"David Garbett"
<david@suwa.org>
07/14/2011 07:42 PM

To <UT_Comments@blm.gov>
cc
bcc
Subject Exhibits 4 to Comments on November 2011 Oil and Gas Lease Sale

Mr. Ogaard,

Please find attached to this email exhibits that accompany comments that will be submitted by the Southern Utah Wilderness Alliance tomorrow. This is the fourth of numerous emails to follow with attachments.

Thank you,

David Garbett
Staff Attorney
Southern Utah Wilderness Alliance
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Salt Lake City, UT 84111
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EPA Comments on GASCO DEIS 01 07 10 (2).pdf

EPA Comments on Vernal FEIS-PRMP1.pdf

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Ref: 8EPR-N

Original signed 01/07/2011

Juan Palma, State Director
Bureau of Land Management
Utah State Office
P.O. Box 45155
Salt Lake City, Utah 84145-0155

Re: Comments on the Gasco Uinta Basin Natural Gas Development Project Draft EIS
CEQ # 20100386

Dear Mr. Palma:

The U.S. Environmental Protection Agency (EPA) Region 8 has reviewed the Gasco Energy, Inc. Uinta Basin Natural Gas Development Project (Gasco) Draft Environmental Impact Statement (EIS) prepared by the Bureau of Land Management (BLM). Gasco Energy, Inc. proposes to develop oil and natural gas in the Monument Butte-Red Wash and West Tavaputs Exploration and Development Areas in Uintah and Duchesne Counties, Utah. Our comments are provided for your consideration pursuant to our responsibilities and authorities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C), and Section 309 of the Clean Air Act (CAA), 42 U.S.C. Section 7609.

At the outset, I want to acknowledge the recent efforts of BLM Utah in working to achieve improved environmental protection for air quality and water quality while managing fossil fuel resource development on federal lands. EPA supports BLM's initiative in development of a statewide air management strategy. BLM's Air Resource Management (ARM) Strategy would provide a regional photochemical model that could be used to streamline air quality analyses during the NEPA process for all BLM oil and gas projects in Utah and set a framework for defining appropriate mitigation levels across the state. BLM Utah also recently published IM No. UT 2010-055 - Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development, an impressive step in enhancing BLM's existing process for the continued protection of all usable groundwater zones.

Based upon our discussions with BLM, it is clear to us that we share common concerns regarding protection of air quality and water quality in the Uinta Basin. Under our CAA Section 309 review responsibilities, however, our review and rating of the proposed action must be based upon information contained in the Draft EIS. We would like to work with you in addressing the concerns expressed in this letter, as you proceed with the NEPA process for the proposed project.

PROJECT BACKGROUND

Five alternatives for development in the 206,826 acre Gasco project area are analyzed in the Draft EIS. Under Alternative A, the BLM Preferred Alternative, Gasco would drill 1,491 new natural gas production wells to depths of 5,000 to 20,000 feet. Wells would be drilled from individual well pads, with a maximum surface density of one well pad per 40 acres and at a rate of 100 wells per year. The Preferred Alternative includes construction of associated facilities such as access roads and pipelines, as well as construction of a water evaporation facility (WEF), consisting of 30 basins on 214 acres, to dispose of produced water. Other alternatives analyzed in the Draft EIS include: Alternative B, Reduced Development, with 1,114 new gas production wells developed in a phased manner and special exclusions for sensitive areas; Alternative C, Full Development, with 1,887 new gas production wells; Alternative D, No Action, under which 368 separately approved wells would be developed; and Alternative E, Directional Drilling, which has all the components of the Reduced Development Alternative, but wells would be directionally drilled from only 328 well pads. All alternatives include a WEF and other associated facilities in proportion to the number of wells and well pads.

EPA ISSUES OF CONCERN

Based on EPA's review of the Draft EIS, we have identified four primary concerns with the project: air quality impacts; the characterization of and potential for impacts to groundwater resources; impacts to impaired surface waters; and the development and analysis of alternatives. More importantly, EPA has also identified inadequacies in the Draft EIS that hinder a complete assessment of potential environmental impacts.

Air Quality

Evaporation Pond VOC and HAP Emissions

EPA is concerned that the emissions inventories used for all project-related modeling (near-field, far-field, and ozone) do not include volatile organic compound (VOC) emissions from the WEF. The produced water found in many gas operations can contain substantial levels of various VOCs, including those that when emitted are classified as hazardous air pollutants (HAPs). Given the large size of the proposed produced water disposal facility, there is potential for substantial emissions of VOCs from the evaporation ponds. The EIS should provide an estimate of the VOC content of the evaporation basins and an emissions inventory that indicates the level of VOCs emitted from the WEF, as well as disclose the potential impact on HAP and ozone concentrations in the project area.

Near-field Modeling

Modeling for the new one-hour near-field nitrogen dioxide (NO_2) National Ambient Air Quality Standard (NAAQS) (finalized on April 12, 2010) was not included in the Draft EIS. The explanation presented in the Draft EIS that gas development would not impact one-hour NO_2 because of its temporary nature is not valid because this is a one-hour standard. The lack of one-

hour NO_2 modeling constitutes an inadequacy in the Draft EIS, particularly because modeling results are necessary to plan adequate mitigation to reduce any predicted adverse impacts. Moreover, as discussed above, near-field modeling conducted for the Draft EIS also does not include HAP emissions. An accurate prediction of potential HAP impacts from the proposed project is necessary to protect those living, working, or recreating in or near the project area. In particular, we note that the Pariette Wetlands (a popular recreational destination) and the community of Ouray are approximately five miles and ten miles, respectively, from the proposed WEF.

Ozone

Measured ambient concentrations of ozone in the Uinta Basin during the period of January through March 2010 reached levels that are considerably above the NAAQS of 75 ppb for an eight-hour average, which was promulgated by EPA in 2008. EPA has proposed to lower the primary 8-hour ozone NAAQS to a level between 60 – 70 ppb and to establish a distinct cumulative, seasonal "secondary" standard; regardless of the outcome of this decision, it is clear that the measured values are a concern for public health. EPA appreciates that BLM acknowledged the measured wintertime ozone concentrations in Section 3.2.3 – Existing Air Quality. However, further information should be provided in the EIS to fully consider the potential impacts to wintertime ozone from the proposed action. Although current modeling capabilities do not allow for prediction of wintertime ozone concentrations, the wintertime ozone issues should be addressed qualitatively in light of the significant predicted project impacts with the knowledge gained from the modeling, monitoring and potential mitigation scenarios.

The project incremental increase with the Applicant Committed Environmental Protection Measures (ACEPMs) has been modeled at 1.3 ppb, which is considered a significant project-specific contribution given the recent ozone monitored exceedances in the Uinta Basin. We believe there are additional control strategies that could be utilized to effectively reduce NO_x and VOC emissions, which may include selection of a produced water disposal alternative that avoids or reduces use of surface evaporation pits.

Water Resources

Groundwater

Groundwater resources in the project area have not been adequately characterized in the Draft EIS to enable an assessment of the potential for impact to groundwater quality. All groundwater that has not been exempted through the aquifer exemption process and meets the definition of underground source of drinking water (USDW) at 40 C.F.R. § 144.3 is protected under the Safe Drinking Water Act. The brief description of the three principle aquifers in the project area indicates that there may be USDWs in the area of Gasco's proposed development; in particular, the Draft EIS notes that the Uinta-Animas aquifer contains freshwater in some areas. However, very little information is provided in the document regarding the location or depth of USDWs. In order to accurately assess the potential impacts of the proposed project, the EIS must provide substantially more detail characterizing groundwater resources, including

delineating the depth of all USDWs in the project area, and providing the quality of these aquifers in terms of total dissolved solids for each specific zone. EPA considers surface impoundment of produced water from oil and gas development as a potentially significant risk to groundwater and surface water. Therefore, adequate groundwater characterization is of special concern for the area underlying the proposed site of the evaporation pond complex.

Although there are no Sole Source Aquifers or Utah Drinking Water Source Protection Zones underlying the project area that would be at risk from the activities proposed, EPA is concerned that there still may be potential to impact public or private water supplies. The EIS should provide available location and other information regarding Public Water Supply wells or springs or private (domestic or stock) water wells or springs in the project area. This includes Tribal wells and springs and should include the alluvium along the Green River.

EPA disagrees with the determination in the Draft EIS that impacts to groundwater need not be discussed because they are "effectively eliminated, reduced, or mitigated" (pg. 4-264). The potential for significant impacts to water resources exists during all project stages, including drilling, well pad construction, production, hydraulic fracturing, produced water disposal, and freshwater withdrawal. EPA does not believe that deferring a detailed groundwater evaluation to the site-specific well reviews provides a complete analysis of potential cumulative environmental impacts to the aquifers. Further, we believe that the potential for groundwater impacts from leaks or spills from the WEF should be addressed in the EIS.

