to 0.5 dv.

visibility change greater than 0.5 deciview (dv) over the three modeled years is predicted to total as many as 280 days at Dinosaur National Monument for Alternative C.⁴⁷ The cumulative air quality impact analysis for the RMPA/DEIS also showed numerous visibility impacts at all of the Class I and Sensitive Class II areas assessed.⁴⁸

The NPS, in its comments on the RMPA/DEIS, expressed concern with the predicted visibility impacts. Specifically, the NPS made the following comment:

The NPS finds that the total modeled visibility impacts from the action alternatives would “cause visibility impairment” at Dinosaur NM, and are a substantial concern to the NPS. Again, this points out the need to apply the most stringent suite of air quality mitigations in the final decision.⁴⁹

Public lands advocacy groups also expressed similar concern with the visibility impacts modeled for the RMPA/DEIS:

Air modeling of proposed alternatives in the Draft RMPA indicates that the preferred alternative could cause increased nitrogen oxide emissions that would mar the scenic views in Dinosaur over 100 days each year (>0.5 dv impact 101 days and >1.0 dv impact 35 days). Modeled cumulative impacts to Dinosaur Monument, including projected emissions from the preferred alternative, show haze pollution impacting visibility in Dinosaur for over 200 days each year (>1.0 dv impact 202 days).

BLM modeling also shows impacts from the preferred alternative above the typical significance threshold of 0.5 dv, as well as above 1 dv, at multiple Class I areas on multiple days. These impacts are counter to the Congressionally-driven goal of the Regional Haze Rule to reach natural visibility levels in all Class I areas by 2064, and undermine the progress made under that program thus far. As such, all feasible mitigation measures, including the most stringent emissions controls and determination of appropriate levels of development, should be implemented. Furthermore, these mitigation measures should be identified and proposed as part of this RMP, not after the fact.

Given the significant visibility impacts at all Class I and sensitive Class II areas in the analysis and the concern from Federal Land Managers, the BLM must commit to stringent and enforceable mitigation measures to ensure development

⁴⁷ See BLM WRFO RMPA/FEIS Appendix F Table F-17 at F-18 showing days of visibility change greater than or equal to 0.5 dv, where total days of visibility change greater than or equal to 0.5 dv for the ‘FLAG 2000’ analysis for Alternative C for modeled years (2001-2003) is 86+101+95 = 282 days.

⁴⁸ BLM WRFO RMPA/FEIS Appendix F Table F-33 at F-34 showing days of visibility change greater than or equal to 1.0 dv.

⁴⁹ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment, p. 9.

in the planning area will not contribute to adverse visibility impacts.

Nitrogen Deposition

The WRFO RMPA/FEIS also predicts significant ecosystem impacts (*i.e.*, maximum modeled nitrogen deposition greater than or equal to the Deposition Analysis Threshold (DAT) of 0.005 kg/ha/yr) from WRFO BLM sources for the action alternatives at Eagles Nest Wilderness Area, Flat Tops Wilderness Area, Maroon Bells-Snowmass Wilderness Area, Mount Zirkel Wilderness Area, Colorado National Monument (Alternative C only) and Dinosaur National Monument (Alternative C only).⁵⁰

The NPS, in its comments on the RMPA/DEIS, expressed concern with the predicted ecosystem impacts. Specifically, the NPS described the following concerns regarding nitrogen deposition effects to Dinosaur NM:

The Park Service is concerned that the predicted nitrogen deposition from WRFO emission sources significantly exceeds the NPS nitrogen DAT (0.005 kg/ha/year) in Dinosaur NM under all action alternatives. ... When the DAT is exceeded, NPS examines whether the ecosystem(s) in the part are sensitive to deposition, and if so, considers whether current deposition levels in this location are of concern. In this case, NPS is concerned that desert and semi-arid ecosystems, such as those found in Dinosaur NM, may be negatively affected by current levels of nitrogen deposition...⁵¹

The NPS further concluded that “the current cumulative nitrogen deposition impacts are a substantial concern in Dinosaur NM, and that the WRFO contribution to those impacts is significant given the magnitude of the DAT exceedance under all alternatives.”⁵² The NPS requested the most stringent combination of mitigation requirements be implemented for all alternatives. Other than referring to the CARMMS the BLM does not directly address any of the NPS concerns with ecosystem and visibility impacts and the need for stringent mitigation measures to address these impacts and impacts from proposed future development in the plan.⁵³ *Given the significant nitrogen deposition impacts predicted in the modeling and the concern from Federal Land Managers, the BLM must commit to stringent and enforceable mitigation measures to ensure development in the planning area will not contribute to adverse ecosystem impacts.*

⁵⁰ See WRFO RMPA/FEIS Appendix F Table F-14 at F-15

⁵¹ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment, p. 8.