EPA is pleased to see the discussion of "suggested" or "encouraged" mitigation measures which the approving officer could require at the time of Application for Permit to Drill (APD) approval (pg. 4-264) and the discussion of protective drilling practices (Sections 2.2.2.3 and 2.2.2.4). These measures, if fully implemented, would provide effective mitigation of, for example, potential migration of production fluids away from the production zone during well drilling, completion, and production. However, it is unclear to what extent such mitigation will occur. Mitigation measures to protect groundwater should be clearly described in the EIS and required in the Record of Decision (ROD). Monitoring is also critical to document impacts during oil and gas development. A complete monitoring plan and program to track surface water or groundwater impacts as drilling and production operations occur should be included in the EIS.

Surface Water Quality

EPA considers impacts to surface water from runoff a substantial concern for the proposed project. Runoff of sediments, salts and selenium is the most substantial water quality concern in the Gasco project area as noted in the Draft EIS. Pariette Draw and Nine Mile Creek were listed on Utah's most recent 303(d) list of impaired waters, finalized in 2006, and both would receive increased loading of sediments, salts and selenium from this proposed project. A Total Maximum Daily Load (TMDL) was approved by EPA for Pariette Draw on September 28, 2010 that specifically calculates the reductions in total dissolved solids, selenium, and boron in the watershed that are necessary in order for surface water standards to be met. Increased loading of sediments to Pariette Draw would occur under all alternatives, although the use of

directional drilling would reduce runoff through a reduced number a well-pads. In addition to well-pads, loading would result from the construction of the evaporative ponds, which appear to be located within the Pariette Draw watershed, and from new roads and pipelines. Since the proposed project was not captured in the TMDL, any increase in sediment loading to Pariette Draw would represent a load that exceeds the TMDL and would be an unacceptable impact to surface water quality. Our recommendations for monitoring and mitigation to detect and prevent unacceptable impacts are described in the enclosed detailed comments.

Development and Analysis of Alternatives

Water Evaporation Facility

Significant environmental impacts are likely to be associated with disposal of produced water in the proposed WEF. EPA's concerns include the impact of potential WEF leaks on water quality, potential impacts to migratory birds and other wildlife from contact with the evaporation basins, and air quality impacts from VOC emissions. These potential impacts were not addressed in detail in the Draft EIS.

Over the past several years, EPA and the BLM Vernal Office have actively worked together to increase the number of underground injection permits and reduce the number of evaporation ponds in the Uinta Basin. Nonetheless, all five alternatives analyzed in the Draft EIS include surface evaporation as the means of disposal of produced water. The Draft EIS considered, but did not fully analyze, subsurface water disposal. No other alternative water management method or combinations of methods were considered or analyzed in the Draft EIS. Based on our preliminary review of available data, there appear to be reasonably available alternate disposal methods, including subsurface injection or treatment and reuse/recycling, which should be fully analyzed in order to reduce the potentially significant environmental impacts of the WEF. The decision to avoid surface evaporation disposal may resolve many of EPA's concerns regarding potential impacts to air quality, water quality, and wildlife from on-site produced water surface impoundments.

Additional data are available to better assess the feasibility of underground injection, including logs and driller's reports for over 100 production wells previously drilled in the project area. EPA's preliminary review of data logs suggests to us that underground injection could be a viable option in several zones of the Green River formation as well as the deeper Sego and Castlegate formations. Cross sections of the subsurface geology in the project area should be provided in the EIS to support conclusions of the feasibility of underground injection. The EIS should also consider water treatment options that would allow for reuse or recycling of produced water, an environmentally beneficial disposal method. Treated water could be reused in drilling or production operations in the Gasco field or recycled for a variety of uses, including waterflood for enhanced oil recovery, in other nearby fields. Treatment could also potentially allow for surface discharge.

Directional Drilling

BLM's Preferred Alternative proposes development of natural gas resources with each well drilled from an individual well pad; however, according to the analysis in the Draft EIS, implementation of directional drilling could reduce surface disturbance by approximately 60 percent if implemented as described in Alternative E and result in greatly reduced impacts to nearly all resources of concern. Minimizing surface disturbance is critical in the arid Uinta Basin, where reclamation is frequently difficult. Impacts of disturbed soils can include: erosion and sediment runoff impacts to surface water resources; impacts to local air quality from fugitive dust; dust impacts to vegetation and cultural resources (including the rock art of Nine-Mile Canyon); both direct and indirect impacts to the Uinta Basin Hookless Cactus, a federally listed threatened species; and long distance transport of fugitive dust out of the basin, which may contribute to dust on snow events in the mountains. The Draft EIS clearly indicates that resource impacts associated with surface disturbance are proportionate to the number of well pads. EPA therefore believes that directional drilling should be utilized to the maximum extent possible in the Uinta Basin project area. We recommend that BLM reconsider selection of Alternative E as the Preferred Alternative, or develop a new alternative that maximizes the valuable resource protection provided by directional drilling while maintaining reasonable cost and desirable development level.

Cumulative Impacts

The Reasonably Foreseeable Development (RFD) scenario used in the cumulative impact assessment for Gasco appears to undercount planned and projected development in the Uinta Basin. The RFD scenario appears to be based on the Vernal Resource Management Plan (RMP), which was finalized in 2008. However, based on information provided for NEPA projects currently undergoing scoping or review for oil and gas projects on federal lands managed by the BLM, U.S. Forest Service, and Bureau of Indian Affairs (BIA), it appears that more than three times as many oil and gas wells are now anticipated in the basin than were considered during RMP development. The Greater Natural Buttes Draft EIS (released for comment by BLM July 16, 2010) included 21,293 wells in its RFD, significantly higher than the 6,400 quantified in the Gasco Draft EIS. The under-accounting of RFD may have caused significant underestimation of cumulative air quality impacts, as well as cumulative impacts to all other resources of concern.

EPA'S RATING

The Draft EIS does not adequately analyze the project's potential impacts to air quality, particularly associated with VOC and HAP emissions from the produced water evaporation ponds. Moreover, inadequate characterization of groundwater resources results in an inability to determine whether adverse impacts to groundwater may occur as a result of the proposed action. EPA's review of the Draft EIS has also revealed significant environmental impacts from well-pad construction in the Pariette Draw watershed, which should be avoided, underscoring a need to fully consider the feasibility of directional drilling technology. In accordance with our policies and procedures for reviews under NEPA and CAA Section 309, EPA has rated this Draft EIS as "Inadequate" (3). As with all projects with potential unsatisfactory impacts or inadequate

assessment of such impacts, this proposal is a potential candidate for referral to the Council on Environmental Quality (CEQ). The "3" rating indicates EPA's belief that the Draft EIS does not meet the purposes of NEPA, and thus should be formally revised and made available for public comment in a supplemental or revised Draft EIS. A copy of EPA's rating criteria is enclosed. In addition, the enclosed detailed comments provide further discussion of our concerns regarding air quality and water resources, as well as our comments on climate change, potential impacts to environmental justice communities, tribal coordination, spill prevention, and impacts to wildlife and special status species.

Thank you for the opportunity to comment on this Draft EIS. We reaffirm our commitment to work cooperatively with BLM to address our significant concerns. If you have any questions on our rating or the comments provided in this letter, please contact Larry Svoboda, Region 8 NEPA Compliance and Review Program Director, at 303-312-6004, or Carol Campbell, Assistant Regional Administrator of Ecosystems Protection and Remediation, at 303-312-6340.

Sincerely,

//Original signed by James B. Martin//

James B. Martin
Regional Administrator

Enclosures: Detailed Comments
EPA's Rating System Criteria

cc: Daniel Picard, U&O Agency Superintendent, BIA
The Honorable Richard Jenks Jr., Chairman, Ute Indian Tribe
Bill Stringer, Green River District Manager, BLM

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EPA'S DETAILED COMMENTS FOR THE GASCO DRAFT EIS

Consideration of Directional Drilling

EPA recommends that additional consideration be given to use of directional drilling in the EIS. We believe that directional drilling is a technologically and economically feasible alternative, which is being used extensively in nearby fields and throughout the world. It is recognized that directional drilling is more costly to implement than vertical drilling, however, it does not appear that the estimates of economic feasibility of the alternatives in the EIS have fully considered the many cost savings associated with construction of directionally drilled wells. Decreased construction of roads and well-pads and less time associated with moving the drill rig are among the factors that can offset many of the costs of directional drilling itself.

The need for utilization of directional drilling for Gasco is underscored by the challenges of reclamation in the project area, and the environmental impacts associated with surface disturbance. A total of 97,706 acres in the project area (47 percent) have soil characteristics that restrict reclamation. The Draft EIS acknowledges that it generally takes at least 10 years to reclaim a site following disturbance; other recent Uinta Basin EISs have indicated significantly longer time periods, up to 100 years, for revegetation of some plant species (Ashley National Forest South Unit Draft EIS, Greater Natural Buttes Draft EIS). According to the Draft EIS regeneration of biological soil crusts, which serve several critical ecosystem functions including stabilizing soils, could take up to 250 years. Long-term surface disturbance can contribute to regional dust concerns. For example, a recent study found that dust on snow in the Upper Colorado River Basin robs the Colorado River of about five percent of its water each year, enough to supply Los Angeles for 18 months.[1] EPA believes the substantial impacts to air quality, water quality, and threatened plant species from surface disturbance in the Gasco project area necessitates utilization of directional drilling to the maximum extent possible.

According to the Draft EIS (pg. 2-1), Alternative A was selected as the Preferred Alternative "because it best addresses issues raised in scoping about impacts to cultural resources in Nine Mile Canyon while meeting the purpose and need for the project." EPA is confused regarding this selection, and recommends that the EIS include an explanation of Preferred Alternative selection that is more transparent to readers of the EIS. We understand from Table 4-168 that, although Alternative A disturbs 844 acres in the Nine Mile Canyon Special Recreation Management Area (SRMA), none of this disturbance would be below the rim. Other alternatives include a small percentage of disturbance below the rim of Nine Mile Canyon. Utilization of directional drilling would likely allow for access to mineral resources within the Nine Mile Canyon SRMA without disturbance of cultural or other critical resources.

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[1] Painter et. al, "Response of Colorado River runoff to dust radiative forcing in snow," *PNAS* 2010 107 (40) 17125-17130.

Air Quality

Ozone

EPA disagrees with the Draft EISs characterization of ozone as able to "only be evaluated on a regional basis" on page 4-16. Although ozone is a regional pollutant, direct project impacts can be isolated from regional models. For this reason, we recommend that the project's incremental contributions to ozone be discussed in Section 4.2 – Air Quality rather than in 4.18 – Cumulative Impacts, to avoid confusion.

Table 1-1 of Appendix J presents emission from the Proposed Action and emissions from the Proposed Action with ACEPMs. EPA appreciates the addition of control emissions to mitigate impacts to the surrounding area by a modeled increment of 0.6 ppb. Please indicate by source category the emissions reductions taken and the number of units used in the modeled emissions inventory. Based on the modeled incremental impact of the Preferred Alternative with ACEPMs of 1.3 ppb, additional mitigation measures may be warranted. For example, additional NO_x reductions could be realized through use of Tier IV engines, which should be available later in 2011, and alternate produced water disposal methods could reduce VOC emissions from the WEF. Onsite air monitoring programs (e.g., O_3, NO_x, VOC, aldehyde), source emission monitoring (i.e., FLIR camera), and emission control recordkeeping should also be considered.

EPA is concerned the Draft EIS does not fully disclose the potential impacts to ozone from the proposed action. The Draft EIS indicates that ozone concentrations in areas impacted by the project will not exceed the 75 ppb ozone standard, but does not disclose the modeled absolute maximum value. It is unclear from the information presented in the Draft EIS and Appendix J whether values of 75 ppb may have been modeled, or how many values approaching or reaching the standard were modeled. The figures provided in Appendix J indicate numerous grid squares in the 73 – 76 ppb range, which is cause for concern. Additionally, given the sparse monitoring data in the project area, the Draft EIS should disclose the absolute modeling results in addition to the non-monitored area analysis.

A 12 km modeling domain was used in the CMAQ modeling. A smaller 4 km nested domain should be used in the project area. The 4 km higher resolution emissions/emissions/topographic information data would likely improve model performance. EPA has consistently expressed this concern with grid resolution over the past several iterations of modeling performed in the Uinta Basin (beginning with the Uinta Basin Air Quality Study, letter to Bill Stringer October 16, 2009, and most recently regarding the GASCO ozone modeling protocol, letter to Jeff Rawson, May 10, 2010). Regarding model performance evaluation, we note that the EPA guidance for determining attainment of the ozone standard is generally intended for use in urban State Implementation Plan applications where a large network of monitors is available to evaluate the model performance and there is reasonable assurance that the baseline monitoring data captures the locations of highest ambient ozone concentrations. The monitoring data are sparse in the Gasco area and so in some instances the guidance may not be applicable. Caution should be used in citing this guidance for NEPA projects in rural areas.

Near-field Modeling Protocol

An explanation is presented in the Draft EIS on page 4-9 as to why modeling for one-hour NO_2 was not performed. EPA does not agree with the determination in the document that the information needed to analyze potential impacts to the NAAQS is lacking. For example, a "detailed plan of the facility" is not required as implied on page 4-9; rather, modeling must only assess a reasonable scenario like that used for near-field dispersion modeling for PM_{10}, $PM_{2.5}$, SO_2 and HAPs. In fact, modeling for one-hour NO_2 has already been performed for oil and gas NEPA projects. The conclusion of one-hour impacts being temporary and not expected to exceed the NAAQS is not substantiated. In many cases, emissions from drill rigs or other nonroad sources are not required to obtain a construction or operating permits and therefore would not have to demonstrate compliance with modeling under permitting rules. We note that the same discussion regarding the one-hour NO_2 standard is repeated in Draft EIS Sections 4.2.1.1.1.1, 4.2.1.2.1.1, and 5.0 (additional note: there appear to be some numbering inconsistencies in the Draft EIS) for development, operations, and cumulative impacts, respectively. We recommend that BLM revise this discussion to be more relevant to each section of the EIS, as the current format is confusing.

The one-hour SO_2 should also be modeled and compared with the new NAAQS for that pollutant, which was finalized in June 2010.

EPA is concerned that meteorological data from Canyonlands National Park was used for dispersion modeling for Gasco. To provide more representative near-field results, meteorological data should be used from stations within the Uinta Basin, such as the Vernal Airport or the Redwash or Ouray monitoring sites. Additionally, please ensure that the background concentrations used for all NAAQS and PSD comparisons utilize the most recent and applicable values available (i.e., ozone and $PM_{2.5}$ data from the Ouray and Redwash sites).

Particulate Matter ($PM_{2.5}$ and PM_{10})

EPA is concerned that near-field modeling for impacts from Gasco operations showed a 24-hour average PM_{10} value of 149.5 $\mu g/m^3$, just below the NAAQS of 150 $\mu g/m^3$, and a predicted PSD Class II increment of 287 percent of the threshold. Although an exceedance of the standard was not modeled, the level of impact predicted indicates a substantial potential for health concerns in the project area. We recommend that additional PM mitigation strategies be employed to reduce these impacts.

The Draft EIS identifies vehicle traffic, and particularly truck traffic associated with the WEF, as the primary source of the PM_{10} emissions, which underscores the need to consider alternate water disposal methods. Due to the large amount of surface disturbance associated with the proposed project and the sensitivity of the soil resource, further efforts to reduce surface disturbance and promote successful reclamation are warranted for Gasco. We recommend that BLM consider installation of a liquids gathering system to reduce truck traffic in the project area. Travel management in the project area should be designed for maximum reduction in soil and vegetation impacts. Access roads and well pads should be sited to avoid highly constrained areas

and biological soil crusts whenever possible. Impacts associated with access roads should be reduced to the maximum extent practicable, by utilizing transportation planning to establish proper road location and design and through treatment of unpaved roads. We further recommend that a project-specific Reclamation Plan be developed and included in the EIS.

EPA appreciates the discussion of air quality measurements in the Uinta Basin that have recently shown elevated concentrations of fine particulate matter ($PM_{2.5}$). On page 3-12 of the Draft EIS, the discussion of $PM_{2.5}$ formation in rural areas maybe accurate for most rural areas of the United States, however, since complete chemical speciation of monitored $PM_{2.5}$ has not been completed, the conclusion made that the elevated $PM_{2.5}$ concentrations in Vernal are from similar sources is not supportable. Full speciation of particulate matter from $PM_{2.5}$ monitoring should be conducted in the Basin in order to identify these sources.

We also note that $PM_{2.5}$ data are now available for part of 2009 and 2010 from the Redwash monitoring site, and this data should also be included in the EIS. Based on knowledge gained through Uinta Basin air monitoring to-date, EPA is concerned with the characterization of $PM_{2.5}$ as "not appear[ing] to be an issue in rural areas of the Uinta Basin" (Draft EIS pg. 3-17). Again, the source of the high wintertime $PM_{2.5}$ concentrations measured during the 2007 and 2008 in Vernal are not currently well understood, and additional speciation data are needed to determine the characteristics of $PM_{2.5}$ in the Basin. Although potentially harmful levels of $PM_{2.5}$ were not modeled for Gasco, this may be because the near field modeling may not consider the particular conditions that lead to high wintertime concentrations. The near field modeling utilized meteorological data from the Canyonlands National Park monitoring site, which may not be indicative of the conditions found in the Uinta Basin. EPA is therefore concerned that the proposed project has potential to contribute to significant impacts to $PM_{2.5}$. Consequently, we recommend that all reasonable measures be taken to reduce $PM_{2.5}$ emissions from the project. The Draft EIS identifies road traffic emissions as primary contributors to $PM_{2.5}$ for Gasco. Measures to reduce truck traffic between well pads and to the WEF, such as multiple-well pads or a liquids gathering system, and provide unpaved road treatments should be considered.