⁵² NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment, p. 9.

⁵³ See BLM WRFO RMPS/FEIS Appendix K – Response to Comments at K-78.

CARMMS Report Visibility and Ecosystem Impacts

Visibility and ecosystem impacts at some of these same areas are confirmed in the recent CARMMS report:

When looking at the 2021 High Development Scenario visibility impacts at Class II areas, there are four of the 18 BLM Planning Areas (Source Groups A through P) that have maximum Δdv that exceeds the 0.5 threshold, WRFO, GJFO and TRFO, as seen for Class I areas, but also NMFFO for the Class II areas (Tables 5-13b and 5-16a): WRFO with 40 days of $\Delta dv > 0.5$ and 5 days with $\Delta dv > 1.0$ and max Δdv of 1.43 at Dinosaur National Monument. See CARMMS at 122 [*emphasis added*]

Federal O&G from the WRFO Planning Area and the 2021 High Development Scenario results in 6 days at Flat Tops, 1 day at Eagles Nest and 2 days at Maroon Bells-Snowmass Class I areas with $\Delta dv > 0.5$ and no days > 1.0 and maximum Δdv of 0.789, 0.538 and 0.559 at these three Class I areas, respectively (Table 5-17a). The mitigation in the 2021 Medium Development Scenario reduces these values to 4, 0 and 0 days with $\Delta dv > 0.5$ and 0.782, 0.439 and 0.479 maximum Δdv at Flat Tops, Eagles Nest and Maroon-Bells Class I areas, respectively (Table 5-17c). See CARMMS at 128

The two BLM Planning Area[s] with Federal O&G having the highest annual nitrogen deposition impact are the TRFO and WRFO with Maximum values of 0.126 and 0.108 and Average values of 0.043 and 0.068 for the High, Maximum values of 0.106 and 0.134 and Average values of 0.036 and 0.056 for the Medium, and Maximum values of 0.015 and 0.017 and Average values of 0.005 and 0.011 for the Low Development Scenarios all of which are above the DAT. See CARMMS at 153

The BLM should explicitly factor the future emissions scenario projections included in CARMMS report into its analysis prior to issuing the ROD.

In addition to the impacts at the Class I and sensitive Class II areas assessed for the DEIS, the BLM fails to include an analysis of impacts at Black Canyon of the Gunnison National Park, a Class I area administered by the NPS, as requested by the NPS.⁵⁴ This exclusion should be addressed by the BLM.

Conclusions and Additional Recommendations

Clearly, there is significant concern, including from Federal Land Managers, that

⁵⁴ NPS, January 25, 2015 letter Re: National Park Service comments on DES-12/0027, White River Field Office Oil and Gas Development, Draft Environmental Impact Statement, Resource Management Plan, Amendment, p. 6.

the BLM did not adequately ensure there would be no adverse impacts to ozone concentrations, visibility and nitrogen deposition from the planning area development. The RMPA/FEIS fails to include the necessary measures to prevent the significant air quality and air quality related value impacts modeled in the RMPA/DEIS and confirmed in the CARMMS.

The RMPA/FEIS should include additional mandatory and enforceable mitigation measures aimed at further reducing NO_x, VOC and fugitive dust emissions in order to ensure air quality protection. These measures should be put into practice through appropriate processes, such as lease stipulations and permits-to-drill and any other appropriate enforceable method. Additional measures to minimize NO_x, VOC and fugitive dust emissions from oil and gas sources include:

Additional Mitigation Measures Aimed at Reducing NO_x, VOC and PM Emissions:

Field electrification to reduce NO_x emissions

Strict engine requirements to reduce NO_x emissions (e.g., Tier 4 drill rigs and Tier 2 or better construction equipment)

Restrictions on the number of drill rigs operating simultaneously to reduce NO_x emissions

Centralization of well pad production facilities to reduce NO_x emissions (e.g., from heaters)

Leak Detection and Repair programs to reduce VOC emissions at all possible locations and with regular frequency

Plunger lift systems to significantly reduce VOC emissions associated with depressurization of production systems during a blowdown operation, when equipment is shut down for emergencies or scheduled maintenance.