The near-field modeling for the various scenarios of the Draft EIS was conducted to up to a 5 km domain. The near-field model AERMOD is applicable up to 50 km. We recommend that dispersion modeling for near-field criteria pollutant concentrations should include receptors located at least 20 km from the project sources, particularly to capture potential impacts at population centers.

Hazardous Air Pollutants

EPA is pleased that BLM included near-field modeling for HAPs. However, the modeling predicted concentrations of acrolein in excess of the Reference Concentration for continuous inhalation exposure (RfC) for Gasco. We recommend that BLM consider mitigation measures that would reduce acrolein emissions from the Gasco project. This mitigation should include consideration of alternative water disposal methods, which would reduce acrolein emissions from the WEF generator.

We note that new assessments are available for HAPs, and the acute RELs for acrolein, formaldehyde, and acetaldehyde in Table 4-12 of the Draft EIS and Table 6-27 of Appendix H should be updated[2].

Far-field Modeling

EPA has concerns regarding predicted impacts to air quality related values (AQRVs) for the proposed project. The Draft EIS identifies one day of impairment (visibility impacts greater than one deciview) predicted at a federal Class I area, Canyonlands National Park. Impacts to sensitive Class II areas included a maximum of 57 days of impairment at Dinosaur National Monument and 186 days at Ouray National Wildlife Refuge. We recommend mitigation measures to reduce these visibility impacts be discussed in the EIS. Further, we note that the cumulative screening visibility assessment conducted for the Gasco project differs significantly from the results presented in the Greater Natural Buttes Draft EIS. For example, the Greater Natural Buttes cumulative visibility impairment for Arches National Park was 311 days of impairment, while for the Gasco project the cumulative for Arches was 22 days of impairment. Given that the direct project impacts to visibility impairment were minor for both projects, please explain why there are such large discrepancies between these cumulative assessments. We additionally note that it is not clear to us which approved FLAG method was used to determine the "screening" level visibility impacts. EPA prefers Methods 2, 6 or 8 in determining visibility impairment.

Adaptive Management

The Adaptive Management Strategy described in the Draft EIS is a useful concept which may help to prevent significant adverse impacts to air quality from the proposed project. However, several critical components are lacking in the proposed strategy. First, the Draft EIS does not make clear what would constitute a "significant increase" in the emissions inventory, triggering a need for a new modeling analysis. Second, the strategy should include monitoring that conforms to 40 CFR Parts 50 and 58, with 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. EPA would like to work with BLM to develop a comprehensive list of potential enhanced mitigation measures that may be employed under the Adaptive Management Strategy.

Climate Change

We appreciate the discussion of the 2010 CEQ Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions that was included in section 3.2.3.1.4 of the Draft EIS, and the disclosure of annual methane (CH_4) and carbon dioxide (CO_2) emissions for development and operations of the proposed project in Tables 4-2 and 4-5.

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[2] http://www.epa.gov/ttn/atw/toxsource/summary.html

However, further qualitative and quantitative assessment should be provided in the EIS to support a discussion of mitigation measures to reduce GHG emissions. This need is substantiated by the emissions figures in Tables 4-2 and 4-5, which are significantly higher than CEQs reference value of 25,000 metric tons of CO_2 equivalent per year.

We suggest the following four-step approach be used to ensure complete consideration and disclosure of potential GHG emissions and relevant mitigation:

1. Quantify and disclose projected annual and total project lifetime cumulative GHG emissions in CO_2-equavalent terms and translate the emissions into equivalencies that are easily understood from the public standpoint (e.g., annual GHG emissions from x number of motor vehicles, see, https://www.epa.gov/RDEE/energy-resources/calculator.html). In addition, because information on the "downstream" indirect GHG emissions from activities such as refining and end use may be of interest to the public in obtaining a complete picture of the GHG emissions associated with the proposed project, it may be helpful to estimate and disclose them. Please describe any potential inconsistencies between the proposed action and any relevant Regional, Tribal or State climate change plans or goals, as well as the extent to which BLM would reconcile, through mitigation or otherwise, its proposed action with such plans. For example, please consider the Governor's Blue Ribbon Advisory Council on Climate Change 2007 Final Report (http://www.deq.utah.gov/BRAC_Climate/final_report.htm), Utah's GHG reduction goals (to reduce GHG emissions to 2005 levels by 2020) (http://deq.utah.gov/Climate_Change/GHG.goal.htm) and the Western Climate Initiative (http://www.westernclimateinitiative.org).

2. Qualitatively discuss the link between GHGs and climate change, and the potential impacts of climate change. As discussed in the 2010 CEQ Draft Guidance, the estimated level of GHG emissions from the project and its alternatives can also serve as a reasonable proxy for assessing potential climate change impacts, and provide decision makers and the public with useful information for a reasoned choice among alternatives.

3. Include a summary discussion of ongoing and projected regional climate change impacts relevant to the action area based on U.S. Global Change Research Program assessments. EPA also recommends that the EIS identify any potential need to adapt the proposed action to these effects, as well as any potential impacts from the proposed action that may be exacerbated by climate change.

4. Analyze reasonable alternatives and/or potential means to mitigate project-related GHG emissions. For example, BLM could analyze a "GHG-reducing alternative" that would include measures that could be taken to reduce GHG emissions. BLM could also assess potential energy efficient technologies as well as technologies to reduce GHG emissions from oil and gas development. For instance, the analysis could include carbon capture and sequestration; measures from BLM's Supplemental Information Report for the eight EAs in Montana, North Dakota and South Dakota (http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/ leasing/leasingEAs.html); EPA's GasSTAR program

(http://www.epa.gov/gasstar/) which is a voluntary mitigation effort targeted at the oil and gas industry; and promoting the implementation of cost-effective technologies and practices to reduce GHG emissions.

Water Resources – Groundwater Protection

Groundwater Characterization

The Draft EIS does not identify existing or potential public or private drinking water supplies in the Gasco project area, nor aquifer zones that are USDWs under the Safe Drinking Water Act. The document indicates that this information will be collected during site-specific reviews at the APD stage. Deferring the evaluation of impacts to potential or existing drinking water supplies to the review of each well in the APD does not provide the opportunity for public comment nor does it provide analysis of cumulative environmental impacts to the aquifers.

The EIS must assess the risk to groundwater within the project area. Four basic categories of information should be contained in the Draft EIS:

1. Groundwater resource characterization,
2. Groundwater use characterization,
3. Potential impacts from the proposed project, and
4. Proposed alternatives and mitigation measures.

EPA would like to work with BLM to create an outline of the groundwater information that should be included in all project-level oil and gas EISs. In the meantime, we provide the following expansion upon the four basic categories listed above as an indication of the information EPA would ideally like to have for review of a project-level EIS. The West Tavaputs EIS included some of this information and could be used as a model.

1. The EIS should include a discussion of the viability of water bearing formations as underground sources of drinking water (USDW). USDWs include not only those formations that are presently being used for drinking water, but also those that can reasonably be used in the future. In general, this includes aquifers with TDS less than 10,000 mg/L and with a quantity of water sufficient to supply a public water system. Aquifers are presumed to be USDWs unless they have been specifically exempted or if they have been shown to fall outside the definition of USDW (e.g., over 10,000 mg/L TDS). Are there any fresh water zones/USDWs under the project area? What is known about the depth to and water quality of the fresh water zones/USDWs? We recommend using existing information to describe the resource (Utah Geologic Survey, USGS reports, geologic logs, etc.). Relevant information to disclose in the EIS includes: maps of the aquifers in the project area, formation names and depths, a table or graphic of hydrostratigraphic units, local outcrops of the aquifer, chemistry of the formation water (including TDS), well yield data for water bearing formations, recharge areas for the aquifers, mineral zones to be developed in relation to aquifers/aquitards, etc.

2. The EIS should characterize current and anticipated uses of the project area groundwater resources. Who is using the groundwater resource now, and what is the expected future use? Provide a list and map of water rights and users in the area and within one mile of the project boundary, including: wells and springs related to public water supplies, domestic and stock uses; Tribal wells and springs; and wells and springs in the alluvium along the Green River. This description should include the depth of the wells, the formations they are producing from, and the quality of the water being used currently in the area. If there are users, how will the quality be monitored to detect impacts from the project?

3. The EIS should assess the potential impacts of the proposed project. What is the potential for changes in the volume, storage, flow and quality of groundwater in light of the data obtained from the characterization of groundwater resources and groundwater use?

4. The EIS should describe alternatives and mitigation measures necessary to prevent or reduce the identified impacts. What actions have been considered to:
    a. Avoid impacts to groundwater,
    b. Limit the degree or magnitude of impacts to groundwater,
    c. Reduce impacts by long term maintenance,
    d. Repair or restore groundwater resource, and
    e. Compensate for groundwater impacts by replacement or substitution?