Steps to minimize traffic impacts (e.g., fugitive dust reduction measures for vehicle traffic on unpaved roads, centralization of facilities to minimize traffic) to reduce PM emissions

80%+ control of fugitive dust from collector, local and resource roads throughout the entire planning area to reduce PM emissions

Finally, the BLM should consider additional cost-effective mitigation measures for reducing methane emissions from oil and gas operations. In addition to climate impacts, scientific studies have demonstrated that methane emissions contribute

to the formation of ground-level ozone.⁵⁵ Specifically, the U.S. Climate Change Science Program recently reported that methane reductions accomplish the dual goals of addressing climate change and reducing ozone pollution.⁵⁶ Methane reductions have a direct impact on both climate change and ozone pollution. In addition, many of the proven methane emission controls for the oil and gas sector also reduce VOCs and hazardous air pollutants (HAP). The associated air quality benefits that result from reductions in VOC and HAP emissions are a huge co-benefit of methane reduction technologies.

Cost Effective Mitigation Measures Aimed at Reducing Methane Emissions:

Well Cleanup Operations (Liquids Unloading). Use of plunger lift systems and well monitoring technologies to improve operational systems during well cleanup operations can significantly reduce methane and VOC emissions and increase gas production.⁵⁷

Compressors. Use of compressor rod-packing technologies and the use of dry seals in centrifugal compressors are both cost-effective means to reduce VOC emissions and can reduce methane emissions by more than 90% and up to 99%, respectively.

Pneumatic Devices. Use of no bleed pneumatic devices is a cost-effective measure that can virtually eliminate methane and VOC emissions.

Dehydrator Units. Zero emission dehydrators can be considered a technically and economically feasible option for new dehydrator installations and virtually eliminate methane and HAP emissions.

Storage Tanks. Use of vapor recovery units at crude oil and condensate storage tanks are cost-effective and can reduce methane and VOC emissions by at least 98%.

Leak Detection Programs. Equipment leak detection and repair programs

⁵⁵ See, e.g., Arlene M. Fiore *et al.*, "Characterizing the Tropospheric Ozone Response to Methane Emission Controls and the Benefits to Climate and Air Quality," *Journal of Geophysical Research* Vol. 113, April 30, 2008, p.1 ("[I]n the presence of nitrogen oxides (NO_x), tropospheric CH₄ [methane] oxidation leads to the formation of O₃ [ozone].").

⁵⁶ See Hiram Levy II *et al.*, U.S. Climate Change Science Program Synthesis and Assessment Product 3.2, "Climate Projections Based on Emissions Scenarios for Long-Lived and Short-Lived Radiatively Active Gases and Aerosols", September 2008, p. 65, <http://www.climatechange.gov/Library/sap/sap3-2/final-report/> (finding that reducing methane emissions "lead[s] to reduced levels of atmospheric ozone, thereby improving air quality" and "lead[s] to reduced global warming").

⁵⁷ According to EPA, benefits from increased gas production are "well- and reservoir-specific and will vary considerably." Lessons Learned, Natural Gas STAR Partners, "Installing Plunger Lift Systems in Gas Wells", October 2006, http://www.epa.gov/gasstar/documents/II_plungerlift.pdf

across all sectors (*i.e.*, processing, production, transmission and storage) can be cost-effective and significantly reduce methane and VOC emissions.

Enhanced Operating and Maintenance Practices for Pipelines. During routine maintenance of pipelines, operator use of pump-down techniques reduces the gas line pressure in the pipeline before venting and can recover up to 90% of the gas in the line.⁵⁸ Use of in-line compressors is almost always cost effective and use of additional portable compressors to achieve higher gas recovery may also be justified in some cases. In addition to methane reductions, pump down techniques virtually eliminate HAP emissions.

⁵⁸Lessons Learned, Natural Gas STAR Partners, "Using Pipeline Pump-Down Techniques to Lower Gas Line Pressure Before Maintenance", October 2006, http://www.epa.gov/gasstar/documents/ll_pipeline.pdf.