BLM Utah has developed an excellent policy for the protection of groundwater associated with oil and gas leasing, exploration and development (BLM Instruction Memorandum No. UT 2010-055). The purpose of the Instruction Memorandum (IM) is to enhance the existing process for the continued protection of all usable groundwater zones (< 10,000 mg/L as defined in Onshore Oil and Gas Order No. 2) associated with oil and gas exploration and development. We appreciate that, although the Draft EIS was largely completed prior to finalization of the IM, much of the substance of this policy was included. However, we recommend that the EIS incorporate the entire UT 2010-055 IM. This is especially important due to the fact that most wells in the project area will undergo hydraulic fracturing of the producing zone, thereby potentially posing a risk of contamination to any nearby USDW. Because the IM does not address groundwater protection related to evaporation ponds in detail, particular attention should be paid to identifying and mitigating potential impacts from the WEF in the EIS.

Water Quality Monitoring

A monitoring plan and program should be in place to track any groundwater impacts as drilling and production operations occur. Monitoring should be conducted during all project phases, including: background conditions before construction begins; during project implementation, including construction, production, and produced water disposal; and after project termination. This is especially pertinent to the existing wells and springs and near the proposed WEF. We recommend that the "Long-Term Plan for Monitoring of Water Resources"

developed for the West Tavaputs Plateau Natural Gas Full Field Development Plan (West Tavaputs) Final EIS be used as a guide in developing a monitoring plan for Gasco. Particularly critical components of the plan include baseline monitoring, inclusion of organic parameters in the monitoring suite, public disclosure of monitoring data, and discussion of mitigation measures to be employed if monitoring results in identification of impacts.

Mitigation

EPA is encouraged that BLM believes groundwater impacts from the proposed project can be prevented through implementation of mitigation measures. We commend BLM's effort to protect freshwater through the best management practices (BMPs) described in Section 2.2.2.3 - Well Drilling, including specifications for steel casing and cementing. However, we recommend that these well drilling practices be clearly identified in the list of mitigation measures. Additional mitigation measures beyond those described in the Draft EIS may also be appropriate for the proposed project; the EIS should clearly identify all relevant and reasonable mitigation measures to protect groundwater sources. We recommend that BLM may want to consider incorporating some additional mitigation measures that were included in the West Tavaputs Final EIS, including Toxic Characteristic Leaching Procedure testing. The ROD should clearly describe all mitigation measures that will be required.

There are additional issues related to groundwater protection that should be considered in the EIS, as well as additional practices and mitigation measures that may be necessary for adequate protection. For example, EPA recommends the following be added to the Gasco EIS:

- Cement bond logs should be evaluated to ensure adequate cement bonding to prevent fluid and gas migration.
- EPA encourages closed loop or pitless drilling of the production hole to avoid the need for mud reserve pits. Completion and stimulation fluids returned to the surface should also be contained in tanks to avoid the need for pits.
- However, if pits are necessary, after evaporation of fluids, pit sludges should be tested for toxicity and disposed accordingly. Pit liners should also be removed and disposed of according to solid waste rules. Compacted liners should be tested for toxicity and disposed. Soils below the pit liners should be tested for contamination. If compacted liner material is not contaminated it should be ripped and mixed with soil in order to allow infiltration.
- Appropriate closure should also be discussed for the WEF ponds.
- Aquifers with high quality fresh water must be drilled using fresh water based drilling muds. In addition any mud additives must be low toxicity and compatible with the aquifer so as not to cause contaminant introduction into the fresh water zones.
- If underground injection is used as a mechanism for disposing of produced water, then new production wells should be constructed appropriately and have adequate cement through the identified confining zone(s). Any current or future producing oil well could potentially be converted to an injection well; therefore, these wells should meet Class II construction criteria in order to avoid future remediation.

There are currently serious questions about whether the process of hydraulic fracturing could potentially result in groundwater impacts. Additionally, some hydraulic fracturing compounds contain materials that could be harmful if released to freshwater sources. The EIS should acknowledge and discuss this potential for impact. An analysis of the management of the fracturing fluids should be provided in the EIS, including the toxicity and fate of these fluids, with a focus on avoiding surface spills or leaks of these fluids from the reserve pits. Hydraulic fracturing of any production zones near freshwater zones should not be considered. This includes fracturing production zones that are not adequately isolated from freshwater aquifers with zones of low permeability that would prevent fluid and gas migration.

Produced Water Disposal

The Draft EIS suggests that disposal of produced water through underground injection is not feasible because there are no suitable injection zones in the project area, although it would be the preferred disposal method of the operator. Without providing cross sections of the subsurface geology in the project area, it is difficult to assess this assertion. There are over 100 production wells drilled in the project area, and much of the needed information could be gathered from the analysis of the logs and driller's reports for these wells. The Birds Nest Aquifer is a zone of the Green River formation that many operators utilize for water disposal in nearby fields. Although in the proposed Gasco project area the Birds Nest Aquifer is considered to be less permeable, this zone should be explored further to accurately determine permeability along with its potential to be a USDW. EPA believes that there may be other potential sands in the Green River Formation that could be used for disposal. In logs reviewed approximately two miles to the north of the proposed project area, sand lenses in the Green River Formation just below the Garden Gulch (GG2) were identified. These sands could be used as potential targeted injection zones. Currently, Newfield has a salt water disposal well (Pariette Bench 4-8-17 API #43-047-15681) located in the proposed project area. This salt water disposal well is injecting into sands found in the Green River formation. Analysis of logs and driller's reports for production wells would allow BLM to better determine where these sands are present throughout the Gasco project area. There are also other deeper zones that lie beneath the proposed production zones, specifically the Sego and Castlegate formations, which could be targeted for disposal. The EIS should include several subsurface cross sections that present the subsurface geology as presently known through the information derived from existing wells, as well as a more complete consideration of the extent to which subsurface injection may be possible.

An additional disposal method, which was not considered in detail in the Draft EIS, is treatment and reuse or recycling. The Draft EIS suggests the high total dissolved solids (TDS) of produced waters make it incompatible with waters from the Green River formation near the project area where produced waters are being injected for disposal and waterflood purposes. Reuse and recycling of produced water provides many environmental benefits, including reduced consumption of freshwater, and may be more viable than subsurface injection. Operators in the Uinta Basin are currently using water with TDS of 25,000-30,000 ppm for hydraulic fracturing, which is similar to the naturally occurring TDS levels in the formations of the Gasco project area. Treatment of produced water for enhanced oil recovery would most likely at a minimum need to go through a walnut shell filter to remove hydrocarbons and then a precipitation and

filtration process to remove metals. Additional treatment may be necessary, depending on water chemistry. Our understanding is that the cost per barrel of treatment for use in production would be comparable, or less expensive, than evaporation pond disposal. Based on local geology, it appears likely that bedrock will need to be blasted and removed in pond construction; the experience of another Uinta Basin operator indicates that this could double the estimated cost of pond construction. Water could also potentially be treated to allow for permitting for surface discharge through an NPDES permit process.

The EIS should include a water compatibility study that analyzes the extent to which water reuse or recycling could be utilized by Gasco or by operators in neighboring fields. In order to fully disclose the potential for positive environmental impacts from water conservation through reuse or recycling of produced water, the EIS should also include: the volume of water that may be recycled, whether this water will be used within the Gasco project area or elsewhere in the Basin, how water will be transported, and spill and leak prevention plans.

Freshwater Consumption

According to the Draft EIS, 90 percent of the water for drilling, completion, and production will come from Green River sources and tributaries. The associated environmental impacts of the use of this fresh water should be evaluated in the EIS. Four endangered fish species of the Colorado River system may be affected by water withdrawals from the Green River. The proposed action would result in an estimated maximum consumption of 450 acre-feet per year from the Colorado River Basin (6,745 acre-feet total). The cumulative consumption of fresh water for the Gasco project and other projects in the area may have the potential to impact aquatic special status species by reduction in water flow. Although the project proponent would pay a depletion fee to the U.S. Fish and Wildlife Service Recovery Program, EPA recommends additional emphasis on reuse of produced water to reduce water consumption impacts on Colorado River endangered fish species.

EPA has two concerns regarding the disclosure in the Draft EIS of the impacts of freshwater use. First, the amount of fresh water to be used appears to be based on one hydraulic fracturing job per well, however, it is our understanding that wells are often fractured as many as five times. This additional water use should be disclosed in the EIS. Second, we note that the discussion of groundwater depletion does not clearly indicate the anticipated impacts to freshwater aquifers.

<u>Water Resources – Surface Water Quality</u>

Potential for Impact to Impaired Waterbodies

EPA approved a TMDL[3] for Pariette Draw on September 28, 2010 that specifically calculates the reductions in total dissolved solids, selenium, and boron in the watershed that are necessary in order for surface water standards to be met. Since there are no point sources in the

[3] http://www.waterquality.utah.gov/TMDL/Pariette%20Draw%20TMDL%20Final.pdf

watershed, all loading and reductions in loading are from nonpoint sources. The Draft EIS (pg 4-268) has calculated that each well would result in an increased load of 259 tons per wellpad. Using this estimate, Alternative A would result in an increase of 16,058 tons of sediment load to Upper and Lower Pariette Draw. The Pariette Draw TMDL states that loading of TDS needs to be reduced by 48.72 tons per day to meet the water quality target of 1,200 mg/l. Even under Alternative E, through which directional drilling would greatly reduce the number of wellpads compared to Alternative A, increased loading of sediments to Pariette Draw would occur. Besides the sediment loading from wellpads that were calculated in the Draft EIS, there would also be additional loading from the construction of the WEF that appears to be located within the Pariette Draw watershed, as well as from the new roads and pipelines that would be constructed and disturb additional acres of soils in the watershed. Any increase in sediment loading to Pariette Draw is an unacceptable impact to surface water quality, as documented in the TMDL.

For Nine Mile Creek, a TMDL has not yet been drafted that would address the impairment that has caused it to be included on the Utah 2006 303(d) list for temperature. Nevertheless, the increased sediment loading that would result from this project would be likely to further degrade the water quality and would most likely contribute to increasing the already unacceptable temperatures that have caused Nine Mile Creek to be impaired for the cold water aquatic life use designation (3A).

The primary cause of the loading across the entire project area would be from the 568 road crossings of ephemeral streams that would occur under Alternative A – the proposed action. The number of these crossings could be reduced to 190 if Alternative E (Directional Drilling) is selected according to estimates presented in Table 4-113 (page 4-267). Increasing the sediment load to the Green River will occur in all scenarios considered in this Draft EIS, so it would seem prudent to select the alternative that would go furthest in complying with the Colorado Basin Salinity Control Act of 1974. Allowing an estimated 77,085 tons of sediment to reach the Green River through the implementation of Alternative A does not seem to be the best choice when Alternative E would result in a 70 percent reduction in sediment load, with an estimated load of 22,829 tons. The document makes the conclusion that the impact of the increased sediment load to the Green River from its activities under Alternative A would be relatively low; but this can be said of almost any single project in a watershed as vast as the Green River. This type of analysis minimizes the impact of nonpoint source loading by only looking at a small portion of the watershed and not considering the cumulative impacts of similar projects being implemented throughout the entire watershed. The EIS should clearly disclose connections between sediment loads and local water quality impairments, as well as any potential for adverse impact to water quality.

Based upon the information contained in the Draft EIS, it is our understanding that the WEF will be constructed within the Pariette Draw watershed, and that the large amount of disturbance associated with the construction of the facility may impact water quality in Pariette Draw. However, it is difficult to be certain of the location of the WEF within the watershed, or the proximity to ephemeral streams, based on the maps and discussion provided. We recommend that the EIS include a more detailed map showing watersheds in the project area, as well as a discussion of the proximity of surface water resources to the WEF.

Monitoring

Given the variability in salinity and selenium across the landscape and the recognized concern with potential surface water contamination, the EIS should include monitoring and adaptive management requirements. Monitoring plans should be developed for areas potentially affected by highly erosive soils, as well as the perennial waterbodies including the Green River and the two streams on Utah's 303(d) list of impaired waters. EPA recommends the BLM implement a comprehensive water monitoring plan to ensure the BMPs are successfully mitigating the impacts from increased sedimentation and to direct reclamation resources and efforts. At a minimum, we recommend that BLM establish a monitoring program in Pariette Draw and Nine Mile Creek. The "Long-Term Monitoring Plan for Water Resources" developed by BLM for the West Tavaputs Final EIS is a good example of a comprehensive monitoring program.

Mitigation

We recommend that additional steps be taken to minimize erosion and sedimentation for watershed protection. BLM may want to consider project area-wide mitigation measures that may include: a cap on acres of surface disturbance, which can significantly limit TDS loading by increasing interim reclamation efforts and decreasing the amount of disturbed soils; phased drilling, which will also effectively reduce the amount of surface disturbance present at any time; reducing construction of roads or well pads in drainages; and use of directional drilling to reduce project total surface disturbance. To reduce TDS loading, directional drilling should be used to access mineral resources within drainages wherever possible, and roads and well pads should be sited outside of these sensitive zones.

It is best to involve a system of BMPs that targets each stage of the erosion process to ensure success from construction activities. The most efficient approach involves minimizing the potential sources of sediment from the outset. This means limiting the extent and duration of land disturbance to the minimum needed, and protecting surfaces once they are exposed. BMPs should also involve controlling the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows. In addition, BMPs should include retaining sediment that is picked up on the project site through the use of sediment-capturing devices. On most sites successful erosion and sedimentation control requires a combination of structural and vegetative practices. Finally, BMPs are best performed using advance planning, good scheduling and maintenance.

Spill Prevention

We appreciate the discussion on "Spills Potentially Contaminating Surface Waters" in section 4.15.1.1.2.2 of the Draft EIS; however, we believe that some important information was left out of this discussion. Although the Draft EIS states that stipulations such as double-lining and leak detection for the WEF would result in an "extremely low risk," the potential consequences of a WEF spill or leak should have been addressed. Further, the discussion in the Draft EIS does not consider the potential for impacts to groundwater. A discussion should be

added disclosing the possible impacts to both surface and groundwater resources from a WEF leak. This discussion should include further information on the detection limits of the leak detection system, response times, and what will be done in the case of a leak. Water quality monitoring, discussed in greater detail above, will be particularly critical to reduce potential impacts from the WEF ponds. We additionally recommend further information be provided regarding the ACEPMS, such as use of shutoff valves, that will reduce the risks associated with pipeline spills.

The Draft EIS cites *BLM Onshore Order #7* as the source for construction and operation stipulations for all evaporative facilities, and asserts that because of these stipulations, potential impacts to surface waters would have an extremely low risk of occurring (pg. 4-273). Because the BLM Order includes very general provisions for several disposal methods (including lined and unlined pits), the EIS should include further details of the intended stipulations. These details should clearly outline project stipulations for the double lined pits, including prevention of surface water ingress and discharges, further details of lining requirements, leak detection requirements, etc. Further details of the construction and operation of evaporation ponds is necessary to substantiate the conclusion of extremely low risk of potential impacts.

The implementation of a Spill Prevention, Control, and Countermeasures Plan (SPCCP) will reduce the potential for direct and indirect impacts to sensitive resources from spills or accidental releases of hazardous substances. It is critical that all SPCCPs are appropriately designed given local geology and the level of risk associated with local conditions. We recommend that BLM describe in the EIS how site-specific SPCCPs will address low probability catastrophic spills.

Wetlands and Floodplains

Although Executive Order (EO) 11990 – Protection of Wetlands is referenced in Table 4-1 – Supplemental Authorities to be Considered, the EIS does not describe how actions authorized through the Gasco NEPA process will comply with the EO. The Draft EIS discusses only those wetlands and riparian areas associated with perennial rivers. It is unclear from the document whether additional wetlands such as isolated wetlands, springs, or riparian areas associated with ephemeral streams may exist in the Gasco project area. The EIS should address protective measures in the case of encountering an isolated or ephemeral wetland during project construction. EPA additionally recommends that Section 1.6 – Authorizing Actions should include regulation and permitting processes on Tribal lands according to Clean Water Act (CWA) Section 401 in addition to CWA Section 404, which applies to activity on a portion of the Gasco project area.

EPA is concerned that approximately 11 acres of surface disturbance would occur in wetland and riparian areas under the Preferred Alternative, resulting in the long term loss of riparian vegetation in these areas. The Draft EIS does not disclose whether this disturbance is associated with well pads, roads, pipelines, or other associated facilities, nor does it clearly specify where the riparian impacts will occur. Such information is necessary to determine

whether reasonable alternatives may exist, and to ensure adequate mitigation for unavoidable impacts. This information should be included in the EIS along with a description of proposed mitigation.

The Preferred Alternative also proposes 223 acres of disturbance in 100-year floodplains, including 48 well pads and 8.4 miles of road. This disturbance includes well pad construction in the floodplain of the Green River as well as other floodplains that have been identified as critical flood potential areas. Well pad construction in floodplains is a serious risk that should be avoided, particularly due to the potential for flood damage to well-heads and associated production equipment that could result in leaks or spills of toxic materials to waterbodies. Given the capabilities of directional drilling technologies, well pad construction in floodplains or riparian areas should be considered an unacceptable risk.

It is EPA's opinion that consideration of avoidance or mitigation for development in wetlands and floodplains should occur during the project-wide evaluation in the EIS, rather than for individual wells during site-specific review. We appreciate the proposed mitigation measures included in Section 4.15.2, and strongly suggest these mitigation measures be committed to by the applicant, and required in the ROD. In particularly, it is critical that closed-loop drilling be used in or near sensitive water resource areas. We also recommend that the measure which requires relocation of wells proposed within the 100-year floodplain of the Green River be extended to include all floodplains, wetlands, and riparian areas. Finally, we recommend that the last measure on the list, which restricts surface disturbing activities within active floodplains, wetlands, public water reserves, or within 100 m or riparian areas be significantly strengthened. EPA recommends complete avoidance of well pad construction within any of these areas. Where construction of associated linear facilities cannot be avoided, the NEPA analysis should identify specific mitigation requirements that will ensure full mitigation of unavoidable impacts.

Environmental Justice

As the CEQ guidance on considering Environmental Justice (EJ) under NEPA notes, Executive Order 12898 requires federal agencies to consider "whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes" from a proposed action. Although when viewed at the county level, as described in the Draft EIS, the region of the proposed project has minority and low-income characteristics that are not significantly different from the national average, communities near the Gasco project area have high percentages of low-income and minority residents. For example, two nearby communities that were enumerated by the 2000 U.S. Census, Fort Duchesne and Randlett, have greater than 50% of residents in poverty and greater than 90% minority residents. In the town of Myton, 38% of the residents are below the poverty line according to the 2000 Census. In accordance with CEQ guidance on identifying minority and low-income communities, EPA believes that these communities should be treated as EJ communities for the purposes of the NEPA analysis. Given the local nature of many human health and social impacts of oil and gas projects, EPA recommends that the appropriate scale at which to consider EJ impacts from the proposed Gasco project should be community, rather than county.

The Draft EIS concludes that, "Based on the distance of the project area from local communities, no minority or economically disadvantaged communities or populations would be affected" (pg. 4-112). EPA does not agree with this conclusion, and we note that BLM Instruction Memorandum Environmental Justice No. 2002-164 does not include any reference to distance or proximity in determining the potential for environmental justice impacts. EPA's opinion is that the area affected by the proposed project will contain EJ communities, therefore the human health, economic, and social effects of the proposed action on potential EJ communities should be thoroughly evaluated in the EIS for Gasco. The towns of Randlett and Myton are approximately 12 miles from the Gasco project area, while Fort Duchesne is approximately 16 miles away. There are also other small communities near the project area that were not enumerated in the 2000 U.S. Census, but which likely possesses similar population characteristics to Fort Duchesne and Randlett. For example the community of Ouray is located less than 5 miles from the Gasco project area. Additionally, the EJ analysis should define the affected area based on the location of environmental impacts, not merely on proximity, and the analysis should take into account whether EJ communities use subsistence or cultural resources that may be affected by the proposed project. The nature of the project's rural setting should also be considered. For example, the simple act of shopping for groceries may involve a twenty or thirty mile drive. EPA is willing to assist BLM in identifying minority, low-income, or tribal communities that may be impacted by the proposed project.

Environmental justice issues encompass a broad range of potential impacts, including impacts on the natural or physical environment and interrelated social, cultural and economic effects. The Draft EIS acknowledges that the "boom-and-bust" cycle of oil and gas development in the Uinta Basin is likely to adversely impact communities due to impacts on employment, housing, population, poverty rates, public finances, and infrastructure. According to the Draft EIS, public services and infrastructure are already over-taxed in the region. The document also identifies the potential for disproportionate, adverse impacts to low-income populations from increased housing costs. Mitigation should be considered for these potential adverse social and economic impacts. Examples of mitigation may include outreach to low income and tribal persons to provide counseling on finding affordable housing, consultation with those who use the land for recreational and spiritual purposes, and providing job training for local residents to take advantage of the project's employment opportunities.

The document does not discuss the potential for disproportionately high adverse human health and environmental impacts from the proposed project. However, air quality and water quality impacts are a significant potential concern for this project. BLM's EJ analysis should therefore evaluate whether the proposed project may result in environmental or human health impacts to minority, low-income, or tribal communities in the area. Impacts of implementation causing an increase in HAPs (especially acrolein) or criteria pollutants (including ozone and particulate matter) should be shared with the surrounding communities. According to CEQ guidance, the identification of an adverse impact to EJ populations should heighten attention to alternatives, mitigation strategies, monitoring needs, and preferences expressed by the affected community. If such impacts are identified, BLM should explore whether additional mitigation strategies will be sufficient to reduce those impacts. Mitigation measures relating to potential EJ Communities may include outreach and health services in the communities.

Tribal Coordination

As noted in the Draft EIS, the project is located partly within the southeastern portion of the Uintah and Ouray Indian (U&O) Reservation, which is known as the Uncompahgre Reservation. The Tenth Circuit Court of Appeals has determined that all lands within the Uncompahgre Reservation are Indian country as defined at 18 U.S.C. Section 1151. *Ute Indian Tribe v. Utah*, 773 F.2d 1087 (10th Cir. 1985) (en banc), *cert. denied*, 479 U.S. 994 (1986); *Ute Indian Tribe v. Utah*, 114 F.3d 1513 (10th Cir. 1997), *cert. denied*, 522 U.S. 1107 (1998). We therefore recommend that relevant Tribal environmental laws be referenced in the EIS as appropriate. You may wish to consult with BIA on the status of the project location.

EPA recommends that BLM perform the following coordination with the Ute Indian Tribe, and reference relevant authorities where appropriate in the EIS:

- Cultural Resource consultation should include the Tribal Historic Preservation Officer.
- The Ute Indian Tribe Energy and Minerals Department regulates oil and gas development within the U&O Reservation, and should be contacted regarding resource protection measures on Tribal lands.
- The Tribal Wetland program is implementing wetland mitigation projects.
- The Tribal Environmental Program of the Ute Indian Tribe should also be contacted regarding environmental regulations on Reservation lands.

Wildlife and Special Status Species

EPA has several concerns with the proposed project with respect to impacts to wildlife and special status species. Our concerns for water withdrawal and sediment impacts to the Colorado River endangered fish species are addressed above in our comments on surface water resources. Reduced surface disturbance and recycling of produced water will reduce these potential impacts. The need to consider alternatives that reduce surface disturbance is also heightened by the presence of the Uinta Basin Hookless Cactus, which is federally listed as threatened under the Endangered Species Act. The U.S. Fish and Wildlife Service has determined that the proposed action "may affect, and is likely to adversely affect" the species. The potential impacts to migratory birds or other wildlife from the WEF are not analyzed in the Draft EIS. Although audible and visible deterrents are planned as BMPs to deter birds from utilizing the ponds, wildlife impacts should be discussed in the Environmental Consequences chapter of the EIS. This discussion should include the likelihood of wildlife utilizing the WEF basins, the potential impacts to wildlife from utilization, and the predicted effectiveness of deterrent BMPs.

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Ref: 8EPR-N

Selma Sierra, Utah State Director
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RE: Final Resource Management Plan and
Environmental Impact Statement for the
Vernal Field Office Planning Area
CEQ# 20080316

Dear Ms. Sierra

Consistent with our responsibilities and authorities under the National Environmental Policy Act and Section 309 of the Clean Air Act (CAA), the Region 8 Office of the U.S. Environmental Protection Agency (EPA) has reviewed the Final Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for the Bureau of Land Management's (BLM) Vernal Field Office Planning Area. The BLM manages approximately 1.7 million acres of public lands in Daggett, Duschesne, and Uintah Counties and a portion of Grand County in northeastern Utah. This RMP will revise and replace the current RMPs for this area, known as the Book Cliffs and Diamond Mountain Area RMPs. BLM intends to implement Alternative A, which is designed to accommodate a wide variety of values and uses of these public lands.

Our comments on the Final RMP/EIS focuses on five issues: (1) the lack of information provided regarding air quality impacts from oil and gas development, (2) our recommendations to further reduce the environmental impacts resulting from motorized vehicle travel on public lands, (3) our recommendations for additional areas to be managed as Areas of Critical Environmental Concern, (4) our analysis of the effects of oil and gas development in the planning area on climate change, and (5) our analysis of BLM's ability to adapt to the impacts caused by climate change.

1. Lack of information on air quality impacts from oil and gas development.

For the Vernal RMP Final EIS, the BLM presented an estimate of total emissions and air impacts for selected pollutants for the oil and gas construction, drilling and production of approximately 6,300 natural gas wells. The air impact analysis was conducted using the ISCST3 and CALPUFF modeling systems for near and far field analysis, respectively.

EPA is concerned that the BLM did not conduct an analysis of impacts on ozone levels in the Vernal RMP/EIS. Ozone has become a pollutant of concern as the limited monitoring sites in the area have indicated that ozone concentrations are near the limits in the recently promulgated NAAQS. EPA is concerned that the air analysis intended to address the impacts of cumulative oil and gas development did not quantify emissions or predict air impacts from potential Reasonably Foreseeable Development (RFD) sources. Specifically, EPA is concerned that BLM did not consider proposed oil shale or tar sands projects as reasonably foreseeable activities. In the section of the Final EIS regarding "BLM Response to Comments for Air Quality" at page 65 (AQ-54), BLM has stated that the Uinta Basin Air Quality Study (UBAQS) is currently being conducted based on the cooperative agreement between BLM and the Independent Petroleum Association of the Mountain States. It is the intent that the UBAQS will model potential ozone impacts from oil and gas in the Uinta Basin, however this process does not include a potential RFD projects pursuant to BLM's NEPA obligation either.

In our February 2005 comments on the Draft EIS, EPA recommended that BLM provide cumulative air quality modeling for this Final RMP/EIS be included in the Final EIS. Ozone concentrations are likely to increase due to the emissions of volatile organic compounds and oxides of nitrogen from current oil and gas development. For example, the monitored data from Canyonlands National Park has shown an increasing trend upwards near EPA's new ozone NAAQS. The only other air quality monitoring station that could have provided more regionally-specific ambient air quality data was a monitoring station in Vernal, Utah. Unfortunately this monitoring station was shut down by the Utah Division of Air Quality in December 2007. As noted in letter to you dated June 6, 2008, from UDAQ (attached as Appendix O to the FEIS), Utah is also concerned that the available monitoring demonstrates gradual upward trend in ozone levels. UDEQ advised BLM in this correspondence to include NO_x reduction mitigations as conditions of lease approval.

Oil and gas development is projected to occur at a relatively fast pace with a potential for up to 6300 oil, gas, and coal bed natural gas wells under the Preferred Alternative A. Because of EPA's noted concerns about the air quality analysis and the high concentrations of ozone in the planning area, it is difficult to determine accurately potential impacts from future development. Therefore, EPA recommends that the Record of Decision contain specific commitments similar to the Pinedale Anticline Record of Decision regarding assurance of attainment of the visibility and NAAQS while oil and gas development proceeds. These measures may need to include natural gas fired or electrically-powered drilling rigs, gas or electric turbines for compressors, reduction of the number of storage tanks containing VOCs, Tier 2 or better emission drilling rigs, centralized gathering facilities, or reduction of the pace of development.[1]

[1] Record of Decision, Final Supplemental EIS for the Pinedale Anticline Oil and Gas Exploration and Development Project, BLM, Pinedale Field Office, September 12, 2008, page 28.

Comments from several industry sources alleged that BLM does not have any direct authority over air quality or air emissions under the Clean Air Act. In the Final EIS in the response to these comments, the BLM states it agrees it does not have direct authority over air quality or emissions originating on public lands under the Clean Air Act since the State of Utah has primacy for compliance with the CAA. The goal for Air Quality in the Final RMP states that BLM will: "Maintain existing air quality and air quality related values by ensuring that all authorized uses on public lands comply with and support Federal, State, and local laws and regulations for protecting air quality." It is important to acknowledge that BLM does have the authority to obtain reduced air emissions from actions it approves for third parties operating on public lands as stated in the following provisions: (1) the National Environmental Policy Act and CEQ regulations, (2) the Energy Policy Act of 2005, (3) the Onshore Oil and Gas Order Number 1, and (4) the Federal Land Policy and Management Act of 1976 in its implementing regulations. The BLM's role in fulfilling these obligations is especially critical given that BLM, through its land management decisions, is one of the main agencies affecting air quality and visibility in the intermountain west. We look forward to working with the Vernal Field Office in NEPA compliance for future oil and gas developments within this planning area in order to reduce and minimize both regulated criteria pollutants and other harmful air emissions.

2. Recommendations to further reduce environmental impacts resulting from motorized vehicle travel on public lands.

The public lands managed by BLM in the Vernal area are nationally renowned for their recreational opportunities, particularly for uses that involve off-highway vehicles and all terrain vehicles not normally found on city streets. As these motorized recreational uses can have a cumulative destructive effect, some of the public lands in the Vernal planning area have been significantly adversely impacted. In response to this problem, BLM now proposes to restrict off-highway vehicle use by limiting recreational travel on public lands to designated routes. While EPA agrees that this is an important step in the right direction, EPA remains concerned that BLM will be unable to adequately control and mitigate ongoing and future impacts to cultural, riparian, and other valuable resources without changes to the proposed travel and recreational management prescriptions beyond those proposed under Preferred Alternative A. Preferred Alternative A would allow these vehicles to travel up to 300 feet beyond each side of the trail. EPA is concerned that this alternative will promote misuse by sanctioning off-road motorized uses through open desert terrain which is vulnerable to abuse due to the fragile soil conditions. Given the BLM's limited funding for enforcement, allowing off-road vehicles an option to progress 300 feet on either side of the trail could also result in additional adverse impacts, particularly affecting riparian areas and streams.

In similar circumstances, the U.S. Forest Service has determined that appropriate discretion must be provided to the local federal land agency officials to limit use of motor vehicles within a specified distance of designated routes only for specific purposes. Consequently, the Forest Service's rule includes a provision which allows the federal land manager to limit the use of motor vehicle use for the purposes of big game retrieval or dispersed camping. Further, it must be recognized that in general the Forest Service will have less difficulty in managing uses of off-highway vehicles on their public lands due to limited vehicular

access conditions in densely forested areas. EPA recommends that BLM consider adopting practices that would restrict off-highway vehicles through the Vernal planning area to certain limited uses, similar to the provisions of the Forest Service's 2005 Travel Management Rule found at 36 CFR 212.51(b).[2]

3. Recommendations for additional areas to be managed as Areas of Critical Environmental Concern.

We reiterate our suggestion that specific critical areas be further protected by their designation as Areas of Critical Environmental Concern (ACEC) as noted in our Draft RMP/EIS comments. These areas include all of the following potential ACECs: Coyote Basin, Four Mile Wash, Lower Green River Expansion, and the White River potential ACECs. These were a component of the Draft EIS Preferred Alternative A or Alternative C, but have not been advanced in their entirety as ACECs in this proposed RMP presented in the Final EIS.

4. Analysis of the effects of oil and gas development in the planning area on climate change.

In our comments on the Draft EIS, EPA suggested that emissions of greenhouse gas (CO_2 and methane) from oil and gas development be included in the Final EIS. While BLM acknowledged the basic body of scientific evidence about the increase in these gases in the atmosphere and their adverse potential effects, BLM responded it would not be able to conduct this type of assessment until the EPA provided the regulatory protocol or emission standards regarding climate change. NEPA requires federal agencies to take a hard look at potential environmental impacts associated with their proposed actions. Lack of regulatory protocol or emission standards for greenhouse gases does not preclude BLM from fulfilling this responsibility. Analysis of greenhouse gas emissions will still be needed for future NEPA compliance regarding the approval of oil and gas operations in the Vernal planning area.

Although the Draft RMP/EIS mentions carbon dioxide (CO_2) as a greenhouse gas that would be emitted by wildfires in the planning area, the document does not address potential effects of the RMP on climate change in general. The Final RMP/EIS should have included information on these effects from fires as well as the effects from oil and gas development. Specifically, we restate our recommendation that the BLM encourage oil and gas lessees to participate in EPA's Natural Gas STAR program. Through this program (www.epa.gov/gasstar), EPA works with companies who produce natural gas to install cost-effective technologies and practices to reduce emissions of methane, a potent greenhouse gas. We recommend that BLM consider implementation of EPA's developed best management practices and other technologies and practices pursuant to our Natural Gas Star program for when developing the Record of Decision for the Vernal RMP since many of these air emission controls that reduce methane, a significant greenhouse gas, will also increase the maximum economic recovery of federally-leased natural gas.

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[2] Department of Agriculture, Forest Service, "Travel Management; Designated Routes and Areas for Motor Vehicle Use"; Final Rule, November 2005, http://www.fs.fed.us/recreation/programs/ohv/final.pdf.

5. Analysis of BLM's ability to adapt to the impacts caused by climate change.

Several comments received on the Draft EIS suggested that BLM assess how the BLM might adapt its land management plans to respond to the impacts of climate change. In the Final EIS, BLM acknowledges that the assessment of climate change is in its formative stage and thus it is not now possible for BLM to understand the impact on a regional or local scale, nor develop plans to adapt to a changing climate. We recommend that BLM work with other agencies that have recently developed predictive analysis for areas within or near the Vernal planning area. In particular, we invite the BLM to consider ways to reduce dust that may impact early on-set of snow melt within the Colorado River drainage and to continue its on-going role in removing water-consuming invasive plants. See, for example, the analysis provided by the National Research Council regarding responses to the lower stream flow potential on the Colorado River.[3]

EPA recognizes the complexity and diversity of the proposed resource management actions and supports BLM's intention to move forward to implement a new RMP plan based on emerging issues and changing circumstances. We expect that planning issues discussed in our comments will continue to be among those monitored as the plan is implemented. If you would like to discuss these comments, or any other issues related to our review of the Final RMP/EIS, please contact Weston Wilson at 303-312-6562. Thank you for the opportunity to comment.

Sincerely,

Dana B. Allen for

Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and Remediation

[3] Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability, Committee on the Scientific Bases of Colorado River Basin Water Management, National Research Council, 2007, http://www.onthecolorado.com/Resources/ClimateDocs/NAS2007.pdf